1980-1981 ANNUAL REPORT

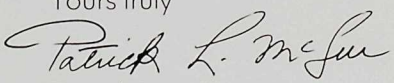
July 24, 1981

The Honourable Henry P. Bell-Irving, D.S.O., O.B.E., E.D.
Lieutenant-Governor of British Columbia

MAY IT PLEASE YOUR HONOUR:

Herewith, I respectfully submit the first Annual Report of the Ministry of Universities, Science and Communications for the year ended March 31, 1981.

Yours truly



Patrick L. McGeer
MINISTER

July 24, 1981

The Honourable Patrick L. McGeer
Minister of Universities, Science and Communications
Parliament Buildings
Victoria, BC

Sir:

I have the honour to submit the first Annual Report of the Ministry of Universities, Science and Communications for the year ended March 31, 1981.

Yours truly

Robert W. Stewart
DEPUTY MINISTER

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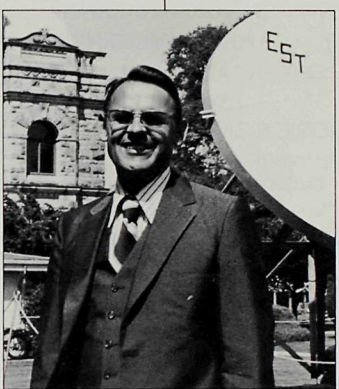
Combining the functions of universities, science and communications in a single portfolio is unique. While on the surface these activities may appear unrelated, they are actually connected by the common thread of high technology.

High technology has been declared a priority by our provincial government, and perhaps the most important mandate of this ministry is to bring British Columbia into this modern era with its industrial spin-offs. We are determined to establish and build our economy upon a broader base which includes high technology industry, rather than continuing to rely solely upon the solid but generally more slowly expanding resource-based industry.

"High technology" industry offers two advantages: growth and higher wages. The average growth of high technology industries since World War II has been nine times greater than that of resource or low technology industries. Higher wages, which follow, become possible as these industries increase in size and profit. This, in turn, leads to higher taxes, which provide benefits for all British Columbians.



Patrick L. McGeer

Universities, for the first time, have been placed in a position to undertake long-term planning of their academic and capital needs. The Educational Institutions Capital Financing Authority, formed in 1978, is only now beginning to provide a sufficient flow of funds to permit our institutions to catch up with prior expansions of academic programs.

A five-year capital plan, approved by the University Council of British Columbia, forms the framework of this program. At the same time, a new and expanded academic initiative in arts, engineering and life sciences will increase opportunities for our young people and provide better leadership for our province in the future.

Science has experienced the immediate effects of the government's science policy for the first time during the past year. The Science Council held its initial major competition among British Columbia scientists for funding of projects of potential long-term value to the province — projects which totalled about $5 million.

The Discovery Foundation has established research parks adjacent to the three universities and the British Columbia Institute of Technology. Already, an award-winning multi-tenanted industrial research building is in the advanced stages of construction at BCIT and, at Simon Fraser University, Microtel Pacific, a newly formed British Columbia technology firm, will be the first tenant.

A Discovery Parks location at the University of Victoria has been operating for some time in temporary facilities, and plans for a site at the University of British Columbia have not reached completion. It is anticipated that, in the future, these high technology industries will flourish in BC.

In addition to the general professional activities sponsored by the Science Council, and the general entrepreneurial activities sponsored by the Discovery Foundation, the ministry itself has been instrumental in promoting particular scientific projects of high benefit to the province.

For instance, the Terry Fox Medical Research Foundation was established to fund medical research in British Columbia and other parts of the world. The Fox Foundation is funding the new interferon purification plant, operated by Pacific Isotopes and Pharmaceuticals Limited, a wholly owned subsidiary of the British Columbia Development Corporation. While it is now too early to determine the possible medical benefits of this experimental drug, we will be undertaking clinical trials in Canada parallel to others in the United Kingdom, the United States and Japan.

Another project we will be undertaking is the research and promotion of methane as an alternate vehicle fuel. Our province, like many other jurisdictions around the world, has a huge surplus of natural gas but a shortage of oil. This makes British Columbia vulnerable, as are other parts of Canada, if world instability makes it impossible to import sufficient supplies of oil for our transportation purposes.

Communications brings the message of high technology to all British Columbians. Not only does our newly established Knowledge Network of the West (KNOW) provide access to the educational resources of the province, but our grant program allows people in even the remotest parts of the province to watch other available stations.

Finally, my sincere thanks go to the staff members in the ministry who, during the past year, have capably and enthusiastically helped put these policies into action: action which I hope will have a direct and beneficial impact on the future directions which our province is to take.

When the Ministry of Universities, Science and Communications was formed in November 1979, all the units which make up the ministry were in full flight. The same forces which caused the government to create the ministry have given fresh impetus to each division.

A compact but vigorous staff has been put together to run the ministerial administration and in the areas of universities and of science and technology, which operate mostly through boards external to government. A very small but key staff have been put in place. In the first sixteen months of its existence, the ministry has shaken down and is operating effectively and smoothly.

Robert W. Stewart

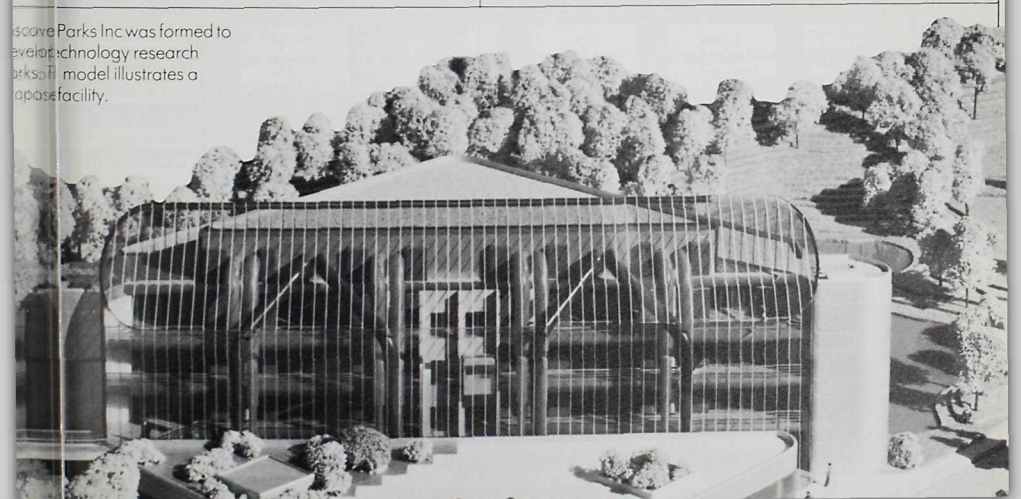
In the universities area the expressed need felt worldwide for increased accountability is putting new demands on all bodies involved: the universities themselves, the Universities Council and the government. British Columbia's universities are unusually fortunate in that the effects of in-migration tend to balance or even overwhelm the demographic effects of the decay of the postwar "baby boom". Our universities, almost uniquely, are not having to contract. This offers them opportunities to grow in quality as well as in the size of student body. The ministry plays the crucial role of providing the interface between the government, which is responsible for almost all of the financing of the universities, and the Universities Council and the universities themselves.

In the science area, several new programs had been instituted just before the formation of the ministry and it has been the responsibility of the ministry to bring them to orderly fruition. Particularly notable has been the successful effort to bring the Discovery Parks from an idea into a reality. By the end of 1980-81 roads and buildings were being constructed at BCIT and Simon Fraser. Major tenants have been found for both of these parks. Progress was also made with respect to the University of Victoria and the University of British Columbia. An important effort was put in place to promote the use of natural gas as a transportation fuel. Both research into improving the technology and promotional activities were being run under ministerial auspices.

In the communications area, as well as continuing the responsibility of providing communications services throughout the government, the ministry was actively involved in the constitutional discussions, pressing the case that most communications responsibility should lie with the province. The division is now girding itself for a major effort to upgrade the government telephone, and other communications systems and to deal with the increasingly complex regulatory problems which arise through the inexorable advance of communications technology.

The metric conversion division, streamlined, has increased its service capability by instituting a metric standards service to the government and to the private sector in the province.

The ministry is thus planning an active, innovative role in many areas of life in the province. It expects to remain small in number but to be significant in importance.



Discovery Parks Inc was formed to develop technology research parks. This model illustrates a proposed facility.

Ministry Administration includes the Finance and Administration Branch, the executive of the ministry, their secretaries, and consultants called in for special research projects.

Executive of the Ministry

The executive of the ministry includes the Deputy Minister, the Assistant Deputy Minister of Communications, the Assistant Deputy Minister of Universities, the Director of University Programs, the Science Program Analyst, the Director of Finance and Administration, the Director of the Communications System Development and Regulation Branch, the Director of the Telecommunications Services Branch, and the Executive Director of the Metric Conversion Office.

Finance and Administration Branch

The Finance and Administration Branch is the services section of the ministry, responsible for internal finance, compilation of the annual estimates, and the development and maintenance of effective procedures for internal financial control systems.

Roles and Functions

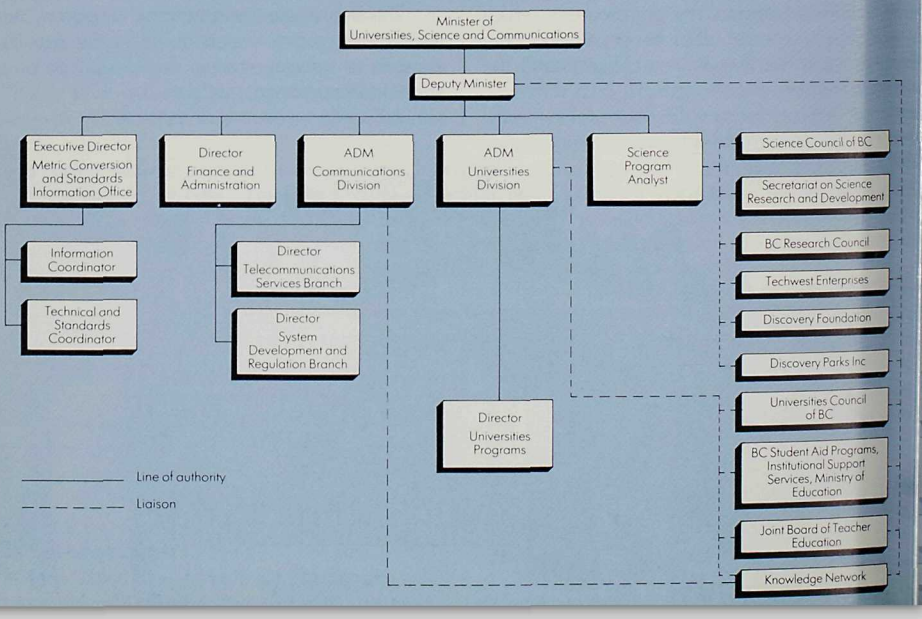
The branch maintains liaison with the Ministry of Finance, the Comptroller-General's Office, the Treasury Board, the Government Employee Relations Bureau and other provincial ministries regarding financial matters. It is also responsible for ministerial accounts, and for reviewing and maintaining records of all expenditures and commitments. A monthly update of expenditures compared to the Estimates is provided by the branch for the Deputy Minister and the Assistant Deputy Ministers of Universities and Communications. In addition, the branch maintains liaison with the Universities Council of British Columbia, the Science Council of British Columbia, and the Discovery Foundation. Forecasts of capital support costs and related administration of this activity are furnished for the universities.

The provision and overall management of personnel administration are also branch responsibilities. Requisite services such as studies of organization and establishment level, staff development programs, interpretation of provisions of collective agreements, and grievance investigation and resolution are provided for all branches of the ministry.

Special Studies

A growing need for specific information on various aspects of the universities and potenti

MINISTRY OF UNIVERSITIES, SCIENCE AND COMMUNICATIONS
ORGANIZATIONAL CHART



technological industrial development resulted in the Finance and Administration Division being asked to administer these special studies and research projects:

- An analysis of the economic, social and cultural contributions of the three universities. The universities make a contribution to the province far beyond the provision of lectures on campus, but the nature and extent of these contributions are not always apparent to those in government or to the general public.
- An examination of the following issues as they affect the three provincial universities:
  - British Columbia demographic trends and their influence on university enrolment;
  - the government's perspective on university courses;
  - opportunities for citizens of British Columbia to obtain professional training;
  - equality of access to university for people in all regions of the province;
  - measures used to compare universities and the position of British Columbia universities in Canada according to these measures; and
  - models of pre-service and in-service teacher training.
- An examination of the current distribution of foreign students in post-secondary institutions in the province, with a view to formulating a policy for the ministry on:
  - authorizations for foreign students; and
  - institutional and governmental contracts and agreements which bring foreign students to the province.
- An investigation of the demand for engineering training in British Columbia, and increased training in business administration at UBC.
- An examination of student housing at the three universities, with reference to availability and comparative rents of off-campus accommodation:
  - the efficiency of the current housing operations;
  - mortgage rates which the universities could afford to pay and still maintain self-supporting residences;
  - the benefits of graduated versus constant mortgage payments; and
  - the system of financial assistance to university students.

Research Projects

Vehicle Market for Alternative Fuels

A study was conducted to identify and describe the potential vehicle market for certain alternative fuels in the Lower Mainland and to determine how large a distribution network would have to be created for a successful introduction of each fuel. The alternative fuels studied were liquefied natural gas (LNG), compressed natural gas (CNG), propane (LPG), CNG plus propane, propane plus gasoline, and natural gas used in diesel engines.

Compressed Natural Gas (CNG)

Because of an abundance of natural gas in British Columbia, a pilot project was undertaken in April 1980 to test two vehicles using CNG for three months. Initial results were positive, and indicated the need for more information.

Additional information was obtained from two subsequent studies:

- a demonstration project carried out at the facilities of British Columbia Research, with funds supplied through the Science Council of BC, using UBC fleet vehicles converted to using CNG; and
- an investigation of a multiple fuel engine control system for automobiles.

These studies resulted in a sizeable project involving basic and applied research on the fueling and control of automotive engines. The project was carried out at UBC, and funded by the British Columbia Energy Development Agency (EDA). Discussions with the federal government regarding the projects resulted in a national proposal, made by the ministry, for the use of CNG in motor vehicles. The prime contractor for this development is BC Research.

In conjunction with the CNG research projects, the ministry initiated a promotional program for the use of CNG in private and fleet vehicles. This is a continuing, long-range program.

Fixed Link: Prefeasibility Study of a Fixed Link Between Vancouver Island and the Lower Mainland

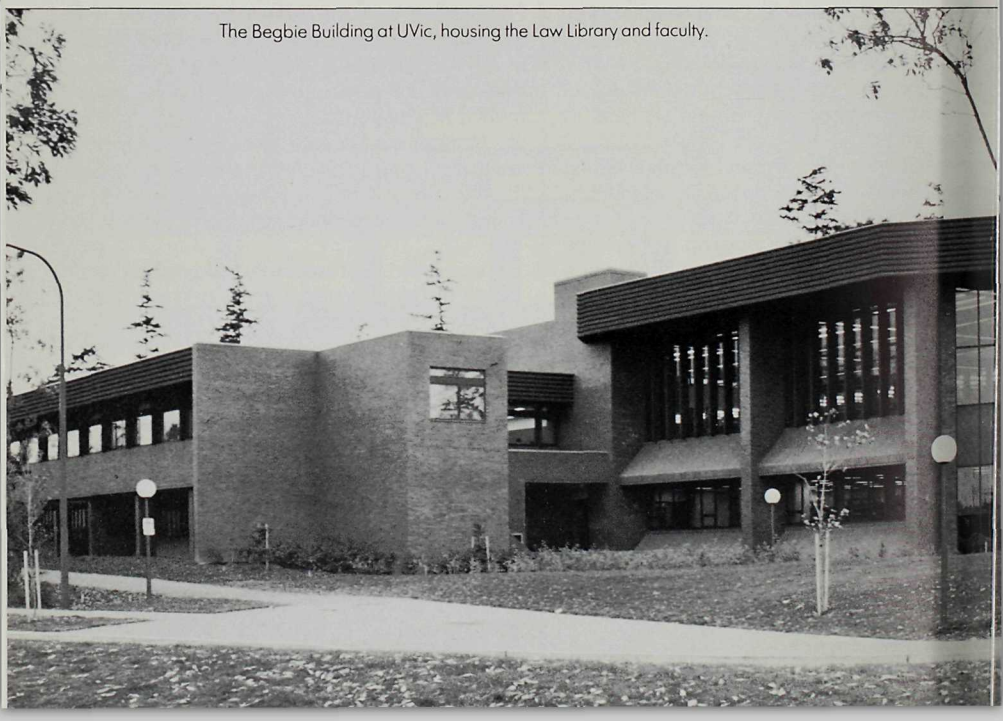
A preliminary investigation was undertaken regarding the feasibility of constructing a fixed link across the southeastern end of the Strait of Georgia between Vancouver Island and the Lower Mainland. Three firms submitted concepts for a fixed link. The most technically feasible is a floating bridge. The major recommendation of the prefeasibility study is that construction of a fixed link should be held in abeyance until traffic has grown substantially above present levels. The question should be re-examined, however, in approximately five years, or when it becomes necessary to consider the building of new ferry terminals.

The Universities Division administers government policy related to the operation of the three public universities, and provides funding which in 1980-81 amounted to approximately $270 000 000. Support is also provided for:

- other institutions, including the Open Learning Institute and David Thompson University Centre;
- the development of university programs in non-metropolitan areas of the province and the delivery systems to support them; and
- the medical teaching expansion program.

The newest program delivery method is provided by the Knowledge Network of the West, a non-profit society which establishes television channels for educational delivery via satellite and cablevision. Funding is also provided for the operation of the Universities Council of British Columbia, which offers advice and support to universities and makes recommendations to government on a wide range of matters, including operations, capital budgets, and programs direction for the universities. The council, under the Universit Act, is responsible for the allocation of ger eral operating grants to the universities.

The division has two senior officials: th Assistant Deputy Minister of Universities an reporting to him, the Director of Universi Programs. The Assistant Deputy Minister ac as the senior ministry representative on un versity matters, and interacts at a policy lev with the universities, the Universities Counc and other related agencies regarding unive sity operations and program needs. He als maintains liaison with other provincial ar federal ministries and departments to ensu proper program coordination at the universi level. The Director assists the Assistant Depu Minister in coordinating the ministry's respo sibility for the development and implementa tion of plans, policies and programs; by pr paring formal reports and recommendation in managing special projects; and in workir with other ministries, especially the Ministry Education, Post-Secondary Department, ar the appropriate post-secondary councils.



The Begbie Building at UVic, housing the Law Library and faculty.

e Universities Council is appointed by Cabinet as its advisor on university ffairs, through the Minister of Univer- Science and Communications. The is an independent Crown agency es- ed subsequent to the proclamation of iversities Act (1974). Its autonomous tatus was received through Order-in- l in 1978.

re are eleven members, including the an, appointed by the Lieutenant- nor in Council. No council member, er, can serve simultaneously as a r of government and as a university or staff member or student, or a public in the provincial ministries of Educa- nance, or Universities, Science and unications. A member's term of ap- ent is for three years, and is renewable r a similar period.

members are:

airman: WILLIAM C. GIBSON, M.D., .C.P., former Head of the Department History of Medicine and Science at C.

e Chairman by election: DAVID A. EEMAN, B.A., Q.C., partner in the law n Freeman and Company.

UEL BELZBERG, B.Comm., Chairman of Board of First City Trust Company.

N M. EYRE, B.A.Sc., P.Eng., Chairman of e Advisory Board of the Salvation ny, President of Dueck on Broadway.

DOLPH HARDING, former MP and MLA, rrently Mayor of Silverton, BC.

K HETHERINGTON, B.A.Sc., President of lumber company Ralph S. Plant Ltd.

NEIL PERRY,, B.A., Ph.D., former Deputy nister of Education.

(DICK) SANDWELL, B.A.Sc., Hon. L.L.D., airman of the firm of consulting en- eers Sandwell and Company Ltd.

H. STEWART, B.A., L.L.B., former Chair- n of the Finance Committee, member Board of Governors of University of toria

NKLIN E. WALDEN, B.A., B.Comm., C.A., mer member of the BC Energy Com- ssion.

Role and Functions

The council serves as an intermediary between British Columbia's three public universities and the provincial government. Its purpose is to promote the orderly development of university education and to create public accountability for university expenditures. Some of the council's most important functions are:

- recommending general funding levels for universities;
- allocating the Annual Provincial Operating Grant among the three public British Columbia universities; and
- ensuring that unnecessary duplication of programs is avoided.

Council's mandate has been extended by the ministry to include responsibility for reviewing and approving the university-level programs of the British Columbia Open Learning Institute, and academic transfer programs and capital facilities at David Thompson University Centre in Nelson.

The full council meets on a regular basis once every month. If circumstances warrant, special meetings are arranged. Council traditionally meets in offices at 500-805 West Broadway, Vancouver, but it is empowered to hold public meetings anywhere in the province. Once a year, the council visits the campuses of the three universities to meet with the boards of governors.

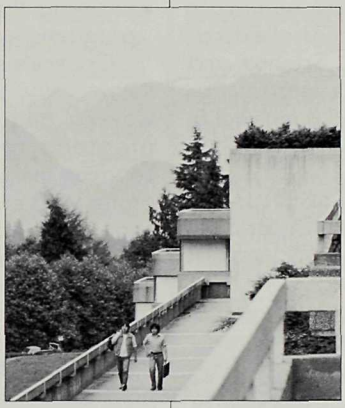
Council works through four standing committees:

- Business Affairs Committee;
- Capital Planning and Development Committee;
- Program Coordinating Committee; and
- Long-Range Planning Committee.

The Program Coordinating Committee meets monthly; the other committees meet quarterly, or as required. Task forces and sub-committees are struck, when required, to address issues that arise, and external consultants are engaged when special expertise is required. All universities are represented on each standing committee. The Open Learning Institute is represented only on three: the Program Coordinating Committee, the Business Affairs Committee, and the Long-Range Planning Committee.

The Business Affairs Committee advises council on financial matters, with primary emphasis on the budgets of the public universities, and the Open Learning Institute. Each August, it receives the funding submissions of the universities. From these, council prepares its recommendations to the Minister of Universities, Science and Communications for the provincial operating grant to the universities and the Open Learning Institute for the ensuing fiscal year. Once the total provincial operating grant for that year is known, council allocates the approved funds to the individual universities and the Open Learning Institute.

The Capital Planning and Development Committee reviews all matters pertaining to universities' capital expenditures, and advises council on them. (The term **capital expenditure** includes reference to new capital projects, public works, and renovations projects and equipment requests).



The committee's activities in part are concerned with the **British Columbia Educational Institution Capital Finance Act** (1979 RS Chap. 102). This makes it possible to finance capital planning projects through annual cash grants. Since 1980, it has also been possible to finance major equipment over a ten-year period.

The Program Coordinating Committee advises council on all matters pertaining to academic programs. Its activities include:

- Evaluating new program proposals presented by the universities in accordance with 70(e) and (p)(ii) of the **Universities Act** (1974) and making recommendations to the Universities Council on these proposals. The committee has developed a set of program guidelines which mainly detail the procedures by which all new undergraduate and graduate programs are submitted for committee review. During the course of new program evaluation, the committee applies several criteria. In particular, members are concerned that a new program be both academically and economically viable and not duplicated unnecessarily in existing programs. Members are also interested in assessing employment opportunities for program graduates. Occasionally, the committee retains outside consultants to complete evaluation of specialized or controversial program proposals.
- Reviewing existing university programs with a view to:
  - identifying the special areas of interest and expertise in each of the universities and
  - developing plans to reduce unnecessary duplication.
- Identifying areas in which inter-university cooperation appears desirable.
- Consulting with the Open Learning Institute, the Academic Council, and other relevant agencies, in order to rationalize the delivery of university-level programs in the province.
- Assisting the universities in their coordination of the delivery of distance education programs to the non-metropolitan areas of British Columbia.
- Examining the role of the universities in the development of in-service training and retraining for the professionals.
- Studying and making recommendations to the Universities Council on such matters as may be referred to the committee from time to time by the universities or by the council.

The Long-Range Planning Committee promotes discussion on institutional roles, academic objectives, and long-range financial and academic planning for the public universities of British Columbia. With a view to long-range planning, council has inaugurated an annual conference to discuss priority issues and post-secondary education in British Columbia. Recent conferences were held in Victoria and Parksville, Vancouver Island. The 1980 conference was held at Harrison Hot Springs.

Projects

To serve the people of British Columbi

more effectively, council is involved with issues of overall post-secondary interest. Among these are various financial problems, including those associated with student aid and student housing, which face persons wishing to enter university. Another concern is accessibility to degree-completion institutions. Obtaining funds to maintain and upgrade university libraries, an often underrated but essential facet of any academic institution, is another.

Council is made aware of matters of concern to students, faculty or administrators of universities, through discussions with university presidents, officials of the ministry, non-metropolitan consultants, representative groups such as the British Columbia Student Federation, and the Confederation of Faculty Associations. Also, the minutes of the Board of Governors and senates of the various institutions are reviewed.

The future

Matters of concern to council, and currently under study, include:

The continuing use of army huts to house university departments and students in residence. These constitute a fire hazard, and council hopes to see the replacement of flammable structures within the next five years on all campuses.

British Columbia is below Canada's national average in student participation in university studies. Council is examining this situation, and if advisable, will take steps to reverse it. The policy is to equalize education opportunity for all British Columbians capable of entering university, regardless of age or geographical location.

Another concern is that, at present, fewer young people in British Columbia qualify in such professions as medicine and engineering than Canada's national average. By 1985 opportunities for British Columbians to train in medicine will become consistent with the number of doctors needed by the province. In engineering, it is expected that there will be increased demand and opportunity.

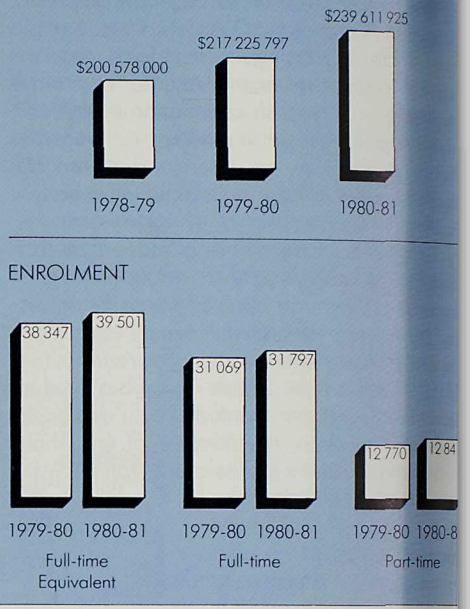
Top: The Teaching and Lab Complex at Simon Fraser University. Centre: The Physiology Building at the University of British Columbia. Bottom: The Begbie Building at the University of Victoria.

Operating grants are used to fund ongoing on-campus programs and required support services such as the library, student services, and administration.

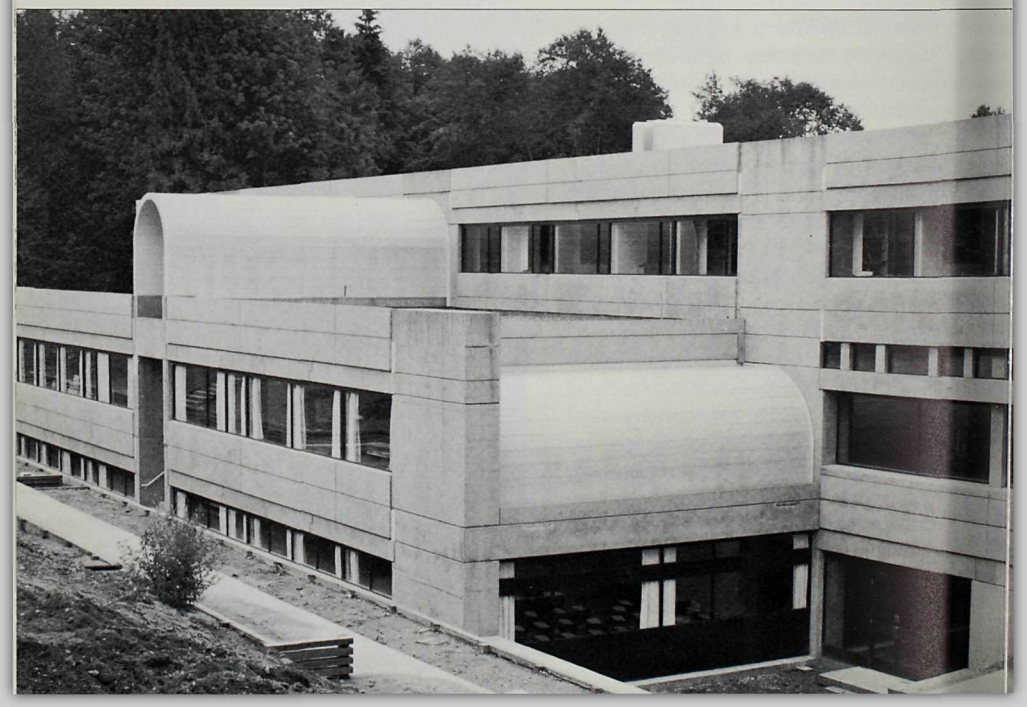
The operating grants for the three universities are based upon recommendations made by the Universities Council. When the funds are established by the Legislature, they are allocated by the council. The formula used to allocate these funds takes into consideration the size of the institution, and the student enrolment mix by year and by type of course. The trimester system offered at SFU is a special modification of the formula.

University funding increased between 1978-79 and 1979-80 by 16.2 percent. The increase between 1979-80 and 1980-81 was 11.4 percent. Full-time equivalent enrolments rose from 38 347 in 1979-80 to 39 501 in 1980-81, an increase of 3.0 percent. Full-time enrolment increased in the same term, by 2.3 percent from 31 069 to 31 797. Part-time enrolment increased slightly from 12 770 to 12 841.

FIGURE 1 UNIVERSITY FUNDING AND ENROLMENT



At Simon Fraser University, the Capital Support Program provided funding for the Teaching and Lab Complex, shown here, and two additional projects have received approval.



ables 1 and 2 show the grants made in this category over the past two years. The largest expenditure was for the al Expansion Projects at the University ish Columbia and related teaching hos- These grants separately fund the ex- on of the Medical School enrolment eighty new students each year to 160 nts per year. The first-year class is ex- ed by twenty students each year, and it ake seven years until the expansion npleted and the graduating class is ed. The effect of this increase in the g of doctors will give British Columbia nts opportunities consistent with the er of doctors needed by the province. 979-80 class was the first full expansion enty students. The 1980-81 class added more to a total first-year class of 120 nts.

e government has recognized the need vide university programs in the non- politan areas of the province as a l extension of the diversified college n. These services are supplied in three

ugh David Thompson University Centre, blished in Nelson in 1979. The centre s both college programs given by Sel- College and university-level programs ed by the University of Victoria. A new oach to campus programs is offered by entre, with a wider variety of programs any one institution can offer.

ugh special funding provided to univer- to run off-campus programs in all of major interior and coastal communities n many of the smaller communities.

ugh the Open Learning Institute (OLI). 80-81, funds to the OLI (established in 7) increased, as this was the first year of r growth in course development. The n Learning Institute doubled the number ailable courses to eighty and enrolled e 3 200 students in university-level ses.

nts were provided to a number of in- ns to supply unique programming.

TABLE 1 ALLOCATION OF OPERATING GRANTS TO UNIVERSITIES, 1979-80 AND 1980-81

UNIVERSITY	1979-80	1980-81	PERCENT CHANGE
British Columbia	131 831 768	143 323 783	8.7
Simon Fraser	48 522 954	54 317 986	11.9
Victoria	36 871 075	41 970 156	13.8
TOTAL	217 225 797	239 611 925	10.3

Source: Universities Council of British Columbia.

TABLE 2 UNIVERSITY OPERATING GRANTS (OTHER), 1979-80 AND 1980-81

	1979-80	1980-81
University Medical Expansion	2 000 000	3 000 000
David Thompson University Centre Interior Programs	2 000 000	2 400 000
Library Retrospective Conversion	720 000	750 000
Regent College	141 000	153 252
Vancouver School of Theology	148 600	160 488
Western College of Veterinary Medicine	404 500	450 000
Industrial Arts Teacher Training Centre	679 000	726 000
Open Learning Institute	1 575 000	1 918 443
Joint Board of Teacher Education	80 000	161 250
Western Institute for the Deaf	nil	10 000
TOTAL	7 748 100	9 729 433

TABLE 3 UNIVERSITY CONTINUING EDUCATION NON-CREDIT COURSE REGISTRATIONS, 1979-80

UNIVERSITY	
British Columbia	82 742
Simon Fraser	15 443
Victoria	13 005
TOTAL	111 190

These were made:

- to the affiliated theological colleges, Regent College and the Vancouver School of Theology, for post-graduate instruction;
- to the Western College of Veterinary Medicine in Saskatoon to train British Columbia veterinary students in the only program in Western Canada;
- to the Joint Board of Teacher Education to support its activity of providing recommendations to all parties included for pre-service and in-service training for public school teachers; and
- for Library Retrospective Conversion of the card catalogues to computer-based microfiche records. (This is a project of retrospective conversion of library card catalogues to a computer-accessible format; all new library books are catalogued in a machine-readable and accessible form. This project converts the cataloguing of all previously required holdings to the same format. The system, when completed, will enable all library users in the provincial post-secondary libraries to determine the holdings at any of the libraries. This will provide the possibility for greater sharing within the system. Because the university library holdings are extensive and complex, the process will take at least six years to complete.)

Funds were also provided to the Industrial Arts Teacher Training Centre, and the Western Institute for the Deaf.

Industrial Arts Teacher Training Centre

The development of appropriately trained industrial arts teachers for the high schools of this province is an activity of the Faculty of Education at the University of British Columbia. Both regular students and journeymen tradesmen enrol in these programs. At a special centre located on the BCIT campus, the provincial government, through grants to the university, has sponsored the accelerated portion of the program for the journeyman tradesmen.

By taking a program over an extended winter and summer session, tradesmen qualify to teach in the schools with only one year out of the labour force. They can then complete their training and degree requirements through an internship and further programs on a part-time basis.

TABLE 4 ENROLMENTS AT BRITISH COLUMBIA UNIVERSITIES, BY ENROLMENT STATUS AND BY INSTITUTION

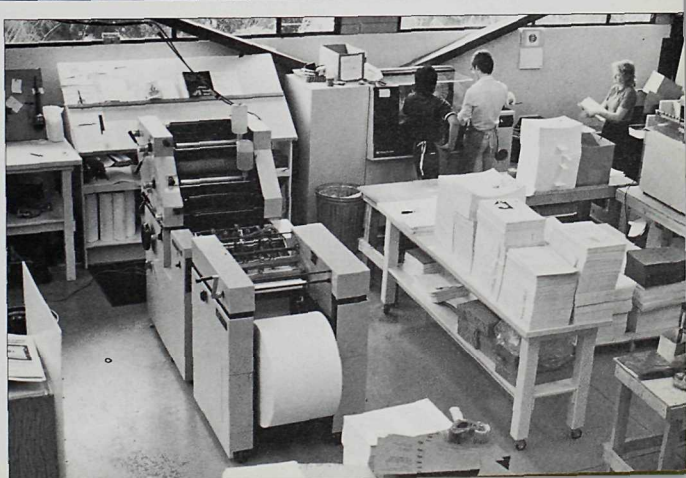
DECEMBER 1, 1980[1]	UNDERGRADUATE			GRADUATE			TOTAL		
UNIVERSITY	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time	Total
British Columbia	17 426	4 020	21 446	2 270	1 087	3 440	19 779	5 107	24 886
Simon Fraser	5 534	4 119	9 653	885	366	1 221	6 389	4 485	10 874
Victoria	5 204	2 833	8 037	425	416	841	5 629	3 249	8 878
TOTAL	28 164	10 972	39 136	3 580	1 869	5 502	31 797	12 841	44 638

Source: Universities Council of British Columbia.
[1]Data for Simon Fraser are as at October 1.

DECEMBER 1, 1979[1]	UNDERGRADUATE			GRADUATE			TOTAL		
UNIVERSITY	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time	Total
British Columbia	17 198	5 204	22 402	2 270	1 025	3 295	19 468	6 229	25 697
Simon Fraser	5 320	3 338	8 658	809	313	1 122	6 129	3 651	9 780
Victoria	5 090	2 582	7 672	382	308	690	5 472	2 890	8 362
TOTAL	27 608	11 124	38 732	3 461	1 646	5 107	31 069	12 770	43 839

Source: Universities Council of British Columbia.
[1]Data for Simon Fraser are as at October 1.

E 2 DISTRIBUTION OF OFF-CAMPUS PROGRAM LOCATIONS



n Learning Institute (OLI) provides
ity programs in non-metropolitan
f the province. In 1980-81, 3 200
students registered in the eighty
-level courses offered by the OLI.
bove: Lessons are recorded in the
rding studio. Right: OLI produces

The Capital Support Program covers three main areas:

- construction of new buildings and other facilities;
- maintenance work and improvements to existing facilities (referred to as renovations and public works projects); and
- the purchase of major equipment items.

For capital equipment purchases, the ministry provides cash grants to each university. In both 1979-80 and 1980-81, the grants totalled $3 million. These funds are allocated according to recommendations from the Universities Council. An additional $2 million was provided for scientific equipment, through the Special Purpose Appropriation Act of 1980. These funds are allocated according to recommendations from the Science Council.

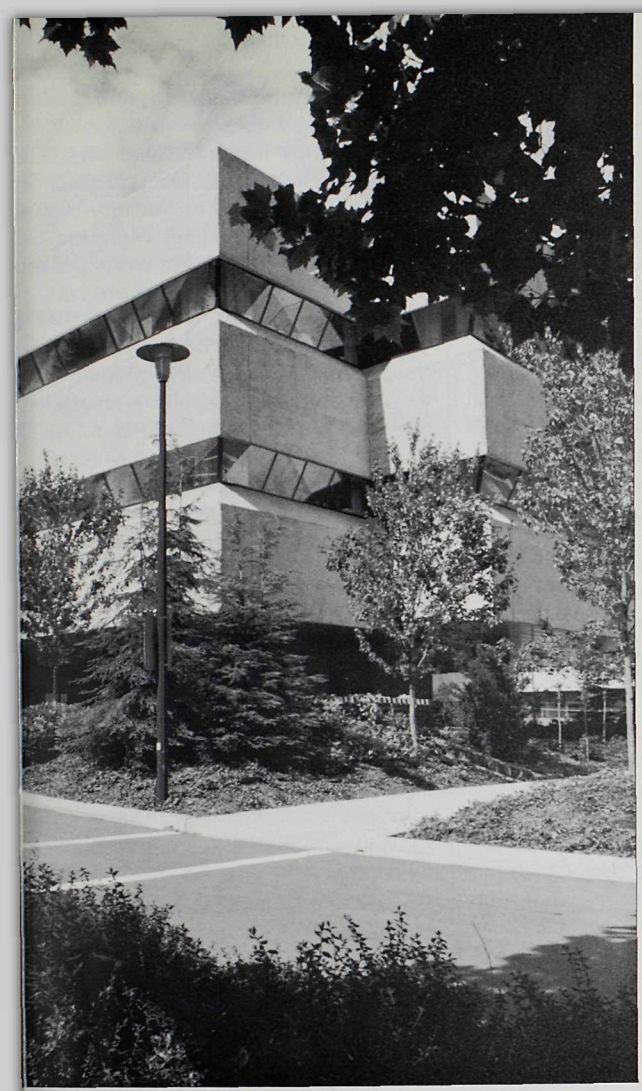
	1979-80 Estimates	1980-81 Estimates	Special Purpose Appropriation Act, 1980
UBC	$1 820 700	$1 836 000	$1 158 166
SFU	670 200	650 000	481 834
UVic	509 100	514 000	360 000
TOTAL	$3 000 000	$3 000 000	$2 000 000

Renovation and public works activities at the three universities for the period July 1, 1979 to March 31, 1981 cost $15 783 511. These costs have been incurred as follows:

UBC	$ 8 628 798
SFU	3 579 069
UVic	3 575 644
	$15 783 511

A major part of the Capital Support Program is devoted to the construction of new facilities. The starting point of the capital process is the five-year plan. Once a year, each university submits its updated five-year plan to the Universities Council. The council then forwards a consolidated five-year plan to the ministry. The five-year plan is a planning tool with projects receiving formal approval on a project-by-project basis. After the council submits its recommendations on specific projects to the minister, most projects go through a two-stage approval process within the ministry and Treasury Board. At the first stage, a project is approved in principle, complete with a total estimated cost for the project. In addition, funding is authorized for the first six per cent of the project's cost. This pre-construction approval funds such activities as preliminary and final architectural plans up to the tender documents. At the second stage, the final ninety-four percent of the funding is approved for building construction and site services.

The construction of the Acute Care Unit at the University of British Columbia was just one of the five Capital Support Program projects completed on that campus during the reporting period. At right: Examining X-rays in Radiology.



The Acute Care Unit has recently received approval of a grant for the purchase of additional equipment. Top left: UBC Acute Care Unit. Bottom left: In the operating room. Bottom centre: An anaesthetist demonstrates advanced equipment. Bottom right: Preparing slides of skin tissue. Top right: Advanced facilities in Radiology.

During the twenty-one-month period covered by this report, projects estimated to cost $42 768 000 have passed through at least the first of the two stages outlined above. These projects are listed below:

Institution	Project	Estimated Cost
UBC	Parkade	$ 4 160 000
	Acute Care Hospital Equipment	3 085 000
	Chemistry-Physics Building	11 000 000
SFU	Central Mall Extension	1 580 000
	Multi-Purpose Extension	4 100 000
UVic	Life Sciences Building	7 000 000
Science Projects	Triumf Building Program (at UBC)	2 565 000
	Triumf - Phase II (at UBC)	4 910 000
	Construction of Ring Road (at SFU)	4 368 000

During the same twenty-one-month period, activities on buildings worth $40 463 532 have been carried out (this is in addition to the $15 783 511 listed above for public works and renovations).

All costs incurred for building activities and public works and renovations are financed through a two-stage debt-servicing procedure. When costs are first incurred, they are covered by temporary loans received by the universities through their banks. Once the temporary bank loans reach a sufficiently high level for a project, they are converted into long-term debentures (this decision is made by the ministry). Through this process, the Educational Institution Capital Finance Authority loans the institution funds to pay off the temporary bank loan. In return, the university issues a debenture to the Authority, by which the university undertakes to repay the loan according to a specified schedule. The ministry provides funds to the university to meet the repayment schedule. There are two interest payments plus one principal payment each year, and the debentures carry a twenty-year term.

The advantage of the debenture procedure is that it enables the government to meet the immediate needs of the universities, without creating an immediate drain on the province's cash flow. Since the current capital approval and financing procedures were adopted in 1977, projects worth $173 678 311 have been approved. Against this approval amount, borrowings to date equal $96 445 857. Servicing this debt cost just over $9 million in fiscal 1980-81.

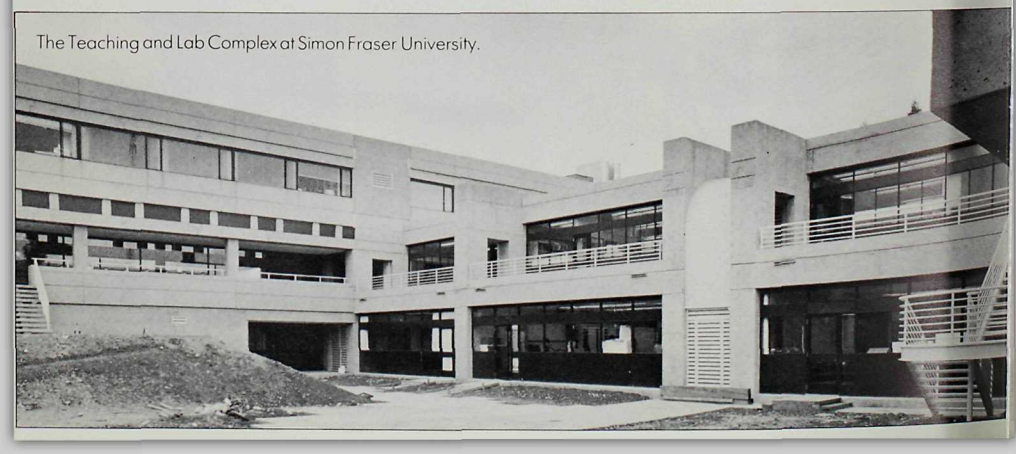
Several projects or sub-projects have been completed during the twenty-one-month period covered by this report.

UBC:
- Medical Blocks A and B;
- Library Processing Building (third and fourth floors);
- IRC (Instructional Resources Centre) Lecture Theatre;
- Acute Care Unit; and
- Hospital Parkade.

SFU:
- Teaching and Lab Complex.

UVic:
- Law Building.

The Teaching and Lab Complex at Simon Fraser University.



tudent aid programs are designed to ease the financial burdens of those wishing to pursue post-secondary objectives. programs are administered by the Institupport Services of the Ministry of Educand funded by the Ministry of Universities, ce and Communications.

grams

sh Columbia Student Assistant Program

ie Student Assistance Program is a comnsive program of financial aid to postdary students. Its purpose is to ensure esidents of British Columbia are not pred from reaching their educational goals se of financial limitations.

though the principal responsibility for ng educational costs must remain with udent, this program exists to supplement udent's financial resources when funds vise available are insufficient to cover ated expenses. The amount of assistawarded is based on a standard need sment procedure established by the fednd provincial governments.

e Student Assistance Program is coml of two inter-related components:

Canada Student Loan Program, funded ne federal government and provincially inistered, which allows for a repayable of up to a maximum of $1 800 per eduonal year, the amount subject to ge; and

British Columbia Provincial Grant Pron, funded by the province, which allows non-repayable grant up to a maximum 1 700 per educational year, the amount g subject to change.

nds are normally disbursed in a combi- of non-repayable provincial grant and able federal loan. Eligibility for the grant onent may, however, be limited by facich as program of study, educational in- n, and ownership of assets.

cial Assistance Program

s program is designed to provide finanssistance mainly to individuals who do ualify under the regular, full-time British nbia Student Assistance Program. In ular, this assistance is received by mature students and/or single parents who are attempting to upgrade marketable skills.

Individuals who enrol on a full-time basis in courses less than twenty-six weeks in duration are also eligible for assistance. In addition, students receiving aid from other government sources, such as the Ministry of Human Resources, may qualify for the Special Assistance Program.

Participants must attend a public post-secondary institution with either less than sixty percent of a full course load, or a full-time course load of less than twenty-six weeks.

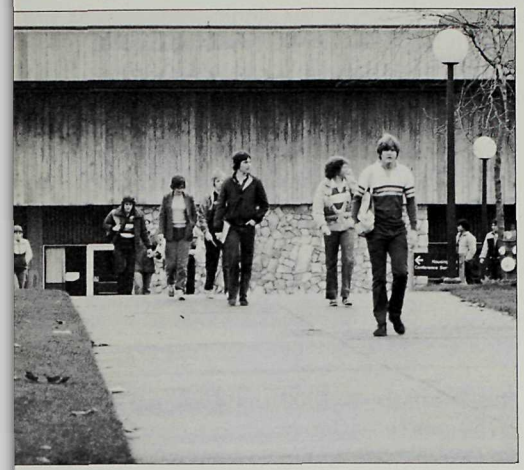
The maximum assistance available under this program is $300 per academic year, or $150 per semester. Funds are provided in the form of a non-repayable grant to assist needy students registered in credit courses leading to a certificate, diploma or first degree.

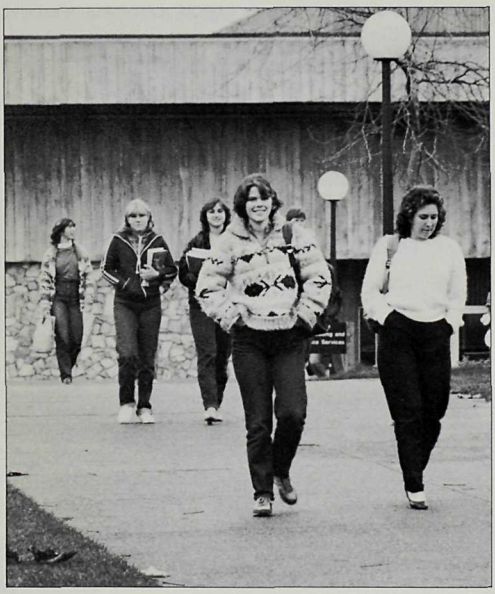
TABLE 5 COMPARATIVE AWARD STATISTICS FOR THE 1979-80 AND 1980-81 PROGRAM YEARS

APPLICATION INTAKE	1979-80	1980-81[1]	% INCREASE (DECREASE)
In-Province	15 242	14 404	(5.5)
Out-of-Province	2 633	2 575	(2.2)
TOTAL	17 875	16 979	(5.3)
BCASP GRANTS[2]			
In-Province			
Number	12 285	12 211	(0.6)
Amount	$10 218 265	$11 174 380	9.4
Average Grant	832	915	0.0
Out-of-Province			
Number	677	661	(2.4)
Amount	$763 542	$817 753	7.1
Average Grant	$1 28	$1 237	9.7
Total Grants Authorized			
Number	12 902	12 872	(0.7)
Amount	$10 981 807	$11 992 133	9.2
Average Grant	$847	$932	10.0
CANADA STUDENT LOAN[2]			
In-Province			
Number	14 619	14 385	(1.6)
Amount	$18 566 589	$19 160 720	3.2
Average Loan	$1 270	$1 322	4.9
Out-of-Province			
Number	2 033	2 080	2.3
Amount	$3 136 301	$3 208 436	2.3
Average Loan	$1 543	$1 543	0.0
Total Loans Authorized			
Number	16 652	16 465	(1.1)
Amount	$21 702 890	$22 369 156	3.1
Average Loan	$1 303	$1 359	4.3

[1]Projected.

[2]Represents the number and amount of grant and loan confirmation which are issued, rather than the awards actually disbursed.





The Student Assistance, Special Assistance and Work-Study Programs help students to meet the financial requirements of attending university.

The Work-Study Program

The Work-Study Program, initiated in 1977, is designed to provide on-campus work experience for students requiring financial assistance while attending a post-secondary institution.

A limited number of part-time on-campus jobs, averaging five to fifteen hours per week, may be made available to post-secondary students.

The program is open to British Columbia residents studying at participating universities, colleges and institutes located in British Columbia.

Students demonstrating a financial need, under the terms of the Student Assistance Program, are considered for the Work-Study Program.

The Work-Study Program was established to:

- aid students in reducing indebtedness incurred while pursuing a post-secondary program of study;
- assist students in meeting additional educational costs that are not usually covered by the BC Student Assistance Program;
- assist in the absence of student savings or parental/family contributions; and
- where possible, provide students with career-related job experiences.

Since the number of positions are limited, institutions are under no obligation to guarantee placement. Jobs made available through the Work-Study Program will be administered by the institutions, according to their internal policies and procedures.

A fundamental change in Canadian industrial technology occurred in 1970 when the government of Canada indicated its intention to convert the country's measurement system from the imperial to the SI (Systeme International) metric system.

In 1973, the government of the Province of British Columbia formed an Interministerial Metric Conversion Committee to coordinate metric conversion within government and, in 1974, established the British Columbia Metric Office to serve as the committee's secretariat and as a technical consultant service for business, industries, municipalities and government.

In 1976, by agreement between the governments of Canada and British Columbia, the BC Metric Office set up a Metric Information Centre to answer inquiries from industry, business, trade and consumer associations, chambers of commerce, municipalities and government departments and agencies. This agreement was renewed in 1980 for a further four years, to March 31, 1984.

Role and Functions

As a result of metric conversion and Canada's participation in the General Agreement on Tariffs and Trade, Canadian industry has been made more aware of the importance of referring to existing standards, and developing and changing standards. As a result the ministry, through its Metric Office, established the Metric Standards Information Office in 1980, with the objective of making a standards and technological information service readily available to British Columbia industry.

Projects and Achievements

Industrial Training

Most plant construction and new equipment now being installed use metric measurement. As a consequence, a number of industries such as mines, pulp and paper mills, sawmills and machinery supply and service depots requested assistance in implementing metrication during 1980-81.

The Metric Office assisted in editing, for correct SI usage, training materials prepared by colleges. The publications included training material for Brick and Tile, Sheet Metals, Reinforcing Steel, Boat Building, Joinery, Masonry, Construction, Electricity, Plumbing, Steamfitting and Floor Covering courses, the Carpentry Apprenticeship Program and a 'Metric for Carpenters' training program.

The BC Fire Services Academy requested that the Metric Office participate in its Leadership Development courses and provide an introductory metric seminar for its candidates. Consultation with respect to new standards and recent technical developments, relative to firefighting equipment and procedures, was also provided for the Fire Commissioner's Office and the Fire Services Academy.

Because of heavy dependence by the Canadian construction industry on US manufactured building materials, the fact that the United States is out of step with Canada in progress towards metrication continues to be a source of irritation for the Canadian industry. For the purpose of hearing directly from US industry, and allaying unnecessary fears, a seminar was convened at which the Chairman of the US Construction Industries Coordinating Committee on Metrication briefed representatives of the British Columbia construction industry, professional engineers, and architects.

During the year, industrial training assistance was continued in areas where colleges were not fully prepared for the additional work-load.

A series of train-the-trainer seminars was also conducted for post-secondary colleges personnel, and a second series for school district directors and supervisors of instruction. Representatives of independent schools were included in this series. Two workshops seminars were conducted for college carpentry instructors and one for college metric

coordinators to help prepare for the heightened public interest anticipated with the start of the retail scale conversion program in January 1982.

Library

Utilizing British Columbia Systems Corporation (BCSC) facilities, the Metric Standards library is being incorporated into the interministerial library system, thus making it easily accessible to all ministries and agencies of government.

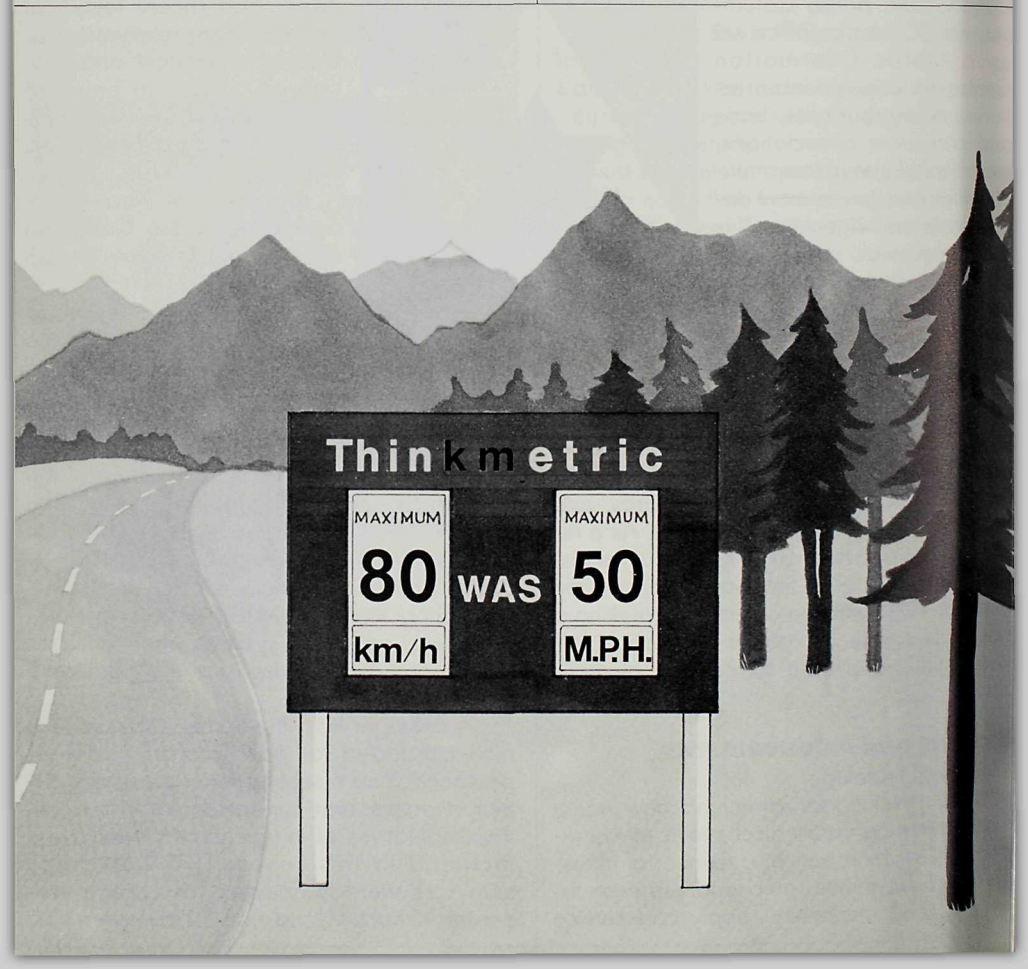
Liaison

During the past year, the Metric Office hosted the 24th Inter-governmental Metric Conversion Committee meeting, attended by executive members of the American National Metric Council, and representatives of the provincial and territorial governments and Metric Commission Canada.

The Metric Office also convened two BC Interministerial Metric Conversion Committee meetings.

The Future

Late in 1980, the federal government announced its intention to proceed with the retail-food-store scale conversion program in January 1982. Because of the exceptional sensitivity and pervasiveness of this aspect of metric conversion, it is expected that public awareness of, and demand for, metric information will peak in 1982.



Science and Technology encourages and funds, where appropriate, scientific research and technological development, particularly with the object of fostering the growth of high technology industry in British Columbia and undertaking research and development projects which have a high potential for economic growth and social benefits. This primary objective requires co-ordination among the various government, industrial and academic communities in establishing their respective approaches to the development and utilization of the province's physical resources and skilled manpower.

The ministry uses several methods to encourage the development of science and technology within the province. The Science Council of British Columbia, supported by the Secretariat on Science, Research and Development, provides advice to government on priorities for research and development. Through the Science Council, the ministry allocates funds for the support of applied research and development projects, Graduate Research Engineering and Technology (GREAT) Awards and Industrial Post-Doctoral Fellowships.

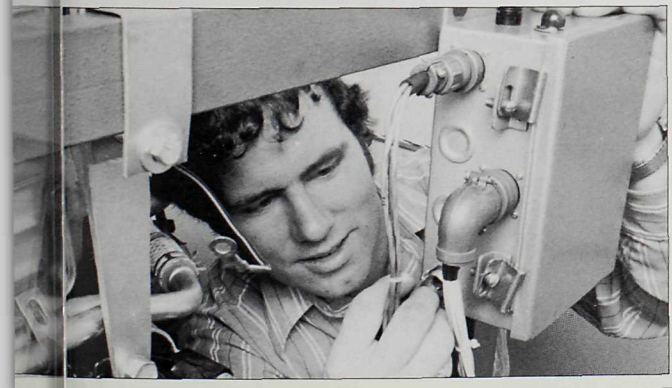
The Discovery Foundation, and its wholly owned subsidiary, Discovery Parks Incorporated have been established to advance scientific technological and industrial research in British Columbia through the establishment of industrial research parks which provide an opportunity for the industrial sector to interrelate with the academic community in the development of high technology and knowledge based industry within the province. The British Columbia Research Council, a non-profit research organization funded in part by the ministry, provides a further opportunity for the industrial sector to obtain assistance. BC Research, the council's operating arm, undertakes both contract research and government-funded research on problems of high provincial concern.

In addition to the focus on scientific inquiry and technological development within the province maintained through the combined activities of these organizations, the Internal Research Advisory Committee has been established to maintain an awareness of the type of research and development which is being performed and which is required by government.

The Science and Technology Division also provides general staff support for the ministry. The division:

- develops, coordinates, directs and assesses programs;
- undertakes research and makes recommendations regarding research program proposals and program alternatives;
- represents the ministry on committees and working groups dealing with scientific and technological research activities; and
- maintains continuous review of research activities and ensures the flow of essential management information.

In addition to providing staff support for the ministry, assistance is provided to persons and organizations seeking information and direction concerning scientific research and development activities or opportunities within the province.



The Science and Technology Division allocates funds, through the Science Council, for the support of research and development projects such as multiple fuel conversion, shown here.

The Science Council of British Columbia and the Secretariat on Science, Research and Development were established in June 1978 under the **Science Council of British Columbia Act**. At that time, the council and secretariat reported to the Minister of Education, but a change in ministerial responsibilities in late 1979 transferred authority to the newly formed Ministry of Universities, Science and Communications. Details of council acitivities may be found in their annual report.

Role and Functions

The principal duties of council, as described in the **Science Council Act**, are to:

- consider all matters brought to its attention by the minister and, where required by the minister, report its findings to him;
- formulate recommendations respecting the acquisition, development and dissemination of scientific, technological and scholarly knowledge to promote the industrial, economic and social development of the province;
- advise the government on implementation of science policy;
- gather and organize information on scientific research;
- facilitate discussions on science policy with the government of Canada or a province or with an interested person;
- recommend the establishment and awarding of fellowships, scholarships, exhibitions, bursaries, grants, and prizes to encourage development of improved technology and retention of skilled research personnel in the province; and
- evaluate research and development proposals submitted to it by the secretariat and make recommendations to the government respecting the funding of these proposals.

The council is made up of local researchers and research managers from both the universities and industry who provide their services on a voluntary basis.

Members of the Science Council of BC:

CHAIRMAN: R.W. KEYES, Chief Economist, Western Canada Steel Ltd.
D.H. COPP, Department of Physiology, University of British Columbia.
H.M. ELLIS, Director of Research and Development, BC Hydro and Power Authority.
K. EVELYN, Chairman, BC Health Care Research Foundation.
O. FORGACS, Vice President of Research, MacMillan Bloedel Ltd.
J.S. HAYWARD, Department of Biology, University of Victoria.
J.P. KUTNEY, Professor of Chemistry, University of British Columbia.
J. MACDONALD, President, MacDonald Dettwiler and Associates, Ltd.
R.D. MALCOLM, Barrister and Solicitor, Ladner Downs.
V.A. MODE, Director, BC Research.
J.D. MURDOCK, President, Chemetics International Ltd.
S.C. ROONEY, President, Durand Machinery Company Ltd.
J.M. WEBSTER, Dean of Science, Simon Fraser University.
L.M. WEDEPOHL, Dean of Applied Science, University of British Columbia.
H. WRIGHT, Chairman, Wright Engineers Ltd.

The following attend meetings, but are not considered members:

R.W. STEWART, Chairman of IRAC, Deputy Minister of Universities, Science and Communications.
P. TRUSSELL, Chairman, Forest Research Council.
W.M. ARMSTRONG, Executive Director, Research Secretariat of British Columbia.
M.A. CAIRNS, Assistant to the Director, Research Secretariat of British Columbia.

Research and Development Policy

The objectives of the council's research and development policy for British Columbia are to:

- consolidate and expand employment and output of existing industries by establishing, maintaining and improving their competitive position, especially in export markets, with particular attention to the maintenance of long-term productivity of the province's forests, mines, agricultural lands and waters and to the further development of fossil fuel resources;
- stimulate new industrial opportunities in the province through the establishment of technology-based manufacturing and service industries;
- improve the quality of life in the province by providing, through health-care research, the finest medical services at the most reasonable cost, by reducing industrial and urban pollution and by protecting the natural environment from lasting damage; and
- facilitate in all recognized disciplines, the accumulation of scientific and technological excellence in the region and, in so doing, provide opportunities for young people who are receiving advanced training in our edu-

cational system to become involved in the social and economic development of the province.

Awards

The Graduate Research Engineering and Technology (GREAT) Awards are designed to encourage graduate students to work on research projects of interest to local companies. The GREAT Awards provide a scholarship of $6000 per year for a maximum of three years to graduate students at British Columbia universities who are working on projects in cooperation with local industries and organizations.

The Industrial Post-Doctoral Fellowship (IPDF) is designed to stimulate the employment of recent doctoral graduates in private industry. The award provides a subsidy of $12000 for a maximum of two years to the salary of a recently qualified PhD employed with a British Columbia company. This is to provide an incentive for companies to develop their research capabilities and allow an easy transition from an academic background to an industrial one for the award holder.

The BC Science and Engineering Awards are annual awards recognizing the contributions of local scientists and engineers to the economic and social development of British Columbia, including contributions to the understanding and appreciation of science by the public. Awards are made to both senior researchers who have made extensive career contributions and younger investigators who have made an outstanding contribution. A gold medal and citation are presented to each award recipient. A maximum of three awards from among the following categories may be made in any year:

- Natural sciences: This award is made on the basis of work done in British Columbia, or by a person normally resident in the province who has made an outstanding contribution to an advance in understanding in any of the natural sciences.
- Health sciences: The award is made on the basis of work done in British Columbia or by a person normally resident in the province, who has made an outstanding contribution to an advance in understanding in any of the health sciences.
- Engineering and applied sciences: This award is made on the basis of work done in British Columbia or by a person normally resident in the province, who has made an outstanding contribution to an advance in understanding in any of the engineering or applied sciences.
- Industrial innovation: This award is given for a concept originated and developed in British Columbia. The concept must also have led to the generation of goods and/or services that have been marketed on a significant scale.

Patrick McGeer presents D.H. Copp with BC Science and Engineering Award gold medal and citation. Left to right: Dr. Robert Bell, Chairman, Gold Medal Selection Committee; Patrick McGeer, Minister of Universities, Science, and Communications; D.H. Copp, Department of Physiology, UBC; Erich Vogt, past Chairman of the Science Council.

Secretariat on Science, Research and Development

The primary responsibility of the secretariat is to provide administrative services to the Science Council, such as the preparation of material for meetings, implementation of council programs, response to public enquiries and the financial administration of council's affairs. In particular, the secretariat has established and coordinates the procedures for the evaluation and funding of research projects, GREAT graduate scholarships, and industrial post-doctoral fellowships.

The secretariat provides a similar service to the BC Health Care Research Foundation which makes awards available for the support of medical and health care research related to provincial problems.

The secretariat also attends meetings of the Internal Research Advisory Committee, the provincial government's in-house research coordination and review body, with representatives from all ministries involved in research. This committee is chaired by the Deputy Minister of Universities, Science and Communications.

Liaison is maintained with the federal government and its agencies, such as the Ministry of State for Science and Technology, Statistics Canada, the Department of Supply and Services, the National Research Council, and other provincial governments and research organizations.

Internal Research Advisory Committee

The Internal Research Advisory Committee is responsible for reviewing existing and proposed research and development activity, with a view to improving the design, coordination and quality of provincially funded research and development projects. Implementation of this mandate requires that IRAC develop and maintain an inventory of all research and development activity funded by the government of British Columbia, to review proposed research and development projects, and to assist Treasury Board staff and the ministries in the evaluation of ongoing research and development activities.

All Treasury Board submissions involving expenditures of more than $10 000 on research and development projects receive the prior endorsement of the Internal Research Advisory Committee before funding approval is requested from the Treasury Board.

In addition, IRAC provides information with respect to research activity in the government, including projects under the $10 000 threshold. IRAC meetings are attended by a representative from the Science Secretariat, and the chairman of IRAC sits on the Science Council. In this way, research funded by various ministries can be kept constant with research funded by the Science Council.

Council Research Projects

Coal Liquefaction

Coal is receiving increased recognition as a potentially important energy source for the future, because it can be converted by liquefaction and other methods into energy forms that are acceptable for everyday use, such as gasoline.

A study, initiated and funded by the Science Council of BC, was carried out by Swan Wooster Engineering Company Ltd of Vancouver to investigate the opportunities for coal liquefaction research in British Columbia. Coal resources were reviewed and deposits most suitable for conversion to liquid fuels were identified. The study also identified a nucleus of coal researchers in the province who could form the basis of a liquefaction development program.

As a result of the study's recommendations, BC Research Council set up a four-year coal liquefaction project. The primary objective of the program will be to evaluate British Columbia coals for direct liquefaction. The work will also provide a group of trained engineers and scientists in the province who are familiar with the technology of coal conversion.

At the same time, a Coal Research Centre will be established at the University of British Columbia. This centre will bring together major coal research projects underway in different faculties of the university, and plans to coordinate all research activities and graduate training related to coal, foster contacts with industry and government coal research interests (including the Ministry of Energy

Mines and Petroleum Resources) and supervise the programming of coal research activities.

International Tokamak Reactor (INTOR)

INTOR is a proposed major international fusion energy research facility to be funded by a consortium of countries including the United States, USSR, Japan and the European members of Euratom.

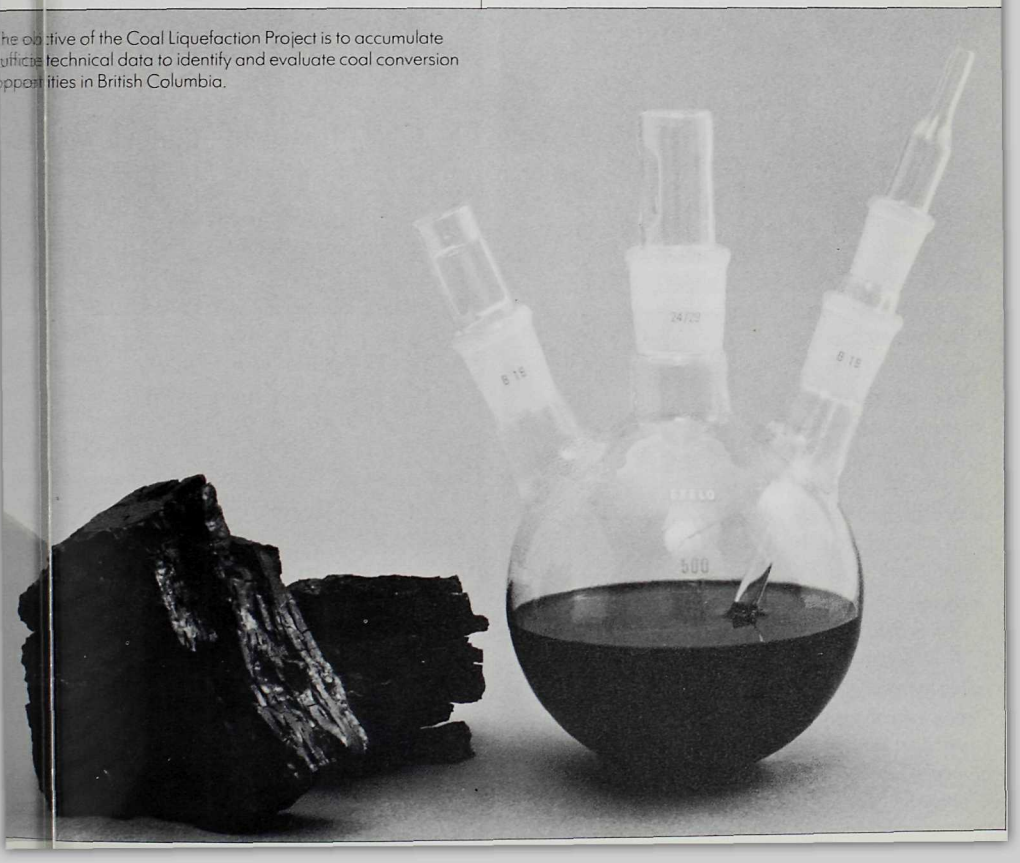
As a result of discussions between the Canadian and US governments, the possibility of a Canadian location for INTOR is under consideration, and a site in British Columbia is one of several offered. In order to provide a solid basis for future discussions by government, industry, and the public, the Science Council of BC commissioned a preliminary study by the DALCOR Group of consultants based in Vancouver. It should be noted that responsibility for the contents of the report rests with the consultants alone, and the conclusions reached do not necessarily reflect the opinions of the Science Council of BC or the provincial government.

In view of subsequent changes in the international political climate, it is now less likely that the project will proceed according to the original plans. However, the report will nevertheless be useful in outlining the possible effects of the location of a major scientific research facility in the province, and the potential for fusion energy research in Canada.

Conclusion

The Science Council has maintained contact with other provincial government agencies regarding related objectives. In particular, the Science Council supported Discovery Foundation's establishment of Discovery Parks, to be associated with SFU, UBC, UVic and BCIT.

The objective of the Coal Liquefaction Project is to accumulate sufficient technical data to identify and evaluate coal conversion opportunities in British Columbia.



A research fund has been established by the Science Council to make awards for research projects which are consistent with its stated objectives. Eight categories have been recognized, for each of which the council has appointed a sub-committee:

- electronics and communications;
- energy;
- forests and forest products;
- food and agriculture;
- manufacturing;
- mining, minerals and metals;
- oceans, marine and aquatic resources; and
- transportation.

Projects are selected by a process of peer review by active researchers. Whenever possible, cooperation between university and industry is encouraged, and in several instances projects are being carried out jointly. Council hopes that this association will stimulate transfer of research results and technology from laboratories to industries.

Research Competition Number Two

In October of 1980, the results of Research Competition Number Two were released. Funding for twenty-seven research projects was approved.

The largest grant was awarded to design and develop an automatic tree planting system for commercial operation.

Other projects that received awards at this time included:

- a process for removing biological phosphorus from sewage;
- a method of using satellite information to study changes in forest growth and development;
- a process for developing hybrid microcircuit products for high-frequency application such as cable TV;
- manufacture of chemicals with large potential world sales in the pulping and dye-stuff industries; and
- isolation and identification of the female sex attractant (pheromone) of the voracious winter moth which has caused so much damage to tree foliage in the Victoria area.

Research Competition Number Three

The third research competition awarded funds to thirty-seven research projects in British Columbia universities and industry.

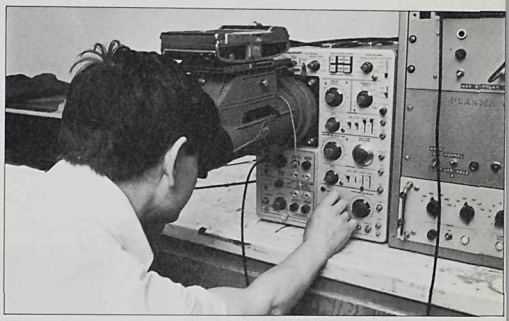
Among the successful applications was one to pursue studies of gallium arsenide, which has some advantage over silicone in making integrated circuit chips for computers and other solid state devices. Cominco will produce the gallium arsenide at its metals facility in Trail.

Awards were also made for:

- continuation of work on a new type of electrical battery that uses molybdenum sulphide;
- a method of culturing salmon fry (at the heart of the project is a container that houses the salmon fry while it floats on sea water; microscopic food is brought to the fry by the action of the tides and currents); and

- development of new technology (including a fabricated soil plug for the growth of tree seedlings, microwave electronic grading of lumber, and a new method of repairing large gears used in mining operations within some of the province's key industries.

The Science Council would like to see a higher proportion of the applications coming in from the private sector than is currently the case. To date, the majority have come from universities. The number of applications from industry has been increasing but is still nowhere near the halfway mark. To rectify this, the Science Council plans to spend more time in contact with professional organizations and at conferences explaining its role and outlining how it can help provide funds to broaden the industrial base of the province.



Projects awarded research funds by the Science Council are selected by a process of peer review by active researchers. Top: Electrical battery research at UBC. Right centre and on opposite page: Exploring the Friedman-Young Effect. Bottom right and left: Multiple fuels research at UBC.

The BC Research Council is an independent, non-profit society incorporated under the Society Act of British Columbia in 1944.

Role and Functions

The council was established to provide facilities for the encouragement and promotion of technological research and services, with particular application to the industrial development of the province of British Columbia. The council consists of approximately 110 people, mainly resident in British Columbia, who are interested in the advancement of science and technology in the province.

Since its inception, the council has operated a scientific, engineering and technical laboratory facility, BC Research. This laboratory conducts research, development and other technical work under contract to sponsors both in industry and government, as well as carrying out its own in-house research on new technical developments.

The management of BC Research is directed by a Board of Management and an Executive Director. There are twenty-one members on the Board of Management distributed among representatives of industry, the provincial and federal governments, universities, labour, and the staff of BC Research.

Techwest Enterprises Ltd, a development company incorporated in 1970 under the British Columbia Companies Act, is a wholly owned subsidiary of the British Columbia Research Council. It has its own board of directors and operates independently of the council. Techwest's role is to move new technological products developed by BC Research and other research groups into the marketplace.

Projects and Achievements

In June 1979, the consulting firm of Philip A. Lapp Ltd issued a report with recommendations for the future on the operation of BC Research and Techwest Enterprises Ltd. One of the recommendations was that the provincial government should make greater use of BC Research staff and facilities for the industrial development of the province. In accordance with this, the ministry provided initial funding for the establishment of research into fisheries technology at BC Research and, later in 1979, initiated plans for research in coal liquefaction. The Lapp Report called for the establishment of a large, industrially oriented program of research and development, with the provincial government providing the core funding.

The Fisheries Technology Program

The Fisheries Technology Program of BC Research uses core funding to provide technical information services (TIS) and research for the processing sector of the British Columbia fishing industry.

The TIS program is concerned with furnishing practical solutions to operating problems of individual processors. This is done by responding to the specific questions of processors, and regular visits to operating plants where matters such as quality protection, product handling and process operations are discussed. In most cases, practical sugges-

The Fisheries Technology Program provides technical information services and research for the processing sector of the British Columbia fishing industry. Factors influencing the quality of fish products are examined to determine where operating practice can be modified to minimize quality losses.

ions an be made, based on published infor-
natio from various agencies throughout the
worl which have worked for years in the sci-
ence and engineering of fish processing. The
progr m maintains its own reference files, has
acces to computerized data retrieval sys-
tems and has active liaison with other organi-
zatio s in order to remain aware of new de-
velo ments in the industry. Where necessary,
speci lized expertise is available from BC Re-
sear or from agencies such as the National
Rese ch Council.

Research within the program is currently
concerned with quality, residuals utilizations,
mari e and shellfish processing. Topics are
reviewed by an advisory committee with re-
presentation from industry, universities and
gove ment.

Influencing the quality of fish products are
such factors as processing, handling and dis-
tribution systems, contamination, and chill
temperature control. A major part of the pro-
gram is the examination of these factors in
order to determine where operating practice
can be modified, in order to minimize quality
losses. Wherever possible, this work is being
carried out in operating plants, in cooperation
with company personnel.

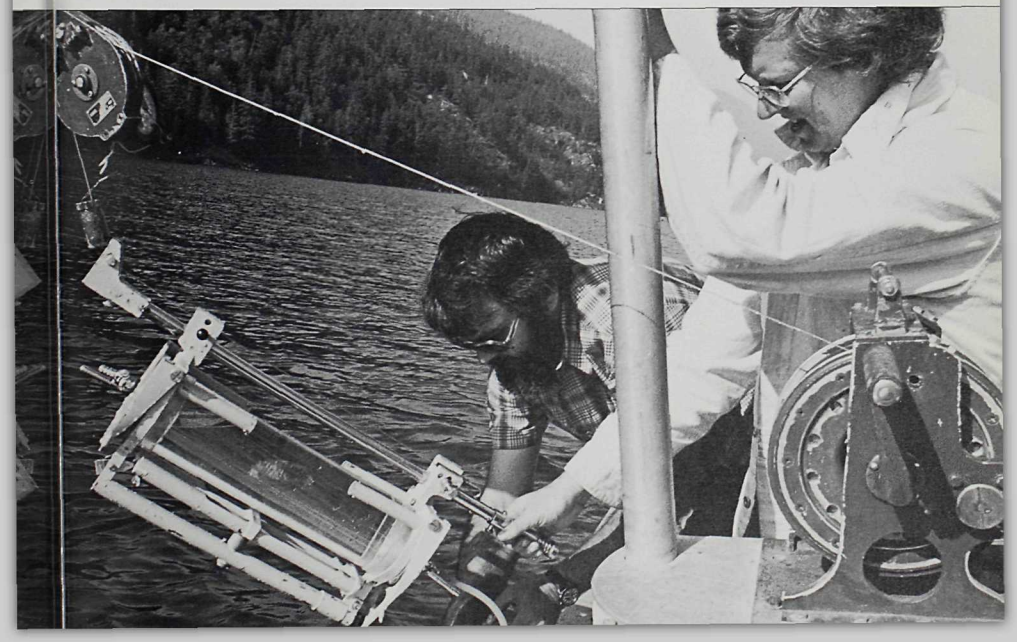
Residuals from fish processing are potentially usable protein. Work is underway to examine methods of recovering this protein under conditions where the distribution, quantity and seasonal availability of residual material does not favour fish meal production.

With roe products, important to the provincial fish product industry, methods are being developed for the production of caviar from local salmon, particularly from their frozen roe.

Shellfish are a renewable resource which could be greatly expanded in British Columbia. Working with industry, the council is examining various problems in shellfish processing. This research will be important in future years, as production increases.

Other research activities in aquaculture, particularly the potential for sea-ranching of salmon, have taken place, and council has applied for patents on a novel process to prevent the formation of curd in canned salmon.

All information from the core-funded program is freely available to interested parties. The program publishes progress reports, technical reports, and a series of industry reports, highlighting findings that may have immediate practical application.



Coal Liquefaction Program

Coal studies in BC Research are supported by both core funds and industrial contracts.

The principal objective of the core-funded coal program is to provide sufficient technical data to identify and evaluate coal conversion opportunities in British Columbia. A significant secondary objective is development within the province of scientific and engineering expertise to support industrial initiatives in coal conversion.

An initial commitment of core funds for coal conversion was made in December 1979, to cover equipment acquisitions and staff recruiting. The coal conversion program was formally established in April 1980.

A group consisting of a manager and three senior scientists and engineers, supported by four technologists, was assembled and immediately began work aimed at achieving the overall objectives of the program. During the first nine months, the group has established contact with both government and industry groups working in coal liquefaction in Canada and abroad, assembled and tested the equipment necessary for batch tests, established necessary analytical techniques, arranged for suitable samples of British Columbia coal, and begun test work to develop knowledge concerning liquefaction potential.

By the end of the first year, a total of forty-five samples from eighteen coal deposits will have been examined, representing both coking and thermal coals from all the major areas in the province. Results indicate that bituminous coals with high volatile matter contents are likely to give high total liquid yield with a relatively high fraction of "oil" in the product slate.

In addition to the survey work aimed at identifying coals and coal types with good conversion potential, experimental procedures have been established to determine the quality of liquid products and solid residues. Experimental work on refining coal liquids to motor fuels and petrochemical products is scheduled for the second year of the program. Plans and specifications have been completed for a continuous liquefaction unit to provide bulk samples of coal liquids for these studies.

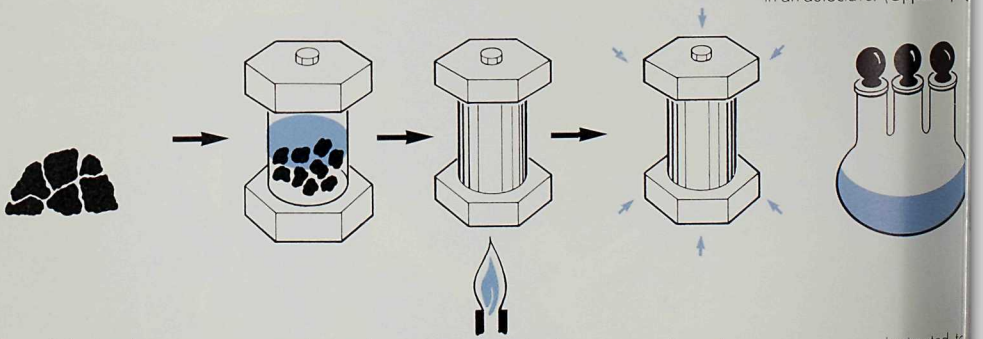
Cooperative projects have been set up with three university coal research groups and the results of these joint studies will form a significant part of the overall program objective.

Information on core-funded studies is freely available to interested parties. Summary reports on specific coals are submitted to companies providing the samples. Progress reports are distributed to industry and government to increase knowledge of coal liquefaction technology and opportunities.

Staff of the coal program have also been involved in projects on the fluidized bed combustion of coal-lime-stone mixtures, and the removal of frozen coal from railcars at the Roberts Bank coal port.

COAL LIQUEFACTION

The crushed, sieved coal is heated under pressure in an autoclave. (Opposite page)



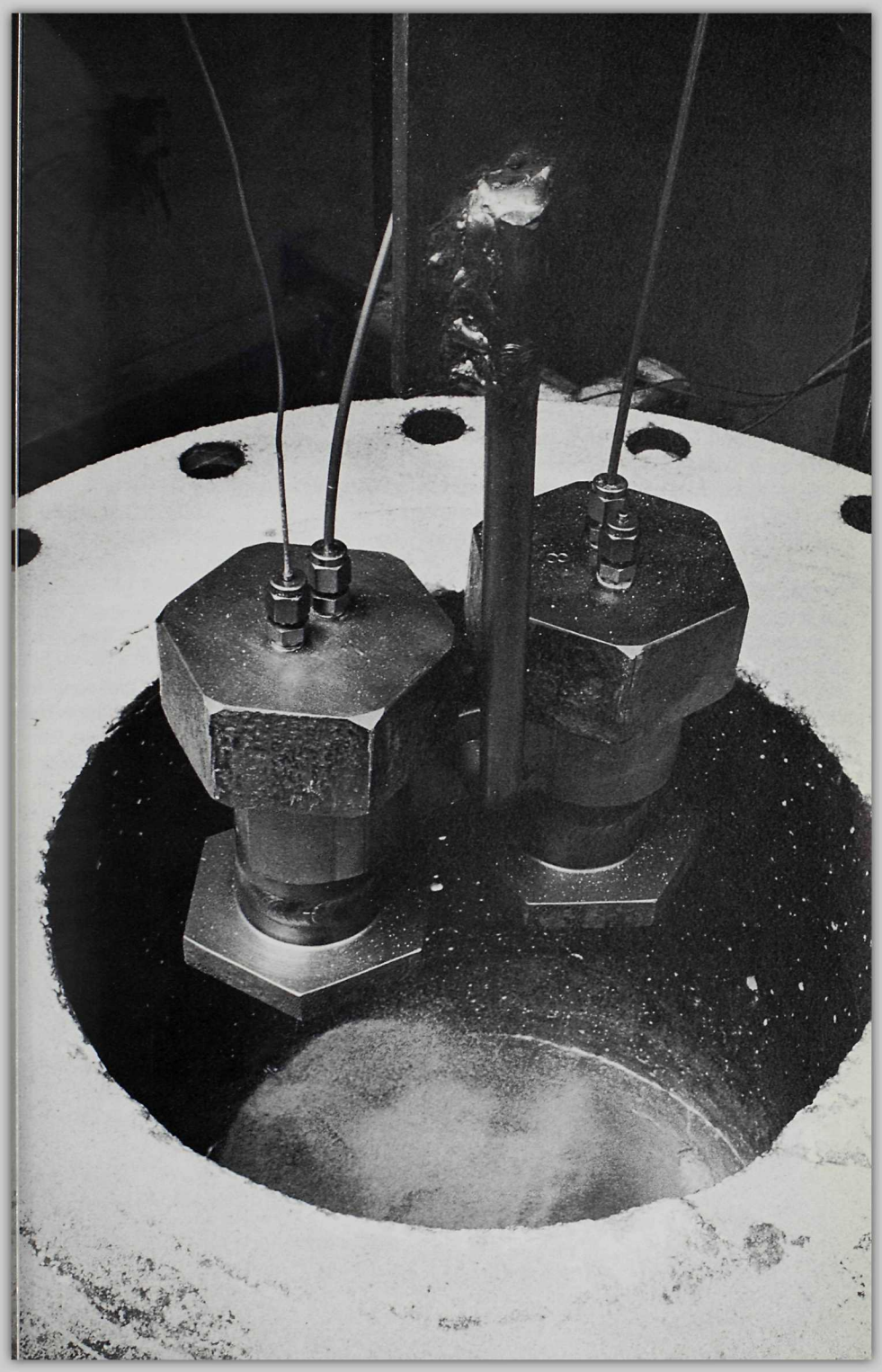
Dry, ash-free coal

. . . is crushed and sieved, placed in an autoclave

. . . pressurized with hydrogen and heat,

. . . vibrated at a controlled temperature for a defined

. . . and extracted, to yield oil, asphaltines and pre-asphaltines



The Discovery Foundation was established by the Ministry of Education, Science and Technology, and later transferred to the Ministry of Universities, Science and Communications. It is a registered society in the province, with articles of incorporation requiring an annual statement of its affairs to the Minister of Finance, and to the Auditor-General of British Columbia, who may also inspect the financial records at any time.

Role and Functions

The function of the Discovery Foundation is to encourage establishment and growth of scientific, technological and industrial research and skills in British Columbia, with application to both local and world markets, in an attempt to broaden and strengthen the province's economic base.

Projects and Achievements

Discovery Parks Inc

To achieve the development of research parks and facilities, Discovery Parks Inc, a wholly owned subsidiary of Discovery Foundation, was formed. Through initial capital funding provided by Discovery Foundation from the provincial government, Discovery Parks Inc undertakes to design and create world technology research parks adjacent to principal educational centres in the province.

These research parks are designed to:

- stimulate development of high technolog industries within the province;
- encourage the growth of research and de velopment;
- promote an interaction between tenants o research parks and the students and faculti in adjacent learning institutions;
- provide employment opportunities for grad uate students; and
- provide a bridge between scientific innova

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ormand industrial application of high technology.

In general, the following criteria form the basis for approval of organizations wishing to take advantage of locations in research parks:

- operations in research parks must be primarily concerned with research and technology;
- research or technology related to products designed for the destruction of human life will not be permitted;
- product manufacture or assembly shall be limited to prototype development;
- pilot plants will be permitted in which processes planned for use and production elsewhere can be tested; and
- only nuisance-free, clean operations will be permitted.

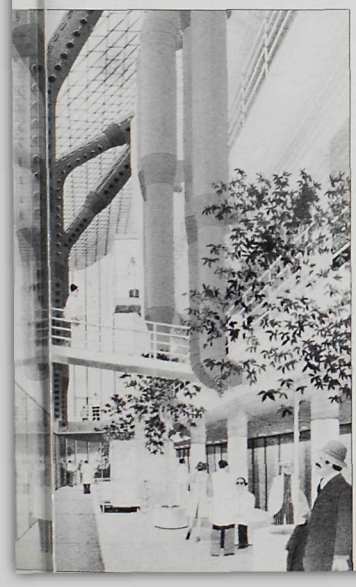
The designs of buildings and facilities take into account the special requirements of firms seeking scientific and technological research and development.

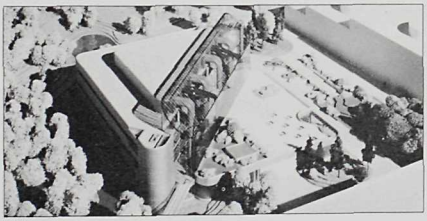
Funds have been provided by the ministry for the development of infrastructure on sites at the British Columbia Institute of Technology (BCIT), Simon Fraser University (SFU), University of British Columbia (UBC) and University of Victoria (UVic). At BCIT, a multi-tenant facility is being built. This facility will provide small and medium-sized firms with leasable office and/or laboratory space in a community of research and development. It is planned that larger tenants will occupy specially designed buildings in clusters around the multi-tenant facility.

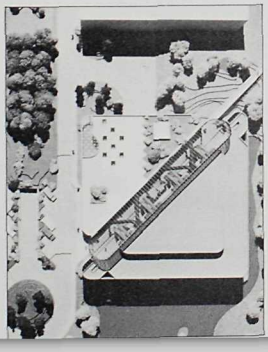
The first two tenants of research parks are Microtel Pacific Research Ltd at the SFU site, and MacMillan Bloedel Ltd at the BCIT site. Both of these tenants will be established by the end of 1982. Other tenants will be encouraged to lease space and occupy research parks as servicing is provided.

The Future

Discovery Foundation will work towards broadening and strengthening the economic base of the province of British Columbia. It will do this by encouraging development of high technology industry and other economic activity where a large proportion of the value added comes from the use of scientific and technical knowledge and skills. This will help diversify the economy of the province, and provide opportunities within British Columbia for young people who, up until now, have had to choose between leaving the province and taking up occupations less suitable to their talents.







These schematic designs illustrate a proposed multi-tenant facility for Discovery Parks.

This division is comprised of two principal branches: the Telecommunications Services Branch, and the Communications System Development and Regulations Branch.

The division's responsibilities are to advise the government on communications technology, attend to what is generally referred to as the "public interest" aspects of the government's involvement with communications, and furnish the communications facilities required by government and its 50 000 employees in order to conduct government business. In addition, the division provides the engineering and designing of systems to satisfy specialized needs.

Prior to the formation of the Ministry of Universities, Science and Communications in November 1979, the division was within the Ministry of Transportation, Communications and Highways. This report covers the two-year period from April 1, 1979 to March 31, 1981.

The Telecommunications Services Branch consists of a team of specialists and operators of telephone systems, data communications, radio systems and auxiliary communications such as paging systems, intercoms, and public address systems.

Role and Functions

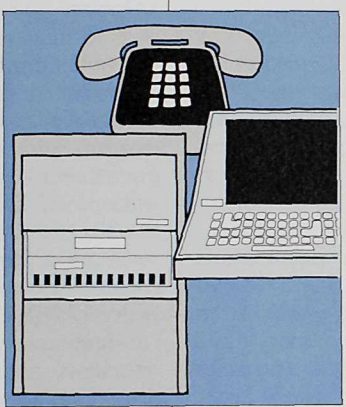
The branch, employing approximately 0 people, acts as a central agency of government, managing and operating the data, radio, telephone, and other communications systems required by all British Columbia government offices and agencies.

Equipment

Telephone and data communications equipment is leased from such companies as BC Tel, Prince Rupert Telephone System, and CNCP Telecommunications. These companies are responsible for equipment maintenance and repair while branch staff operates and manages system switchboards in Victoria, Vancouver, Prince George, and Kamloops. A provincial government message centre in the Douglas Building in Victoria provides telex and facsimile communications for government offices to and from anywhere in the world.

The centre's equipment includes 487 network circuits, 250 private branch exchanges, 3 00 private branch exchange stations, 0 seven-digit sets and 13 000 multi-line sets connecting government offices with one another and with other public and government networks in British Columbia, Canada, and other countries.

Other communication equipment is purchased, engineered, installed and maintained by the branch, including radio communications for such agencies as BC Building Corporation (BCBC), the Coordinated Law Enforcement Unit (CLEU), isolated forest work camps of Corrections Branch, and the Parks Branch, Provincial Fire Marshall, and Sheriff Services. This also includes auxiliary communications for provincial courthouses, prisons and health centres.



Projects

Telephone Service Orders

The number of telephone service orders processed by the telephone systems division continues to increase. During 1979-80, a total of 3 335 service orders were placed with BC Tel, Prince Rupert Telephone and CNCP Telecommunications. This was an increase of 306 service orders over the previous year, resulting in an increase to 8 470 of individual accounts being managed. The total telephone bill for the year was $16 091 628.

The number of telephone service orders during 1980-81 was 2 993. This amounted to 342 fewer than the previous year. The reduction is due to the BC Tel labour dispute and will produce a substantial carry-over of telephone installation activity in the 1981-82 fiscal year. In spite of this reduction in activity, the total telephone costs for the year amounted to over $17.5 million.

Government Message Centre

The Government Message Centre continues to provide efficient message service for all ministries in Victoria, with a ten percent increase in the volume of traffic over each of the past two years. In addition, 357 data communications orders were placed with private companies.

BC Ambulance Service

During 1979-80, a major portion of the BC Ambulance Service province-wide radio system was established, allowing the dispatching of ambulances on a regional basis in the Northern, Central Interior, Cariboo and Okanagan regions.

Radio Systems

The branch manages approximately 3 000 radio licences covering government equip-

ment, as required by the Federal Department of Communications. Checking and revision as stipulated is being undertaken in conjunction with establishment of an equipment inventory for future maintenance purposes.

Approximately twenty-five new and revised licence applications are made each month.

There is also ongoing addition and upgrading of radio equipment and systems for such agencies as the Sheriff Services, Fish and Wildlife, the Parks Branch and Corrections Branch. This activity involves procurement and installation of mobile and portable radio repeater equipment and local radio base stations.

During 1979-80, some 200 additional mobile and portable radios were provided to government agencies. A quarter of these units were special multi-channel wide-band radios, which allow the users the flexibility of operation on BC Tel and logging company frequencies in addition to their own private channel.

During 1980-81, installation specifications for repeaters at Bear Mountain, Tabor Mountain, Mount Bruce, and four local central base stations in the Fraser Valley were drafted.

As well, installation of Digital Scrambler radio systems was begun, for security purposes for the Coordinated Law Enforcement Unit agency (CLEU). These systems, to serve the Vancouver and Victoria areas, employ coded digital voice radio transmission, providing tactical-level security during field operations.

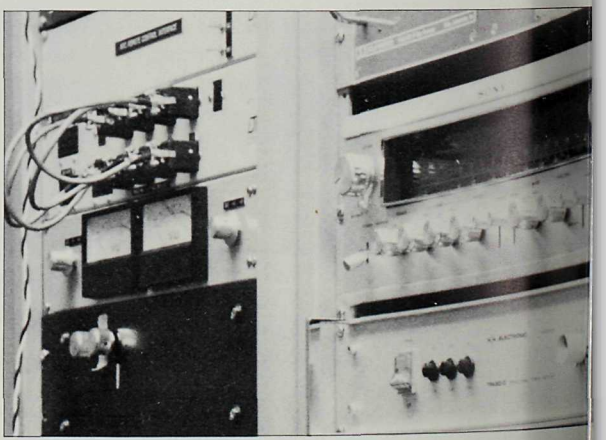
A unique multiple antenna radio repeater system was engineered and installed for BC Buildings Corporation in the new Robson Square complex in Vancouver, because the large amount of reinforced concrete in the structure caused poor transmission within the building.

Auxiliary Communications Systems

A sophisticated computer-directed electronic sound, visual and animation production control system was installed in the Provincial Museum. This will greatly increase the usefulness of the museum and the enjoyment of the many hundreds of thousands of visitors from inside and outside the province.

As well, several sound reinforcement and paging systems were established in law courts and health centres throughout the province, including northern and central interior health centres and the Victoria Law Courts.

During the fiscal year, some twenty-five projects for auxiliary communications systems were in various stages of engineering, procurement and installation. These will provide intercom, sound reinforcement, public address and miscellaneous auxiliary systems in courthouses, correctional institutes and health centres. Typical examples include sound reinforcement for the Terrace and Campbell River courthouses, witness paging and securing



During the fiscal year, twenty-five auxiliary communications systems were in various stages of engineering, procurement, and installation. The Provincial Museum's computer-directed electronic sound, visual and animation production control system contributes greatly to the enjoyment of visitors.

systems, an intercom system for Lakeside Correctional Institute, and public address systems for health centres in Kelowna and Delta.

While the day-to-day telecommunications requirements of the provincial government and its agencies is the first order of business for the branch, it is also essential that adequate provision be made for both short- and long-term telecommunications requirements. During 1979-80, virtually all activities within the branch were designed for the implementation of Netcom, which was to take place on September 30, 1980. Netcom, planned for the next decade, is a discounted rate for government calls placed over the public long-distance network. It was negotiated with BC Tel, and the contract was signed in December 1976. It was to involve the virtual elimination of the existing extensive network of equipment lease from BC Tel throughout the province. In December 1979, CRTC advised that they were not prepared to permit BC Tel to offer Netcom to the provincial government unless it was also willing to offer it to the public. After four months of negotiations among this ministry, BC Tel and CRTC, BC Tel advised in April 1980 that it was not prepared to reapply to the CRTC with a revised version of Netcom and furnish the supporting documentation required by the CRTC. One of the current problems is that the government's present network, in anticipation of Netcom, has been allowed to deteriorate both in quality and quantity in order that economies could be realized within both the government and BC Tel.

Recurring labour problems within BC Tel, particularly a strike in February of this year, have emphasized the necessity for government telephone facilities to be removed as far as possible from such disruptions. Netcom was finally abandoned and, in April 1980, the ministry began to plan a whole new communications system for the provincial government.

The Future

The new government network, called the Provincial Government Network Project Plan, will make use of the latest technology, yet will be flexible enough to incorporate new developments in computerized telecommunications technology as they are produced. The three principal planning groups are branch staff, a large team from BC Tel, and Consultec Canada, a consulting firm from Vancouver. The first quarter of 1983 is the target date for the first phase of the project.

A five-year project schedule will be laid out in final form during 1981-82. The possibilities of this project are turning out to be far greater and more exciting than originally expected and it is now a challenge which has captured the collective imagination of the participating groups.

The Communications System Development and Regulation Branch consists of administration, system development and regulation staff, including engineers, accountants, economists, policy analysts and research officers.

Role and Functions

The function of the Communications System Development and Regulation Branch is to advance and protect the public interests of the provincial government's involvement in telecommunications. This includes development of telecommunications policy for British Columbia and the implementation of extended and improved telecommunications services throughout the province.

Since most communications services in British Columbia are currently under federal jurisdiction, many of the branch's activities involve federal-provincial negotiations and consultation, and appearances and submissions to the federal regulatory agency, the Canadian Radio-Television and Telecommunications Commission (CRTC).

The branch is divided into two sections: system development and regulation. The regulation section is primarily concerned with the activities of the British Columbia Telephone Company and other carriers. The section is responsible, on behalf of the government of British Columbia, for analysing the implications of and preparing interventions on applications brought before the CRTC and other regulatory agencies such as the new BC Utilities Commission. The purpose of such interventions is to scrutinize the material which the company advances to support its case, and bring to the attention of the commission any concerns the government may have. Branch personnel work with counsel from the Ministry of the Attorney General to prepare the government's case and advise counsel during commission hearings. The regulation section is also responsible for work which requires expertise in regulatory practice, such as complaints from the public regarding service rendered by carriers. The emphasis of the system development section is on policy development and federal-provincial consultation. While a functional separation exists, there is close cooperation on shared responsibilities.

Projects and Achievements

BC Tel

The British Columbia Telephone Company is currently regulated by the CRTC. In February 1979, BC Tel applied to the CRTC to acquire the manufacturing concern, GTE Automatic Electric (Canada) Ltd and its subsidiary, GTE Lenkurt Electric (Canada) Ltd through a share transfer with GTE International Inc, another subsidiary of BC Tel's US parent. Branch staff prepared interrogatories for the public hearings which took place in June 1979. In its final argument, the province maintained that the acquisition could have important benefits for manufacturing in the province provided certain conditions were met. CRTC approved BC Tel's application in September 1979, adopting the conditions advanced by the province.

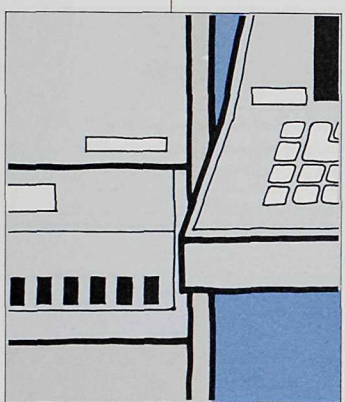
On March 24, 1980, BC Tel applied to the CRTC for an increase in all its rates to be effective December 1980. The application proposed an increase of approximately 12.5 per cent for residence service and fifteen to twenty-five percent for individual line and other business services, plus other miscellaneous increases. Regional hearings were held in Vernon, Cranbrook, Victoria, Vancouver and Dawson Creek. The central hearing at Vancouver during the fall of 1980 lasted forty-two days.

Staff attended the proceedings, cross-examined company witnesses, and submitted arguments. While acknowledging that some increases were necessary to assist the company in its construction plans, the provincial government indicated that the company's request could be appreciably reduced by

appropriate adjustments.

The CRTC decision in February 1981 approved BC Tel's application for a general rate increase, but also imposed conditions on the company for improvements in the quality of service in specific areas. The decision also provided directives to the company regarding a number of issues requiring further study. Staff participating in committee work with the CRTC and BC Tel to review the company's construction plans and its performance in improving the quality of service.

In July 1979, BC Tel filed an application with the CRTC to increase rates for marine, inland air mobile radiotelephone service. Following an intensive analysis of the application, the branch requested that the CRTC hold public hearings. Subsequently the CRTC held hearings in Williams Lake, Kamloops and Vancouver. Branch staff attended the hearings and appeared with counsel at the main hearing in Vancouver. In its submission, the branch argued that there was no objection to BC Tel receiving compensatory revenue from radiotelephone service, but that the approach proposed by the company lacked sensitivity to subscriber needs and should be reconsidered. The commission decision of November 12, 1980 authorized a relatively small increase in rate rather than the amount requested by BC Tel.



Trans Canada Telephone System (TCTS)

The branch has been actively involved in the CRTC Inter-regulatory Committee, which was mandated by the commission, to examine and comment on a commission-sponsored study concerning toll settlements and divisions of revenues among members of the Trans Canada Telephone System (TCTS). Branch staff appeared at CRTC public hearings initiated in the spring of 1980 to review the rates and the settlement plan.

The argument made to the commission emphasized that certain deficiencies in the Revenue Settlement Plan (RSP) could operate to the disadvantage of British Columbia subscribers, and that there was a need for a TCTS message toll schedule (long-distance charge) based on a specific plan as to rate relationships and ideal rate structures, and a firm set of objectives. The commission's decision has not been received to date.

CNCP Telecommunications

Early in 1978, branch staff attended the hearings of the CRTC on the application of CNCP Telecommunications to connect its facilities with those of Bell Canada in Ontario and Quebec. The branch's attendance was important because the decision would be a precedent for possible CNCP connections with BC Tel. The province argued in favour of the application.

In May 1979, the commission announced its landmark decision approving the CNCP application. The decision cited British Columbia's positions of support in several instances. The branch is continuing to study the CNCP - Bell Canada connection, and also negotiations for a CNCP interconnection with BC Tel.

Prince Rupert Telephone

Staff participated in a three-member intergovernmental committee, under the sponsorship of the CRTC, to resolve a dispute over toll rates in connection with the interchange of telephone traffic between BC Tel and the independent telephone system of the City of Prince Rupert. In its report to the commission, the committee set out a new approach to determine the appropriate toll revenue share for the city. In its decision, issued on November 9, 1979, the commission noted that this was the first instance in which such an intergovernmental committee had been used to deal with toll revenue settlements.

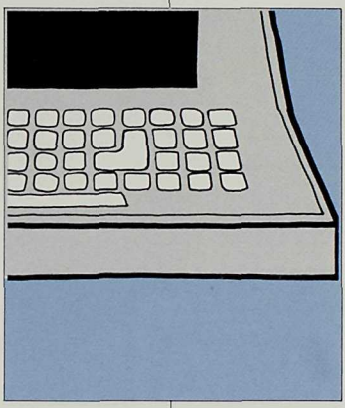
Other Telephone Matters

Staff have also been involved in analysing

and preparing submissions on other telephone matters including:

- CRTC Quality of Service Inquiry;
- Bell Canada Construction Program Review; and
- the application of Bell Canada for interconnection of network addressing terminals.

During the year, the branch received a number of complaints about the telephone services provided by BC Tel. While the primary responsibility for dealing with these complaints rests with the CRTC, the branch nevertheless provides assistance to residents of British Columbia who seek resolution of service problems. BC Tel officials have cooperated with branch staff, and many cases have been satisfactorily resolved. Through this process, the branch is able to obtain and maintain a knowledge of service strengths and problem areas, and have an understanding of why these problems exist.



Broadcasting and Cablevision Cross-Ownership

In the spring and summer of 1979, the branch made a submission to the CRTC on the implications of changing the commission's rules on cross-ownership between broadcasting entities and cable undertakings. The reason for the submission was that the CRTC's rules were not definitive and there was a need to examine past decisions of the CRTC in order to better clarify these rules. The submission was necessitated by an application, filed with the CRTC on April 30, 1979, to merge Western Broadcasting Company Ltd (owner of British Columbia Television) with Premier Communications Ltd.

The British Columbia government supported the application on the basis of its commitment to the retention of local ownership and the creation of important research and development and programming opportunities on the west coast. The branch drew the commission's attention to the need for scrutiny of the merger's effect on competition and the need for assurances that the benefits being claimed would be realized. A public hearing took place in Vancouver in June of that year and on October 22, 1979, the CRTC issued its decision denying the application.

Another application for cross-ownership which involved the branch was that made in the fall of 1979, when Canadian Cablesystems Ltd, of Toronto, offered to purchase the major shareholdings of Premier Communications Ltd. The offer was accepted by Premier management, and approval of the CRTC was then sought. Branch staff was involved in analysing the application in preparation for public hearings held in Vancouver in May 1980. British Columbia submitted an Intervention because of important ramifications affecting the future of the cable television industry. The province viewed this application as aiding effective competition between the cable industry and the traditional carrier, and competition in foreign markets. It was approved by CRTC in July 1980.

Other Broadcasting Matters

Branch staff have carried out investigations of complaints received regarding cable vision, radio and television services in the province. A number of these complaints have been satisfactorily resolved.

Communications Grants

The branch administers communication grants which provide financial assistance to communities seeking to improve communications services. Grants are directed toward establishment of a first service, introduction of a CBC service, assistance to construct community-owned facilities, establishment of second service, and upgrading of community owned facilities.

Over the past two years, cash grants have been approved for the Atlin Broadcasting Society, the Haddington Reef Radio Society at Alert Bay, the Lytton and District TV Society, the New Denver-Silverton Co-

erative TV Society, the Pavilion Lake TV Society, and the Chilliwack River Cablevision Cooperative. At the present time, grant requests from nine communities are being processed. In addition, staff assistance is being provided to thirteen community associations with the preparation of grant applications, and sixteen community associations are being advised on the development of communications projects, preliminary to a grant application.

911 Emergency Telephone Number

The branch has been investigating the introduction of a 911 emergency telephone number on a province-wide basis. As part of the 911 Inter-ministry Committee, staff have developed a draft plan for a 911 assistance program. The plan has been discussed and expanded during recent committee discussions. Many municipalities and regional governments also have indicated an interest in the use of 911 emergency telephone numbers.

Utilities Commission

A new commission, the British Columbia Utilities Commission, has taken over all regulatory functions of the present British Columbia Energy Commission. It has also assumed the telecommunications responsibilities of the Motor Carrier Commission. While telecommunications responsibilities were being held by the Motor Carrier Commission under the **Telecommunications Utilities Act** and Order-in-Council 648 of February 19, 1974, pertinent staff duties were carried out by the Systems Development and Regulation Branch. As part of these duties for the Motor Carrier Commission, branch staff represented the province on the Canadian Association of Members of Public Utility Tribunals (CAMPUT) and actively participated in two CAMPUT staff sub-committees on utility accounting and economics.

Motor Carrier Commission responsibilities changed with approval of BC Tel's application to merge Okanagan Telephone Company with BC Tel and left the Motor Carrier Commission with only those responsibilities involving the City of Prince Rupert Telephone System. Then, in February 1980, the Ministry of Energy, Mines and Petroleum Resources released an energy policy statement in which the government announced that it was establishing a new Utilities Commission. In addition, the statement noted that when regulatory jurisdiction over BC Tel was transferred from the federal government to the province, this responsibility would fall to the new BC Utilities Commission. The commission was established by Bill 52, which was proclaimed on September 11, 1980. Branch staff are now providing technical support on telecommunications reg-

Knowledge Network Of the West (KNOW) Communications Authority

The Knowledge Network of the West (KNOW) was established in 1980 to coordinate distance education and manage a new educational communications delivery system. The branch's involvement with what is now KNOW began in December 1979, when staff assisted the federal Department of Communications in installing, in British Columbia, small satellite terminals carrying entertainment and educational television programs as part of the Anik B Direct Broadcast Satellite Experiment. The purpose of the branch's participation was to assist in obtaining distribution facilities on the Anik B Communications Satellite and community cablevision.

The branch also joined the federal Department of Communications, CBC and BCTV in experiments in the delivery of entertainment programs to community televisions throughout the province by sharing the use of the same transporter (transmitter) used by KNOW.

The success of these experiments led to an announcement in the November 1980 Throne Speech of the extension of educational (KNOW) and entertainment (CBC and BCTV) television services throughout the province. This expansion was to be managed by the branch. At present, KNOW is available to twenty-three regional colleges. Entertainment programs are available in twenty communities, and it is envisaged that entertainment and education programs will eventually be available to 100 communities in the province.

This British Columbia programming is also broadcast to fourteen sites in the Yukon and Northwest Territories. The satellite earth terminals are located at isolated rural residences

and camps, and in some locations are connected to small cable distribution systems and community television transmitters. Valuable experimental information has been obtained in operating three television channels through a single satellite transponder.

Federal-Provincial Relations

As the regulation and development of telecommunications is divided between federal and provincial jurisdictions, the branch is frequently required to attend federal-provincial and interprovincial conferences and to maintain a working liaison with federal and other provincial communications officials.

During the 1979 to 1981 reporting period, the branch directly participated or assisted in the following major conferences and working groups.

Conferences:

- October 1979 - Federal-Provincial Ministers of Communications Conference;
- November 1980 - Provincial Communications Ministers Conference (chaired by the Minister of Universities, Science and Communications, Dr Patrick L. McGeer); and
- February 1981 - Provincial Communications Ministers Conference (held at Quebec City).

Working groups:

- Competition and Industry Structure (established in 1979);
- Pay-Television;
- Cable Delegations; and
- Industrial Strategy.

The last three working groups are to re port to the next federal-provincial commun cations conference in 1981.

In January 1980, the CRTC announced th formation of a federal-provincial committee t investigate the extension of television service to northern and remote communities. Th branch prepared the submission expressin the view of the provincial government.

The branch also participated in majo high-level communications discussions durin the constitutional talks of 1980.

The Future

A priority of the branch is to help chang the role of the residents of British Columbi from that of mere consumers of communica tions services to that of direct participators various aspects of telecommunications. In th regard, efforts are directed to two areas. Th first is participation in, and support of, th Knowledge Network of the West Commun cations Authority. The second is working wi other groups within the ministry and with oth ministries, to encourage research and deve opment, and electronics manufacturing ente prises in British Columbia.

Small satellite terminals carry KNOW programming as part of the Anik B Direct Broadcast Satellite Experiment.

ice 1980-81 was the ministry's first full ear of operation, development of computerized systems is still in the embryonic

icts and Achievements

n main emphasis was on financial in- on. In conjunction with the Ministry of con, the ministry implemented a series financial reports to facilitate financial ement. A budget model, developed in), was used to assist the preparation of the ministry's estimates for both 1980-81 and 1981-82.

A project has been started to place the BC Metric Office's library holdings on the provincial government's library catalogue system. A second project is addressing the projection and monitoring of debt-servicing charges for university capital projects. A third study is underway to determine systems requirements in the communications area of the ministry.

MINISTER'S OFFICE

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K.L. HENRY	Clerk

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T.P. RUSSELL	Secretary to Deputy Minister
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A.K. FARR	Assistant to the Director, Finance and Administration
D.Y.M. HURST	Secretary to Director, Finance and Administration
J.S. POWELL	Office Manager
M.F. McDOWELL	Personnel Technician
A.M. GOLDADE	Pay Clerk
C.E. MARRIOTT	Accounts Clerk

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K. SUNDERLAND	Receptionist
C.D. WELCH	Courier

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M. MOHAN	Consultant, University Affairs Research Papers
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H. McINTYRE	Executive Director, Capital Projects, Universities Colleges, and Institutes

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R. LANGDON	Consultant, Alternative Fuels (CNG) Project
L. RATTE	Secretary

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P.H. ATKINS	Administrative Officer
E. BATRYN	Library Clerk
E.A. SHERIDAN	Secretary to Executive Director

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B.J. WEST	Secretary to ADM, Communications

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I.D. DAVIS	Secretary to Director
E. FISHER	Acting Secretary

Common Carrier

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W.F. KROGEL	Manager, Planning and Administration
G.A. BENNETT	Facilities Manager
A.L. WADE	Telecommunication Systems Analyst
M.J. HILTON	Telecommunication Systems Analyst
D.W. SMITH	Telecommunication Systems Analyst
D.H. NELSON	Telecommunication Systems Analyst
E.B. WICKENS	Records Clerk
R.E. BROWN	Toll Investigations Clerk
D.J. FETTERLY	Directories Clerk
D.M. ROBINSON	Clerk
M.L. WITZER	Clerk
C. DeMACEDO	Typist
D.L. LEFLER	Typist

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M. HARRIS	Typist

Switchboard Office, Vancouver

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F.E. TAYLOR	Assistant to Supervisor
J.W. HENRICKS	Switchboard Operator
M.A. PAGE	Switchboard Operator
M.M. COATTA	Switchboard Operator
J. CARRIGAN	Switchboard Operator
D.J. GRACEY	Switchboard Operator
E.A. KILBACK	Switchboard Operator
M.A. MANAHAN	Switchboard Operator
L. FRIEBEL	Switchboard Operator
G. ENGRECHT	Switchboard Operator
R. DANCHUK	Switchboard Operator
M.J. DOBBIE	Switchboard Operator
G.R. TYCHYNSKI	Switchboard Operator
M.E. LANG	Switchboard Operator
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R.D. ROTHMAN	Switchboard Operator
E.C. TETLOCK	Switchboard Operator
S. GUERTIN	Switchboard Operator
D.M. FOLEY	Switchboard Operator
S.I. MADORE	Switchboard Operator
J. YOUNG	Switchboard Operator
E. CRYAN	Switchboard Operator
M.A.I. HYAMS	Switchboard Operator
P.A. HUNDLEY	Switchboard Operator
B.R. WOODBURY	Switchboard Operator
T.L. SILVERTON	Switchboard Operator

Switchboard Office, Kamloops

L.L. BEESON	Supervisor
E. DAFOE	Switchboard Operator
J.E. CARSON	Switchboard Operator

Auxiliary Employees

M.M. HESLOP	Switchboard Operator
P.E. WHITE	Switchboard Operator

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W.G. RYAN	Switchboard Operator
J.B. HILMO	Switchboard Operator

Auxiliary Employees

H.W. BUNTON	Switchboard Operator

Switchboard Office, Victoria

M.N. RUSSELL	Supervisor, Switchboard Operations
E.R. LAMOUREUX	Switchboard Operator
P. BROWN	Switchboard Operator
J.E. VON SCHALLBURG	Switchboard Operator 3
A.L. BENT	Switchboard Operator 3
M. STEWART	Switchboard Operator
P.M. STRICKLAND	Switchboard Operator
V.J. SARGEANT	Switchboard Operator
J. DEAN	Switchboard Operator
A. LOCKE	Switchboard Operator
M.A. WORKMAN	Switchboard Operator
M.R. DONALDSON	Switchboard Operator
D.A. GAWALKO	Switchboard Operator
L. CARSWELL	Switchboard Operator
I.L. BAMFORD	Switchboard Operator
A.N. ROBERTSON	Switchboard Operator
C. INGRAM	Switchboard Operator

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E.I. CLARKE	Switchboard Operator
C.M. FORGIE	Switchboard Operator
E.D. MORRISON	Switchboard Operator
D. SISMEY	Switchboard Operator
F.M. TONACK	Switchboard Operator
P. FERGUSON	Switchboard Operator
D.M. DRIEDGER	Switchboard Operator
V.M. VACHERESSE	Switchboard Operator
S. BURTON	Switchboard Operator
C. FONTAINE	Switchboard Operator
L. DICK	Switchboard Operator
M. ALLARD	Switchboard Operator

Message Centre

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L. GRAY	Clerk

Auxiliary Employees

L.H. DEHEN	Clerk

Technical Services

J.E. HARTLEY	Telecommunications Engineer
D.R. HAWKINS	Maintenance Manager
F.P. MALLORY	Communications Technicia
P.G.J.L. GIESEN	Maintenance Technician
S.L. IZARD	Research Officer

Auxiliary Employees

J.F. GARDNER	Communications Techician

COMMUNICATIONS SYSTEM DEVELOPMENT AND REGULATIONS BRANCH

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J.A. WHYBROW	Economist
L.R. ALLEN	Policy Analyst

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