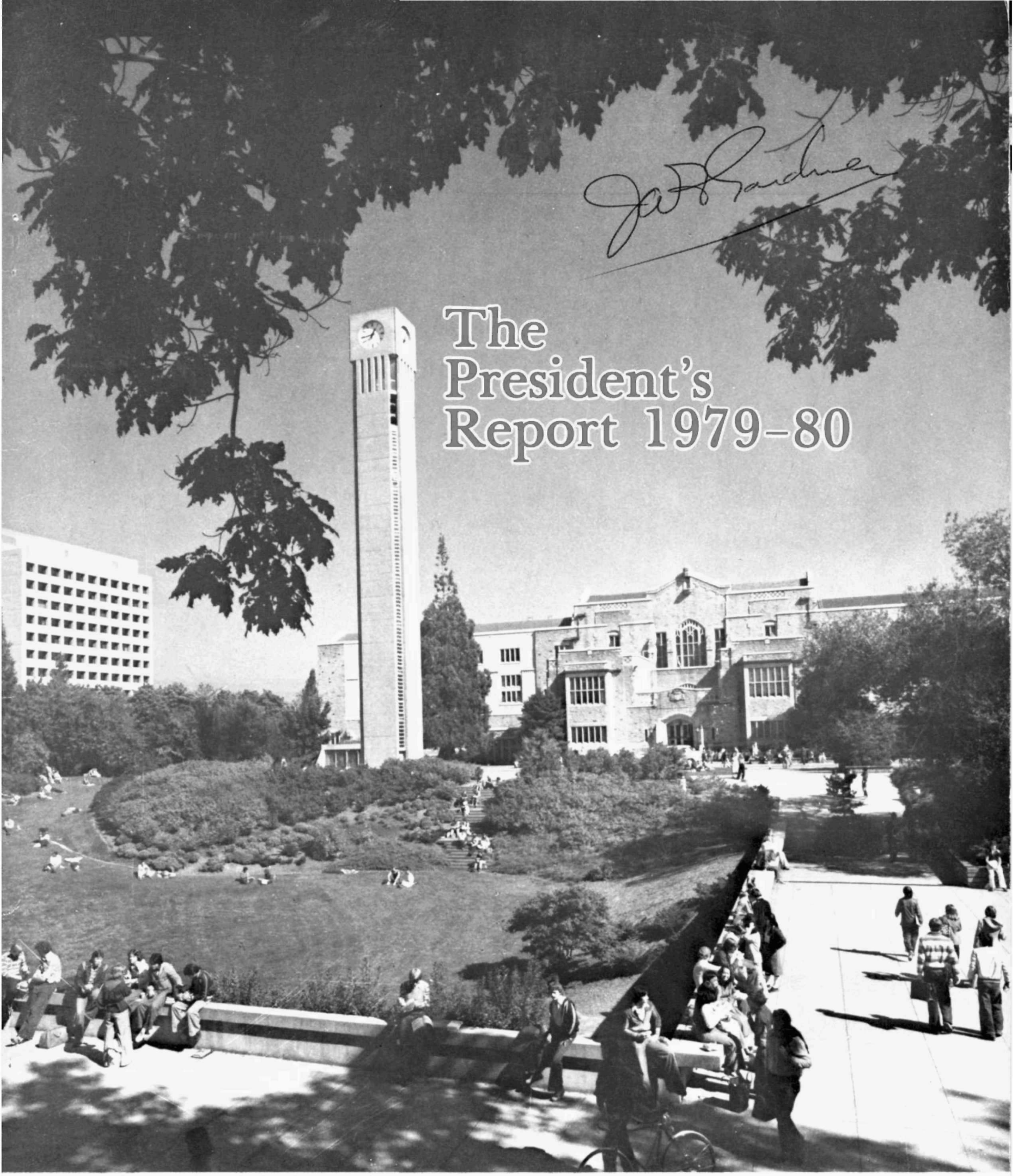


The President's Report 1979–80

The University of British Columbia

The President's Report 1979–80

The report of President Douglas T. Kenny
to the Senate and Board of Governors of the University of British Columbia
for the academic year September 1, 1979, to August 31, 1980.

The University of British Columbia

Foreword

To the Board of Governors and Senate,
The University of British Columbia.

Ladies and Gentlemen:

During the academic year under review, the University of British Columbia left one decade and entered another. It therefore seemed appropriate, when requesting submissions from the deans and others who contribute to this annual compilation of University activities, to ask for a brief summary of progress and accomplishments during the 1970s.

I hope you will find this summary of a decade of activities as fascinating as I did. In many ways, the composition of the student body, the structure of the curriculum and the physical appearance of the University of B.C. have altered out of all recognition during this 10-year period. We have made progress along the road to maturity and excellence during this period while hewing to one of the basic goals of the University — the provision of higher education of the highest quality for all the citizens of the province. In fact, I am proud to say that we have become one of Canada's most outstanding and prestigious universities.

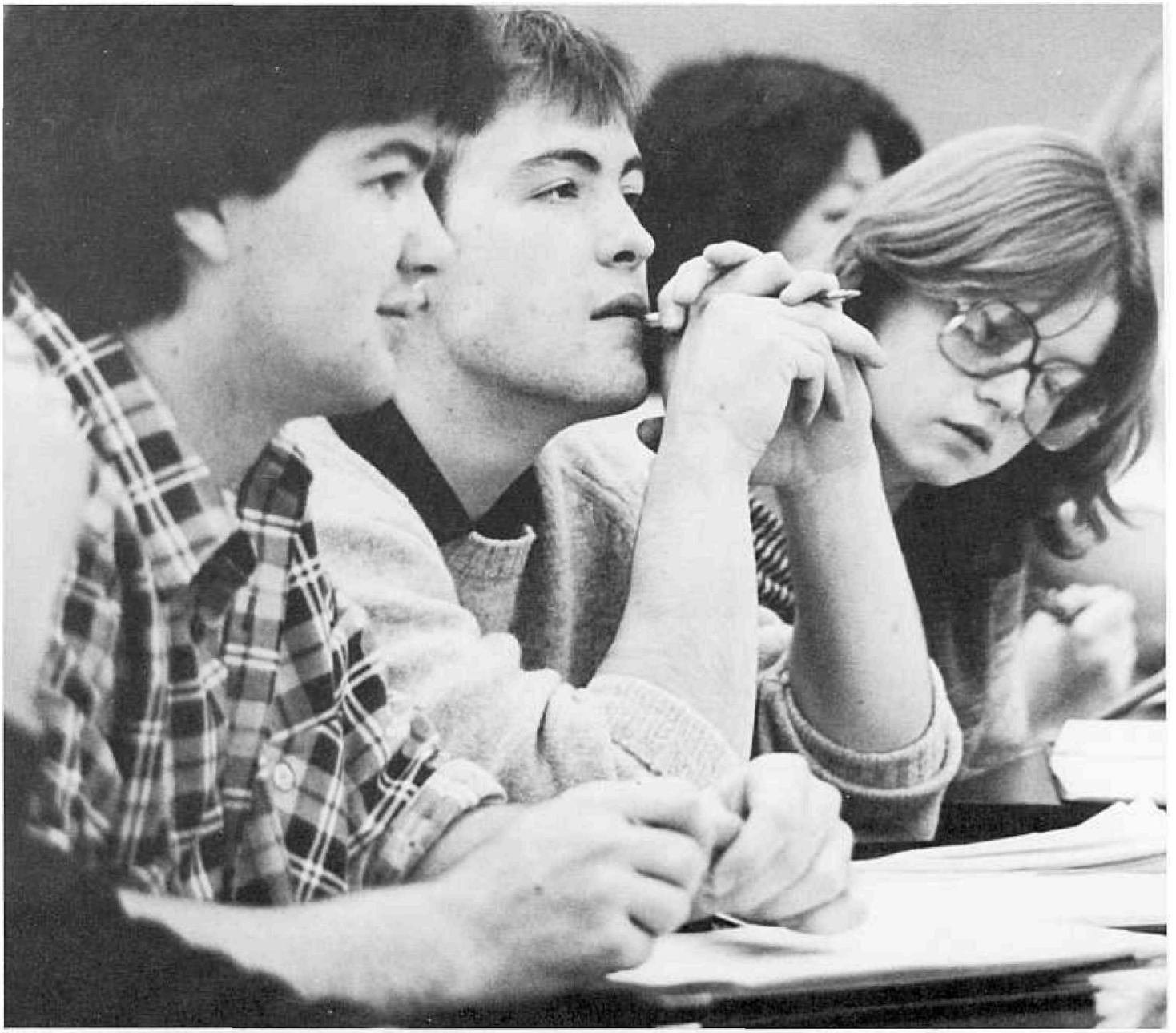
I would be flying in the face of reality if I tried to claim that the University is not confronted with serious and continuing problems. We still lack adequate research funds as the result of short-sighted policies which are only now being corrected nationally and provincially; the threat of a decline in the quality of education is mounting as the result of formula financing and under-funding; and many of our faculty and students continue to study and carry out research in marginal quarters because we lack funds to replace outmoded buildings.

I remain confident that the efforts we are making to upgrade educational quality by imposing higher entrance requirements and insisting on high standards of achievement by our students and faculty will be reflected in continued public support and enrolment increases in the 1980s.

As I have done in previous years, I take this opportunity to thank all those who have advised me personally in the past year on a multitude of academic and administrative problems. I know I speak on behalf of the Board and Senate in voicing my gratitude to our professors and researchers, professional and administrative staff, support staff and students for their continuing efforts to ensure that UBC enjoys an unrivalled reputation for quality as an institution of higher learning.

Cordially yours,

Douglas T. Kenny,
President.



During the difficult decade of the 1970s, UBC did everything in its power to ensure that the quality of education for its growing student enrolment was enhanced.

The President's Report 1979–80

In the academic year under review, the University of British Columbia left the decade of the 1970s, a unique period in which universities everywhere had to adjust to changing circumstances, and entered the 1980s seeking self-renewal and a new sense of purpose. In retrospect, the 1970s will be perceived as a period of reassessment of the achievements and frustrations of the universities during the previous decade.

Ten years is not a long time in the life of a university; indeed, because the process of learning and discovery is an un-ending one, universities by their very nature have a responsibility to keep alive the long-term view, to remind themselves and society of the future.

But we should also, from time to time, pause to look back. We occasionally need to determine

One of the noteworthy changes in the composition of the student body during the 1970s was the growth in the number of women enrolled for both graduate and undergraduate programs.

where we stand in relation to some past milestone, to document the major changes that have had an impact on the fabric of the University, and to assess our strengths and weaknesses. With this in mind I asked the deans of the faculties and other members of the University community who aid me in compiling this annual record of campus activity to provide an overview of the decade 1970-80 and to describe briefly the future directions of their academic units in relation to the goals and objectives outlined in the document "The Mission of the University of British Columbia," a statement prepared in response to a request from the Universities Council of B.C. and made public during the 1979-80 academic year.

It has been a salutary experience to read these reviews of a decade which has seen UBC grapple with a number of problems. During this period the nature and composition of the student body changed out of all recognition, our curriculum was adapted to encompass new and contemporary fields of study, we continued to work on the frontiers of knowledge despite a generally gloomy decade of research funding and many of our faculty and students continued to work in sub-standard physical surroundings despite a massive, 10-year building program that altered the appearance of the University significantly. While the integrity of the academic enterprise at UBC remains fundamentally sound, we faced, and will continue to face, serious threats to the quality of education as a result of inflation and under-funding.

In the last half of the 1970s, particularly, we faced a constant uphill battle to maintain funding. It seems inexplicable that at a time when this province and nation face so many new intellectual challenges, this University, along with other universities in Canada, is forced to embark on self-justification in order to secure its position in provincial and national priorities. This issue should be a matter of deep concern to every British Columbian. Unfortunately, it seems to be a human frailty to think of the problem only sporadically. Nevertheless, the decade of the 1970s offers sufficient evidence that universities can no longer hope to "muddle along" successfully. The demand for trained and educated minds is ever accelerating in Canada. That is why this University is important to British Columbia and Canada.

The impact of under-funding on the University will be dealt with in greater detail later in this section of my report and in other sections dealing with research, capital financing and new construction, the University Library and continuing education. First, however, I would like to take a few moments to outline a number of overall trends which have had a significant impact on the University.

The decade of the 1960s was one of unprecedented growth for UBC, characterized by a doubling of enrolment. This rate of growth caused some concern so that in 1970 an alarmed UBC Senate set an upper limit on enrolment of 22,000 undergraduate and 5,000 graduate students, 27,000 in all.

Then, without warning, universities everywhere experienced one of the phenomena of the '70s — a levelling off or a decline in the number of young people seeking education at the post-secondary level. In some constituencies the effect of this change of attitude was traumatic; a large number of private colleges and universities in the United States, many of them offering a high standard of liberal arts education, closed their doors or watched their

standards being eroded away, and universities elsewhere, locked into formula financing closely linked to student enrolment, began to indulge in questionable recruiting and curricular practices which would have been unthinkable in previous decades.

It has been a source of pride to me, as a teacher and senior administrator at UBC during this difficult period, that the University did not find it necessary to deviate from the basic goal of doing everything in its power to provide and enhance quality education for its students. There is, after all is said, a genuine understanding that the education of students is primary to everything else that a leading university does. This function is primary because it expresses the educational footing on which each new generation of educated men and women is established. Our provincial and national life is profoundly shaped by this influence.

Indeed, it can probably be said that we are the only university in Canada which has opted to raise its admission standards in the 1970s. These new requirements, approved in 1977, are being phased in over a four-year period to enable high school students to tailor their programs to them. They will be fully in place for the 1981-82 winter session. I am convinced that these new entrance standards will have the effect of attracting students who want quality education.

Let me just briefly outline some of the changes which have taken place in the composition of the student body in the 1970s.

Our enrolment in the decade 1969-70 to 1979-80 for the daytime winter session increased by 11.5 per cent from 20,767 to 23,616 students. I regard this as a notable achievement in the light of the stories which appear in the news media from time to time pointing to the "crisis" of declining university enrolments. Our experience unquestionably accents the fallacy of premature assumptions of dramatic enrolment declines. However, our significant increase is a mixed blessing. The retrenchment in budgetary support during this decade has meant that the University has had to serve more students with fewer dollars per student.

There have been increases in our continuing education and outreach programs that can only be described as phenomenal. The director of the Centre for Continuing Education in 1969-70 reported 21,238 registrations for centre programs. The comparable figure for 1979-80 was 52,526 registrations, an increase of more than 100 per cent in a decade.

In 1979-80 the total number of registrations for all UBC's academic and continuing education programs was 117,010, made up of 84,403 who participated in continuing education courses and 32,607 who were registered for academic programs. I hesitate to give a comparable figure for 1969-70 because the reporting methods used at that time for continuing education programs were incomplete. But I am prepared to assert with confidence that the number of people who each year have contact with the University for educational purposes has doubled in the last decade.

There have been other noteworthy changes in the composition of the student body. The number of women enrolled at the undergraduate level increased from 39 to 47 per cent in the decade. At the graduate level, women now make up 41 per cent of those registered for master's degrees, compared to 26 per cent in 1969-70; and the percentage enrolled for doctoral degrees has increased over the decade from 16 to 28.

Despite a massive building program in the last decade, many students and faculty members are forced to work in substandard physical surroundings such as old army huts brought to the campus at the end of the Second World War.

The age distribution within the student body has also altered significantly. In 1979-80, 32.4 per cent, or one out of every three students, was in the age range 26 to 60 plus, compared to 20.1 per cent, or one out of every five students, a decade ago. The percentage of under-22s in the student population has fallen from 57.6 per cent a decade ago to 44.6 per cent in 1979-80.

Another interesting aspect of our enrolment of the past decade has been the significant increase in the number of students enrolled for credit courses on a part-time basis. In 1969-70, only 5 per cent of our students were enrolled on this basis; in the last academic year the comparable percentage was 16.

Looking broadly at the enrolment patterns within the University, the decade of the 1970s was characterized by significant increases in registrations in professional schools, such as Law, Commerce and Business Administration, Forestry and Agricultural Sciences. Only the

For UBC researchers, the decade of the 1970s was one of deepening gloom followed by several years of rising expectations.

Faculty of Education at UBC has shown a decline in enrolment, a decline that will mean another serious shortage of teachers in the early 1980s as western Canada's population base increases and the public places increasing pressures on the schools to provide specialized teaching services. It is worth noting here that despite the shift in enrolment patterns within the University, the changes have not been at the expense of the core Faculties of Arts and Science, which have continued to experience stable or rising enrolments.

Later in this section of my annual report, I will reproduce excerpts from the reports of the deans that bear on other important aspects of University activity during the decade, notably research and changes in the curriculum.

Before turning to those areas, let me briefly describe the changes that have taken place in the physical appearance of the campus in the last decade. In 1969-70 the University was just beginning a massive expansion of its facilities. In that year, additions to the Biological Sciences Building, the Woodward Library and the Thunderbird Winter Sports Centre were under construction, a new gymnasium complex was taking shape on Thunderbird Boulevard, and the $36 million TRIUMF project was being built in the south campus research area.

During that academic year, plans were set in motion for the new Sedgewick Undergraduate Library, a new Geological Sciences Centre, the Walter Gage Residence, the P.A. Woodward Instructional Resources Centre, the Buchanan Tower and a new Civil and Mechanical Engineering Building.

In the ensuing years, the University added another wing to the Biological Sciences Building, constructed a $2.8 million Animal Care Facility on the south campus, created a new centre for the Department of Anthropology and Sociology adjacent to the splendid new Museum of Anthropology, built a facility to house the B.C. Mental Retardation Institute, completed the Health Sciences Centre by expanding the basic medical sciences buildings and constructing extended care and acute care units, improved campus athletic and recreational facilities by building the new Aquatic Centre (with financial aid from students and the community) and added a new Library Processing Centre to its inventory of buildings.

In short, it was a period of physical construction rivalled only by that which took place on campus immediately following the Second World War.

I would like to be able to say that this building program has eliminated most of our pressing need for new facilities. But the fact is that we still have on the campus some 100 of the converted army huts brought to Point Grey following the Second World War, and many of our basic science departments, notably Chemistry, and professional schools — Commerce and Business Administration, Agricultural Sciences and Forestry — occupy overcrowded facilities resulting from significant enrolment increases. I can only reiterate here what I have said in previous reports — first-class academic work cannot flourish and expand in sub-standard quarters. We have before the Universities Council proposals to rectify many of our physical shortcomings and we shall continue to press on that body the need for funds that will

enable us to upgrade our facilities and our academic program.

Finally, before I reproduce excerpts from the reports of the deans, let me say a few words about the reorganization of university-government relations and the financing of universities which took place during the 1970s. The new Universities Act which came into force in 1974, while it did little to alter the internal governance of universities, has had one major effect — it has interposed between higher education and government an intermediary body, the Universities Council of B.C.

The Council performs two major functions: it submits to government annually a request for operating funds for the three public universities and it divides among the universities the money it receives from government.

In my judgment, the public universities have become vulnerable to the impact of inflation and increasing financial constraints because they are now unable to make direct contact with government in order to argue directly their case for adequate funding. To this date, there is no doubt in my mind that the submissions made by the Council to government do not adequately reflect the true costs of operating this comprehensive University. I sincerely hope that a formal procedure for reviewing our requests with government can be found.

Another aspect of funding policy that has worked to UBC's detriment in recent years is the use of a formula for allocating the operating grant received from government. This situation would not be as urgent if the UCBC requests that go forward annually to Victoria reflected the genuine costs of operating a university, especially one with many professional facilities.

The operating grant received by the University for 1980-81 represented an increase of 8.7 per cent, well below the academic inflation rate, which has seen the cost of books, professional supplies and utilities increase by as much as 14 to 20 per cent in the last academic year. When line items allocated by UCBC are deducted from the 1980-81 operating budget, the general increase becomes 7.9 per cent.

The consequences and problems generated by this under-funding are legion. By the end of the next fiscal year (March 31, 1981) we will be forced to reduce our continuing payroll base by at least $2.1 million. When that process is completed, it will bring to almost $7 million the amount UBC has had to remove from its operating budgets since 1976-77 — probably a record-setting retrenchment made by a Canadian university in that period.

In an indirect way, the University is also penalized because of its success in attracting grants for research, which stimulates better teaching and provides long-term benefits for society. The indirect costs of research are not funded by the granting agencies and must come from the operating budget. Similarly, the servicing of new campus buildings also affects the operating budget. Provision is made for the capital funding necessary to erect a building, but adequate funds are not provided for operation and maintenance.

In dozens of large and small ways, limited resources are threatening to erode the quality of education we are able to provide for our increasing student enrolment as well as institutional vitality, strength and diversity. I am certain that no one in government, and most certainly not the B.C. public, wishes to see the University diminish in quality. But there is no question in my mind that quality will be threatened in the not too distant future if our operating budget remains unstable as a consequence of inflation and under-funding. At worst, continuation of this financial jeopardy could lead to a point where agonizing decisions will have to be made about the elimination of certain programs, perhaps even certain departments or faculties. It is my hope that we will never have to imperil the future of our nation and our young people by giving such action serious consideration.

The evolution of funding arrangements for provincial universities has involved both levels of government, provincial and federal. History will, I believe, write that in the main federal participation was appropriate because of the long-term benefits it brought to the nation. Without federal involvement, Canada would not now possess a network of many excellent universities. Taken together, funding by two levels of government has provided increased strength for universities by reducing their vulnerability to one "paymaster."

Canadian universities are, however, not unaware of the immense uncertainties involved in these funding arrangements. They have no illusions about what a federal withdrawal would mean for higher education. In my judgment, such a withdrawal would be an unimaginable catastrophe because of the magnitude of federal funding.

Unfortunately, many citizens are not aware of the enormous increases in federal funding to our universities since the Second World War. In concrete terms:

- After the war, the federal government paid universities $150 for each enrolled veteran;
- From 1951 to 1967, the federal government provided direct support to universities in terms of a per capita grant based on provincial population;
- From 1968 to 1977, direct grants from Ottawa to universities were discontinued and replaced by payments to provincial governments based on the operating expenditures of post-secondary institutions. Under this scheme, Ottawa was generally responsible for half of the operating costs of higher education. Regrettably, this arrangement was abandoned in 1977 because of a significant federal policy change;
- Under the "Established Programs Financing" scheme in force since 1977, federal government support is no longer based on the operating costs of post-secondary institutions, but involves a transfer of tax points and an annual cash payment to the provinces. Much to the consternation of Canadian universities, the federal government imposed no legal conditions on the provinces on how these transfers could be used. These arrangements are effective until April, 1982, and will be up for renegotiation in the spring of 1981.

I cannot emphasize too strongly that this indirect federal funding of university education is of paramount importance. This need is clearly recognized by the University community. But recognition is not a reason for complacency in

ESTABLISHED PROGRAMS FINANCING (1977)
Post-Secondary Education 1980–81
($000)

PROVINCES	CASH	TAX	TOTAL
Newfoundland	$ 45,901	$ 27,945	$ 73,846
Prince Edward Island	9,847	5,995	15,842
Nova Scotia	67,513	41,101	108,614
New Brunswick	55,994	34,089	90,083
Quebec	350,004	454,165	804,169
Ontario	636,837	455,233	1,092,070
Manitoba	81,409	49,560	130,969
Saskatchewan	76,806	46,758	123,564
Alberta	140,076	124,827	264,903
British Columbia	189,850	145,705	335,555
Yukon	1,396	1,517	2,913
Northwest Territories	3,325	2,257	5,582
Total	$1,658,958	$1,389,152	$3,048,110

Education Support Programs Branch, Secretary of State, July, 1980.

times of fiscal restraint and troubled relations between the two levels of government. The outcome of these negotiations will shape the 1980s.

The table on this page sets out the amounts which it is estimated the federal government will spend for post-secondary education in 1980–81.

For 1980–81 the transfer from Ottawa in terms of tax points is $1.3 billion, plus cash payments of $1.6 billion, for a total of more than $3 billion. For British Columbia, funding from Ottawa for post-secondary education will be more than $335 million.

Few people realize the importance of federal involvement in our universities. Federal authorities have already indicated to the provinces that they expect to achieve significant savings in these transfers to the provinces in order to reduce the national deficit. Moreover, the federal government may withdraw its support of higher education in areas of perceived provincial jurisdiction.

Obviously, when this program comes up for renewal and negotiation, universities hope that they will be consulted because of the key role they play in the life of Canada. These negotiations will be a time of great educational challenge and opportunity for Canada. If the federal and provincial governments meet the challenge in a forthright and courageous way, Canadian universities will be able to ascend to even higher levels of excellence; if the two levels of government do not, the universities could slip into a steady decline toward academic mediocrity. Federal government withdrawal from indirect funding of universities would be shortsighted and gravely damaging to the long-term interests of Canada. This issue is not an esoteric debating point to be thrashed out solely by finance ministers. Leaders of business, unions, and education must assume part of the responsibility for making governments aware of the benefits of strong Canadian institutions of higher education. They are a basic national resource.

The material which follows has been excerpted from the reports of the deans of the 12 faculties in response to my request for a brief review of developments in the 1969-70/1979-80 decade and the outlook for the future in relation to goals and objectives outlined in "The Mission of the University of British Columbia."

AGRICULTURAL SCIENCES. Dean Warren Kitts points to an increase of almost 100 per cent in enrolment in his faculty in the last decade from 210 to 403 undergraduates and an increase of 163 students in graduate studies. The faculty introduced a major curriculum change in the last academic year and during the decade added the following new programs: a new degree program in Landscape Architecture; a rangeland resources option, initially in Plant Science, later expanded to Soil Science, Animal Science and Agricultural Economics; specialization within Soil Science in forest soils, biometeorology, hydrology, remote sensing and land reclamation; establishment of a Department of Food Science; introduction of a program in wildlife management in Animal Science; a change in emphasis and name resulting in the creation of a Department of Bio-Resource Engineering to encompass the renewable resource areas of agriculture, aquaculture, and food process engineering; and development in Agricultural Economics of options in farm management and production, agribusiness and marketing and agricultural resource economics and development.

Research funds in the faculty more than quadrupled in the decade to more than $2.9 million to support some 230 projects, including 40 field studies off the campus. The faculty's expanded public service activities included initiation of services by faculty and students to provide advice to the public on food and horticulture.

As to the next decade, Dean Kitts sees public service through continuing education and other services as a continuing priority. The faculty will seek to develop a co-operative program with industry to enable students to gain practical ex-

perience, and a Master of Agriculture degree is planned to provide agricultural professionals with additional training. To accomplish its mission, the faculty will need more classroom, laboratory, study and office space.

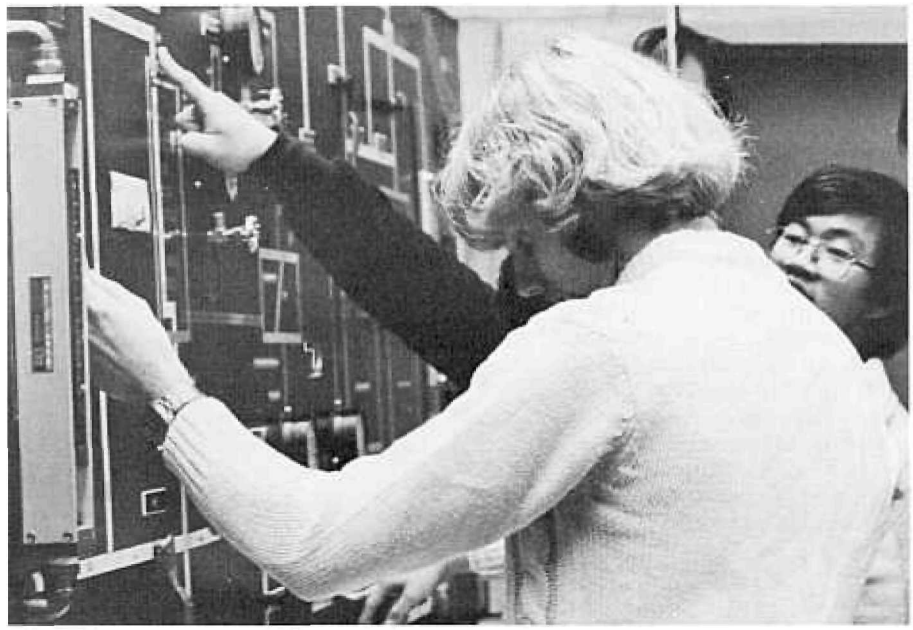
APPLIED SCIENCE. During the decade of the 1970s, the faculty completed its physical move from the central campus core to new quarters to the south, thus bringing all the engineering departments in close proximity to one another. The undergraduate student population grew to record levels (excluding the immediate post-Second World War enrolment boom) and the faculty is experiencing overcrowding even in its new facilities. Major academic initiatives in recent years were the establishment of the presence of the Pulp and Paper Research Institute of Canada in the Department of Chemical Engineering and the major commitment made by the University to the development of coal technology, which will lead to collaboration with departments in the Faculty of Science.

The faculty has begun preparation of a major plan for the development of engineering education aimed at stimulating primary and secondary technology in B.C. This will require construction to overcome a significant lack of space in some engineering departments, further development of the curriculum in areas of special interest to Canada, upgrading of the faculty (some of whom are being lured to industry by salaries far higher than the University is capable of paying), and expansion of opportunities for graduate work.

The School of Architecture entered the '70s with an entirely new curriculum which has proven to be very effective in providing a responsive and personalized education for students preparing for a professional career. During the last academic year the school has undergone an in-depth review of its program and is preparing a development plan for the '80s in line with the Mission Statement.

ARTS. The faculty, says Dean Robert Will, "looks back on the 1970s as a period of consolidation and reassessment of gains made during the previous decade when the faculty went through the most explosive period of expansion and transformation in its history. ...the past decade, and more particularly the years since 1975, have seen some basic rethinking, by both students and faculty, about the role and value of graduate study, especially in the light of the reduced job opportunities in university teaching, government and research. The undergraduate program has also come under scrutiny as graduating students found it increasingly difficult to find positions that matched both their expectations and qualifications. Yet despite a less than favorable employment climate...student numbers...have remained surprisingly stable in recent years after a decline from peaks reached in the late 1960s and early 1970s."

Dean Will expects the faculty's development in the 1980s will be more qualitative than quantitative. The generation of new courses is now tempered by the reality of a new financial climate, with the result that new courses are more often than not approved as a replacement for courses being deleted from the curriculum.



The Faculty of Applied Science is preparing a plan for the development of engineering education aimed at stimulating primary and secondary technology in B.C.

There is, however, need for new courses to fill in gaps in existing programs.

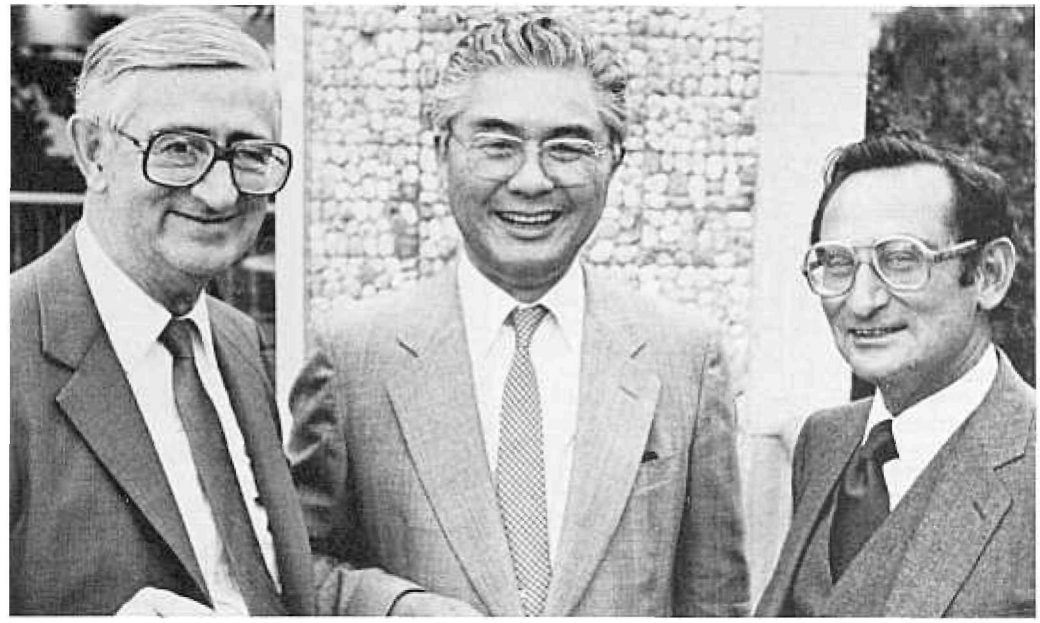
In accordance with the faculty's mission statement, Dean Will adds, new initiatives requiring earmarked or specific funding from the Universities Council are being undertaken and will continue on a modest scale throughout the 1980s. New programs initiated in this way are likely to be in the area of the creative and performing arts, but not exclusively so.

COMMERCE AND BUSINESS ADMINISTRATION. Dean Peter Lusztig says his faculty made "significant advances on all fronts" in the 1970s in terms of degree programs, research, professional education and public service. The enrolment of full-time undergraduates increased by 70 per cent over the decade and graduate enrolment grew by 90 per cent. The faculty's student body composition, like that of the University as a whole, altered dramatically. Women made up only 5 per cent of enrolment in 1969-70; in the current academic year women made up 30 per cent of enrolment.

New faculty attracted to the University during the decade "have brought international attention to (Commerce and Business Administration) in many areas. Our programs in finance, transportation and urban land economics are acknowledged internationally as being in the first rank of equivalent programs to be found anywhere." He also points to the increased commitment by the faculty to professional continuing education "of the highest quality," an area that attracted more than 1,800 executives to 80 programs in 1979-80 alone.

Dean Lusztig says the faculty's pursuit of quality will be severely hampered if it is unable to add qualified faculty members and if it continues to experience space shortages, which are beginning to be critical. He looks forward to an expansion of research activities to take advantage of increasing federal government support and the exploration of new links with institutions on mainland China to fulfill the faculty's vision as a Pacific Rim educational resource.

UBC's Faculty of Commerce and Business Administration, headed by Dean Peter Lusztig, far right, is developing new links with institutions on mainland China to fulfill the faculty's vision as a Pacific Rim educational resource. During the academic year, President Douglas Kenny, left, announced the establishment of a special fellowship to enable a senior scholar from China to spend up to four months at UBC in 1980-81. The scholar will be selected by Rong Yiren, centre, chairman and president of the China International Trust and Investment Corporation, which facilitates foreign investment in China.



The faculty is also endeavoring to expand graduate programs in the light of growing demands for individuals trained in management education and looks forward to drawing on the expertise of its Advisory Council, formed during the 1970s, to cope with the increasing demands of the 1980s.

DENTISTRY. Dean George Beagrie reports that during the 1970s the faculty accomplished the development of a strong foundation for the undergraduate teaching program and in the latter part of the decade turned its attention to graduate and post-graduate education. A specialty diploma with a Master of Science option in periodontology was introduced and in 1979-80 a combined degree of Doctor of Dental Medicine/Master of Science was started as a pilot project after successful negotiations with the Faculty of Graduate Studies. This approach is expected to broaden the research approach of the faculty. Other recent notable developments include establishment of an oral pathology/oral biopsy service, and the introduction of a graduate and post-graduate division.

The dental faculty intends to introduce in the next few years a program leading to the degree of Bachelor of Science in Dental Hygiene and there has been considerable interaction between the faculty and Douglas College with a view to developing a community-based training area in dental hygiene.

Dentistry has been given a new focus with the completion of the Health Sciences Centre Hospital. A Department of Dentistry has been formed within the complex to provide general dental treatment for hospital patients and the next few years should see the formation of similar departments in other hospitals with which the faculty will become affiliated. There are plans also to develop a craniofacial anomalies centre and a facial pain centre to serve as specialty treatment centres for the province. There is a need also to extend preventive services for control of dental caries and periodontal diseases during the 1980s, with particular emphasis on the identification of risk groups in the population. Continuing Dental Education continues to have a high priority in the faculty, Dean Beagie says, and it is expected UBC will act as a major centre for this activity for the Pacific Rim as well as for other areas of the world.

EDUCATION. There were some notable developments in this faculty during the decade under review. In 1970, UBC became the first Canadian university to set a bachelor's degree as the minimum requirement for teaching in the elementary grades. The faculty subsequently experimented successfully with alternative methods of preparing teachers through a variety of programs, notably Community Education and the Native Indian Teacher Education Program. The faculty also co-operated with the Yukon government to establish three years of teacher education for students in that territory.

The faculty anticipated future needs by initiating graduate and diploma programs to prepare adult educators. The doctoral program in adult education is one of only three offered in Canada. The success of all programs for graduate students is illustrated by the fact that over the past 10 years the number of candidates registered for master's and doctoral degrees has more than tripled. Other developments included establishment of the Education Research Service Centre to provide faculty and students with advice and guidance about research retrieval and design and data analysis, and the Centre for the Study of Curriculum and Instruction, which draws together faculty and graduate students to investigate the history, development, implementation and assessment of curricula. In previous reports, I have drawn attention to the faculty's significant contribution to in-service education of teachers, a program which in 1979-80 provided 151 courses attended by 1,328 teachers in 42 school districts beyond the lower Fraser Valley, a 32 per cent increase over the previous year.

Stemming from a review of the faculty, described in detail in my last annual report, was a decision in January, 1980, by the faculty to

departmentalize, which involved melding 22 quasi departments into seven official departments and one division.

In the coming decade the faculty proposes to train more students in the field of counselling to work in schools and other agencies and with women, adults, immigrants and the handicapped; assist in the preparation of curricula and personnel for infant, nursery and daycare programs; extend diagnostic and remedial services in such areas as science, mathematics, language and reading and learning disabilities; and increase its involvement in programs in correctional institutions, among other things.

To carry out this mission, Acting Dean Roy Bentley says in his submission, increased funding is needed to extend graduate programs and research activities, provide better library facilities, and expand physical facilities.

FORESTRY. Student enrolment and the size of the teaching and research staff in Forestry increased significantly during the 1970s, reflecting increased concern about the bellwether industry of the province. The faculty began the decade with a totally restructured curriculum. A stepped-up information program to high schools emphasizing career opportunities resulted in annual graduating-class sizes increasing from the 40-50 range to the 60-80 range. In the same period, women began to enrol in the faculty and their numbers have grown steadily until they now represent 23 per cent of the total undergraduate enrolment. The faculty graduated 639 students during the decade, which represents 40 per cent of the total forestry graduates since 1921.

The teaching and research staff in Forestry increased in size from 25 to 40 over the decade. The additions ensured more balanced instruction in forest resources and environmental management and provided new expertise in such areas as fisheries biology, land, range and wildlife management, remote sensing, silviculture, wood science and resource economics.

The recent developments in forestry in the province, including a new Forest Act and the expansion of the provincial Forest Service, which stem from the 1976 report of UBC resource economist Prof. Peter Pearse, present a new challenge for the UBC forestry faculty. If the provincial objective of a viable forest industry for B.C. is to be met, the faculty must increase its on-campus enrolment and continue to expand its embryonic continuing education program. Forestry will require an infusion of resources to provide new physical facilities and additional faculty for an enlarged enrolment and an already active research program.

GRADUATE STUDIES. Dean Peter Larkin characterizes the 1960s as "a period of rapid growth in enrolment and proliferation of graduate programs," while the decade of the '70s is described as one of "enrolment decline and recovery and consolidation of graduate offerings."

In December, 1970, graduate enrolment was 2,810, including 1,079 doctoral students; four years later graduate enrolment had declined to 2,666 students, including 890 doctoral candidates; and in December, 1979, total graduate enrolment stood at 3,293, including 870 doctoral students. By broad subject area, the 1970s witnessed a sharp decline in graduate enrolment in the humanities and pure sciences, but an increase, particularly at the master's level, in the professional areas, especially Education and Commerce and Business Administration. The social sciences were in between these extremes, reflecting their relatively late emergence in Canadian universities.

Despite the problems associated with research funding, there was a steady diversification of offerings during the 1970s. The number of graduate areas of study UBC offers increased from 80 to 94, the number of different kinds of degrees offered increased from 14 to 18, and the number of departments offering doctoral programs increased from 47 to 65 in the decade.

Prof. Peter Pearse, the noted resource economist who now holds a joint appointment in economics and forestry at UBC, was honored by the Association of B.C. Professional Foresters in 1979 for his royal commission report of 1976 which resulted in a new Forest Act for the province.

Dean Larkin comments: "More important than these statistics were the many changes in course offerings, the growth in departmental experience and facilities and many other less visible changes that come with consolidation. The graduate programs at UBC are much better in quality now than they were at the end of the 1960s decade of rapid expansion. The same trends will continue in the 1980s, with a slow and steady growth in offerings and departmental capacities."

Dean Larkin also characterizes the 1970s as a decade of great interest in "interdisciplinary studies," a trend to which UBC responded conservatively, continuing to stress the desirability of strength in at least one discipline before embarking on projects that required strength in two or more directions. "This approach," says Dean Larkin in his annual report, "as judged by its results, has been particularly sound and UBC has avoided much of the institutionalized fadism that has come home to roost for many other North American universities."

In this context there has been a continuing evolution and change in the various graduate institutes and centres. Of the six units reporting to the dean in 1970, only two today remain as they were then — the School of Community and Regional Planning and the Institute of International Relations. The Institute of Oceanography has become a department in the Faculty of Science, the Institute of Fisheries has been incorporated into the Institute of Animal Resource Ecology, Asian and Slavonic Research has become the Institute of Asian Research, and Industrial Relations is currently dormant pending a reorganization. Added to the spectrum of Graduate Studies during this same period were the Westwater Research Centre, the Institute of Applied Mathematics and Statistics, the Centre for Transportation Studies, the Centre for Human Settlements (an outgrowth of the international Habitat conference held in Vancouver in 1976, the Centre for Coal Research, and programs in resource management science, clinical engineering and soil dynamics research. "This kind of rapid change and turnover is to be expected as the University embarks on new ventures," says Dean Larkin, "many of which are eventually rolled into the permanent fabric of the University. It can be expected that the same trend will continue into the 1980s as the frontiers of knowledge are progressively expanded."

Other important trends noted by Dean Larkin are the effort which has been made to encourage more mature citizens to upgrade their qualifications and the enhancement of collaboration among the various sectors of society — industry, government and University. These two trends have intersected significantly, and in the professional areas especially have resulted in major growth in the number of part-time students at the master's level and a substantial increase in institutional co-operation.

In the 1980s, says Dean Larkin, "it is expected that graduate enrolments will increase gradually across the whole spectrum of subject areas, with the greatest growth in the professionally oriented fields." By projecting current trends in graduate enrolment, he says, "there is good reason to expect that the 1980s will be the decade in which graduate enrolment increases to 6,000 as was projected in the early 1960s as the likely level in the 1970s."

LAW. The Faculty of Law is pursuing three concurrent objectives, Dean Kenneth Lysyk says in his submission. The first, and the one pursued through the 1970s, is the consolidation and development of existing programs. The past decade was a period of rapid expansion for the faculty, one in which student enrolment quickly reached the planned maximum level. Since then, the number of fully qualified applicants for admission has exceeded the number of places available several times over.

A second broad objective is to achieve greater integration of conceptual and applied approaches to legal education. Some important initiatives in this area include the clinical programs and courses in counselling and advocacy, and "applied-law" experiments which are now firmly based in the faculty's curriculum and which have gained the law school a reputation as a leader in the field. A number of important developments in the teaching of advocacy are either in place or planned: an intensive program in trial and appelate practice is being experimented with; the faculty sponsors an advocacy workshop for members of the practising bar in association with the Continuing Legal Education Society of B.C.; students are given the opportunity to observe advocacy in practice through a courtroom facility in the Law Building; and a direct closed-circuit television link with the Vancouver Courthouse is being developed so that students may observe trials in progress. Establishment of this link will make UBC the first law school in Canada to have such a facility.

The faculty's third broad objective is to develop programs responsive to national and provincial needs and priorities. An example of a development of this type is the proposed program in Japanese law, reflecting the growing economic importance, for B.C. particularly, of Japanese relations with Canada. Another example is the Native Law Program which is responding to the needs of Canada's Indians. This has required a flexible admissions policy, development of special tutorials for Native Indian students and participation by faculty in province-wide meetings to bring the program to the attention of native people. In the 1980s, the law school also plans to place a high priority on expanding and strengthening its graduate program.

MEDICINE. The major thrust of academic and physical development for the Faculty of Medicine in the 1970s centred on the construction of the Health Sciences Centre, which is linked to the phased expansion of enrolment in medicine leading eventually to a doubling of the first-year class to 160 students. A total of 120 students will be admitted in the fall of 1980. A description of the growth and development of the Health Sciences Centre during the last decade is included in a special section of this report and was occasioned by the official opening ceremony for the complex in May, 1980. The Walter Koerner Acute Care Unit, the final building making up the Health Sciences Centre Hospital, will admit its first patients in September of 1980.

PHARMACEUTICAL SCIENCES. Dean

Significant changes in the Faculty of Pharmaceutical Sciences during the 1970s included a near doubling of student enrolment, a near sevenfold increase in research funding and a fourfold increase in faculty strength.

Bernard Riedel lists the following items as indicative of the significant changes which have taken place in Pharmaceutical Sciences over the past decade: enrolment has almost doubled from 184 to 359 students; the graduate program has developed rapidly with a near doubling of students registered for advanced degrees; a near sevenfold increase in research funds saw $1,022,641 available in 1980, compared to $152,870 in 1970; and faculty strength has increased fourfold.

The undergraduate program altered greatly during the decade with concentration on development of a clinical program leading to a considerable change of emphasis for graduating students. The faculty's clinical program is recognized as one of the best in Canada, Dean Riedel says. Other notable developments during the decade were initiation of one of UBC's most valuable public-service projects, the Drug and Poison Information Centre, which is also an active teaching and research centre, and development of a program of radioisotope development and research in association with the TRIUMF Project and the medical faculty's division of nuclear medicine. The prospect of work in the field of positron emission tomography, described in greater detail in a later section of this report under The Health Sciences, opens up new research possibilities for the faculty.

SCIENCE. As one of the "core" faculties of the University, the Faculty of Science plays a central role in the University through the instruction it provides to students registered in all faculties but Law, and serves as an initial training ground for many students planning careers in the professions. Its research program is very wide-ranging and encompasses both basic and applied research.

A Faculty of Science review committee which reported to me in the 1979–80 academic year said that as judged from both inside and outside the University, UBC's faculty "ranks as a leading Science Faculty." The report noted that the average number of research papers already published by each faculty member is 34, that the average number published in the last five years was 12, and that research funds awarded to members of the faculty in 1978–79 were of the order of 60 per cent of the faculty's professional salaries budget.

The faculty entered the 1970's with all its present departments in existence in one form or another. During the decade, the Department of Geology changed its name to the Department of Geological Sciences and a developing astronomy program became part of the offerings of the Department of Geophysics and Astronomy. The former Institute of Oceanography was incorporated into Science as a department in 1979. Curriculum alterations which took place during the decade are too numerous to mention; in the many disciplines which make up this faculty knowledge expands at an extraordinary rate and curriculum committees are hard pressed to ensure that academic programs reflect advances in science.

It is not surprising, given the size and com-

A review completed in the last academic year said the UBC Faculty of Science ranks as a "leading Science Faculty," and made suggestions for changes to enable it to reach its full potential.

plexity of the Faculty of Science, that the review committee found shortcomings in the faculty and reported that it would not reach its full potential until a number of serious problems are recognized and remedied.

These problems have to do with the science faculty's curriculum, especially at the first year level, shortcomings in counselling for students, the allocation of resources within the faculty and relationships with the Faculty of Graduate Studies as a result of the large amount of money which the science faculty receives for the support of research. The new dean of the faculty, Prof. Cyril Finnegan, is taking steps to deal with the problem areas identified by the review committee.

This is the second of three major faculty reviews which I have initiated as part of an overall plan designed to improve the quality of education at UBC. A review of the Faculty of Education was completed in the last academic year and the Faculty of Forestry is currently under review.

BOTANICAL GARDEN. Although it is not a faculty, I have chosen to describe briefly the development of the Botanical Garden in this section because the decade of the 1970s was probably the most important one for its growth and expansion. The vigorous 10-year development program initiated under garden director Dr. Roy Taylor in 1971 has seen the establishment of the theme "Plants and Man" and a three pronged objective encompassing research, teaching and public education (this latter function is described in the section of this report on Public Service).

Since 1971 such new facilities as the B.C. Native Garden and the Alpine and Physick Gardens have been established on the south campus in the vicinity of Thunderbird Stadium, and a five-acre research and production nursery and a propogation facility to serve academic departments and produce new plant materials for industry and the garden itself have been developed.

Dr. Taylor, in his annual report, says it is anticipated that by 1981 all major phases of the garden development will essentially be complete with the exception of the proposed research and administration building on the south garden site. The staff of the garden will, in the fall of 1980, commence an assessment and evaluation of a new five-year development program for the 1981-86 period. "This assessment," he says, "will not only enable the institution to better meet the needs of users both internally and externally, but will provide an overall basis for a systematic and logical development of programs within the Botanical Garden."

Research

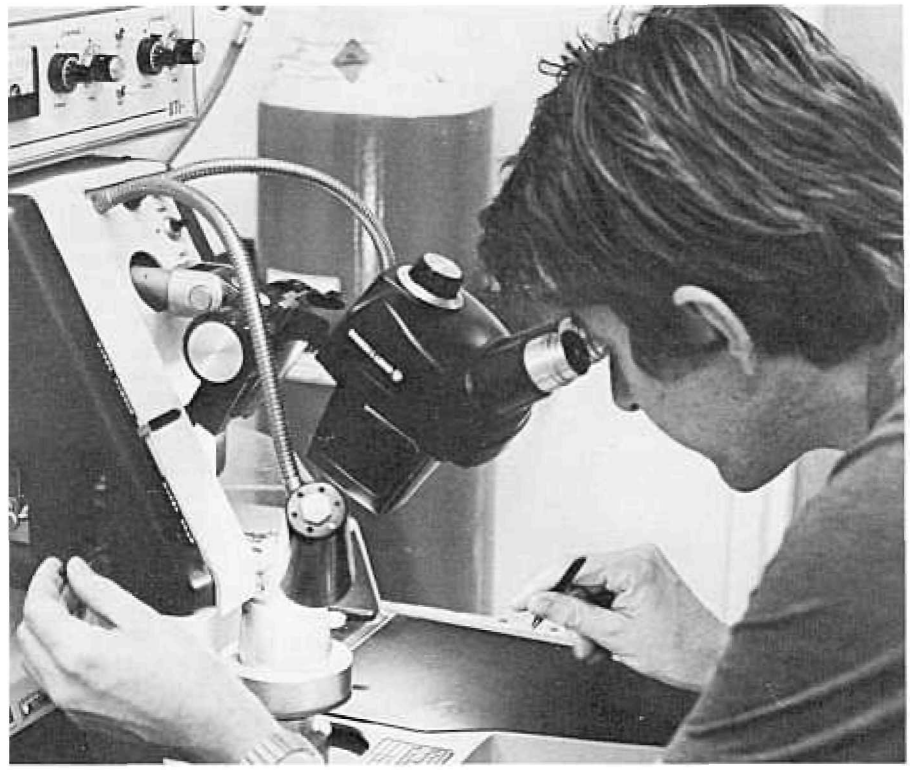
The decade of the 1970s, so far as research is concerned, was one of deepening gloom followed by several years of rising expectations.

The federal government, early in the decade, adopted a hold-the-line policy on research funding, a policy which I described in previous reports as short-sighted and hazardous. This policy, coupled with inflationary pressures, placed all of Canada's university research effort in jeopardy and, in my view and that of other senior administrators and scientific leaders, imperilled the future of this country.

The effects of the policy were clearly felt on the UBC campus. Some faculty members found their research grants cut to dangerously low levels or withdrawn completely, young faculty members drawn to the academic world by the prospects of a career in research and teaching found they were unable to obtain any funds to begin new projects; technical support staff, many of them highly skilled, had to find employment elsewhere; and there is no doubt in my mind that University enrolment was affected because of the close link between research funding and graduate student enrolment. By denying young Canadians access to university academic and research facilities, governments have created a manpower gap that will seriously affect universities and the economy in the future. One of the major functions of research is to train the next generation of scholars who will develop innovative ideas and techniques for Canadian society and staff university classrooms. Over the next decade or two, it seems likely that the trained workforce Canada will need for these functions will not come on-stream at the appropriate time. And I have no hesitation in saying that Canada's future is likely to be seriously affected as a result.

Admittedly, the decade of the 1970s was a difficult period for governments because of rising costs and inflation. The point I wish to make here is that it is precisely in times of difficulty that the need for research is greatest. It is a time when we need new information to strengthen the long-range development of our natural and human resources, not just in the pure and applied sciences but in the social sciences and humanities as well.

It is only in the last three years or so that the federal and provincial governments have taken steps to shore up Canada's sagging research effort. In 1980, the federal government will increase its spending for research in the natural sciences by some $155 million and increase support for awards to promising doctoral students. Ottawa has promised that by the middle of the 1980s, research spending will account for 1.5 per cent of the gross national product. Currently, Canada spends only 0.94 per cent of its $260 billion GNP on research, about half the proportion spent by such countries as Switzerland and France.



A turnaround in government policy has resulted in a near doubling of support for research at UBC over the last five years.

For 1980-81, the budget of the Natural Sciences and Engineering Research Council was increased by 35 per cent to $162.6 million, the Medical Research Council's budget was boosted by 17 per cent to $82.2 million, and a similar percentage increase gave the Social Sciences and Humanities Research Council a budget of $41.7 million.

This turnaround in government policy has been reflected in research funding at UBC. Over the past five years grants for research have nearly doubled from $16 million to $31.3 million in the 1979-80 fiscal year. The 1979-80 total is a 21 per cent increase over the previous fiscal year and marks the third consecutive year in which research-award increases exceeded 20 per cent.

Dr. Richard Spratley, the University's research administrator, points out a notable shift in the source of research funds over the past five years in his annual report. Federal support (from federal government departments and national councils which receive funds directly from the federal government) is now only 59 per cent of the total, down from 75 per cent in the early 1970s. And provincial support, through the B.C. Health Sciences Research Fund and the Science Council of B.C., has increased dramatically by nearly 500 per cent since 1975-76.

Another overall trend of the past five years is

that funding for the health sciences, social sciences and humanities increased more rapidly than did grants for other disciplines. Increases for the humanities and social sciences were of the order of 150 per cent, and 130 per cent for the health sciences in the past five years. In the same period, increases for research in the natural sciences were of the order of 85 per cent and for the applied sciences of 70 per cent.

There have also been dramatic increases in research funding over the past five years in the Faculty of Education (up 238 per cent), Pharmaceutical Sciences (up 328 per cent) and Agricultural Sciences (up 164 per cent). A five-year increase of 370 per cent in funding in the Department of Medicine in the Faculty of Medicine has made it the highest funded department at UBC with a total of $2.32 million in 1979-80.

Five UBC faculties received research funds in excess of $2 million in 1979-80, compared to only two faculties five years ago. The Faculties of Medicine ($9,636,791) and Science ($9,601,318) topped the list in 1979-80. Other faculties which received more than $2 million in the last fiscal year were Applied Science — $2,549,662, Agricultural Sciences — $2,354,028 and Arts — $2,266,294. Six UBC departments — five in the natural sciences and one in the health sciences — were each awarded grants in excess of $1 million in 1979-80.

Another aspect of the reawakening federal interest in research funding is the involvement of two UBC faculty members in the work of a national committee which will make recommendations on the provision of funds for new research equipment in Canadian universities. Prof. Fred Siller of the Faculty of Commerce and Business Administration is the chairman of a 10-member task force appointed by the Natural Sciences and Engineering Research Council to report on funding priorities for university research equipment and to recommend the most efficient use of equipment. A second member of the task force, Prof. Myer Bloom of UBC's physics department, has primarily been responsible for analysing the results of a questionnaire distributed to natural and applied science departments at 16 Canadian universities. Establishment of the task force was an outgrowth of recommendations made in a five-year plan prepared by NSERC on the funding of university research. One of the major problems cited in the report was the inability of many researchers to carry out advanced work because of the outdated nature of research equipment.

The increased activity in research is reflected in the annual reports of the deans of the University's 12 faculties. It would take many more pages than make up this report to record all the projects under way at present. I have chosen a representative selection from each faculty to indicate the range and variety of work that is enriching our scientific and cultural resources.

AGRICULTURAL SCIENCES. Grants in this faculty were up 25 per cent in 1979-80 over the previous fiscal year to support some 230 separate projects, which Dean Warren Kitts says are highly relevant from a national and international point of view or are aimed at solving unique regional problems in B.C. In effect, Dean Kitts adds, the Faculty of Agricultural Sciences serves as the research arm of the provincial Ministry of Food and Agriculture. Research projects are by no means confined to the UBC campus; 40 involve studies and field work outside the Lower Mainland and the faculty also makes use of ancillary research facilities at its research farm at Oyster River on Vancouver Island. All this activity resulted in faculty members contributing three chapters to books, publishing 89 papers in refereed journals, preparing 74 reports, reviews, monographs, bulletins and articles, and presenting 53 papers and abstracts at conferences.

Projects of note include: studies on stabilization schemes in the B.C. beef industry by Dr. George Kennedy; studies on the use of solar heat in greenhouses by Prof. L.M. Staley; testing of a wide variety of food and food products as health hazards by Prof. W.D. Powrie in co-operation with the B.C. Cancer Research Centre; studies on paralytic shellfish poisoning in Food Science; a study of Vancouver's waterfront with the aim of making design and landscape recommendations to maximize the scenic value of that area; and the use of remote sensing to assess the impact of off-road vehicles on open range lands in B.C.

APPLIED SCIENCE. In the Department of Chemical Engineering, Colin Oloman has developed a new process for production of hydrogen peroxide at pulp and paper mills, thus holding out the hope for considerable cost reductions for that industry. Chemical and metallurgical engineers are co-operating in a program of research and testing of rotary kilns which has drawn international interest from industry.

In Civil Engineering, Dr. W.K. Oldham's work on the biological removal of nutrients from sewage has led to acceptance of this process for a new treatment plant now being designed for the City of Kelowna. Two other B.C. cities — Vernon and Cranbrook — are using another waste management method developed by Dr. Oldham involving application of treated sewage to dry-land areas for the production of cash crops, thereby reducing the load of undesirable impurities entering nearby lakes.

The electrical engineering department is active in the fields of applied electromagnetics, biomedical engineering, communications and signal processing, computer applications and digital and power systems engineering. Prof. E.V. Jull is advising Transport Canada on the minimization of interference to instrument landing systems and radar systems due to airport buildings and Dr. Michael Beddoes continues his work on development of aids for the blind. The work of Dr. D.F. Schrack in developing a language for computer graphics has attracted interest, particularly in Europe, and Prof. Hermann Dommel has become the central figure in an international group of power systems analysts making use of a new program which he developed.

In the Department of Mechanical Engineering, research on wind-induced oscillation of towers and tall buildings is being carried out by Prof. Geoffrey Parkinson; Dr. Ian Gartshore is testing building models in wind tunnels to determine what strength of windows should be

specified for Vancouver buildings; Dr. T.N. Adams is working on the question of on-site coal gasification, which has economic and environmental advantages over traditional mining and surface gasification; Prof. Norman Eley is studying explosion-proofing of diesel exhaust systems and explosion risks in coal mines due to frictional or impact heating; Dr. R.E. McKechnie has been active with students in a number of innovative projects, including design of a one-handed can opener for the handicapped, solar heating of swimming pools, and the application of microcomputers to engineering problems; Dr. G.W. Vickers has been developing water jets which have application to the underwater cleaning of metal surfaces; Dr. Stanley Hutton has initiated a major project on saw vibrations directed at increasing the yield of sawn lumber in the B.C. forest industry; Dr. Henry Vaughan has completed work on the problems of slamming damage to large barges being towed in heavy weather, a problem for the B.C. marine transport industry; and Dr. V.J. Modi has been studying the dynamics of inflated structures suitable for use in submarine detection.

Our mineral engineers are studying the oxidation of B.C. coals and the effect of recovery of coal by flotation, a project which should result in improved recovery of B.C. coal resources, and a number of projects that bear on the province's coal resources are under way in Metallurgical Engineering.

ARTS. The diversity of research in this faculty is reflected in the following research projects: Dr. David Pokotylo of Anthropology and Sociology has completed the on-site phase of the Hat Creek Archeological Project, which aims to identify valuable archeological sites prior to the giant coal mining development scheduled for this area near Kamloops; members of the Department of Economics taking part in the natural resource economics program emphasized studies on uranium and copper mining, fisheries' policy and energy problems in the last academic year, while some other members of the same department undertook research on the problem of inflation; members of the Department of Geography are involved in work on avalanches, solar energy, transportation, social planning and zoning, an historical atlas of Canada, trade with Russia and the history of urban planning and development in China; and faculty members in the School of Home Economics are involved in projects related to the influence on offspring of maternal alcohol consumption during pregnancy and growth retardation in the fetal alcohol syndrome, child abuse, and the adaptation experiences of Vietnamese refugees.

Members of the arts faculty were the authors of an impressive number of books published in 1979-80, including studies of the culture of India and China by experts in anthropology and Asian studies, literary works by teachers in Creative Writing, French and Germanic Studies, and several historical works on medieval, modern and Canadian history.

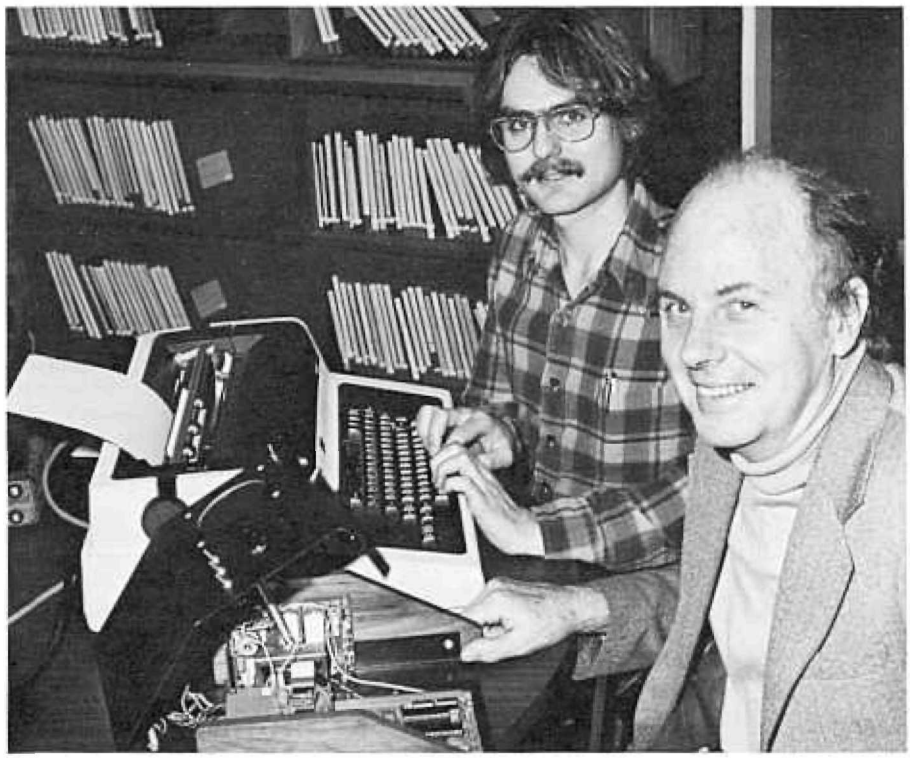
A number of projects related to the native Indians of Canada are outlined in the report of Arts Dean Robert Will. Dr. Leslie Upton of History, whose untimely death during the academic year robbed the department of one if its most promising scholars, was the author of a study of Indian-white relations in the Maritimes in the 18th and 19th centuries; Dr. Dale Kinkade continues his work on B.C. and U.S. Indian languages, some of which are in danger of dying out; and Dr. Paul Tennant of Political Science launched a major study of native Indian organizations in B.C., the first of its kind.

COMMERCE AND BUSINESS ADMINISTRATION. Dean Peter Lusztig has provided the following examples of research most likely to lead to benefits to the community and the curriculum of the faculty.

The faculty's industrial relations management division has published a *Handbook of Experiential Learning and Change*, which has important implications for the faculty's approach to teaching. Other work in this division on transfer policy shows promise in aiding the development of young managers in Canadian companies.

The urban land economics division is continuing work on the use of multiple regression analysis for property valuation, attracting the attention and co-operation of the B.C. Assessment Authority which is in a position to make direct use of the research. Other current work on the effects of land use regulation and control across Canada is likely to have considerable impact on the ways in which provincial and local governments govern urban development in the 1990s. And work on the impact of federal housing policy on local housing markets is of great potential use in guiding future federal policy.

The faculty's transportation division has undertaken projects to study the adequacy and efficiency of various aspects of Canada's transportation system. Work on the British Columbia Railway provided important inputs to



Prof. Michael Beddoes of the Department of Electrical Engineering, right, and research assistant Mark Bunce continued work on development of aids for the blind, including a typewriter that enables the operator to hear the sounds of the letters being typed by the machine.

the provincial government on future management of the system.

Members of the marketing division are doing research in such areas as energy demand and the impact of television on children, consumer behavior and the marketing of the performing arts. The findings in the latter area have already been adopted by a number of performing arts companies in North America.

DENTISTRY.Three members of the faculty, Drs. A.G. Hannam, A.A. Lowe and W.W. Wood have made considerable progress in developing a computer-based data bank for continuing projects ranging from basic physiological studies to applied clinical research. The data bank contains physiological and in some cases anatomical data from the files of more than 120 patients. The research team has developed systems for retrieving, analysing and displaying correlated anatomical and physiological data for a wide variety of dental research projects. The project has also fostered close conceptual, experimental and technical links between various experiments, an increasing amount of collaborative work and widespread interest among international colleagues. This work will have a fundamental effect on one of the aims of the faculty — establishment of a craniofacial pain centre.

Dr. Virginia Diewart of the orthodontics department is involved in important research on factors causing cleft palate. She is assessing both normal palate development and genetic defects in experimental animals.

Other current research of note is the following: the immunofluorescent study of tooth transplants and lingual nerve sensory alteration related to oral surgery by Dr. B.H. Goldstein; bone healing after experimental jaw fractures by radiographic, histologic and biometric means; the long-range health effect of sedative drugs used in medical and dental treatments; the possibility of tooth-decay prevention from continuous fluoride-releasing restorations; the use of magnets for retention of dental appliances; and investigation of the dental needs of geriatric patients.

EDUCATION. Acting Dean Roy Bentley says research in his faculty has developed in response to specific needs and problems experienced in teaching and learning, with special attention directed toward the analysis, development and assessment of curricula and the adaptation of materials and instructional techniques for special groups.

More specifically, members of the faculty have been involved in an assessment of mathematics education that will have considerable influence on the forthcoming revision of the school mathematics curriculum; a training program related to mental retardation; development of instructional materials for Canadian studies; studies of Canada's aging population; development and evaluation of a basic literary curriculum for adults; evaluation of curricular materials for gifted children; development of an educational treatment model for hyperactive children; the financial effects of aid to non-public schools; and analysis of the work of family court counsellors and identification of required competencies with the aim of devising a suitable training program.

FORESTRY. The intensification in recent years of the forest management program for the province has brought to light many problems requiring research and expertise within the faculty. The faculty is now stretched to its limit by requests for advice and grants and contracts for research from government and the forest industry, Dean Joseph Gardner reports.

The following extract is from the report of Gordon MacNabb, president of the Natural Sciences and Engineering Research Council (NSERC) and concerns the work of Dr. Norman Franz of the forestry faculty:

"After over a decade of NSERC (NRC) operating grant support, a professor in the Faculty of Forestry at the University of British Columbia has gained an international reputation for his work on high pressure liquid jet cutting systems and has obtained over 30 patents. A pioneer in the use of high velocity water jets for cutting wood, this researcher has extended this technology to the cutting of other materials. Indeed, his work lays the foundation for virtually all practical developments of jet cutting. The original concept is now in daily industrial use in the U.S.A., England, Scotland, Sweden, France, West Germany, Switzerland, Belgium and the Netherlands in such diverse industries as aerospace, automobile, shoe and apparel, building products containers. Materials being processed include paper board, reinforced plastics, fiberglass insulation, foams, abrasive and asbestos products, plywood and food products."

Research in the faculty covers a wide spectrum. Dr. Gordon Weetman is carrying out trials under contract with the provincial Ministry of Forests on fertilization of stands of lodgepole pine at 25 Interior sites; Glen Young has been a key figure in the marrying of computer technology to planning techniques so that the harvesting process can be speeded up; Philip Cottell is studying man-machine interactions with a view to making the forestry workplace safe and productive; and Prof. Jack Walters, director of UBC's research forest in the Fraser Valley, continues his work on technical innovation, which has drawn international interest.

GRADUATE STUDIES. The institutes, schools and centres associated with the Faculty of Graduate Studies are among the most productive units within the University in terms of research.

Dr. William Rees of the School of Community and Regional Planning has published research on the environmental assessment and review process in the Canadian Arctic that has attracted national interest and was the subject of a House of Commons debate. Dr. Michael Poulton's research on sawlog transportation on the Lower Fraser River has significance for the management of that waterway.

Population management and biology were the principal areas of research of members of the Institute of Animal Resource Ecology during 1979-80. The acquisition of several minicomputers opened up new possibilities in applying fairly advanced modelling techniques in workshops or field situations and has improved the practicality of testing theory against actual data quickly and realistically. The scope of interdisciplinary modelling was further expand-

ed to combine behavioral and social factors with economic, physical and biological systems.

Collectively, IARE faculty members received more than $1 million for a wide variety of projects that included the following: development of methods of environmental analysis and policy design and the training of teams in methods of adaptive environmental management by Prof. C.S. Holling; studies of coho salmon populations by Profs. P.A. Larkin, C.F. Wehrhahn and J.D. McPhail; studies of toxic chemicals in the environment and ambulance design in the City of Victoria by Prof. Ilan Vertinsky; studies of ecosystems in the southern Sudan by Prof. A.R.E. Sinclair; and work on the biological control of weeds in the Kamloops area by Dr. Judith Myers.

The Institute of Asian Research is fostering research in three main areas: Canada-Asia economic relations; research in Asia such as currently funded projects on Chinese and South Asian agricultural development; and interdisciplinary studies such as those under way on educational mobility and urbanization in Asia. The institute plans to continue development of research on Asian Canadian communities.

Having completed a five-year project on Canada and the international management of the oceans, the Institute of International Relations has now embarked on a new project on Canada and international trade with funds provided by the Donner Canadian Foundation. The ocean project generated more than 60 studies and it is expected the international trade project will generate even more.

The Centre for Transportation Studies has a number of projects under way characterized by diversity. One deals with the realities of newspaper recycling and ways in which the transport costs can be minimized. A mathematical model will be used to indicate the relationships between collection methods, transport technology, and the market price for waste paper. The centre is also studying the landing fees charged by the world's leading international airports as they relate to the type of plane, volume of traffic and cost of airport operations. This study should indicate whether Canadian carriers are disadvantaged in various ways at several airports.

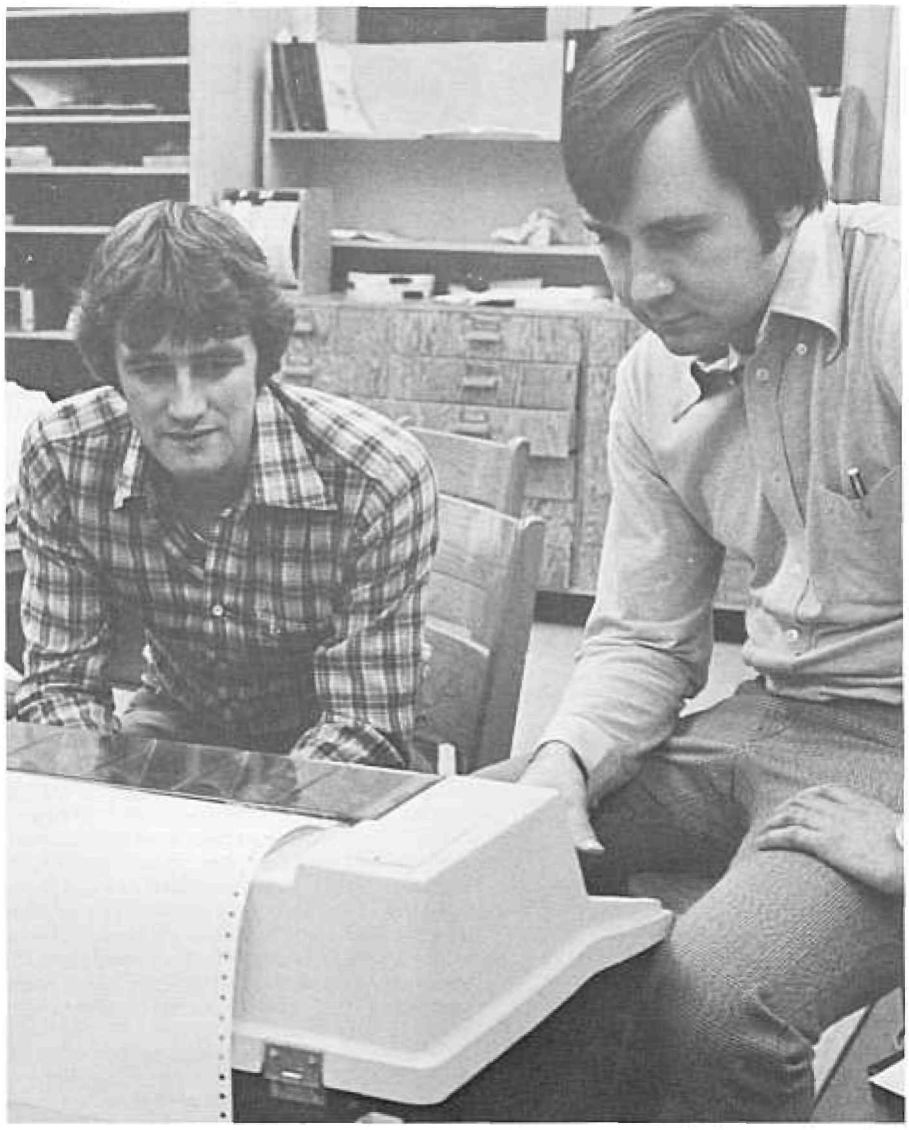
The Westwater Research Centre is continuing with its Coastal Resource Management Program, which includes studies of marsh plants and juvenile salmon in the Lower Fraser River to determine the importance of wetlands to salmon, publication of a series of reports and a book entitled *Coastal Resources in the Future of B.C.*, and studies of fish protection regulation as applied to the B.C. coastal forest industry. The centre has also completed a study for the Economic Council of Canada on environmental protection regulation, which included recommendations for strengthening the procedures for bargaining between developers and regulators, in particular, by improving the information available to the regulatory process.

The Soil Dynamics group in Graduate Studies fosters research in such areas as earthquake engineering, ocean engineering and environmental fluid dynamics. The studies being carried out under the latter heading include development of techniques for the analysis of the dispersal of pollutants in oceans, lakes, rivers and air, and the prediction of the effects of waste heat discharges from power plants.

Some of the techniques and programs developed by the earthquake engineering group are now used by consulting engineers in North America and Norway and by government agencies in Italy, Japan, the Soviet Union and Mexico. Currently under development is a procedure for analysing the behavior of offshore pipelines during storms and earthquakes.

The resource management science program sponsored a study of coastal zone management centred on southeastern Vancouver Island, a study which has been of considerable interest to the Capital Regional District because it is the only one of its kind conducted in B.C. Another study focussed on evaluation of the success of the Island's Trust to manage the development of the Gulf Islands between the Lower Mainland and Vancouver Island. Recommendations for improvement were outlined and the information was received with great interest by the trust as well as residents of the islands.

During 1979-80, a group of academics and



A familiar sight in many UBC departments — researchers watch as a computer prints out the results of an experiment on a high-speed typewriter.

professionals associated with the Centre for Human Settlements met to examine the current state of Canada's settlement system and its tendencies. What emerged from this study was that while the population of Canadians residing in small and medium-sized towns has increased, the population in the metropolitan areas of Canada has declined.

LAW. Faculty members in Law continue research into legal topics of a traditional nature as well as new and relatively unexplored areas.

A major project drawing to completion is a book of essays on Canadian law and practice relating to criminal procedure, edited by Profs. Jerome Atrens, Peter Burns and James Taylor, to which a number of faculty members have made contributions. Marilyn MacCrimmon continues her empirical studies on witnesses and their reliability, which involves work with researchers outside the law faculty. Other studies which have made major contributions to the field, or are likely to do so, include the following: the law of restitution by G.B. Klippert; intergovernmental agreements by Prof. Kenneth Lysyk; Canadian law of property by Prof. A.J. McClean; studies in legal philosophy on the western idea of law by Prof. J.C. Smith; powers and duties of Canadian corporate directors by Barry Slutsky; Canadian land law by Prof. E.C.E. Todd; and Canadian law of trade secrets by Dr. David Vaver.

MEDICINE. The range and variety of research in the Faculty of Medicine could easily be the subject of a separate report on its own, encompassing as it does basic studies in neurology, the structure and function of biological membranes, and the biochemical basis of respiration (to name only three), clinical studies in anesthesiology, surgery (including the treatment of burns), diagnostic radiology, ophthalmology, obstetrics and gynecology, pediatrics and pathology.

Four researchers were awarded grants in excess of $100,000 in 1979-80: Dr. Hans Stich of Medical Genetics for studies in environmental carcinogenesis; Dr. John Dirks of the Department of Medicine, who received a $250,000 grant for development of a neurology division within the department and $121,000 for kidney research; Dr. Moira Yeung, also of Medicine, for a study of Alcan smelter workers; and Dr. Michael Smith, for studies on nucleic acids.

Here is a brief listing of other valuable research taking place in the medical faculty. In the Department of Biochemistry studies are under way of anti-cancer drugs and hormone-responsive tumors; research on various forms of cancer continues in the Department of Surgery; the B.C. Record Linkage Project in the Department of Medical Genetics is using the computer to provide statistics on such things as recurrence risks or incidence of disease; chronic lung disorders are under intense investigation in the Department of Medicine; ophthalmologists are studying diabetes and its effect on the eyes; a grant from the federal government is being used in Obstetrics and Gynaecology to study the relationship between therapeutic abortion and subsequent pregnancy outcome; research in Paediatrics is generating appreciation of the role of virus infections in chronic arthritis, diabetes, thyroid disease and perhaps multiple sclerosis; a research group headed by Dr. Harold Copp has recently discovered another new hormone which appears to regulate calcium metabolism in fish; and in Psychiatry, researchers are investigating biological markers in psychiatric illness and the condition known as anorexia nervosa in which patients literally starve themselves, sometimes to death.

PHARMACEUTICAL SCIENCES. Dean Bernard Riedel reports a dramatic increase in research and graduate studies activity in his faculty during the academic year. In addition to 29 graduate students enrolled for the masters and Ph.D. programs, the Hospital Pharmacy Residency Program has 11 students enrolled in this certificate program functioning in seven community hospitals.

Research funds awarded to the faculty totalled $1,022,641 and as in other faculties this money was used to support post-doctoral fellows, pre-doctoral students and technical and professional assistants.

A research project in the field of drug utilization review has resulted in a valuable on-going relationship with the Pharmacare program of the provincial government and the faculty's Drug and Poison Information Centre broadened its activities by initiating production of a Drug Information Reference Manual for use in hospitals and a Poison Management Manual for use in hospital emergency departments. The Radioisotope Development and Research Project has brought the use of an isotope of iodine into active use in medical diagnostic procedures. Two chemists are involved in preparation of a second isotope of iodine for possible use in brain scanning as part of the Positron Emission Tomography Project, which is described in greater detail in the section of this report dealing with the completion of the Health Sciences Centre.

A measure of the research activity emanating from this small UBC faculty is reflected in the fact that 150 scientific publications by members of its teaching staff were published in 1979-80.

SCIENCE. The Faculty of Science received about 40 per cent of the total research funds made available to UBC in the last fiscal year — more than $11 million. In the area of the earth sciences, research includes radioactive isotope measurements of the age of minerals, groundwater and nuclear waste disposal problems, seismology and glaciology. Our oceanographers are looking at the physical, geological, biological and chemical aspects of the Strait of Georgia (using among other methods instruments attached to two B.C. ferries) and of the Pacific (using Canadian and American naval vessels and a coastal oil tanker). UBC astronomers are involved in research on black holes, stellar evolution and the instrumentation of the Canada-France-Hawaii telescope located on Mauna Kea in Hawaii.

A wide range of research, including genetic research on environmental mutagens, fungal parasites of cereal grains, and human allergic reactions to plant compounds are the more practical of the diverse basic research projects conducted in Botany. In Microbiology, new faculty members have initiated active programs in molecular biology and Dr. Julia Levy's work

on simple sensitive tests for lung cancer continues to be successful. The annual publication record of the zoology department was sustained in the past year and included two books by faculty members.

In the mathematical sciences, a research facility in computational vision has been established under Dr. Alan Mackworth of Computer Science and several UBC mathematicians enhanced the research reputation of the mathematics department for the high quality of work in statistics and applied and pure mathematics.

In the physical sciences, more than 200 research papers were produced by members of the Department of Chemistry. In the Department of Physics, a fusion research position has been established by B.C. Hydro to examine both pure and applied problems.

THE UNIVERSITY PRESS. It seems appropriate to report here on the activities of the University Press, which marked nine years of operation in the 1979–80 academic year. In that period, the press has published 94 titles (70 per cent of them authored by UBC faculty, graduates or affiliates of UBC) and increased the number of books it publishes annually to an average of 14. Annual sales now amount to about 20,000 books in 49 countries. It has grown to a point where it is the third largest English-language scholarly press in Canada and may soon be second in size.

The press was established to provide a platform for scholarly research and writing in B.C.; to publish scholarly books that are not commercially viable but which should be published; to see that the authors whose books are published have professional advice in editing and production; and to serve the community of which it is a part by also publishing definitive books about the province. The press, under the direction of A.N. Blicq and with the help of his competent staff, has played a notable part in ensuring that the fruits of scholarship are widely disseminated.

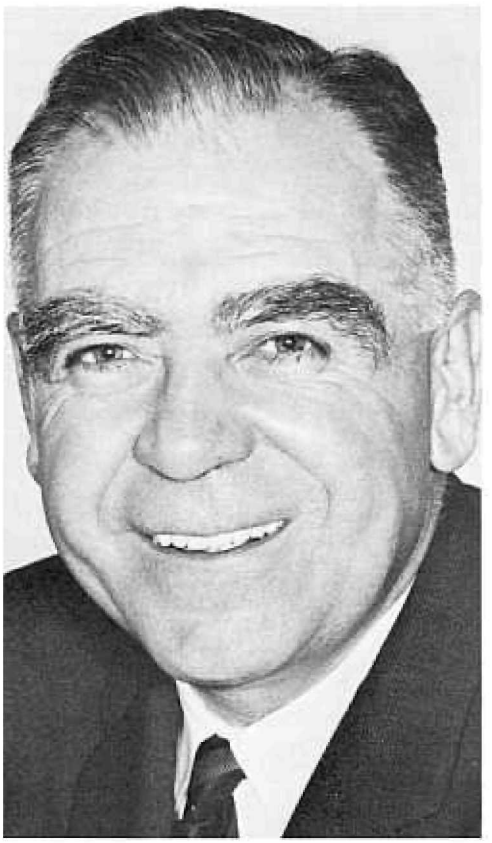
Completion of the Walter Koerner Acute Care Unit in UBC's Health Sciences Centre meant that a vision as old as the University itself had finally become a reality.

The health sciences

An event of singular significance for the province occured on May 16, 1980, when the University held a ceremony to mark the completion of its Health Sciences Centre on the UBC campus. The completion of this complex of buildings means that a vision as old as the University itself has at last become a reality.

When the original plans for the University were drawn up in 1912, three years before UBC opened its doors, they included provision for a building to house the schools of medicine, dentistry and pharmacy on the very site where the Health Sciences Centre is now located. The numerous reports that preceded the opening of the Faculty of Medicine at UBC in 1950 all assumed that a teaching hospital would be built on the campus to provide a centre for the clinical training of doctors.

Special guests at the dedication ceremony of the campus Health Sciences Centre named for the late Dr. John F. McCreary, far right, were Mrs. McCreary, shown with Dr. Walter Koerner, a UBC benefactor whose name is associated with the Acute Care Unit, one of three buildings which make up the Health Sciences Centre Hospital.



In the intervening years, the concepts surrounding the training of young people for careers in medicine, dentistry, nursing, pharmacy and rehabilitation medicine were revolutionized by changes in our society, including advances in treatment methods through research and the advent of prepaid medical care.

These changes called for new ways of educating health professionals. Fortunately for UBC, one of the leading thinkers on this topic was associated with the Faculty of Medicine since its inception. Dr. John F. McCreary was professor of pediatrics, later dean of the Faculty of Medicine and laterally Co-ordinator of Health Sciences.

It was Dr. McCreary who saw that the medicine of the future would be practised by a team of health specialists instead of individuals working in isolation. From this basic idea, he evolved the concept of a physical facility where all those concerned with the delivery of health care would be trained together so that the members of each discipline would know the strengths and weaknesses of their co-workers.

Over the years, Dr. McCreary made every effort to create on the campus a complex of buildings and an administrative structure that would give concrete meaning to this vision. By the early part of this decade, many of the basic units of an integrated training facility were already in place, including the basic medical sciences buildings, a major library facility and the P.A. Woodward Instructional Resources Centre. It remained only to add a teaching hospital to make the Health Sciences Centre complete.

In 1973 it appeared that our hopes for the creation of a Health Sciences Centre were dashed with the announcement by the government of that day that it intended to create the B.C. Medical Centre, a teaching and tertiary referral centre for the entire province, on a site at 30th Ave. and Oak Street adjacent to Shaughnessy Veterans' Hospital, which the provincial government had acquired from the federal government. Though the University was disappointed with this decision, dozens of our faculty involved in the training of health professionals became deeply involved in the work of task forces, committees and other groups charged with bringing forward plans for new facilities to be included in the Shaughnessy Centre.

A dramatic reversal of the decision to create the B.C. Medical Centre came early in 1976 following a change of government in Victoria. On March 9, the ministers of education and health called on the University to double the size of its medical class from 80 to 160 students a year. At the same time, the ministers announced that $50 million was available, in matched federal and provincial health resource funds, to build a campus teaching hospital of 240 beds, provide additional basic medical facilities on campus and update the clinical teaching facilities at Vancouver hospitals affiliated with the University.

This challenge led to a concentrated round of consultations which resulted in a positive response by the University to the provincial government proposals. Within 60 days I prepared a report which clearly set out the conditions under which the University was prepared to expand its medical class, emphasizing that funding would have to be provided inde-

pendently, without impinging on the University's other operating support.

In October, 1976, the provincial government announced its intention to implement its commitment to improving health education facilities and expand the size of the medical class. On April 18, 1977, the first sod was turned to mark the start of construction on the new acute care unit of the Health Sciences Centre Hospital.

The completion of the acure care unit and the Health Sciences Centre early in 1980 was a truly significant day for the community and the University. It should be seen as one of the important avenues by which UBC can and must serve all the citizens of British Columbia.

I am pleased to note here that the names of Dr. McCreary and Dr. Walter Koerner have been associated with the two main developments of health sciences education and research. The academic facilities of the centre have rightly been named for Dr. McCreary, who pioneered the health-team concept of medical care.

Dr. McCreary's sudden and untimely death in October, 1979, meant that he was not present in May, 1980, when the Health Sciences Centre was officially dedicated. Although he never saw the completed centre, he had the satisfaction of knowing before he died that the dream he had nurtured and fostered for a quarter of a century was in the final stage of completion.

In naming the acute care unit for Dr. Koerner, the University honors a benefactor whose quarter-century of association with the University includes 15 years as a member of the Board of Governors and membership on the management committee of the Health Sciences Centre since it was established in 1972. Dr. Koerner stepped down as chairman of the management committee the day after the May 16 opening ceremony, but will continue to be associated with it as vice-chairman.

The completion of the Health Sciences Centre Hospital means that the University has one of the most advanced facilities anywhere in the world for the training of health professionals. In addition to the 240-bed acute care unit, the Harry Purdy Extended Care Unit provides 300 beds for the care of the elderly and others, and the 60-bed Psychiatric Unit is pioneering new ways of treating the mentally ill. The campus centre and the new and upgraded facilities being developed at local hospitals and on land adjacent to Shaughnessy Hospital provide for those students who seek to serve the sick a new freedom of opportunity to study, to engage in research and, most importantly, to prevent or treat human disease.

The new Acute Care Unit will house a number of unique instruments and other tools that will be used for diagnostic and treatment purposes. The most advanced of these will be a positron emission tomograph, normally referred to by the acronym PET. This is an ultra-modern piece of research equipment used in the rapidly developing field of nuclear medicine.

Hon. Patrick McGeer, the provincial minister of universities, science and communications, in speaking at the Health Sciences Centre dedication ceremony, announced that the Universities Council had recommended the acquisition of such equipment, which makes it possible to take a three-dimensional picture of the brain in an alert and awake patient without causing pain.

The PET technique is being hailed as one of the most significant advances in decades in the study of brain disease. It will be used for diagnosis and research into such common neurological problems as stroke, epilepsy, Parkinson's disease, multiple sclerosis and a number of emotional disorders whose treatment relies on drugs which affect brain functions.

The new approach to the training of health professionals at UBC has called for the development of a unique administrative structure for co-ordination of the activities of the health sciences faculties and schools. This is accomplished through the Office of the Co-ordinator of Health Sciences, which has evolved two main objectives over the past decade:

1. To serve as a means of co-ordinating the interests of the health sciences faculties and schools as they relate to each other in educational programs, in areas of research interest, and in relationships to affiliated hospitals and other service-oriented health agencies, and
2. To provide supporting services in areas of expertise as may be needed and be valuable to one or more of the health sciences faculties and schools.

As mentioned earlier, Dr. McCreary was the first Co-ordinator of Health Sciences. Dr. Harold Copp was the next co-ordinator and provided energetic leadership in pressing the provincial government for expansion and development of our hospital plans.

The present co-ordinator, Dean Bernard Riedel, chairs the co-ordinating committee which brings together the deans of the Faculties of Medicine, Pharmaceutical Sciences and Dentistry, and the directors of the Schools of Nursing, Rehabilitation Medicine, Home Economics and Social Work. The head of the division of clinical psychology in the Department of Psychology is also a member, as is the administrator of the Health Sciences Centre Hospital.

The co-ordinating committee serves as a means of integrating the interests of each of the above disciplines into a common whole in a variety of specialized areas. The office also houses six divisions which have been established in response to the special needs identified by one or more of the health sciences faculties and schools.

The Office of the Co-ordinator has been involved directly with the control and assignment of teaching space in the Instructional Resources Centre, in the extended care unit and the acute care unit of the Health Sciences Centre Hospital. It has been instrumental in developing affiliation agreements with teaching hospitals and with other health service agencies and has provided services to the health sciences faculties and schools in the form of special expertise, to provincial and federal health agencies and to government through research programs and under contract arrangements.

Each of the six divisions in the Office of the Co-ordinator of Health Sciences has objectives in the next five-year period and these are a matter of active discussion in the co-ordinator's office at the present time.

Public service

Were I to reproduce here the list of public-service activities of faculty members and students which were reported to me this year by the deans of our 12 faculties, it would take up most of the pages in this report. The term "public service" is a very broad one which encompasses many activities which are to some extent outside the basic teaching and research duties of faculty members. Some of these activities have, for the sake of convenience, been transferred to other sections of this report, e.g., Awards and Honors and Continuing Education.

The material which follows, then, represents a selection from the reports of deans to indicate the range and variety of public service activities by faculty and students.

AGRICULTURAL SCIENCES. Dean Warren Kitts uses nearly three full pages in his report on public service to list the names of faculty members and the companies and government agencies they assisted. These included advice to Canadian and American firms that produce foodstuffs for animals, assistance with a case of copper poisoning in a sheep flock, advice to the Kamloops Indian Reserve on their field day, to a nursery on the cause of death of rose plants, and to the B.C. Ministry of the Environment on aquatic weed control.

A number of faculty members were abroad to undertake studies at the request of governments. Dean Kitts and two colleagues, Profs. V.C. Brink and Leslie Lavkulich, were in Saudi Arabia for 10 days to assess agricultural potential in the eastern province of that state; Dr. L.E. Lowe made a tour of southern Mexico at the request of a federal agency to study tropical and alpine soils in the region and advise on the application of soil organic matter research methods on Mexican soils; Dr. R.M. Beames visited Cuba to discuss projects to evaluate Cuban swine management and feeding practices; and Dr. John Hodges represented Canada in Rome at the Food and Agriculture Organization's technical consultation on the conservation of animal genetic resources.

APPLIED SCIENCE. In addition to serving on a variety of boards and councils of provincial and national organizations, faculty members in Applied Science have taken an active role in organizing and staging a number of conferences. Prof. J.R. Grace of Chemical Engineering was co-chairman of the International Fluidization Conference sponsored by the Engineering Foundation in New Hampshire in August, 1980, and Prof. E.B. Hawbolt of Metallurgical Engineering organized and ran a conference on "Materials to Satisfy the Energy Demand" under the auspices of the Canadian Council of the American Society of Metals.

Dr. T.E. Siddon of Mechanical Engineering is currently on political leave of absence as the member of Parliament for Richmond-Surrey-Delta.

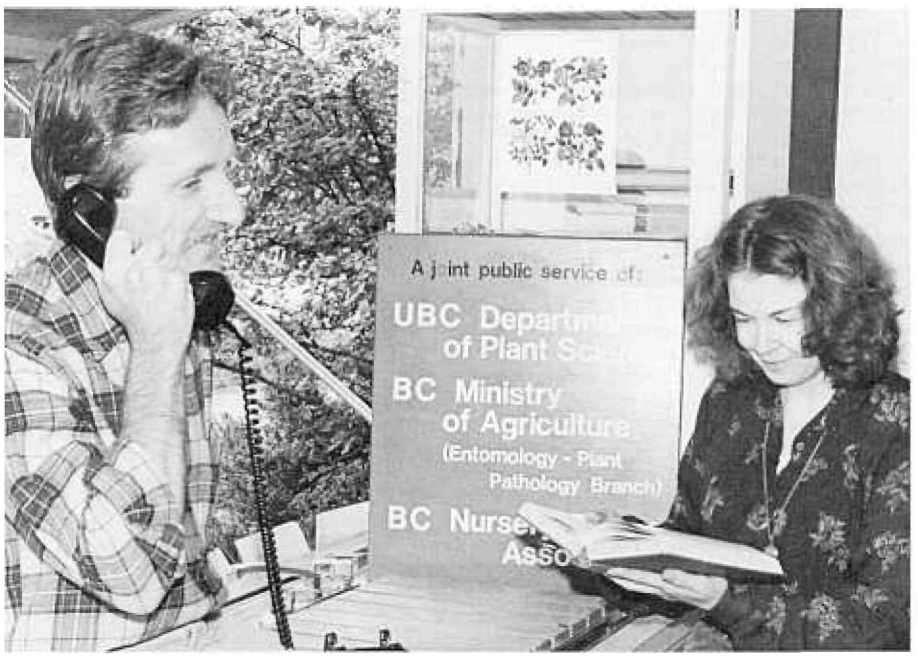
Faculty members in the School of Nursing are serving a number of health agencies and advisory committees for college nursing programs.

ARTS. Dean Robert Will provided several examples of how public service and research activities are combined in the form of publications. In the Department of Anthropology and Sociology, Jeanette Auger and Valerie Guarino produced a book entitled *Growing Old Safely: Crime Prevention Techniques* for the federal Department of the Solicitor General; Linda Light prepared *Continuing Education Approval Program: An Evaluation*, a report for the Registered Nurses Association of B.C. and the Registered Psychiatric Nurses Association of B.C.; and James Powell was the co-author of two books on Indian languages, *Learning Shuswap* and *Learning Gitksan*, published for the Shuswap Cultural Committee and the Kitwancool, Kitwanga and Kitsegukla Bands, respectively.

In the Department of Economics, Jonathan Kesselman has undertaken a major study of the financing of the Canadian Unemployment Insurance Program at the request of the federal Department of Employment and Immigration and Prof. Gordon Munro is studying the economy of Newfoundland at the request of the Economic Council of Canada.

In the Department of History, Dr. Charles Humphries succeeded Prof. Margaret Prang as a member of the Historic Sites and Monuments Board of the Department of Indian Affairs and Northern Development; two other members of

Agricultural sciences students Clint Hilliard and Sarah Curtis answered hundreds of questions from callers who wanted information on plant and garden care. Support for the Hortline project was provided by the provincial Ministry of Labour under the summer Youth Employment Program.



the department advised the BBC on a TV production on the City of Vancouver and the National Film Board on a production on Oriental people in B.C.; Dr. David Breen is serving as a consultant to the Pacific National Exhibition on the preparation of its history and Keith Ralston is acting in a similar capacity with the History Conservation Branch of the B.C. government in connection with a history of Barkerville, of gold rush fame.

In Political Science, Prof. Alan Cairns was appointed a member of the advisory committee to the B.C. Cabinet Committee on Confederation and has actively been engaged in negotiations on constitutional change, and Prof. Jean Laponce served as advisor to the Canadian Commission on UNESCO.

Many members of the Department of Psychology are involved as consultants, advisors and project directors with public and private agencies concerned with mental health, child development, recreation and the environment.

COMMERCE AND BUSINESS ADMINISTRATION. Prof. Michael Goldberg served on a task force established by the federal government to consider the possibility of "privatizing" the Central Mortgage and Housing Corporation. Prof. Karl Ruppenthal, who heads the Centre for Transportation Studies, has been appointed to the planning committee for Transpo '86, the world's fair that is planned for a site in Vancouver in this decade.

Prof. Stanley Hamilton is a member of the Real Estate Council of B.C. and a director of the Vancouver Stock Exchange. Fellow urban land economist Lawrence Jones is on the B.C. Real Estate Association education committee and serves on the board of directors of the pension plan for UBC faculty members.

Prof. Jonathan Mark is a member of the Real Estate Board of Greater Vancouver's statistics and survey committee and faculty dean Peter Lusztig is a governor of the Institute of Canadian Bankers and a director of the Vancouver General Hospital Foundation, the Banff School of Advanced Management and the Vancouver Board of Trade.

EDUCATION. The public service rendered by this faculty in upgrading the quality of elementary and secondary school teaching is detailed in the section of this report on Continuing Education. In addition, faculty provided services to the provincial Ministry of Education and to the school districts of B.C. by serving on several curriculum committees and undertaking assessment programs in mathamatics, science and reading, by advising on school district organization, the selection of superintendents, collaboration in the development of policy handbooks; and by staging a variety of workshops for principals, trustees and school board chairmen.

The expertise of faculty members and graduate students was solicited by the Canada Employment and Immigration Commission for advice on counselling procedures for the unemployed.

The Faculty of Education organized Science Spectrum in 1979-80, the 20th annual international science education symposium presented by the science education group and attended by more than 1,000 people. The success of that event is summed up in the annual report of the Thomas A. Edison Foundation: "A complex undertaking, involving 81 workshops as well as a number of keynote speakers and general sessions, the program was immensely successful . . . . This program provides colleges and universities around the world with an excellent example of what can be accomplished by a dedicated faculty of science education to assist secondary school science teachers. It is a program we are proud to assist in making a success."

The School of Physical Education and Recreation within the education faculty undertook a project at the request of the Delta School Board for a thorough review of elementary school physical education in the district with recommendations for a complete revision of the curriculum along non-traditional lines. This project was carried out by a small group of graduate students working under the direction of Dr. Hal Lawson, who is implementing the curriculum changes using $100,000 approved by the Delta School Board.

GRADUATE STUDIES. Three members of the School of Community and Regional Planning were involved in projects related to northern Canada; Dr. W.E. Rees prepared a paper for the Committee for Original Peoples Entitlement which was used in negotiations with the federal minister of Indian and Northern Affairs; and Clyde Weaver and Peter Boothroyd conducted several workshops on impact assessment for northern communities and recent advances in development theory for the Department of Indian Affairs and Northern Development.

Several members of the Institute of Animal Resource Ecology were abroad during the last academic year. Dr. Tom Northcote visited Lake Titicaca in Peru to establish a co-operative program on water resource management; Dr. Judith Myers advised on the biological control of weeds while on sabbatical leave in Australia; and Dr. A.R.E. Sinclair spent part of the summer of 1980 in East Africa on multi-disciplinary resource studies.

A singular example of how faculty and students combine to provide public service was provided by Dean Peter Larkin of the Faculty of Graduate Studies. During the academic year, the Institute of Applied Mathematics and Statistics was approached by J.L. Richardson of Solway Solar Engineering, who holds a grant from the Natural Sciences and Engineering Research Council to carry out a feasibility study of an efficient solar-energy collection device.

Because of his limited experience in mathematics, Mr. Richardson came to UBC to seek help with the mathematical analysis. Two students, Mark Looi and Walter Jager, under the supervision and direction of Dr. B.R. Seymour of the mathematics department, carried out a design study that generated data to enable Mr. Richardson to delineate the effects of various design factors. On the basis of the results, Mr. Richardson is currently exploring the construction phase of the problem.

The services provided by the institute were done at no charge to Mr. Richardson.

Prof. Karl Ruppenthal, who heads UBC's Centre for Transportation Studies, accepted an invitation to visit China, where he lectured at

six universities on various topics related to transportation. He has been asked by the World Bank to assist in assessing China's transportation needs. Prof. Ruppenthal also testified before the Canadian Transport Commission concerning the appropriate function of the supplemental airlines in Canada and the realignment of certain airline routes.

LAW. Faculty members in Law are involved in a multitude of public service projects covering a wide range of organizations and services. W.W. Black is chairman of the discrimination committee of the B.C. Civil Liberties Association; Charles Bourne is on the academic advisory committee to the Cabinet Committee on Confederation; D.S. Cohen is chairman of the advocacy committee of the B.C. Consumers Association and serves on the executive of the Consumers Association of Canada; Donald MacDougall has a long association with the United Way of the Lower Mainland; D.E. Sanders is involved in the preparation of a submission for the World Council of Indigenous Peoples to the sub-commission on the prevention of discrimination and the protection of minorities of the UN Human Rights Committee; A.F. Sheppard is on the Law Reform Commission of B.C.; and James Taylor is the UBC faculty representative to the Mental Retardation Institute of B.C.

MEDICINE. A similar list can be compiled for the Faculty of Medicine. Prof. David Bates, Health Care and Epidemiology, chairs the Royal Commission on Uranium Mining for the provincial government; Dr. G.R. Douglas and Dr. F.V. Buffam, both of the ophthalmology department, respectively provide eye care to Indians and Eskimos in the central Arctic and operate an eye clinic in Fort St. John, serving that entire community; and Dr. W.L. Dunn, Pathology, is chairman of the Laboratory Advisory Council to the provincial Ministry of Health.

The medical school's Department of Psychiatry operates an outreach program linking UBC teaching hospitals with those areas of the province lacking psychiatrists and providing consultation and teaching services. Areas served include the Queen Charlotte Islands, Prince Rupert, Terrace, Williams Lake, Quesnel and Dawson Creek.

The Department of Medical Genetics acts as a resource for enquiries from all over B.C. and last year gave more than 245 hours of talks to lay and paramedical groups. Grants enabled the department to continue an outreach program in the Thompson-Okanagan area to demonstrate how to bring medical genetics services to outlying areas.

The faculty of the School of Rehabilitation Medicine provided free lectures and workshops on 12 different topics for professional organizations and hospitals and also provided free consulting services to five Lower Mainland hospitals and to the Vancouver Health Department on establishment of programs for the elderly and handicapped and the design of two research projects.

PHARMACEUTICAL SCIENCES. The faculty's Drug and Poison Information Centre, located in St. Paul's Hospital in Vancouver, broadened its activities. Production of a drug information reference manual for use in hospitals is under way and a poison management manual is being produced for use in emergency departments in hospitals.

The faculty also provides information on therapeutic drugs and drugs of abuse to professionals, university people and the public. It is involved with government agencies such as the Alcohol and Drug Commission, lay groups such as Canadians for Health Research and voluntary health organizations such as the Canadian Heart Foundation, the Cystic Fibrosis Foundation and the Canadian Diabetic Association.

SCIENCE. The list of public service activities by faculty members in Science is as voluminous as that for other major University faculties. All departments have members who serve as executive officers and editors for Canadian and international professional associations. In the earth science departments, faculty members continue to advise the Atomic Energy Commission of Canada on the underground storage of radioactive wastes and to participate in a mineral identification program for industry. The Department of Computer Science is involved in both industrial and academic consultation and Mathematics has made a concerted effort to establish liaison with secondary schools in regard to the teaching of mathematics.

Public service within the University community is not confined to the faculty; our students also make a notable contribution to this activity.

Students in Agricultural Sciences, with the support and assistance of faculty members, manned the Food Information Service, which provides free information on such topics as food safety, preservation and storage. Hortline, run by the Department of Plant Science, provided a plant disease diagnostic clinic and a mobile clinic was available in various Lower Mainland locations late in the summer of 1980. The Department of Animal Science provided free guided tours of the Dairy Cattle Teaching and Research Unit for more than 3,000 school children and 100 producers.

Engineering students in the Faculty of Applied Science are often castigated in the news media for some of their activities and it is not my intention here to attempt to excuse what can only be described as questionable behaviour. But many of these activities are undertaken in support of voluntary health organizations which need funds to provide services to the handicapped and less fortunate members of society. Each year, the Engineering Undergraduate Society raises thousands of dollars for these groups.

Students in the School of Nursing continue to make valuable public service contributions through fourth-year independent study projects carried out in association with a wide range of health care agencies.

Students in the School of Architecture operate an informal design and drawing service throughout the year for the public and assistant professor Raymond Burton undertook as a class project an urban design study of the town centre of Ladner, south of Vancouver, which resulted in proposals for the improvement and redevelopment of the area. Full public hearings and presentations were developed and follow-up activities are currently being negotiated.

Architecture students were also active in the 1980 Youth Employment Program, supported by grants from the provincial government. More than 600 students from many disciplines throughout the University were employed during the summer on projects related to their career goals.

1980 summer projects undertaken by Architecture students included operation of a storefront service that provided building advice, design and drawing services to individuals and social service agencies in the Oppenheimer Park area of Vancouver, and a project that documented the architectural qualities and characteristics of neighborhoods in the downtown urban waterfront area.

In the Faculty of Arts, Asian Studies students acted as tour guides for travellers from Japan; Rakesh Singhai translated medical instructions into Hindi for hospital outpatients; and three students worked at the Chinese Cultural Centre on language courses and library management. In April, 1980, students in Fine Arts organized the fifth annual Fine Arts Graduates Symposium as well as a lecture series where faculty members presented their latest research findings. Both events were open to the public. Students were involved in summer research projects in the Department of Psychology on matters directly related to community problems.

Third-year Dentistry students and second-year Dental Hygiene students provided free treatment to hundreds of Lower Mainland school children during the summer under a program funded by the provincial Ministry of Health. At other times in the year, students gave lectures on dental care in schools and to community groups and provided treatment in public community clinics both on and off the campus.

Students are heavily involved in fitness testing in the Buchanan Performance Assessment Centre located in the Aquatic Centre and operated by the School of Physical Education and Recreation. Prof. Ted Rhodes and graduate students enrolled in the exercise management program for the Master of Physical Education degree provided the service in 1979-80 to 1,000 persons, who received a full computerized fitness profile and follow-up interpretation and counselling designed to improve fitness. Other students serve as instructors in the annual Sports Camp program which saw 1,000 young people enrol during the spring and summer of 1980 for instruction in a wide variety of sports, including soccer and hockey.

Teaching and the curriculum 1979-80

In this section of my report, I will deal only with the changes which took place in the University curriculum in the 1979-80 academic year. As I have emphasized in past years, the continuous process of curriculum change at UBC, which is carried out at the departmental and faculty levels and approved by the University Senate, reflects a number of important aspects of University life and trends in society. These include the rapid expansion of knowledge as the result of research and innovation, the desire of our faculty to upgrade the quality of education at UBC, the needs of the economy and industry and the expressed wishes of students.

I was impressed, in reading the reports from the deans of UBC's 12 faculties for the 1979-80 academic year, with the number of new academic programs that were implemented or approved during the year by the Universities Council.

In Agricultural Sciences, a new 68-unit curriculum designed to broaden student knowledge replaced the previous 62-unit program, and the first two years of the new program leading to the degree of Bachelor of Landscape Architecture became available. This faculty's new thrust in providing continuing education programs throughout the province is detailed in a later section of this report.

In Applied Science, the Department of Mining and Mineral Process Engineering has introduced significant changes to strengthen the mining aspect of the curriculum. In particular, the department has provided for new course work on coal mining and utilization linked to the construction of a new Centre for Coal and Mineral Processing. A revised curriculum for first-year students in the faculty's School of Nursing was also implemented in 1979-80.

The Faculty of Arts implemented a new Master of Fine Arts program in studio art in 1979-80 and received approval from the Universities Council for the following new programs: a Doctor of Philosophy program in south Asian studies in the Department of Asian Studies; a Master of Arts program in family studies in the School of Home Economics; a master's program in archival studies, to be offered jointly by the School of Librarianship and the Department of History; and a major in speech sciences in the Department of Linguistics, involving co-operation with the medical school's Division of Audiology and Speech Sciences.

In Dentistry, a curriculum has been developed to train graduate dentists in the specialty of periodontics and a new Division of Graduate and Postgraduate Studies has been introduced. In addition, courses of full- and part-time study leading to the master's degree have been developed.

In Education, a new Diploma Program for the Visually Impaired, the first such program offered at any Canadian university, completed its first year of operation, and new concentrations in business education and home economics, worked out with the assistance of the Faculty of Commerce and Business Administra-

Summary of Revenue and Expenditure

(Excluding Capital Additions to Endowment, Student Loan and Capital Development Funds)
April 1, 1979 to March 31, 1980

	GENERAL FUNDS		TRUST FUNDS		TOTAL		1978-79	
REVENUE		Per Cent	For Specific Purposes	Per Cent		Per Cent		Per Cent
Province of British Columbia Operating Grant	$131,831,768	86.8	$ 1,371,074	3.6	$133,202,842	70.0	$123,159,395	70.8
Canada — Museum of Anthropology Grant	200,000	0.1	—	—	200,000	0.1	290,000	0.2
Student Fees	16,420,318	10.8	—	—	16,420,318	8.6	16,095,327	9.2
Investment Income	3,301,881	2.2	3,620,704	9.4	6,922,585	3.6	4,847,927	2.8
Sponsored Research	—	—	29,384,454	76.7	29,384,454	15.5	25,332,832	14.6
Gifts, Grants and Bequests	—	—	3,947,063	10.3	3,947,063	2.1	4,146,872	2.4
Miscellaneous	166,178	0.1	—	—	166,178	0.1	78,287	—
	$151,920,145	100.0	$38,323,295	100.0	$190,243,440	100.0	$173,950,640	100.0
EXPENDITURE								
Academic	$109,749,391	72.2	$ 1,116,518	2.9	$110,865,909	58.3	$101,771,774	58.5
Libraries	11,912,024	7.9	631,806	1.7	12,543,830	6.6	11,280,881	6.5
Sponsored Research	(492,420)	(0.3)	27,726,007	72.3	27,233,587	14.3	21,987,896	12.7
Student Services	2,094,360	1.4	704,912	1.8	2,799,272	1.5	2,539,913	1.5
Scholarships & Bursaries	1,374,463	0.9	2,792,193	7.3	4,166,656	2.2	4,368,830	2.5
Administration	7,770,502	5.1	72,390	0.2	7,842,892	4.1	6,829,329	3.9
Plant Maintenance	16,309,047	10.7	—	—	16,309,047	8.6	15,360,118	8.8
Renovations & Alterations	587,808	0.4	—	—	587,808	0.3	1,575,971	0.9
General Expense	471,687	0.3	—	—	471,687	0.2	359,146	0.2
Ancillary Enterprises	(7,207)	—		—	(7,207)	—	58,764	—
	149,769,655	98.6	33,043,826	86.2	182,813,481	96.1	166,132,622	95.5
EXCESS OF REVENUE OVER EXPENDITURE								
— General Purposes	2,150,490	1.4	—	—	2,150,490	1.1	1,412,676	0.8
— Specific Purposes	—	—	5,279,469	13.8	5,279,469	2.8	6,405,342	3.7
	$151,920,145	100.0	$38,323,295	100.0	$190,243,440	100.0	$173,950,640	100.0

Services income, previously shown as an item of revenue, is now considered a recovery of costs by most Canadian universities and is reported as a reduction in the relevant areas of expenditures. 1978-79 comparison figures have been adjusted to reflect this change in accounting treatment.

UBC's Department of Geography was only one of a large number of academic units which undertook a major curriculum review in 1979-80 to ensure that present and future students have access to the latest developments in the discipline resulting from research and innovation.

tion and the School of Home Economics respectively, are being implemented.

In the Faculty of Law, the first stage of a major curriculum review affecting the first-year program was approved for implementation in 1980-81. These changes reflect a number of identified needs, including greater emphasis on public law with additional teaching time devoted to constitutional and criminal law, a redesigned and more intensive legal writing program, and a restructuring of sections and additional faculty resources to provide opportunities for small group instruction.

In the Faculty of Medicine, a new program leading to the degree of Bachelor of Medical Laboratory Science was approved in 1979 and will begin operation in September, 1980. The program is designed to upgrade the skills of medical laboratory technicians who have completed the three-year program offered by the B.C. Institute of Technology. Additions to the course structure will also allow entry to the program of UBC science students who do not have the registered technician's diploma.

Equally impressive are the continuing efforts of the faculties to review and revise their programs for the future. In Applied Science, a new four-year curriculum is under active consideration and has affected curriculum planning in other faculties, e.g. Bio-Resource Engineering in the Faculty of Agricultural Sciences. The School of Architecture, in collaboration with the School of Community and Regional Planning, is revising the Master of Architecture program as it bears on the study of design development and urban design, and is developing a new two-year Master of Science program in architecture for multi-disciplinary research into building environments and processes.

In the Faculty of Arts, a major review of the Department of Geography's curriculum was begun, a comprehensive review of the Master of Library Science program continues, major revisions in the master's program in historical musicology, music theory and composition were introduced in the Department of Music, the Department of Political Science is considering a comprehensive review of its undergraduate curriculum, a general review of the curriculum of the Department of Religious Studies was begun, and proposals for new Master of Arts and Master of Fine Arts degree programs in film and television and for a Bachelor of Fine Arts in acting and technical theatre are before the Universities Council.

Dean Peter Lusztig, head of the Faculty of Commerce and Business Administration, reports that the new undergraduate curriculum approved several years ago continues to be phased in, together with innovative teaching methods such as those used in the faculty's new organizational behavior courses. The faculty continues to implement the evening Master of Business Administration program as resources permit.

In the School of Physical Education and Recreation, the undergraduate program leading to the Bachelor of Education degree underwent considerable revision, with the intent of introducing sport science theory to major students in the first year of the program, a move designed to encourage students to select academic or professional options in the senior years. A number of new courses have been developed to meet the specific requirements of these programs. Extensive revisions to the Bachelor of Recreation Education degree program were approved in principle by Senate and course revisions in the first year approved for 1980-81. The Faculty of Graduate Studies has also approved a non-thesis Master of Physical Education degree for implementation in 1980-81.

An extensive review of the curriculum was conducted in the Faculty of Forestry with the assistance of representatives of the profession and the forest service. A new curriculum structure has been adopted for submission to Senate.

The student body

Enrolment at the University for the 1979-80 fiscal year stood at an all-time high of 32,607 students, an increase of 2.2 per cent over the previous fiscal year when 31,895 were registered.

Our fiscal-year enrolment total, which is used as the basis for the University's submissions for operating funds to the Universities Council of B.C., was the result of increased registrations for all three major academic sessions — the 1979 spring session, which had an enrolment increase of 7.5 per cent; the 1979 summer session, which recorded an increase of 4.5 per cent; and the 1979-80 daytime winter session, which registered 23,161 students, a 2.1 per cent increase over the previous year.

Our fiscal-year enrolment total is the sum of the following enrolments in the period April 1, 1979, to March 31, 1980 (the comparable 1978-79 figures appear in brackets): 1979 spring session — 2,757 (2,565); 1979 summer session — 4,153 (3,975); 1979-80 daytime winter session — 23,161 (22,676); 1979-80 nighttime winter session — 1,183 (1,221); 1979-80 Guided Independent Study (correspondence courses offered through the Centre for Continuing Education) — 1,353 (1,458).

The most notable increase in our 1979-80 daytime winter session enrolment occurred in the Faculty of Graduate Studies, where an increase from 3,072 the previous year to 3,293 students represented a 7.2 per cent increase. This graduate-level increase is probably due to two factors — economic conditions and the substantial increase in research funds received by the University. In times of economic stress, many people decide to enrol for master's degrees in order to upgrade their job qualifications. And enrolment at the graduate level is very closely linked with the availability of research funds. The fact that in the last fiscal year research funding increased by 23 per cent to almost $26 million is bound to be reflected in increased graduate-student enrolment.

Another aspect of our daytime winter session enrolment that deserves comment centres on the number of students who enrolled for 11 or fewer units and are therefore classified as part-time students. Sixteen per cent of our daytime winter session, fiscal-year enrolment in 1979-80 was in this category, compared with 15 per cent the previous year and 6 per cent in 1972.

One aspect of our winter session enrolment that gives cause for concern stems from the size of the first-year class. Even though the number of first-year students increased by 3.5 per cent from 3,271 in 1978-79 to 3,384 in the 1979-80 fiscal year, there was no change in the "participation rate," the percentage of 18-24 year olds who are enrolled in post-secondary institutions in B.C.

Overall, only about 14 per cent of B.C.'s 18-24 year olds are enrolled in post-secondary institutions. This percentage is three points below Alberta, six below Ontario, and very far below the United States, where more than 25 per cent of young people in this age group are enrolled in some form of post secondary education.

This picture is further complicated in B.C. by projections which show that the number of grade 12s is expected to decline from the present level of 37,000 to about 29,000-30,000 by 1984. UBC currently enrols about seven per cent of the preceding year's grade 12s and the result of the projected decline in the pool of grade 12s would mean a drop of approximately 500 entrants to UBC, provided that the seven per cent factor remains constant.

I am optimistic that this decline will not take place, since a modest increase of only two percentage points to nine per cent in the number of 18-24 year olds who decide to register at UBC will offset the decline. This is one of the reasons why the University is stepping up its program of information to high schools throughout the province.

In addition, I believe there is real potential for growth in total University enrolment resulting from continued expansion in graduate studies, increases in the number of mature students who return to the University for retraining or the expansion of their educational horizons, and an increase in the number of students who come to us after completing some academic work at the network of regional colleges in B.C. It seems likely, too, that the current expansion of the population base of western Canada will have an important effect on post-secondary university enrolments.

In the final analysis, however, I remain convinced that the surest foundation for believing that UBC enrolments will continue to rise lies in our continuing efforts to provide quality education to our students. In an effort to ensure that entering students are better able to cope with university-level work, UBC has been phasing in since 1978 new entrance regulations approved by the University Senate in 1977. These higher entrance requirements will be fully in place by September, 1981, and rather than being a deterent to increased enrolments I feel sure they will serve to attract grade 12 students to the educational experiences available at UBC.

The University took further steps in 1979-80 to implement the recommendations of an advisory committee on student services which reported in 1978. Brock Hall has been designated as the site for housing most of the UBC offices that provide services to students and the first renovations to the building will be carried out in the next academic year with a view to moving the Student Counselling and Resources Centre there in 1981.

Over the next two years, Brock Hall will undergo additional renovations to house the Awards Office, which co-ordinates financial aid to students, and the psychiatric unit now

associated with the Student Health Service. These units will join three other major offices — the Co-operative Education and Internship programs, the Canada Employment Centre and the Women Students' Office — which are already located in Brock Hall and which provide important services to students.

Before turning to the accomplishments of our students in 1979–80 I take this opportunity to report briefly on the operations of the units which provided services to students during the academic year.

The Student Counselling and Resources Centre (formerly the Office of Student Services) directs its efforts to the provision of counselling services to present and prospective students in the area of vocational, educational and personal concerns. Complementary to this function is the implementation of a wide range of resources which will maximize the students' utilization of the educational opportunities available at UBC.

During the academic year, nearly 7,900 students availed themselves of counselling services at the centre and others attended workshops on development of study skills, personal growth, assertiveness training, making career decisions and job search and interview techniques. The centre also placed greater emphasis on the high school and college liaison program, making 217 visits to junior and senior secondary schools, an increase of seven per cent over the previous year. Thirteen of the 14 public regional colleges in the province were visited as well. The centre also publishes a monthly newsletter for schools and colleges.

In addition to an outreach program, the centre arranges for high school groups to visit the campus for orientation sessions. As part of the University's program to improve accessibility to UBC, the centre prepared a new publication entitled *Info UBC* for distribution to schools and colleges and arranged for groups of grade 10 students from Ocean Falls and Hazleton to visit the campus for several days. These groups stayed in campus residences and received an introduction to campus and city life. The centre also provided information and services to special groups of students, e.g. entering students whose first language was not English, handicapped students, and mature students seeking admission to UBC. The centre has had an excellent response to a summer orientation program for entering students and their parents.

Other functions of the centre include administration of the UBC Youth Employment program funded by the provincial government and administration of a contract to provide services to scholars from overseas studying in B.C. under the auspices of the Canadian International Development Agency of the federal government. Yet another program that deserves mention here is the centre's Volunteer Data Bank which allows students to gain career experience by associating themselves with agencies that offer community services.

The Women Students' Office located in Brock Hall has a mandate to assist women students to realize fully their educational potential and to set the highest possible career goals. In 1979–80 the office undertook a major expansion of its career counselling, career development and group counselling programs. Programs initiated in the previous year — career-choices workshops and assertiveness training groups — were further developed and group sessions dealt with decision making, time management, life planning, relationship issues and communication skills.

New programs undertaken in response to student requests included weekly "storefront" counselling at Speakeasy, the student information centre in the Student Union Building, a "brown-bag" lunch group for mature students, stress management workshops, a single-parent group and a workshop on handling job interviews. The office also sponsored a number of programs in association with other UBC groups, e.g. a "return-to-learning" day for mature women in association with the Centre for Continuing Education and assistance with the alcohol-awareness program in single-student residences on the campus.

The Student Health Service of the University moved during the academic year from the Wesbrook Building to new quarters in the Walter Koerner Acute Care Unit of the Health Sciences Centre Hospital. The service provides medical and psychiatric counselling for all UBC students and also has admitting privileges to the acute-care unit for students who require hospital care. The service is staffed by eight doctors, including three psychiatrists, five nurses and seven clerks and provides a full range of medical, laboratory and x-ray services.

On March 14 and 15, 1980, the University held another in its series of Open House events, which until this year have been staged on a triennial basis. The decision to stage Open House on an annual basis stems from the rapid growth of the campus in recent years and the inability of many of our visitors to see all the exhibits and displays. In order that the public may get an in-depth look at campus activities, it was also decided to restrict Open House to specific groups of disciplines. Last March, the spotlight was on the health sciences, an appropriate choice in the light of the imminent completion of the new acute care unit and the additions to the basic medical sciences buildings in the John F. McCreary Health Sciences Centre. I mention Open House in this section of my report because in a very real sense its success depends to a large extent on the energies and efforts of students, many of whom prepare displays and man them for long hours. It was generally agreed that the 1980 Open House was extremely well attended and I congratulate the students and faculty members in the Faculties of Medicine, Dentistry and Pharmaceutical Sciences for the high quality of their efforts in this important public relations function.

The University's Co-operative Education and Internship Programs underwent further expansion in the 1979–80 academic year. Both these programs are designed to integrate academic life with experience in the workplace during the summer and winter months.

The Co-operative Education Program is open to students in the Faculty of Science who are planning to enter first-year Forestry or Engineering. The students undertake three consecutive summer work placements related to their academic studies and in addition to being evaluated by the employer must produce a

technical report that is graded by a faculty advisor. In the summer of 1980, 62 students and 31 employers, including B.C. Hydro, MacMillan Bloedel Ltd. and Noranda Mines were involved in the program.

The Internship Program provides work placements for Arts, Commerce and Education students during the winter session in business firms and other agencies in and around Vancouver. The program gives students an opportunity to apply the organizational, analytical and research skills they have acquired in their academic training to a particular job. Some 50 students will take advantage of this program in the coming year, working for provincial and federal government agencies, business firms and television stations as well as organizations such as the B.C. Civil Liberties Association.

Both these programs were begun as part of the Women Students' Office but now operate as a separate office owing to their successful growth and the increasing volume of work connected with them.

The reputation which UBC enjoys in the community is to a significant extent the result of the quality of the education which our students receive and which fits them to take their place in the industrial and cultural life of Canada. Many of our students distinguish themselves by winning scholarships and other awards in open competition with students from other universities. I have no hesitation in saying that UBC students are a source of pride to the University in the light of their success in these competitions. Space does not permit me to name each of them in this report; I simply take this opportunity to express my congratulations to 1979-80 winners of awards and to list below some student accomplishments as outlined in the reports from the deans of the University's 12 faculties.

The UBC chapter of the American Institute of Chemical Engineering received an Outstanding Chapter Award, one of 11 made in North America. The award reflects the level of participation, enthusiasm, professionalism, program activities and general involvement in community life of Chemical Engineering students. Students in Civil Engineering captured the best-engineering award and completed the fastest runs in an annual competition for the design of toboggans.

Students in the Faculty of Commerce and Business Administration at the doctoral level received 11 major awards, including two fellowships from the Social Sciences and Humanities Research Council and a Seagram's Fellowship. An interdisciplinary student was awarded the Japan Foundation Fellowship and spent the year in Japan as an honorary fellow of the Institute for Developing Economies. Kim Forrester, a student in Commerce and the Centre for Transportation Studies was the first Canadian to be awarded the Emily Kentz Transportation Scholarship by Traffic Clubs International.

Twenty-two students in the Institute of Animal Resource Ecology were awarded competitive scholarships, including 19 Natural Sciences and Engineering Research Council awards and two foreign government awards. Also in the Faculty of Graduate Studies, for the second consecutive year more UBC students in the Centre for Transportation Studies received Transport Canada Fellowships at the master's level than did students of any other Canadian university.

Maryke Gilmore directs UBC's Co-operative Education and Internship Programs, which are designed to give students the opportunity to integrate academic life with experience in the workplace during the winter and summer months.

Outstanding individual awards included the following:

In Agricultural Sciences, Marion Yas received the Monsanto Inc. Scholarship in weed science, marking the first time this award has been made to a UBC student; Connie Minato won the Institute of Food Technology's western section award for the best undergraduate research paper; and Eloisa Labadan received honorable mention in the 1980 Canadian Agricultural Economics Society Master of Science competition.

In Applied Science, Kenneth Rea, a Mechanical Engineering student taking a major in naval architecture, won first prize for his fourth-year undergraduate project in a competition sponsored by the Seattle branch of the Society of Naval Architects.

In the Faculty of Arts, Brian Lavelle, a graduate student in Classical Studies, was awarded a fellowship to attend the American School of Classical Studies in Athens, Greece, and in Music, Kristina Sutor, a piano student, was the first recipient of a new award for excellence in undergraduate music performance from the Austro-Canadian Businessmen's Association.

In the School of Community and Regional Planning, the Peter Cotton Fellowship for graduate studies in heritage conservation was

awarded to Stuart Lazear.

In the Faculty of Law, a team of three second-year Law students, Mark Tweedy, Geoffrey Thompson and Chris Thomas, won the Canadian round of the Jessup International Moot Competition and were placed fifth in the international finals at Washington, D.C.

Those students who distinguished themselves in their academic studies and were named heads of their respective graduating classes are listed later in this report under the section dealing with our annual Congregation for the award of honorary and academic degrees.

UBC athletes again distinguished themselves by winning a number of championships and individual honors in 1979-80. Our English rugby team captured four awards, including the World Cup and the McKechnie Cup, emblematic of the B.C. championship; our revived Thunderbird swimming team won the Canada West swimming and diving title; our women's gymnastic team very nearly won the national collegiate meet; the women's curling team won the Canada West championship; the women's rowing team were Canada Open champions; and the women's squash team took the championship cup in the Vancouver Womens' League.

Athletes of the year at UBC were gymnast Patti Sakaki for women competitors and wrestler Tim Hirose and footballer Kevin Konar, who share the 1979-80 award for male competitors.

The University continued in 1979-80 to upgrade its sports facilities so that members of the University community and general public are able to enjoy opportunities for competition and recreation. Thunderbird Stadium was equipped with lights to enable football to be played at night, a new floor was laid in the War Memorial Gymnasium for the first time since that facility was opened in the early 1950s, and new tennis courts were opened.

I reiterate here what has been said in previous reports on athletic activities: our athletic program, far from being elitist, is designed to provide opportunities for all members of the University community to participate in formal and informal athletic activities, and we strive to make our facilities available to community organizations. The combination of these two groups mean that our major facilities are in use day and night during the University year.

Continuing education

The University has taken seriously its responsibilities in the field of continuing education from its very beginnings in 1915. UBC's first president, Dr. Frank Wesbrook, spoke of "the people's University" meeting "all the needs of all the people." Succeeding UBC presidents were conscious of the University's responsibilities in this area and strove, within the resources available, to make UBC's presence felt in every corner of the province.

The Mission Statement issued in the 1979-80 academic year commits the University to the provision of "a wide array of programs in continuing education for the general public and professionals." It is our belief, expanded on later in the statement, that UBC has "a province-wide mandate and responsibility for providing credit and non-credit continuing education and professional development, both full- and part-time.... (The University) should use its unique resources to provide continuing education, to provide leadership and to experiment in the broad field of continuing education, to co-operate with other institutions in broadening the scope of continuing education and to provide professional training and research in continuing education."

The University continued, in the 1979-80 academic year, to take its responsibilities in the area of continuing education seriously, as reflected in the following reports.

In the last academic year, a total of 94,421 persons participated in the continuing education programs offered by eight UBC divisions which provide services to students, professional people and the general public in all parts of the province. The registrations for each of these programs is shown in the table opposite.

Particularly notable are the expanded commitments which have been made by the Faculties of Agricultural Sciences and Forestry. Agricultural Sciences now has firm bases of operation in a number of Interior centres as the result of the signing of agreements with regional colleges, which are making their facilities available for academic credit courses and non-credit symposia. A total of 1,232 persons attended a variety of events in the field of poultry production, processing and marketing, livestock, arboriculture, big game animals and fisheries.

The Faculty of Forestry, while it registered only 78 persons for professional development programs, is poised to expand its continuing

STATISTICAL SUMMARY OF PARTICIPATION IN CONTINUING EDUCATION PROGRAMS 1979-80	
Extra-Sessional Credit Programs	10,018
Centre for Continuing Education (including Guided Independent Study)	52,526
Division of Continuing Education in the Health Sciences	11,360
Professional Programs of the Faculty of Commerce and Business Administration	10,968
Professional Continuing Education Program of the School of Social Work	779
Professional Continuing Education Activities of the Faculty of Agricultural Sciences	1,232
Professional Continuing Education Activities of the Faculty of Education	7,460
Professional Continuing Education Activities of the Faculty of Forestry	78
TOTAL PARTICIPATION IN CONTINUING EDUCATION PROGRAMS	94,421

education program significantly in the years to come. Their main thrust in 1979-80 was in organizing the development of credit courses which will be available through the Guided Independent Study program of our Centre for Continuing Education. Development of eight courses began in 1979-80 and four of these will be available in the next academic year.

The efforts of the forestry faculty to expand its outreach program is particularly important in the light of recent B.C. developments in forestry. A new Forest Act, largely based on the recommendations of Prof. Peter Pearse, UBC's well-known resource economist, is now in place and includes incentives to enable companies which manufacture forest products to enter the field of silviculture, the branch of forestry that deals with the propagation and growing of trees.

But the efforts which are now being made by government and industry to ensure that the province will have a viable forest industry in the future will be in vain unless a massive effort is made to provide trained manpower to carry out projects in the fields of reforestation, utilization and harvesting. Not only do we need to foster the growth of our own forestry school, we must also upgrade to degree level the qualifications of forest technicians and keep practising professionals aware of the latest developments in forestry practice. It is these latter two functions which the expanding continuing education program in Forestry is designed to satisfy.

The 1979-80 academic year marked the tenth anniversary of the transition by the Centre for Continuing Education from its former status as the University's Department of Extension. The change of name in the 1969-70 academic year was more than just window dressing. It denoted a change in philosophy based on the idea that the centre not only extends what is found in credit programs but has an independent life of its own and can venture out and engage in programs for which there is no logical base in any existing academic program.

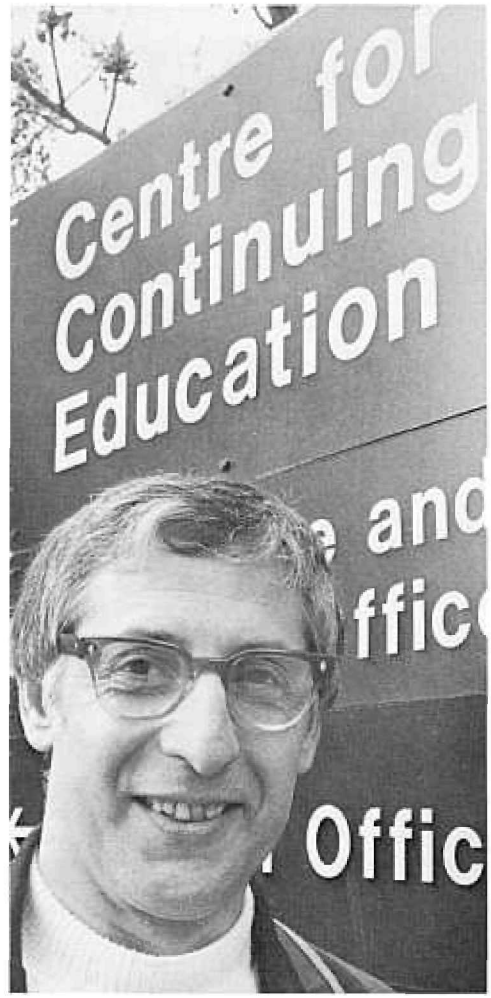
In the last decade, programs and services organized and administered by the centre evolved in tune with the changing needs of individuals and of society in B.C. and with changing perceptions within the University concerning its role in the provision of continuing education.

Fourteen new program areas were added during the 1970s to those in existence in 1969. These included a diploma program for instructors in vocational schools and community colleges, the gerontology program for those who work with older adults, the Women in Management and career development programs, the computer science program and the family life program in home economics. To these professional continuing education programs, the centre added some important non-credit programs — the Women's Resources Centre and lifestyles program, the Interior program based in the Okanagan, and the pre-retirement education program.

Enrolments in programs sponsored by the centre showed very substantial increases in the past decade. Enrolment for programs in continuing education for the professions increased by 170 per cent, those for general, non-credit programs by 99 per cent. The overall increase in registrations for the decade was 127 per cent.

Jindra Kulich, the director of the Centre for Continuing Education, says that some discernible program trends were identified in 1979-80. "The centre is experiencing an increasing return of interest among the broad public in general liberal arts programs such as history courses, courses on the Bloomsbury Group, and Biblical literature courses, which again started to attract large audiences; this trend is also visible in the creative arts area where appreciation courses are regaining popularity lost temporari-

The Centre for Continuing Education directed by Jindra Kulich added 14 new programs to its offerings during the 1970s and now ranks as one of the leading extension organizations in the academic world.



ly to studio courses. At the same time, these trends do not seem to diminish significantly interest in skills courses."

Another unit which is active in the provision of continuing education is the Office of Extra-Sessional Studies, established in response to the increasing numbers of students who needed University credit courses but could not attend the regular winter session. A total of 3,084 students registered for extra-sessional courses in 1979-80. Of that total, 1,175 registered for the 105 Education courses offered in 47 locations throughout the province. The 1980 spring session enrolled 3,017 students, an increase of 260 or 9.4 per cent over the previous year, and our summer session registered 3,917 students, a decrease of 5.7 per cent.

The number of part-time students attending the winter evening and spring sessions has increased significantly since the Office of Extra-Sessional Studies was established. In the last four years, enrolment in Arts courses is up by 31 per cent; those for Faculty of Science courses by 64 per cent; and in Commerce by 44 per cent.

In order to make it possible for the part-time student to complete degree requirements for a major, many more upper-division courses needed to be offered. In 1979, all departments in the Faculties of Arts and Science were asked to determine the feasibility of establishing a three-year sequence of courses during the winter evening and spring sessions which would allow completion of a major within that time. The response was very gratifying and 14 departments now provide such a sequence. It should be added here that degree-completion by part-time study has been available in the Master of Business Administration program for a number of years.

The Division of Continuing Education in the Health Sciences, which is responsible to the Co-ordinator, Health Sciences, is divided into six units which deliver educational services to doctors, dentists, nurses, pharmacists and rehabilitation and nutrition experts. The total attendance at courses sponsored or co-sponsored by the division in the 1979-80 academic year was 11,360, an increase of more than 2,000 over the previous year, when 9,263 registered. It is interesting to note here that of the total of 202 courses offered by the division in 1979-80, 91 were given on the UBC campus and 111 were offered in off-campus centres in all parts of the province.

More than half the courses and registrations occur in units concerned with continuing education in medicine and dentistry. Dentistry offered 34 on-campus and 41 off-campus courses which attracted total registrations of 4,095; Medicine provided 24 courses on-campus and 18 off-campus, attended by 2,777 doctors. The total registration for these two units was 6,872. New programs offered by the medical continuing education unit were a Wednesday evening lecture series which dealt in depth with a variety of topics and which will be continued in 1980-81, and one-day structured courses available on request to physicians in communities in B.C.

The Continuing Education in the Pharmaceutical Sciences unit continued and expanded its independent study program, which drew 955 registrants for its first series of courses and 601 for the second. The Continuing Education in Rehabilitation Medicine unit provided an eight-week course in neuro-development treatment with the aid of funding from the Vancouver Foundation, the Elks and the Rotary Club.

Continuing education programs offered by the Faculty of Commerce and Business Administration drew total registrations of 10,968 in 1979-80 under four headings — executive programs, the diploma division, certificate programs and the real estate division.

The executive programs division offered 79 management seminars to 1,839 participants in locations on and off the campus. These seminars covered a wide range of topics of interest to executives and managers, including human resource administration and computerized management information systems. The faculty's diploma division provided five professional development courses in conjunction with various professional associations, which were attended by 5,334 persons. It should be emphasized here that these are not short courses leading to easily obtained diplomas; each of the courses takes a minimum of three and a maximum of five years to complete and all are subject to rigorous standards of academic achievement.

The faculty's certificate programs division offers two courses — the preparatory notaries public course and the three-year certificate in real property office administration. The commerce faculty's real estate division provided professional training in four areas to 3,752 students in 1979-80, two of the areas on a national basis.

The continuing education program sponsored by the School of Social Work has two objectives — to enhance the knowledge and skills of degree-holding social workers and to provide educational opportunities for the substantial number of persons employed in the social services who lack professional education. A total of 779 persons attended the school's programs in 1979-80. Events included 39 continuing education courses, which drew 539 registrants, evening colloquia attended by 60 people and a conference on family practice, which registered 180.

The Faculty of Education has carried on an active program of continuing education for many years. Most of its efforts in this area are directed to the teachers of the province, but an equally valuable aspect of the faculty's efforts has been assistance to business corporations in training for management skills, in decision-making and critical thinking and in the area of language competency.

The education faculty has also extended its efforts beyond the boundaries of B.C. by offering courses in the Yukon leading to the Bachelor of Education degree. In addition to those registered for the degree program, a number of Yukon residents are participating in the program purely out of interest and for self-growth.

In 1979-80, the faculty offered 151 credit courses in 47 B.C. school districts and in the Yukon. Of the total 1,328 students served, 875 were residents in non-metropolitan areas, representing an increase of 32 per cent in registrations in the Interior of the province. In addition, the faculty recorded 6,132 registrations for non-credit programs, 5,695 of them in the Interior.

The University also continues to make a significant contribution to the cultural life of the province through a variety of programs that could just as easily be listed in this report under the heading of public service.

The Museum of Anthropology, for instance, attracted 16,656 persons for single lectures and lecture series, performances and other public events. These events are designed to appeal to a wide range of ages from school-age children to senior citizens. Total attendance at the museum was 149,245 persons of all ages.

Two notable events in the museum's year were the celebration of the completion of Bill Reid's monumental sculpture Raven and the First Men, unveiled at a special ceremony on April 1, 1980, by Prince Charles, and the raising in August, 1980, of a new totem pole adjacent to the museum, which was carved at 'Ksan near Hazleton. The University is grateful to Dr. Walter Koerner, who commissioned the Raven sculpture, and to the Royal Bank of Canada for the 'Ksan totem pole.

The UBC Botanical Garden continued to expand its continuing education activities both for professional specialized groups and the public in association with the Centre for Continuing Education, Continuing Education in Rehabilitation Medicine and the UBC Speakers Bureau operated by the Alumni Association.

The garden's horticulture therapy program, carried out in conjunction with the School of Rehabilitation Medicine, is designed to aid in the rehabilitation of the elderly and others and to enhance the academic training program of occupational therapists. Staff of the garden gave 30 lectures during the annual Home and Garden Show at the Pacific National Exhibition, answered 4,200 enquiries from the public about plant care, and continued its public information program through newspapers, radio and television.

The garden was honored by the American Association of Botanical Gardens and Arboreta during the academic year. The association gave its Dorothy Hansell Award for technical publications to the garden for a publication issued in conjunction with the exhibit entitled "Plantae Occidentalis: 200 Years of Botanical Art in British Columbia," which concluded a cross-Canada tour in Victoria in August, 1980.

The garden also maintains close ties with professional organizations such as the B.C. Nursery Trades Association and the B.C. Society of Landscape Architects. A program has been established for the orderly introduction of new materials from the Botanical Garden for the industry through the B.C. Landscape Plant Improvement Association.

The Departments of Music and Theatre and the Fine Arts Gallery offered an almost continuous series of concerts, theatrical performances and exhibitions throughout the University year.

The music department presented 23 faculty concerts and 66 student recitals on the campus and in off-campus centres on Vancouver Island, in the Fraser Valley, the Interior and northern

Pioneering agreement covering co-operation between Cariboo College in Kamloops and UBC's Faculty of Agricultural Sciences for offering credit and non-credit courses was signed during the academic year by college principal Charles Brewster, seated left, and Dean Warren Kitts, head of UBC's Faculty of Agricultural Sciences, seated right. Looking on left to right are Dr. Maurice Granger, chairman of physical and life sciences at the Kamloops College; Dr. Michael Pitt, UBC range specialist who co-ordinates courses at the college; Maureen Garland, associate director of the Agricultural Sciences Interior Program; and Dr. George Winter, director of the faculty's Interior program.

UBC's Departments of Theatre and Music combined during the academic year to stage Benjamin Britten's opera Albert Herring.

B.C. The department also hosted a number of outstanding musicologists and brought to the campus as an artist-in-residence Maureen Forrester, who gave a recital as well as master classes for students. The department also presented a two-week baroque music workshop and a one-week early music and dance workshop in association with the Vancouver Society for Early Music.

Some 21,000 persons saw theatre productions staged by the Department of Theatre in the Frederic Wood Theatre and the Dorothy Somerset Studio. Five major productions, including Shakespeare's *Midsummer Night's Dream* and Thornton Wilder's *Our Town*, were staged between September, 1979, and March, 1980, and Stage Campus '80, supported by the provincial government's Youth Employment Program, presented three plays during the summer of 1980.

The UBC Fine Arts Gallery continues to mount a series of lively and interesting exhibitions despite its totally inadequate location in the basement of the UBC Library. Seven exhibits between September, 1979, and April, 1980, showed a variety of art forms, including basketry, sculpture, paintings and drawings, photographs and graphic art. Hopefully, the University will be able to construct a new art gallery in the not-too-distant future, thereby completing the Norman MacKenzie Centre for Fine Arts.

Each year, the academic and recreational life of the campus is enhanced by the presence of numerous visitors, who give public lectures and participate in seminars, colloquia and other public events attended by faculty, students, support staff and the general public. More than 7,600 persons attended 22 public lectures given by speakers who came to UBC under the auspices of a fund established a number of years ago by former UBC student Cecil Green and his wife, Ida; the UBC Computing Centre presented 35 non-credit courses attended by 700 people; the Institute of Applied Mathematics and Statistics held 67 seminars and workshops during the academic year and provided a free consulting service on statistical problems for faculty members and students; the Centre for Human Settlements attracted some 340 participants to 15 public lectures; and the Department of Fine Arts organized lectures on a wide range of topics, including Canadian and medieval art and architecture.

The University's 5,157-hectare research forest in the Fraser Valley near Haney includes a demonstration forest for the use of schools and the general public in order to demonstrate forest management practices. During 1979-80, outdoor education day visits drew 3,962 visitors, 2,281 persons were accommodated for residential visits and more than 4,122 individuals participated in public tours. In the summer of 1980, the forest employed Bruce Gilmour, who is blind, to provide tours of the forest for the handicapped. A tactile map of the demonstration forest has been developed so that the visually handicapped can find their way around the area. This aid is supplemented by a tape recording which blind visitors can listen to as they

walk through the area.

The UBC Speakers Bureau operated by the Alumni Association completed its fifth year of operation in 1979-80. Arrangements were made for 400 members of the UBC faculty and staff to speak to pre-school and day-care parent groups, service clubs, school classes, career days, garden clubs and voluntary organizations. The UBC Faculty Association also operates a speakers bureau which sends faculty members to all parts of the province to speak on the fundamental purpose of the University.

I extend to all those who are involved in our many-faceted continuing education program my thanks and that of the University community generally for the continuing effort to bring the resources of the University to the citizens of B.C.

The University library

UBC's library collections almost doubled in size during the 1970s to 2.1 million items and a recent report recommends an early start on new construction to create more space for the normal growth of collections until 1990.

In comparison with the 1960s, the past decade was one of stablized growth and consolidation for the Library. It was in the 1960s that the Library, like the University, experienced a sudden acceleration in its rate of development. In the case of the University, this could be seen in the increased number of students and faculty, and in the appearance of many new courses and programs. In the case of the Library, the collections began to grow quickly, as did the use of those collections and the attendant services. The library system itself expanded and decentralized.

In the 1970s, the experience of the Library again mirrored that of the University: growth was moderate but steady, and impressive in its results. Accessions to the collection averaged more than 100,000 physical volumes a year, resulting in almost a doubling of the collection to more than 2.1 million items. This was only part of the story: the Library in 1980 holds more than 3 million items in other formats, such as microforms, government publications, maps, sound recordings, computer tapes, and many other media for the recording of information.

The use of the collections, measured in terms of items borrowed, rose by about 15 per cent, if one compares statistics at the beginning and end of the decade. Use seems to have levelled off at about 2.3 million items a year, a figure which can be doubled to account for unmeasured use within libraries. What is striking is the total measured use for the decade: more than 22.5 million items were borrowed.

Reference assistance is measured by the number of questions answered by staff members, now averaging about 330,000 per year. But the total for the decade was close to 3 million.

The years were not without their problems, ones that afflicted research libraries generally in North America. Inflation, combined with a gradual decline of the value of the Canadian dollar against both the U.S. dollar and other currencies, greatly increased the cost of maintaining the collections, since most scholarly publications must be imported. Expenditures tripled in 10 years to more than $3 million, which in itself testifies to the University's determination to maintain the quality of the Library as a resource for teaching and research, as well as for extramural users across the province.

The development of the physical library did not keep pace with needs either during the 1960s or the 1970s, with the result that new space must be constructed soon to accommodate collections, users and staff. Nevertheless, the '70s witnessed the completion of some major building projects, such as an addition to the Woodward Biomedical Library, a new Law Library, and the popular Sedgewick Undergraduate Library and a new Library Processing Centre.

Having launched a number of pioneering and successful computer-based systems in the 1960s, the Library continued its program of automation throughout the 1970s, culminating in 1978 with the implementation of a catalogue system which replaces the familiar drawers of cards with computer-output microfiche. The Library also improved access to on-line information retrieval systems, principally for scientific literature, and established its own Data Library, to collect and make available statistical information in machine-readable form.

In June, 1980, I received an interim report from a presidential committee I established in the last academic year to look into the space requirements of the Library system. One of their major conclusions was that in less than a decade all the space in the existing system for new books and materials will be full.

The University, the report said, should make an immediate start on a building program to create more room for the normal growth of book and other collections until 1990 and to provide adequate space for some other library functions. The committee estimated that the cost of new construction to stave off the looming crisis for the Library would be in the order of $25 million or more.

The 33-member committee chaired by Dr. Peter Larkin, the dean of Graduate Studies, has also been asked to prepare a comprehensive plan for meeting the Library's space needs and to recommend priorities for library construction. A series of technical studies to be carried out by the Facilities Planning Office of the University was initiated during the summer and Dean Larkin's committee plans to present a final report for consideration in the fall of 1980.

While these studies of the physical needs of the Library were in progress, the Library itself was examining other facets of its operations. In the spring of 1980, more than 6,000 users completed an opinion survey on Library services, a second enquiry was launched into the management of collections, and the processing divisions completed an intensive review of their operations with a view to improving cataloguing procedures in the face of a growing backlog of unshelved books. The results of the users' survey are being analysed and a report will be issued in the 1980-81 academic year.

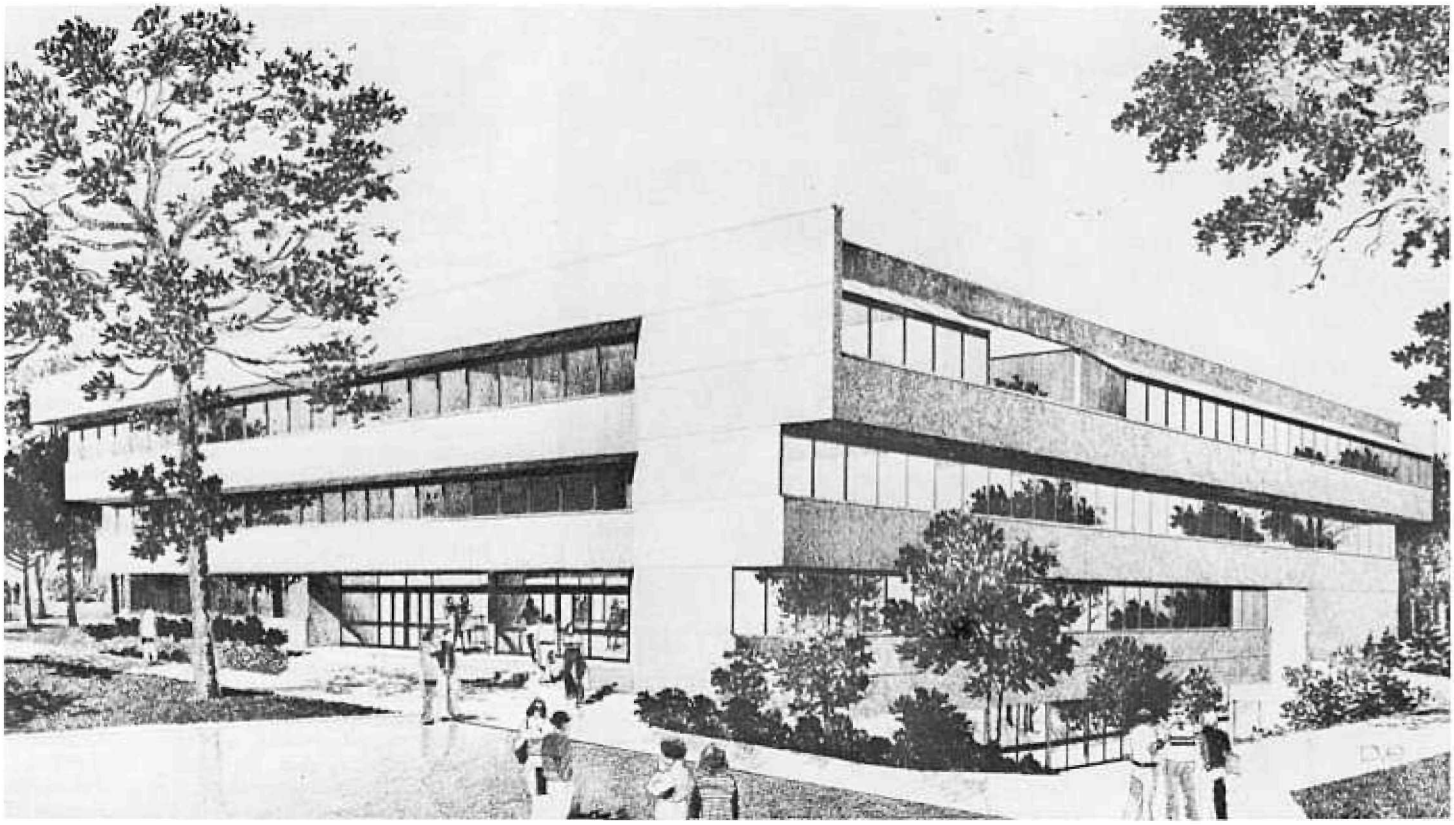
As to the outlook for the 1980s, perhaps the most concise statement on the library system was one included in the Mission Statement issued in the 1979-80 academic year: "To maintain and expand the collections and resources of the Library in order to provide the best possible support for the University's academic programs, scholarship and research."

That objective has been the policy of the University during the latter part of the 1970s, a policy which has not always been easy to follow in the light of financial constraints. In his report to me on Library operations, University Librarian Basil Stuart-Stubbs says that given a continuation of this policy and hopefully with a lessening of financial constraints, it will be the Library's objective to continue to provide to the campus and extramural communities the highest level of service possible within the available resources.

Mr. Stuart-Stubbs then sets out six specific objectives for the 1980s. These are:

- A solution to the pressing space requirements that will not only carry the Library into the 1990s, but which will improve access to collections and services and enhance the quality of the campus environment through distinguished architecture.
- A formulation of collections management policies and procedures that relate acquisitions closely to programs of teaching and research and maximize the use of the collections budget.
- Maintenance of the collections, and the collections budget, at levels sufficient to meet University needs as a first priority, and provincial needs as a second priority; this acknowledges that by virtue of the size and uniqueness of its collections, the Library must act as a resource for the province.
- Provision to University students and faculty of public reference services at at least existing levels, and with adequate financial support the extension of those services to other post-secondary students and faculty, to professional groups and to patrons at large.
- Elimination of cataloguing and other processing backlogs.
- The provision of more current information about the collections in more locations and by more sophisticated means; essentially this implies the continuation of the automation program and the implementation of an on-line, computer-based all-inclusive data bank.

By these means, the Library will assist the University in meeting the other objectives laid out in the Mission Statement: namely, the improvement of academic programs, increased graduate studies and research, improved student accessibility and part-time degree completion, and expanded continuing education and non-University use of facilities.



Construction of a new $5.8 million building to house the School of Home Economics began during the 1979-80 academic year.

Capital financing and new construction

During the 1979-80 academic year, the University continued its efforts to improve and upgrade its physical plant in order to provide an environment in which teaching and research can flourish. A continuing theme of this section of my annual report has been that many University departments are still housed in substandard quarters which hampers their ability to carry out the basic functions of higher education. In addition, as enrolments in some of UBC's professional faculties increase, e.g. Agricultural Sciences, Forestry and engineering programs in Applied Science, the resulting overcrowding in classrooms and the pressure on diminishing space for research taxes the patience of students and faculty members alike. We are continuing to press the Universities Council for the capital funds necessary to enhance educational quality at UBC.

Earlier in this report I dealt with the significance of the completion of the Health Sciences Centre and the Walter C. Koerner Acute Care Unit. The Koerner Unit was constructed for the most part with funds channelled through the Greater Vancouver Regional Hospital District, which was responsible for liaison with the contractors for the building. The top floor of the unit, however, was UBC's responsibility, since it provides accommodation for the Schools of Nursing and Rehabilitation Medicine. The completion of this facility meant that these schools were able to centralize their operations in one of the major units of the Health Sciences Centre, which is dedicated to the team approach to health care.

Also completed during the academic year were additions to Blocks A and B of the Basic Medical Sciences Buildings in the John F. McCreary Health Sciences Centre. These additions are an integral part of the expansion of enrolment in the Faculty of Medicine and provide added teaching and research space essential for that expansion.

Yet another construction project completed during the academic year as part of the Health Sciences Centre was a 1,000-car parking structure to the west of the acute care and extended care units. This was an essential addition to our parking facilities in this area, not only for the increasing number of employees and doctors who come to the Health Sciences Centre daily, but also for those visiting patients in the hospital units.

The road system to the south of the Health Sciences Centre was substantially upgraded during the 1979-80 academic year to provide improved access to the centre and the provincial Ministry of Highways began major improve-

Stanley Weston, a UBC graduate and member of the Board of Governors, made recommendations in December, 1979, for the control of erosion on the Point Grey cliffs below the University campus.

ments to 16th Avenue and Southwest Marine Drive.

Other construction projects that got under way in 1979-80 included the following:

- Completion of the interior of the Asian Centre adjacent to the Nitobe Garden to provide space for UBC's outstanding collection of books on the language, history and culture of Asia and India, office space for faculty members in the Department of Asian Studies and the Institute for Asian Research, and a small performance centre for cultural events;
- A new building adjacent to the Frank Forward Building for Metallurgy to house teaching and research activities in coal and mineral processing; and
- A new building to provide teaching and laboratory facilities and faculty office space for the School of Home Economics.

In addition to the projects outlined above, the provincial government approved capital funding of more than $2.5 million for modifications and expansion at TRIUMF, the nuclear research facility located on the UBC campus which is operated by four western Canadian universities.

In previous reports, I have drawn attention to the need for action to control erosion on the Point Grey cliffs below the University. This continuing problem is a potential threat to the safety of a number of important University facilities, including the Museum of Anthropology and Cecil Green Park. As the last academic year ended, the Board received a proposed master plan for the control of erosion, prepared for a University committee by Swan Wooster Engineering of Vancouver. During the autumn and winter of 1979, public reaction and suggestions were sought to this plan, which was estimated to cost some $12 million to implement over a four-to-five-year period.

At its October meeting, the Board approved a resolution which called for one of its members, Stanley Weston, to carry out a critique of the plan prepared by Swan Wooster and to prepare within 60 days a written plan of operation, timetable and budget for control of the erosion problem. Mr. Weston lost no time in carrying out his mandate. He staged public meetings both on and off the campus on three successive days early in November to explain the Swan Wooster proposals and to hear submissions by representatives of community organizations, some of which invited erosion-control experts to appear at the hearings. A total of 33 briefs were received and a guided tour of the erosion area was given on Nov. 3.

Mr. Weston laid his recommendations before the Board at its December, 1979, meeting. He said that as investigations proceeded, it had become increasingly apparent that the development of defences for erosion control was a very sensitive matter. He added that except for one area at the base of the cliffs, there did not appear to be any need for urgent action in regard to beach defences. He made a number of recommendations for work to be carried forward and in February, 1980, the Board approved expenditures totalling $153,000 to enable certain erosion-control measures to be undertaken in the spring and summer of 1980, including the improvement of access trails to the beach at the foot of the cliffs, a continuation of the vegetation program on eroded areas of the cliff face and the redesign and reconstruction of a storm drain at the base of the cliff. I emphasize here that the work being undertaken by the University is subject to discussion with and the approval of a group of citizens who are interested in retaining the beaches at the base of the cliff in their natural state.

On behalf of this group of citizens and the University community I take this opportunity to express my thanks to Mr. Weston for the speed and enthusiasm with which he tackled this difficult problem and his diplomacy in arriving at a solution which has widespread public approval.

Finally, I wish to report that the University is continuing discussions with Discovery Parks, Inc. for establishment of a research park on a 58-acre site on the southeast corner of the campus. The concept of a park of this sort was raised in 1977 and direct negotiations began last year.

On Jan. 24, 1980, a public meeting was held at the University to provide information about the park and to hear the position of those who oppose the idea of such a park or have reservations about certain kinds of tenants. In speaking to the meeting, I emphasized that at this point the University is simply negotiating the conditions under which it will lease land to Discovery Foundation, which is the body responsible for overall policy concerning the development. We are insisting that research carried out at Discovery Park must be related to University interests and expertise so that on-going involvement of faculty and students with research park tenants is guaranteed. The University is also insisting that it have the right to determine which

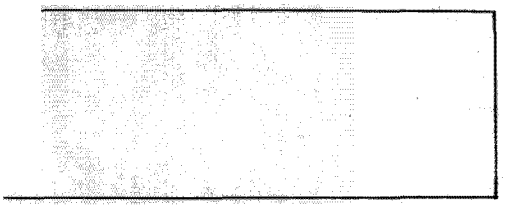
companies will be able to locate in the park and that they meet University regulations laid down by provincial and national regulatory bodies with respect to environmental protection, biological and radiation hazards, fire protection and the care of experimental animals. Because of some fears expressed at the meeting and in the news media, I stated categorically that there would no nuclear-weapons research permitted on the UBC site, nor would there be any bacterial-warfare research.

At its March meeting, the Board of Governors heard a delegation of five students representing the Student Representative Assembly research park committee, which presented a brief signed by nearly 1,700 persons, including residents of West Point Grey. The petition, in addition to requesting a moratorium on negotiations with Discovery Park Foundation until public hearings on the park are held, also proposed establishment of a "representative body to provide on-going input into the planning for and management of the park, from UBC faculty, students and staff, and from the community."

The Board was impressed with the brief presented by the student research park committee and held a lengthy discussion on it when the delegation withdrew. The Board then voted to arrange for publication of the University position with respect to Discovery Park and to indicate that it welcomed comments on the proposal. In a letter to the student committee the Board reiterated that it was mindful of the request that University representatives should be on the park's board of management and that they should be sensitive to community needs as well as the interests of the University. The letter went on to say that the Board had concluded that after careful consideration of the points raised by the committee and following a review of its position on the matter of Discovery Park, it had met, in the main, the concerns raised by the committee.

As the academic year came to a close in August, 1980, the University was still engaged in amicable but very thorough negotiations on the conditions under which we will lease land for Discovery Park.

Governing bodies



Those who work and study at the University of British Columbia are only too aware of the complexity of the community that occupies almost 1,000 acres on the tip of Point Grey. We are, in effect, a city of more than 30,000 people daily at the height of the University year — a city with its own system of government responsible for the basic teaching and research activities as well as the provision of such services as housing, food services, traffic and security, heat and power and the maintenance of roads and grounds.

While the Board of Governors and the Senate are responsible for setting overall policy for these functions, the carrying out of the day-to-day operations of the University devolves on its administrative, supervisory and support staff. I take this opportunity to extend my personal thanks to all those who have a part in ensuring that the University is able to meet its basic responsibility of providing quality education to the more than 100,000 persons who annually make use of services on the campus and in other centres throughout B.C.

I am especially indebted to the members of our two senior governing bodies — the Senate and the Board of Governors — who each year are called upon without reward to undertake arduous and time-consuming committee work, often at considerable personal sacrifice. The fact that this work is undertaken with alacrity is ample evidence of their dedication to educational well-being of the people of this province.

In October, 1979, Joy McCusker was appointed to the Board for a three-year term of office by the Lieutenant-Governor in Council. She succeeded Rendina Hamilton, whose appointment was terminated in order that she might become a member of the Universities Council of B.C.

Mrs. McCusker is no stranger to University activities. She is a graduate who has taken an active role in UBC affairs, laterally as a member of the Health Sciences Centre Management Committee.

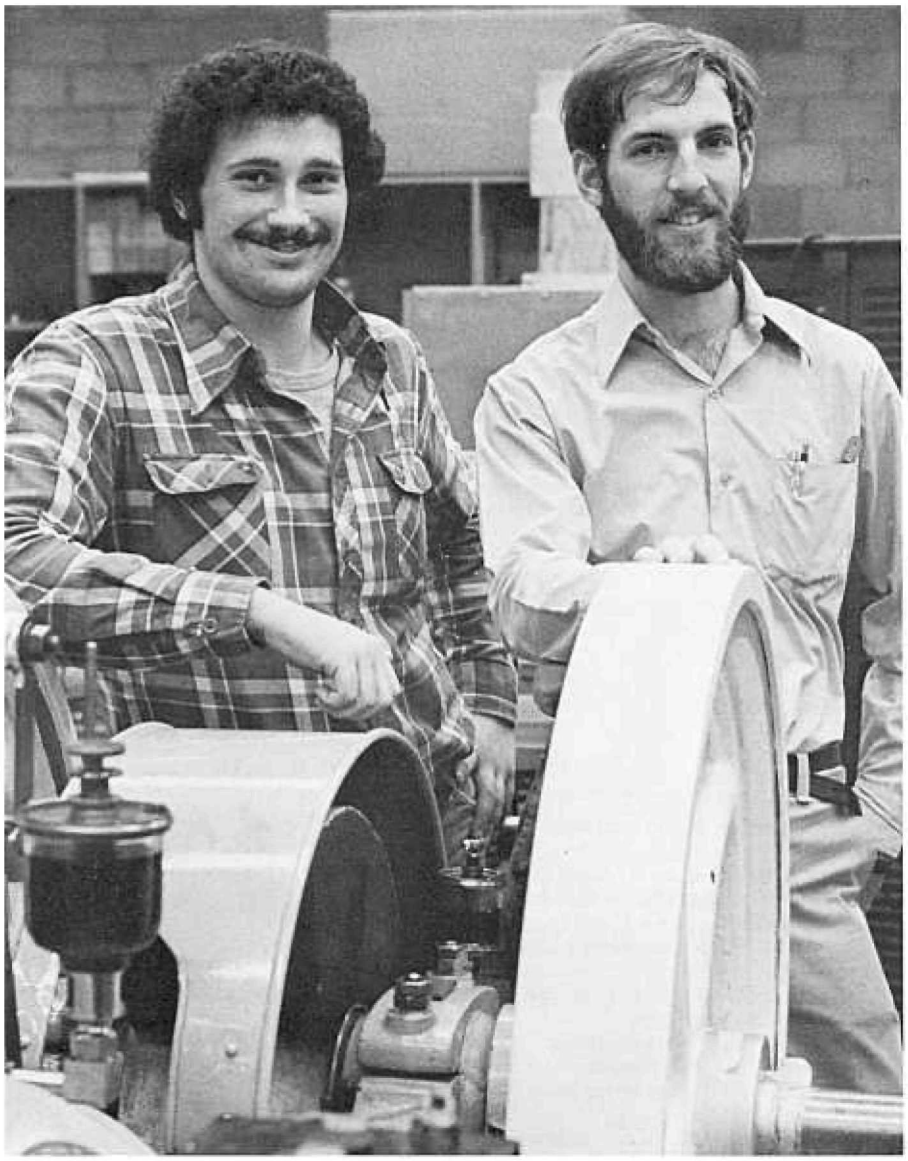
Early in 1980, the students of the University elected John Pellizzon and Anthony Dickinson, both students in the Faculty of Applied Science, as the two student representatives on the Board. They will serve one-year terms until January of 1981.

At its final meeting of the academic year in July, 1980, the Board re-elected Dr. Leslie R. Peterson as its chairman for the 1980-81 academic year. Mrs. McCusker was appointed honorary secretary to the Board for the same period.

Much of the material reaching the Board and the Senate falls under the heading of routine business, which must be approved in conformity with the Universities Act. However, some Board and Senate decisions are of widespread interest to the University community and deserve notice here.

At its November meeting, the Board approved a motion requesting its chairman to write to the Universities Council of B.C. to provide that body with evidence that the University is making efficient use of public funds. This motion was the result of comments I made on the Council's annual report, which included funding recommendations for the fiscal year beginning April 1, 1979.

In its report, the Council said it has been presented with only "slight evidence" that UBC was "taking appropriate action to meet the



UBC students elected engineering students John Pellizzon, left, and Anthony Dickinson in January, 1980 to represent them on the Board of Governors for one year.

widespread demand for greater efficiency in the use of all public funds." This extremely unfortunate statement flies in the face of the fact that the University has done everything possible and has never failed to comply fully with requests from the Council for information on our financial operations. There is no question in my mind that the Council has received a great deal more than "slight evidence" that we are using our funds efficiently.

At the same meeting the Board approved a recommendation from Dr. William Webber, dean of the Faculty of Medicine, that enrolment in the first-year class in Medicine be increased from 100 to 120 students in the fall of 1980. This expansion of the medical school is another step in our planned enrolment increase aimed at doubling the size of the entering class from 80 to 160 students.

At its December, 1980, meeting the Board approved a series of very important guidelines that provide a timetable for consideration and implementation of changes in the University's tuition-fee structure, and principles to guide the Board in determining the level of fees and fee differentials.

A total of four motions were passed dealing with tuition-fee implementation, the level of fees, tuition-fee differentials and student aid.

TIMETABLE. The Board voted to review fees annually in October and to make a decision not later than the November meeting for implementation the following spring session which commences on April 30.

LEVEL OF FEES. Under this heading, the Board resolved: (a) That tuition fees continue to form a part of the overall University financial resources for operating purposes; (b) That such tuition fees be not less than 10 per cent of the net budgeted general purpose operating costs for the current year (i.e., the fiscal year in which the review is made); and (c) That the gap between the existing level of fees and the 10 per cent aforementioned be closed at the discretion of the Board.

TUITION-FEE DIFFERENTIALS. The Board voted to continue tuition-fee differentials for different programs, taking into account the following factors in setting the differential levels — cost of program, earning potential of participants, relative fees for corresponding programs in other provinces and particularly western Canada, and national and provincial priorities and thrusts.

In this connection, the Board also resolved that tuition fees for new programs should be such that, at their inception, the new programs are not a burden on existing programs.

STUDENT AID. The Board resolved to carry out an annual review of the adequacy of student aid opportunities at the same time as the annual review of fees.

At its January, 1980, meeting, the Board approved a new policy statement governing the outside professional activities of UBC faculty members, the result of discussions between the administration and the Faculty Association. The statement requires faculty members to ensure that heads of departments, directors of schools and faculty deans are "fully informed about the general nature and extent of all outside professional activities" and sets out three situations in which "prior written approval" for such activities is required. These are when University facilities are used, when the faculty member's absence requires the cancelling or rescheduling of classes, and when the total outside professional activity in any one year becomes "substantial."

The deans of each of UBC's 12 faculties will establish a committee of their members to define the term "substantial" and this definition must be approved by a full meeting of the faculty before being forwarded to me for final approval. The new policy statement also provides for the appointment of a University-wide committee to advise me on policies and procedures associated with outside professional activities and to consider measures to provide equity throughout the University.

The approval of this policy is the end result of a long debate within the University on this topic. It is an attempt to balance two potentially conflicting views: recognition by the University that the competence and effectiveness of faculty

members as teachers and scholars may be enhanced by participation in outside professional activities on the one hand, and the basic duty of faculty members to be engaged for the whole of the year in teaching, research and other University service on the other.

Essentially, the University's policy on this matter is that the basic responsibilities of faculty members to their students, their discipline and their colleagues should not suffer because of a commitment to outside activities.

During the 1979-80 academic year, there were further developments in the matter of Prof. Julius Kane, professor of zoology and a researcher in the Institute of Animal Resource Ecology. The Board and Senate will recall that in April, 1977, I suspended Dr. Kane for a period of three months without pay on the grounds that he had made improper use of UBC's computer and a research grant. Dr. Kane appealed this suspension to the Board, which dismissed it after hearing both Prof. Kane and his counsel.

Prof. Kane thereupon petitioned the Supreme Court of B.C. for an order that the Board's resolution dismissing the appeal be quashed on the grounds of my continued presence at the Board meeting after Prof. Kane and his counsel had withdrawn. The B.C. Supreme Court and the B.C. Court of Appeal rejected Dr. Kane's petition, but a further appeal to the Supreme Court of Canada resulted in a reversal of the decision of the lower courts and the allowance of the appeal.

The result of the Supreme Court decision was that the Board of Governors had not yet legally disposed of Dr. Kane's appeal and was required to hear it again. The suspension of Dr. Kane in April, 1977, was not an issue before the courts and therefore stood.

On April 8 and 14, 1980, the Board heard for a second time Dr. Kane's appeal against the suspension and resolved that it was satisfied that he had made improper use of University facilities and research funds "and accordingly President Douglas T. Kenny's action in suspending Dr. Kane is hereby upheld and the appeal dismissed."

In June, 1980, Dr. Kane was convicted in county court of the theft of funds from a government research grant and was fined $5,000. At the end of the academic year, and after a review of the transcript of Dr. Kane's trial, I again suspended Dr. Kane and initiated proceedings for the termination of his appointment.

It seems appropriate here for me to mention that a list of those individuals, foundations and companies who have made significant contributions to the University in the form of bequests or directly for the support of student aid, research and other purposes is placed before the Board at each of its meetings. It is always a pleasure for me to comment on these gifts to the University because in a very real and tangible way they reflect the reservoir of good will for the University that exists throughout the community. The University is deeply indebted to business, industry and foundations, to our graduates and to hundreds of people who appear to have little or no direct affiliation with the University for their thoughtfulness in providing gifts large and small in support of the basic functions of higher education. I am grateful, too, to the Alumni Association for their continuing efforts in the area of fund-raising and to those people who are associated with the University Resources Council, which is also concerned with expanding University resources through private giving.

During the course of the academic year, the University Senate debated and approved motions on a number of important topics.

At its November meeting, Senate voted to establish a standing committee on student awards to advise the director of Awards and Financial Aid on matters of policy. The new committee will have to guide it nine recommendations contained in a report to Senate by an ad hoc committee on awards and scholarships.

At its January meeting, Senate approved a student-sponsored motion on the accessibility of exam papers which allows students, provided they submit a written application, to view marked examination papers with the course instructor.

This policy on the viewing of marked exam papers was the subject of another discussion at Senate's February meeting and resulted in a motion referring a proposed Calendar statement on the subject to UBC's 12 faculties "for consideration of its administrative implications."

At this same meeting, Senate approved in principle the goals and objectives contained in the document *The Mission of the University*, which was prepared at the request of the Universities Council.

At its meeting in April, Senate gave approval to proposals providing for the departmentalization of the Faculty of Education. This move by the faculty was in line with one of the recommendations made in the report of the President's Review Committee on the Faculty of Education, details of which appeared in my last annual report.

Awards and honors

I am always impressed, in the material prepared for me by the deans of the faculties, with the number of people who are recognized annually by their peers for contributions to their disciplines or who are elected to head professional organizations or chair bodies that are charged with making studies of matters of widespread public interest. In the final analysis, this recognition testifies to the high regard in which our faculty is held in the academic and public worlds.

I know I speak on behalf of the University community in extending congratulations to the faculty members listed below who received honors in the 1979-80 academic year.

AGRICULTURAL SCIENCES. Dr. W.G. Wellington of Plant Science, in addition to being named a fellow of the Royal Society of Canada, was elected a fellow of the Explorer's Club in recognition of his many contributions to the science of ecology.

Professor Emeritus Alden Barss of Horticulture was the recipient of a plaque of recognition from the Canadian Society of Horticultural Science in special recognition of his continuing support and interest in horticulture. The University community was saddened later in the academic year by the death of Dr. Barss, one of our oldest living faculty members, on July 12, 1980, at the age of 92.

APPLIED SCIENCE. An award for the best published paper of 1978 was made in October, 1979, by the Canadian Chemical Engineering Conference to three persons associated with the chemical engineering department, M. Balasubramanian, Axel Meisen and K.B. Mathur.

Prof. Borg Madsen of the Department of Civil Engineering received the meritorious achievement award of the Association of Professional Engineers of B.C.

Dr. V.J. Modi of the mechanical engineering department was made a fellow of the British Interplanetary Society.

Prof. J.K. Brimacombe of Metallurgical Engineering was honored twice by the American Institute of Mining, Metallurgy and Petroleum Engineers. He was the recipient of the institute's Mathewson Gold Medal and with two departmental colleagues, Dr. E.B. Hawbolt and Dr. Fred Weinberg, received the institute's Robert Woolston Hunt Silver Medal. Dr. Brimacombe was also the recipient of one of Canada's most prestigious research awards, the E.W.R. Steacie Memorial Fellowship, and was named the first occupant of the Stelco Chair in Metallurgy established by the Steel Company of Canada in 1980.

Prof. C.O. Brawner of Mining and Mineral Process Engineering was another UBC recipient of the meritorious achievement award of the B.C. Association of Professional Engineers for his many contributions to the engineering profession.

ARTS. Prof. Peter Pearse, who returned to the campus following a year's leave of absence with the United Nations to accept a joint appointment in the Department of Economics and the Faculty of Forestry, received the Distinguished Forester Award of the Association of B.C. Professional Foresters for his contributions to public-policy making in the field of forest resources.

Profs. E.G. Pulleyblank of Asian Studies, Milton Moore of Economics and Stephen Milne of Political Science were named fellows of the Royal Society of Canada.

Dr. Michael Church of the Department of Geography was awarded the Keefer Gold Medal of the Canadian Society of Civil Engineers; Prof. Michael Batts of Germanic Studies was awarded the medal of the Alexander von Humboldt Foundation; Dr. Dimitri Conomos of the music department was awarded a prestigious Guggenheim fellowship for 1980-81; and Raymond Hall of the theatre department received the best-editing award of the Canadian Film Editors' Guild.

Joanna Staniszkis of the School of Home Economics was inducted into the Royal Canadian Academy of the Arts for her work as a designer and weaver of tapestries.

COMMERCE AND BUSINESS ADMINISTRATION. Prof. Phelim Boyle of the faculty's finance division received the first David G. Halmstad Award for a paper judged to be the best new contribution to actuarial literature published anywhere in the world in 1978.

The appointment of Prof. Michael Brennan as editor of the *Journal of Finance*, the leading publication in its field, marked the first time in the journal's 35-year history that a non-American had been appointed editor.

DENTISTRY. Dr. Donald Brunette was the 1980 recipient of the Oral Science Award of the International Association for Dental Research; Dr. Michael MacEntee was elected to fellowship in the Royal College of Dentists of Canada; and Marlane Paquin was awarded the presidential silver anniversary trophy of the B.C. Dental Nurses and Assistants.

EDUCATION. Dr. Bryan Clarke, who supervises the program for training teachers of the deaf, received the Sam Rabinovitch Research and Evaluation Award for outstanding research in special education awarded by the Canadian Guidance and Counselling Association.

Dr. Margaret Csapo and Dr. John Friesen, guidance and counselling specialists in the faculty, were co-winners of the biennial award of the Canadian Guidance and Counselling Association for the best research article. Dr. Friesen was also honored by the association for the best non-research article.

For his distinguished contributions to adult education in Canada, Gordon Selman received the Roby Kidd Medal of the Canadian Association of Adult Education.

FORESTRY. Prof. John Walters, director of the faculty's research forest near Haney in the Fraser Valley, was the recipient of the achievement award of the Canadian Institute of Forestry for contributing "sound ideas and brilliant innovations to Canadian forestry."

GRADUATE STUDIES. Dr. Michael Poulton was the co-winner of the annual Rees Jeffreys Prize for a paper on inner-city transportation which appeared in the *Journal of Transport Economics and Policy* published by the London School of Economics.

Prof. Henry Hightower received an Outstanding Community Service Award from the City of Vancouver for his work in local-area planning arising from student projects in several parts of the city.

Prof. Mark Zacher, director of the Institute of International Relations, was the recipient of the 1980 Award for Pre-eminent Contribution to Creative Scholarship of the American Society of International Law as co-author with Michael M'Gonigle of the book *Pollution, Politics and International Law; Tankers at Sea*, an outgrowth of a four-year study by the institute of Canada and the international law of the oceans.

LAW. Prof. Ray Herbert, who has been a bencher of the Law Society of B.C. for many years, was elected to the society's highest post in 1980. He will serve as the treasurer of the body which governs the legal profession in this province until the end of the calendar year.

MEDICINE. Dr. Stephen Drance, head of the Department of Ophthalmology, received the Richardson Cross Medal of the United Kingdom's Southwestern Ophthalmological Society.

Prof. Charles Culling of Pathology was given the Outstanding Community Leadership Award of the YMCA; Dr. John C. Brown of Physiology was elected a fellow of the Royal Society of Canada; Dr. Harold Copp was appointed a Companion of the Order of Canada; and the September, 1980, issue of the journal *Neurochemical Research* will be dedicated to Dr. Juda Quastel "to honor an outstanding neurochemist and his contributions."

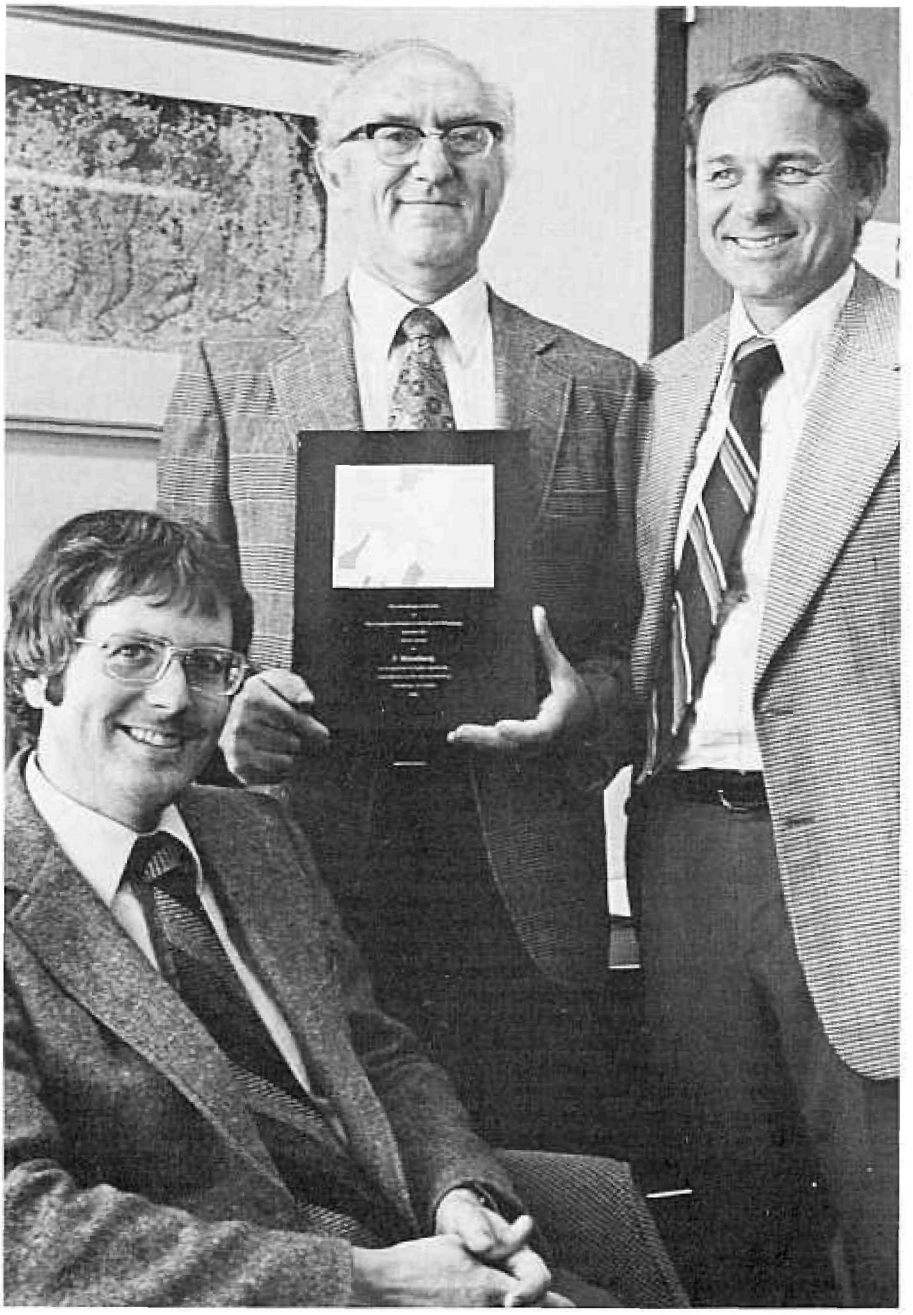
Dr. Tali Conine, director of the School of Rehabilitation Medicine, was honored as the recipient of the 1979 Presidential Citation for Service of the American Society for Allied Health Professions and the *Journal of Allied Health*.

Dr. D.D. Greenwood of Audiology and Speech Sciences was elected a fellow of the Acoustical Society of America.

PHARMACEUTICAL SCIENCES. Dr. Gail Bellward was the recipient of an award of merit of Lambda Kappa Sigma, the international professional fraternity for women in pharmacy. Dr. Finlay Morrison, a long-time member of the faculty, was elected to honorary life membership in the Canadian Pharmaceutical Association.

SCIENCE. Prestigious fellowships awarded annually by the Guggenheim Foundation went to Profs. David Dolphin and David Frost of the Department of Chemistry and to Prof. Robert M. Miura of the Department of Mathematics.

Prof. Julia Levy of the Department of Microbiology was the 1980 recipient of the University's leading research award, the Jacob Biely Faculty Research Prize, for her work in the field of immunology.



Prof. J. Keith Brimacombe, seated, was honored twice by the American Institute of Mining, Metallurgy and Petroleum Engineers in 1979-80. He was the recipient of the institute's Mathewson Gold Medal and with departmental colleagues Dr. Fred Weinberg, centre, and Dr. E.B. Hawbolt, received the institute's Robert Woolston Hunt Silver Medal. Prof. Weinberg holds the 1980 Alcan Award of the Canadian Institute of Mining and Metallurgy, which he was awarded in "recognition of highly significant contributions to the advancement of metallurgy in Canada."

Equally impressive is the number of faculty members who serve as presidents, presidents-elect or as members of the executives of the many national and international associations and societies that are so important a part of the academic world. Not only do these organizations meet regularly to enable their members to hear the latest advances in research, they are also a powerful force in ensuring that academic standards are maintained and enhanced. I extend my thanks and congratulations to those listed below for their contributions to their respective organizations, inasmuch as this activity often involves considerable sacrifices in terms of classroom and research time.

In Agricultural Sciences, Prof. Michael Shaw, who is also vice-president for University development, is president of the Canadian Botanical Association, Prof. John Neill heads the Pacific Northwest Chapter of the International Society of Arboriculture and Dr. R.H. Elliott is president of the Entomological Society of B.C.

In Applied Science, Prof. Norman Epstein was elected president of the Canadian Society of Chemical Engineering.

In Arts, Dr. Steffania Ciccone served as president of the Canadian Society for Italian Studies; Dr. Arsenio Pacheco was president of the Canadian Association of Hispanists; and Prof. Jerry Wiggins became president-elect of the Society for Multivariate Experimental Psychology.

In Commerce and Business Administration, Prof. Vance Mitchell was elected to the Board of Governors of the Academy of Management.

In Dentistry, Dean George Beagrie was elected vice-chairman of the Commission on Dental Education and Practice of the Federation Dentaire International; Dr. Douglas J. Yeo was elected chairman of the Council on Education of the Canadian Dental Association; and Dr. Joseph Tonzetich was elected president of the Canadian division of the International Association for Dental Research.

In Education, Acting Dean Roy Bentley chairs the International Assembly of the National Council of Teachers of English; Dr. Peter Cookson is chairman of the international adult education section of the Adult Education Association of the United States; Dr. Gordon Dixon chairs the international/intercultural committee of the Association for Childhood Education International; Dr. Naomi Hersom and Dr. Graham Kelsey are the president and secretary respectively of the Canadian Society for the Study of Education; Dr. Peter Olley serves as president of the Western Canadian Association for Student Teaching; Dr. Hannah Polowy is president of the Canadian Association for Young Children; and Dr. William Tetlow, who is also director of UBC's Institutional Analysis and Planning department, is president-elect of the Association for Institutional Research.

In Forestry, Prof. Harry Smith served as national president of the Canadian Institute of Forestry.

In Medicine, Dr. G.S. Harris was made president of the Canadian Ophthalmological Society; and Dr. Victor Gomel was elected to the Board of Trustees of the American Association of Gynecologic Laparoscopists.

Dr. John McNeill of Pharmaceutical Sciences served as president of the Canadian Pharmacological Society.

In the Faculty of Science, Prof. G.A.H. Walker of Geophysics and Astronomy became president of the Canadian Astronomical Society and Prof. J.R. Taylor of Oceanography was named a research associate of the International Development Research Centre in the Caribbean.

In the 1979-80 academic year, many of our faculty were also called on to chair specialized committees or study groups established by professional organizations or by government, appointments which testify to their abilities in their chosen field.

In Applied Science, Prof. Norman Eley was appointed chairman of the B.C. section of the Society of Automotive Engineers and a member of the Board of Governors of the Canadian Productivity Foundation; Dr. Ian Gartshore was made an executive member of the Canadian Wind Engineering Association; Dr. P.G. Hill has been made a member of the National Research Council associate committee on propulsion; and Prof. G.W. Poling serves as chairman of the grant evaluation committee of the B.C. Science Council.

In Arts, Dr. Douglas Bankson is president of the board of the New Play Centre; Prof. Gideon Rosenbluth was a consultant and expert witness for the Bureau of Competition Policy in hearings before the Restricted Trade Practices Commission: Profs. Paul Bradley and Milton Moore served as consultants and one was an expert witness in a case under the Combines Investigation Act concerning fertilizer; Richard Prince was president of the board of the Green Thumb Theatre for Young People; Dr. John Chapman is chairman of the board of the Pacific Marine Training Institute; Prof. Terry McGee chairs the constitution committee of the Canadian Council for Southeast Asian Studies; Prof. J. Ross Mackay chairs the ground ice division of the International Commission on Snow and Ice; Dr. Tim Oke chairs the editorial committee of the Canadian Meteorological and Oceanographic scientific committee; Dr. Olav Slaymaker chairs the hydrology section of the Pacific Northwest Geophysical Union; Prof. Jean Laponce served as chairman of the Committee on Scientific Information of the Social Science Federation of Canada; Ben Chud is chairman of a Commission on a Centralized Facility for the Education of Hearing-Impaired Children for the provincial government; Dr. Richard Splane is president of the Canadian Association of Social Workers; and Norman Young chairs the B.C. Arts Board and is a member of the 1986 Commission to celebrate Vancouver's birthday.

In Commerce and Business Administration, Dr. Michael Goldberg is chairman of the transportation research board committee on urban activity sysems of the U.S. National Academy of Sciences.

In Dentistry, Dean George Beagrie served as chairman of the main panel evaluating the National Caries Program of the U.S. National Institute of Dental Research and continues as a consultant with the World Health Organization; Dr. R.M. Shah served as chairman of the

working committee, Developmental Biologists Group of Canada, Canadian Society of Cell Biologists; and as a member of the Committee of the Canadian Association of Oral and Maxillofacial Surgeons, Dr. A.E. Swanson presented a brief on health care in Canada to a federal royal commission.

In Education, Dr. A.D. Rusnell led major program evaluations for the federal Department of Justice and the Continuing Education Law Society.

In the Centre for Human Settlements, Prof. Peter Oberlander, its director, continues as president of the Alumni Council of the Graduate School of Design of Harvard University; and Knute Buttedahl was elected president of the Pacific Association for Adult Education.

In Community and Regional Planning, Prof. Brahm Wiesman prepared a report for the Canadian Institute of Planners as part of a two-man task force on implications for the practice of planning in Canada of the recently revised provincial planning acts.

Prof. Andrew R. Thompson, director of the Westwater research centre and professor of law at UBC, chaired both the Canadian Arctic Resources Committee and the Fraser River Estuary Forum and K.J. Hall of Westwater was chairman of the Fraser River Coalition.

In Law, William W. Black chaired the discrimination committee of the B.C. Civil Liberties Association; Prof. C.B. Bourne was a member of the academic advisory committee to the Cabinet Committee on Confederation; David Cohen is national vice-president of the Consumers Association of Canada and chairman of the advocacy committee of the B.C. Consumers Association; and Dean Kenneth Lysyk chairs the Committee of Canadian Law Deans.

In Medicine, Dr. James King was appointed chairman of the Perinatal Program of B.C.; Dr. Sydney Segal was appointed assistant to Mr. Justice Thomas Berger, who heads the federal Commission for Indian and Inuit Health Services; Dorothy Styra was elected to represent Canada on the World Federation of Occupation Therapy; Dr. W.L. Dunn is chairman of the Laboratory Advisory Council to the provincial Ministry of Health; and Dr. John Ledsome is chairman of the medical advisory committee of the B.C. Heart Foundation.

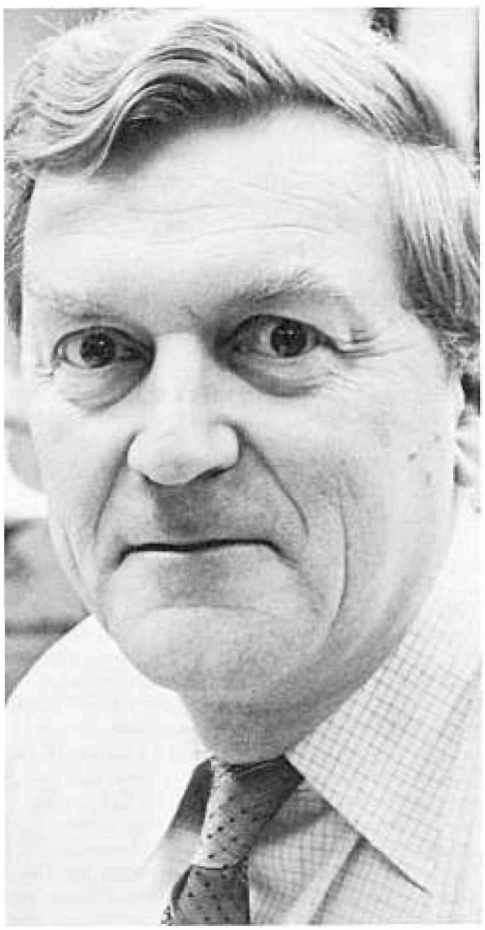
Space does not permit me to list the names of all those who have performed a multitude of tasks as editors of journals and as members of the executives of literally dozens of learned, government and community organizations.

Appointments, resignations and retirements

The academic and administrative strength of the University was enhanced during the 1979-80 academic year by a number of appointments approved by the Board of Governors.

ADMINISTRATION. Prof. James Kennedy, director of the University's Computing Centre since 1966, was appointed vice-president for University services on July 1, succeeding Charles Connaghan, who resigned his post to form a consulting firm in the Vancouver business community.

Earlier in the academic year, Prof. Kennedy undertook a six-month assignment as special assistant to the president to chair an Informa-



Prof. James Kennedy resigned from his post as director of the University's Computing Centre to become vice-president for University services in the President's Office.

Dr. Alvin Fowler is the new head of the UBC Computing Centre and Robin Russell was named director of the new University Co-ordination Office during the academic year.

tion Systems Task Force which looked into information-systems development at the University. The task force prepared a two-volume report containing 14 recommendations for revising the existing system so that it will generate timely and accurate information needed for planning, management and financial reports by the University administration and academic units.

In his post as vice-president, Prof. Kennedy assumed responsibility for the University's non-academic support services, including Employee Relations, Physical Plant, Purchasing, Facilities Planning and Traffic and Security. Because of his long association with the Computing Centre, Prof. Kennedy will also assume overall responsibility for the operations of that important UBC facility, which formerly was the responsibility of Vice-president Michael Shaw.

Prof. Kennedy was succeeded as Computing Centre director by Alvin Fowler, a UBC graduate who has been associated with the centre since 1963 and its associate director since 1971.

One of the recommendations contained in the information systems report prepared by the task force headed by Prof. Kennedy was the establishment of a University Co-ordination Office, which would be responsible for communication with all parts of the University and for enforcement of standards in such matters as the encoding of information and the design of major interdepartmental forms. Before the close of the academic year, the Board aproved funds for the establishment of such an office and for the purchase of new equipment and other services needed to implement the task force recommendations. Directing the work of the new office will be Robin Russell, the Computing Centre's database administrator, who was a member of the task force on information systems.

On Jan. 1, 1980, Kenneth Young, UBC's associate registrar, succeeded Jack Parnall as registrar of the University. Mr. Young, who also succeeds Mr. Parnall as secretary of the University Senate, has been associated with the Registrar's Office since 1965 and has occupied the post of associate registrar since 1973. I take this opportunity to express my personal thanks to Mr. Parnall for the dedicated service he rendered over a period of 30 years in the office of registrar, which is a very demanding post. He has ever been an advocate of high admission and academic standards for the University and he also made a contribution to maintaining those standards as a teacher in the Department of Mathematics.

At its May meeting, the Board approved the appointment of Allen Baxter as associate vice-president in the Office of Vice-president and Bursar William White. Mr. Baxter, who joined the University's finance department in 1963 and who was appointed treasurer in 1966, will continue to be responsible for that department's operations. His new title recognizes his contributions over time and the increasing complexity of University financial affairs.

It seems appropriate here to outline the appointments made for the administration of the University's athletic program, following the retirement on June 30, 1980, of R.J. "Bus" Phillips after 27 years as UBC's Athletic Director. Bus Phillips brought to his post a spirit of

dedication to excellence that can be regarded as a model for our faculty and students alike. Few individuals have worked harder or longer hours to ensure that the widest possible opportunities for recreation and athletic activity were open to all members of the University community and to the public in general. Those who know Bus are delighted that he has accepted the part-time post as the first executive director of the Canada West Athletic Association, which will mean that he will continue to be a familiar figure on the UBC campus quite apart from maintaining his association with university athletics.

Succeeding Mr. Phillips as director of athletics and sports services at the University will be Dr. Robert Hindmarch, who has been involved with sports at UBC for more than 30 years as athlete, coach, manager and professor of physical education. He has been a member of the UBC faculty since 1955 and coached football and hockey. He has been a member since its inception of the Vancouver committee which has attempted to get the Winter Olympics for Whistler Mountain and served for four years as president of the Vancouver Olympic Committee.

Dr. Hindmarch will be assisted in his new post by Rick Noonan, the trainer of UBC teams for many years and instructor on athletic injuries since 1970, as director of the men's athletic program; by Nestor Korchinsky, who assumes responsibility for both the intramural program and Recreation UBC; and by athletics business manager D.L. "Buzz" Moore and women's athletic director Marilyn Pomfret.

FACULTY APPOINTMENTS. In Agricultural Sciences, Dr. Leslie Lavkulich became head of the Department of Soil Science on July 1, 1980, succeeding Prof. C.A. Rowles, who retired.

The following were appointed in the Department of Plant Science for teaching and research duties associated with the University's developing program in landscape architecture: P.A. Miller, L. Diamond and D.D. Paterson. Mr. Miller's appointment is a joint one with the Faculty of Forestry.

I have already noted the efforts Agricultural Sciences made in this academic year to expand its continuing education program in the Interior of B.C. The following appointments were made to facilitate developments in this area: Dr. G.R. Winter, director; Maureen Garland, associate director; Dr. M.D. Pitt, regional director; Dr. W.E. Carlson, lecturer (Prince George region); and Dr. J.P. Ross, lecturer (Cariboo region). In addition to these appointments, Graham Drew, a long-time member of the staff of the Centre for Continuing Education, joined the faculty as an extension specialist.

In the Faculty of Applied Science, Prof. A.P. Watkinson of the chemical engineering department was named acting director of the new UBC Coal Research Centre. Appointments which significantly strengthened the work of the faculty included the following: Dr. Cyril Leung in Electrical Engineering, an expert in communications technology; Dr. Sanders M. Calisal, a specialist in marine hydrodynamics, to instruct in the naval architecture program; and Prof. H.D.S. Miller in Mining and Mineral Process Engineering, who specializes in mining methods and mine design. In the School of Architecture, Stephen Taylor, a structural engineer, was appointed to succeed Prof. Paul Wisnicki, who retired in 1979.

UBC's popular registrar for 30 years, Jack Parnall, top left, retired during the 1979-80 academic year and was succeeded by Kenneth Young, bottom left, associate registrar since 1973.

In the Faculty of Arts, new department heads are: Dr. A.N. Aklujkar, who succeeded Dr. Peter Harnetty as head of Asian Studies on July 1, 1980; Dr. Guy Carden as head of the Department of Linguistics; and Dr. K.J. Holsti as head of the Department of Political Science.

Friends and associates of R.J. "Bus" Phillips gathered in the spring of 1980 for a reception to mark his retirement after 27 years at UBC as director of athletics.

Other notable appointments: Sue Ann Alderson joined Creative Writing to teach the first courses offered at a Canadian university on the writing of children's literature; Dr. Tracy Lewis, who specializes in industrial economics and natural resource economics, joined the economics department; and the music department was strengthened by the appointments of Dr. Robert Cohen, who specializes in 19th-century music history and historical musicology, and Roland de Kant, who specializes in clarinet.

Appointments in the Faculty of Commerce and Business Administration included the following: Dr. Lawrence Jones became chairman of the Division of Urban Land Economics; Dr. Alan Kraus stepped down as chairman of the Division of Finance to take over as director of the faculty's Ph.D. program and was succeeded as divisional head by Eduardo Schwartz; Prof. W.T. Ziemba is now responsible for the Division of Management Science. Dr. Robert Davies joined the faculty's industrial relations group, strengthening expertise in the labor area; the study of financial economics was strengthened as a result of the appointment of Dr. Robert Jones in the finance division; and Gerald Gorn, previously at McGill University, adds to the marketing division through his expertise in experimental psychology and the influence of television advertising on children.

In the Faculty of Dentistry, Dr. William Richter was named head of the Department of Restorative Dentistry on Jan. 1, 1980; Dr. A.E. Swanson became head of the Department of Oral and Maxillofacial Surgery in February, 1980; and Dr. A.A. Lowe assumed the headship of the Department of Orthodontics in July, 1980. Other significant appointments in this faculty were: Dr. Garry Gibson as head of the Department of Dentistry in the Health Sciences Centre Hospital; and Dr. R.W. Priddy joined Oral Pathology in charge of the Oral Pathology Biopsy Service, a "program of excellence" instituted in 1979 in conjunction with Shaughnessy Hospital. The faculty is currently seeking a successor to Dr. Leon Kraintz, who has resigned as head of the Department of Oral Biology, but who will continue as a professor in the faculty.

The reorganization which has taken place in the Faculty of Education as a result its of departmentalization resulted in the appointment of the following acting heads: Dr. Myrne Nevison, Department of Counselling Psychology; Dr. Roland Gray, Department of Curriculum and Instructional Studies; Dr. Louis Walters, Department of Educational Psychology and Special Education; Dr. Tory Westermark, Department of Language Education; Dr. Walter Boldt, Department of Mathematics and Science Education; Dr. Jorgen Dahlie, Department of Social and Educational Studies; and Prof. James Macdonald, Department of Visual and Performing Arts in Education. Dr. Jean Hills will serve as co-ordinator of the Division of Adult Education, Higher Education and Educational Administration. Prof. Roy Bentley continues to serve as the faculty's acting dean, assisted by associate dean Douglas McKie.

In the School of Physical Education and Recreation, the offerings of the school have been improved as the result of the appointments of the following: Dr. Hal Lawson, former program and curriculum consultant to the school; Dr. Gordon Robertson, who specializes in biomechanics; Dr. Don MacKenzie, a sports medicine specialist; and joint appointments to the school and to the Department of Family Practice in the Faculty of Medicine of Drs. Douglas Clement and Jack Taunton, who will teach and direct the new Sports Medicine Clinic.

In the Faculty of Forestry, the following appointments are of note: Dr. Peter Pearse, the noted resource economist, now holds a joint appointment in economics and in forestry, where he will strengthen work in the area of forest policy and economics; Dr. R.W. Kennedy has joined the faculty full-time after a year as a visiting professor to head the Division of Wood Science and Industry; and Dr. Karel Klinka of the B.C. Forest Service will serve as an adjunct

professor to assist in research and teaching in the area of forest ecology.

In Graduate Studies, Prof. C.C. Lindsey returned to the UBC campus this year to become director of the Institute of Animal Resource Ecology; Dr. J.M. Varah became director of The Institute of Applied Mathematics and Statistics; Dr. H.B. Chamberlain, who also teaches Political Science, assumed the editorship of the prestigious UBC journal *Pacific Affairs;* and Dr. Charles Laszlo was appointed director of the Clinical Engineering Program, which will enrol its first class of 12 students in 1981. This new program, which will offer a master's degree in clinical engineering in Graduate Studies, will prepare graduates in engineering for leadership roles in hospitals, where they will develop new instrumentation for research and diagnostic purposes and supervise the safe and effective use of sophisticated electronic and mechanical equipment. The program will also prepare students for further advanced training in the field of biomedical engineering, a rapidly developing discipline that provides an interface between medicine and engineering.

One other notable appointment in Graduate Studies is the joint appointment of Dr. H.E. Schreier in Soil Science and Graduate Studies. This strengthens UBC's offerings in Resource Management Science by adding depth to land classification and resource utilization. The appointment also integrates offerings in land resource science in existing departments and faculties with the developing program in remote sensing.

In my report on the 1978-79 academic year, I drew attention to the efforts of the Faculty of Law to develop a program in Japanese law in the light of growing economic relationships between Japan and Canada. Another step in the development of that program came in 1979-80 with the appointment of Prof. Akio Morishima of the law faculty of Nagoya University as a visiting professor at UBC. Other appointments of Japanese law professors are anticipated over the next two years and during that time the UBC law faculty will consider the establishment of a continuing, permanent program in this area of study.

A number of significant appointments were made in the Faculty of Medicine in 1979-80, some of them related to the expansion of our medical school and others to the completion of the Health Sciences Centre Hospital.

New heads of departments in the medical faculty are: Dr. T.W. Anderson, Health Care and Epidemiology; Dr. J.R. Ledsome, Physiology; Dr. Neil Yorkston, Psychiatry; and Dr. Patricia Baird, Medical Genetics. The new associate dean for admissions in the faculty is Dr. Al Boggie and Prof. John Norris of the history department is the new head of the Division of the History of Medicine and Science.

Some significant appointments associated with the opening of the Walter Koerner Acute Care Unit are: Dr. Peter Hicken, director of radiology; Dr. Max Walters, acting head of the Department of Medicine; Dr. W.M. Thurlbeck, head of pathology; Shirley Mermet, director of nursing; and Dr. Kenneth Leighton, head of anesthesia.

Within the Department of Medicine of the faculty, the following appointments are noteworthy. Dr. Donald Paty joins the faculty as head of the Division of Neurology. He is well known for his clinical and research work on multiple sclerosis and will initiate a centre for treatment of this disease in the new Koerner Acute Care Unit. Dr. Henry Mizgala, formerly of the Institute of Cardiology in Montreal, will head the Division of Cardiology in the department. Joining the department as head of the Division of Geriatric Medicine at the Extended Care Unit of the Health Sciences Centre Hospital is Dr. Lynn Beattie, who holds a similar appointment at Shaughnessy Hospital.

The spectrum of expertise in the medical school's Department of Paediatrics was further strengthened by the appointments of Dr. Ross Petty as director of the children's arthritis program, and Dr. Kevin Farrell, who will assume principal responsibility for the children's epilepsy program.

Dr. Thurlbeck, who joins the Department of Pathology, is a world renowned pulmonary pathologist who also holds the post of director of laboratories in the new Acute Care Unit.

In the Faculty of Pharmaceutical Sciences, the Division of Clinical Pharmacy was strengthened by the appointments of Dr. Marc Levine to head the division and Dr. Robin Ensom. The Division of Pharmaceutics was improved as a result of the appointment of Dr. Helen Burt, and that of Dr. David Hill as a part-time assistant professor and director of pharmacy in the new Acute Care Unit is important in the light of involvement of teaching and research in pharmacy in the Health Sciences Centre Hospital.

A total of 16 members of the research and teaching staff of the University reached the age of retirement in the last academic year. I take this opportunity to extend my personal thanks and those of the University community generally to them for the contributions they have made to the academic and administrative life of the University.

The following retired after 30 or more years of service:

Lorne Kersey of the Department of Electrical Engineering, whose association with UBC began when he enrolled as a student in 1932 and whose 42-year teaching career in Applied Science began in 1938;

Prof. J.G. "Gil" Hooley, honored in 1979 for his pioneering contributions to the chemistry of carbon, who enrolled as a UBC student in 1930 and who began a 38-year teaching career in the Department of Chemistry in 1942;

Dr. Craig W. Miller, an expert in Victorian literature, who was first appointed to the staff of the Department of English in 1946;

Prof. Charles A. Rowles, a member of the Faculty of Agricultural Sciences since 1946 and head of the Department of Soil Science since 1956, who has been closely associated with UBC's athletic program, for many years as chairman of the men's athletic committee;

Prof. John B. Warren, who joined the UBC physics department in 1947 and who was a moving force in the planning and building of the TRIUMF Project and director of it from 1968 to 1971;

Students and faculty members lift their glasses to toast Dr. Kay Brearley, who retired in 1980 after a 31-year career at UBC as a teacher of French, senior advisor to students in the Faculty of Arts and as chairwoman of the Women's Athletic Committee.

Albert B. Laithwaite, a member of the staff in Physical Education and Recreation since 1947 and coach of UBC's top-rated rugby teams for 17 years;

Dr. Katherine "Kay" Brearley, a teacher of French since 1949, senior faculty advisor in the Faculty of Arts since 1968 and who was closely associated with women's athletics for many years as chairman of the women's athletic committee;

Dr. Harold Copp, who joined the UBC faculty in 1950 as the first head of the Department of Physiology when the Faculty of Medicine was founded, co-ordinator of health sciences from 1975 to 1977, and internationally known for his pioneering research on calcium metabolism; and

Lionel A.J. Thomas, a member of the teaching staff of the School of Architecture and the Department of Fine Arts since 1950, who enjoys an international reputation for his work as an artist and designer.

Those faculty members who retired after 20 or more years of service are:

Brian E. Burke, a UBC graduate who joined the faculty in 1951 as a teacher in Commerce and Business Administration and who received an honorary life membership in the Certified General Accountants' Association of B.C. in 1978 for his contributions to the accounting profession;

Prof. Harold Livermore, a distinguished scholar and author who was head of the Department of Hispanic and Italian Studies from 1967 to 1976; and

Prof. Wei-Cheng Lin, who joined the UBC faculty in 1959 and was one of the group of UBC scientists who aided the development of studies in electron spin resonance.

Others who retired during the academic year were:

Dr. Donald C. Graham, associate dean for admissions in the Faculty of Medicine since 1966; and

Kenneth C. Woodsworth, who joined the Centre for Continuing Education in 1966 to expand continuing legal education programs.

Three senior members of the administrative executive staff also retired during the academic year. The contributions of two of them, Registrar Jack Parnall and athletic director R.J. "Bus" Phillips, are recorded in an earlier section of this report. The third individual in this category to retire was Leo Kansky, who has been associated with the University's agricultural research farm at Oyster River on Vancouver Island since 1955, initially as assistant to the director and since 1969 as farm manager.

Support services

The basic teaching and research functions of the University are supported by a number of essential services which make a significant contribution to campus life. The brief descriptions which follow outline recent developments in these support services.

SPACE AND AUDIO-VISUAL SERVICES. The state of the audio-visual arts has progressed rapidly in the post-World War II period and has had a major impact on universities and their operations. I am pleased to report that UBC now has a division which is able to offer a full range of services in this area for the use of the University community.

This division is housed in new quarters in the Library Processing Centre, opened in the last academic year, and has added graphic arts and sound and videotaping facilities to its basic roster of services, which include photography, electronic equipment repair, rental of audio-visual equipment and a film library of some 1,500 titles. In the 1979-80 academic year, the division began production of a series of 20-minute videotapes on UBC academic programs which will be used for high-school counselling purposes.

EMPLOYEE RELATIONS. In addition to screening and selecting support staff for the University, this department is responsible for carrying out collective bargaining procedures with the various unions which have locals on the UBC campus. Advisory committees with membership from all faculties of the University guide the development of labor relations policy and over a period of three or four years collective agreements with unions have been brought to a common expiry date. In 1979-80, a coherent plan for salary administration, with provision for response to market changes in occupational groups, was pursued for technical positions as an extension of a major revision of salary policy for non-academic professional staff undertaken in 1978-79.

PURCHASING. As the size and complexity of the University increases, so does the workload of departments such as Purchasing, which in the last decade had to deal with an increase from 34,000 to 49,000 in the number of purchase requisitions written annually at UBC. In addition to providing a wide range of advisory services on purchasing, the department plays a significant role in the furnishing of new buildings. In the past year, the department has been extremely active in this area as several new buildings were completed.

PHYSICAL PLANT. This department provides a multitude of services to the University community, including equipment and services maintenance, delivery services, groundskeeping, inspection of new construction and custodial services for the entire University. The financial problems of recent years, combined with our continuing building program, has severely strained the department's resources. It continues to seek new ways to meet expectations and steps are being taken to overcome problems. The University is conscious of the fact that many Physical Plant functions are carried on in marginal quarters and is making plans to replace some of these facilities.

The administration of the University's energy conservation program is also centred in the physical plant department. During the 1979-80 academic year, an energy conservation officer was hired for the day-to-day operations of this program. He initiated an energy audit of a number of major UBC buildings over the summer with the assistance of three students. The aim of this program is to reduce significantly the University's energy bill, now close to $4 million annually. Another aspect of this program in the coming year will be the conversion of 18 Physical Plant vehicles to run on compressed natural gas instead of gasoline. The provincial government is providing funds for the conversion and for purchase of the natural gas and the performance of the vehicles will be monitored for one year by B.C. Research, the applied research organization which has its headquarters on the UBC campus. It is estimated that compressed natural gas will power the vehicles for about half the cost of conventional gasoline.

FACILITIES PLANNING. This new department was created in 1979 to take over and expand the role of the planning division of the Department of Physical Plant. It has already participated in the development of major projects such as the proposed psychology and chemistry-physics buildings and the preparation of technical studies preceding expansion of the library system. The department is also responsible for integrating these functions into a coherent plan for campus development, which will receive special attention in the 1980-82 period.

TRAFFIC AND SECURITY. As day and nighttime activity on the UBC campus increases and as new buildings are opened, increased responsibilities fall on the University's traffic and security department for the movement of vehicles on campus, for parking and for the security and safety of individuals and property. With the opening of the 1,000-car parkade adjacent to the Health Sciences Centre during the 1979-80 academic year, the department has extended its range of duties into the management of parking facilities.

Several other initiatives were undertaken in 1979-80. With the appointment of a security supervisor, the department has begun surveys of major buildings to reduce security risks. Preparation of a disaster-plan manual is nearing completion with the assistance of civic and

provincial agencies. The introduction of a system of issuing parking stickers by mail to faculty and staff is an example of how Traffic and Security is continuing to streamline its administrative systems.

COMPUTING CENTRE. In addition to providing academic computing services for students and faculty members, the Computing Centre now has responsibility for a full range of services to academic and administrative departments as the result of a 1978 merger with the Data Processing Centre. The change in administrative computing has recently been toward unification of existing computer-based systems and development of University-wide systems. This trend was accelerated by adoption of the report of the Information Systems Task Force in 1980.

Developments to enhance services in the 1980s will include work on computer communications networks to link local and distance machines in a useful way, advances in the provision of text-editing facilities accompanied by attachment to sophisticated printers or phototypesetters, and general improvement of the computing environment through database systems and other program packages.

DAY CARE SERVICES. Nine day care centres are operated on the UBC campus for the children of students, staff and faculty members. In the last decade, the University has actively supported this movement through the provision of buildings and maintenance, and grants to support the Day Care Co-ordinator's Office. The UBC centres have responded by providing exemplary and innovative care and have served as a research resource for the study of children by a wide range of faculties and departments. Community colleges place early childhood education students on practicum in the UBC centres, and colleges further afield bring students on a yearly visit to the campus facilities.

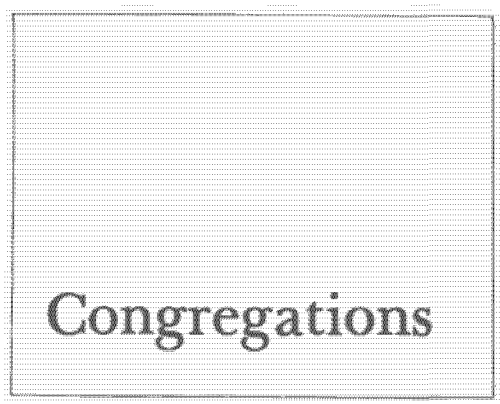
The UBC centres are all parent co-operatives, which means that parents administer the centres and contribute up to four hours a week assisting supervisors in caring for children. This approach to child care led the Day Care Council to prepare a booklet for use by other groups across Canada who wished to establish similar programs.

Those responsible for UBC day care hope to provide more diverse types of care in the future and to upgrade existing facilities to provide a model physical environment to complement the excellence of the care now provided.

THE UNIVERSITY BOOKSTORE. The Bookstore made notable progress in the past decade in improving its services for members of the University community and for the community-at-large, which makes heavy use of Bookstore services. In recent years a great deal of study has been given to marketing patterns and the methodology that will be required during the 1980s and has resulted in the formulation of a five-year plan that served as the basis for a new bookstore which is expected to be operational by late 1981.

At its June, 1980, meeting, the Board of Governors approved construction of a new bookstore on a site at the corner of University Boulevard and East Mall directly east of the Biological Sciences Building. The Board motion also approved application to the provincial government for permission to borrow funds for construction. Retail selling space in the new building will be three times larger than similar space in UBC's present bookstore. The new facility, when open, will see the further development of service to graduate students, the faculty, the professions and to research. It will also include a health sciences bookshop to provide services to students and faculty members in the Health Sciences Centre.

I have confined myself, in this section of my annual report, to describing University-wide support services. Those units which provide services directly to students are reported on in the section of this report dealing with the student body.



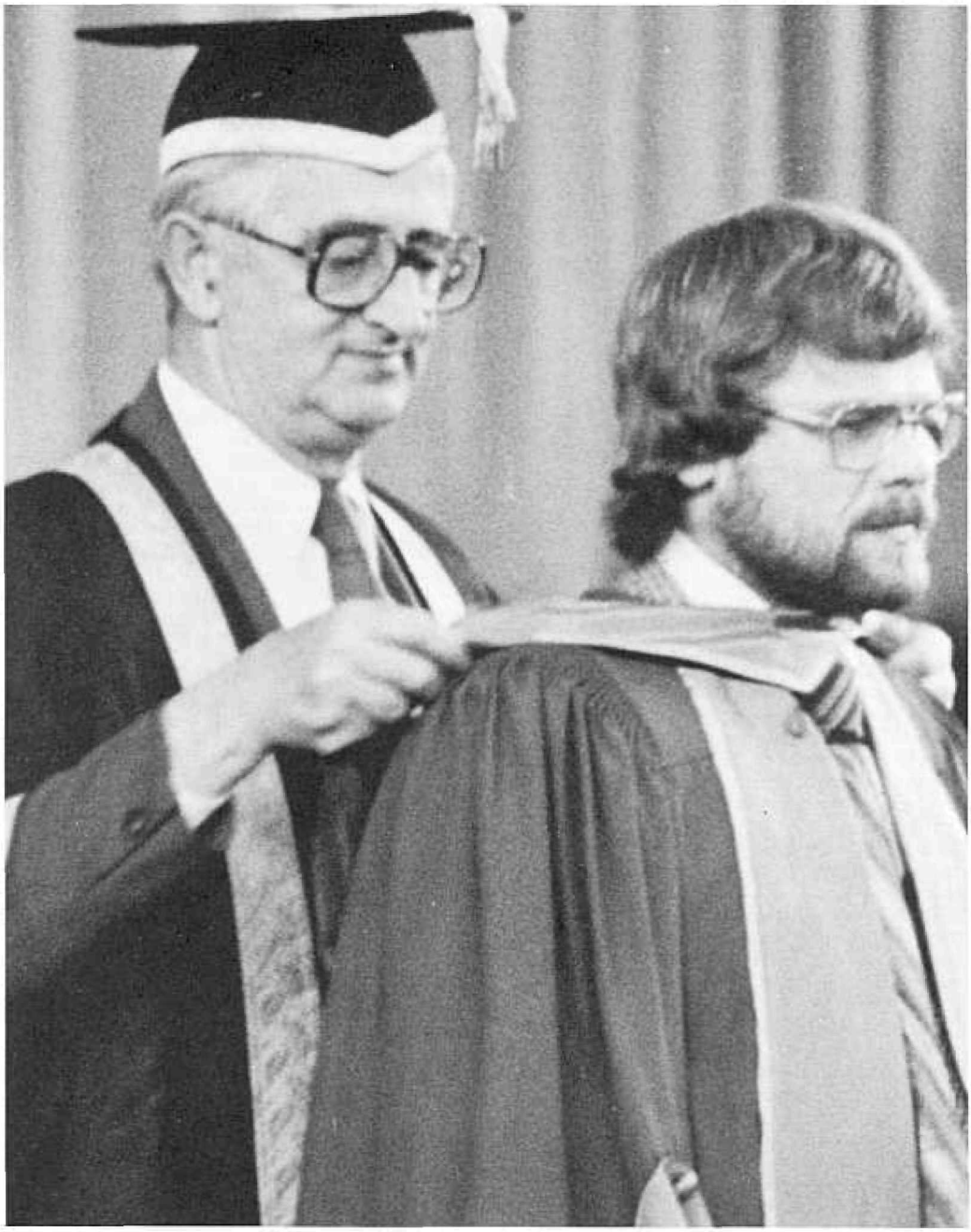
The University held two Congregations during the 1979-80 academic year. The first of these, on Sept. 5, 1979, took place the day before the official opening of the new Law Courts in downtown Vancouver and was designed to honor three noted jurists who have made significant contributions to law in Canada and Britain.

The University Senate approved the conferring of honorary degrees on Lord Denning, Baron of Whitchurch, head of the British Civil Court of Appeal and a noted legal reformer; Right Hon. Bora Laskin, chief justice of the Supreme Court of Canada; and Hon. Gabriel Rinfret, chief justice of the Province of Quebec.

Shortly before the Congregation took place, the University learned with regret that Chief Justice Laskin would be unable to attend owing to illness. His honorary degree will be conferred on some future occasion.

The University's regular, annual Congregation for the conferring of academic and honorary degrees approved by the UBC Senate was held on May 28, 29 and 30 in the War Memorial Gymnasium. A record graduating class of 3,951 students received academic degrees and five distinguished members of the academic, business and public service communities had honorary degrees conferred on them.

On May 28, the honorary degree of Doctor of Laws was conferred on Professor Emeritus of Music Harry Adaskin, one of Canada's most distinguished performing artists and a member of the UBC faculty for 27 years, and Robert B. Bryce, one of this country's leading civil servants who held senior posts in the federal finance department and served as executive director of



President Douglas Kenny places the academic hood symbolizing the Doctor of Philosophy degree on the shoulders of Rod Michalko during the 1980 Congregation ceremony. He is the first blind student to earn a Ph.D. degree at UBC. Shortly after the ceremony he began work at a training and research centre operated by the Canadian National Institute for the Blind in Toronto.

the World Bank and the International Monetary Fund.

On May 29, the University conferred the honorary degree of Doctor of Science on Dr. David Saxon, who was widely known for his academic work in the field of theoretical and nuclear physics before he assumed a number of senior posts in the University of California system of higher education. He now serves as president of that University.

On May 30, the honorary degree of Doctor of Science was conferred on Dr. Harold Copp, who was to retire on June 30 after a 30-year career as head of the Department of Physiology in the Faculty of Medicine. He was among the first appointees to the University's medical school when it was founded in 1950 and has earned an international reputation for his brilliant research on hormones.

The same day the University honored John Liersch when it conferred on him the degree of Doctor of Laws for his contributions to education and to the forest industry of B.C. He headed UBC's former forestry department from 1942 to 1946, was a member of the provincial Royal Commission on Education in the late 1950s and served on the University's Board of Governors for a decade. During his business career, he held a number of senior posts with the leading forest industry companies of B.C.

Rodney Michalko, the first blind student to earn the academic degree of Doctor of Philosophy at UBC, was a member of the graduating class on the final day of Congrega-

tion. Mr. Michalko, who also holds a Master of Arts degree from UBC, was greatly assisted during his graduate work by the Crane Library for the blind, a branch of the UBC library system, which tape recorded for him hundreds of text books and research papers. His wife, Barbara Williams, also graduated in 1980 with the degree of Bachelor of Arts.

One of the highlights of each Congregation ceremony is the awarding of medals and prizes to the outstanding students who have headed their respective graduating classes. The names of those who distinguished themselves in 1980 are listed below.

The Association of Professional Engineers Gold Medal (head of the graduating class in Engineering, B.A.Sc. degree): Terry Lewis Eldridge.

Helen L. Balfour Prize, $300 (head of the graduating class in Nursing, B.S.N. degree): Christine Louise Nelson.

Dr. Maxwell A. Cameron Memorial Medal and Prize (head of the graduating class in Education, Secondary Teaching Field, B.Ed. degree): Lillian M. Zachary.

Dr. Maxwell A. Cameron Memorial Medal and Prize (head of the graduating class in Education, Elementary Teaching Field, B.Ed. degree): Edna Joan Donnely.

Ruth Cameron Medal for Librarianship (head of the graduating class in Librarianship, M.L.S. degree): Judy Carol Neill.

The Canadian Institute of Forestry Medal (best overall record in Forestry in all years of course, and high quality of character, leadership, etc.): Dan Scott Price.

The College of Dental Surgeons of British Columbia Gold Medal (head of the graduating class in Dentistry, D.M.D. degree): Stewart Eric Rohrer.

The College of Dental Surgeons of British Columbia Gold Medal in Dental Hygiene (leading student in the Dental Hygiene Program): Christine Marta Wills.

The Dean of Medicine's Prize (School of Rehabilitation Medicine) (head of the graduating class in Rehabilitation Medicine, B.S.R. degree): Teresa Adel Taylor.

The Governor-General's Gold Medal (head of the graduating classes in the Faculties of Arts and Science, B.A. and B.Sc. degrees): Anne Alexandria Gardner.

The Hamber Medal and Prize, $250 (head of the graduating class in Medicine, M.D. degree, best cumulative record in all years of course): Edward Charles Jones.

The Horner Prize and Medal for Pharmaceutical Sciences, $100 (head of the graduating class in Pharmaceutical Sciences, B.Sc. Pharm. degree): Angela Cheryl Freberg.

The Kiwanis Club Medal (head of the graduating class in Commerce and Business Administration, B.Com. degree): Barbara J. Simpson.

The Law Society Gold Medal and Prize (call and admission fee) (head of the graduating class in Law, LL.B. degree): Paul A. Hildebrand.

The Physical Education Faculty Award (head of the graduating class in Physical Education, B.P.E. degree): Linda Jean Lovell.

The Recreation Society of British Columbia Prize (head of the graduating class in Recreation, B.R.E. degree): Paula Louise Jensen.

The Wilfred Sadler Memorial Gold Medal (head of the graduating class in Agricultural Sciences, B.Sc. (Agr.) degree): Jan Elizabeth Langton.

The Special University Prize, $200 (head of the graduating class in Architecture, B.Arch. degree): Elna Karen Strand.

The Special University Prize, $200 (head of the graduating class in Fine Arts, B.F.A. degree): Allan Wesley Peters.

The Special University Prize, $200 (head of the graduating class in Home Economics, B.H.E. degree): Vanda Lynn Spence.

The Special University Prize, $200 (head of the graduating class in Licentiate in Accounting): Won H. Lee.

The Special University Prize, $200 (head of the graduating class in Music, B.Mus. degree): Thomas Gordon Sinclair.

The University Medal for Arts and Science (proficiency in the graduating classes in the Faculties of Arts and Science, B.A. and B.Sc. degrees): Lauren Mary-Anne Dubeau.

Deaths

With deep regret I record the names of active and retired members of the UBC faculty who died during the 1979-80 academic year.

Active members of the teaching and research staff who died were:

Charles W. Roberts of the Department of Poultry Science, who died suddenly on Jan. 11, 1980;

Leslie F.S. Upton, of the Department of History, who died on March 29, 1980;

Donald J. McIntosh of the Faculty of Education, who died on April 16, 1980; and

David M. Williams, also of the Faculty of Education, who died on June 28, 1980.

Retired members of the faculty who died in the academic year were:

Coolie Verner, a leading scholar in the field of adult education, who died on Oct. 12, 1979;

Helen Allen, a retired member of the staff of the Woodward Library, who died on Feb. 15, 1980;

Muriel Cunliffe, professor emeritus of Social Work, who died on Feb. 24, 1980; and

Alden Barss, professor emeritus of Horticulture, whose death at the age of 92 on July 14, 1980, robbed the University of one of the small band of academics whose association with the University began when it opened its doors in 1915.