



# Pharmacy doctorate first in Canada

By **CONNIE FILLETTI**

Canada's first Doctor of Pharmacy (Pharm.D.) program will be offered at UBC beginning in September, 1991.

Six students will be accepted into each year of the two-year program, which has been designed to prepare advanced specialists in clinical pharmacy.

"The practice of pharmacy has changed significantly over the past 15 years," said Glenda Meneilly, director of the Pharm.D. program and an assistant professor in the Faculty of Pharmaceutical Sciences.

"There has been an increasing emphasis on therapeutic with an associated need for pharmacists who function as therapeutic advisors," she explained. "These individuals require professional education and training at a more advanced level than is presently achieved in the undergraduate program. The Pharm.D. degree is well recognized as the highest professional degree in pharmacy."

Meneilly added that while the Faculty of Pharmaceutical Sciences maintains strong undergraduate, masters and PhD programs, the addition of the Pharm.D. program will provide future leaders as the clinical role of the pharmacist expands.

A 1989 survey by the Faculty of Pharmacy at the University of Toronto reported 62 positions currently open in Canada requiring or preferring a Pharm.D. degree, and forecasted the need for over 300 individuals with a Doctor of Pharmacy degree in the next five years.

At any given time, three to five B.C. residents are enrolled in U.S. Pharm.D. programs. In 1990, there were 19 Pharm.D. graduates in B.C. practicing in British Columbia.

"Access to a degree program in B.C. could provide a stable supply of professionals with advanced clinical training to meet ongoing requirements in B.C. hospitals, universities and other organizations," Meneilly said.

The program is open to applicants who possess a B.Sc. degree in pharmacy, or equivalent, and are eligible for registration with the College of Pharmacists of British Columbia.

For further information, contact the Faculty of Pharmaceutical Sciences at 822-2390.

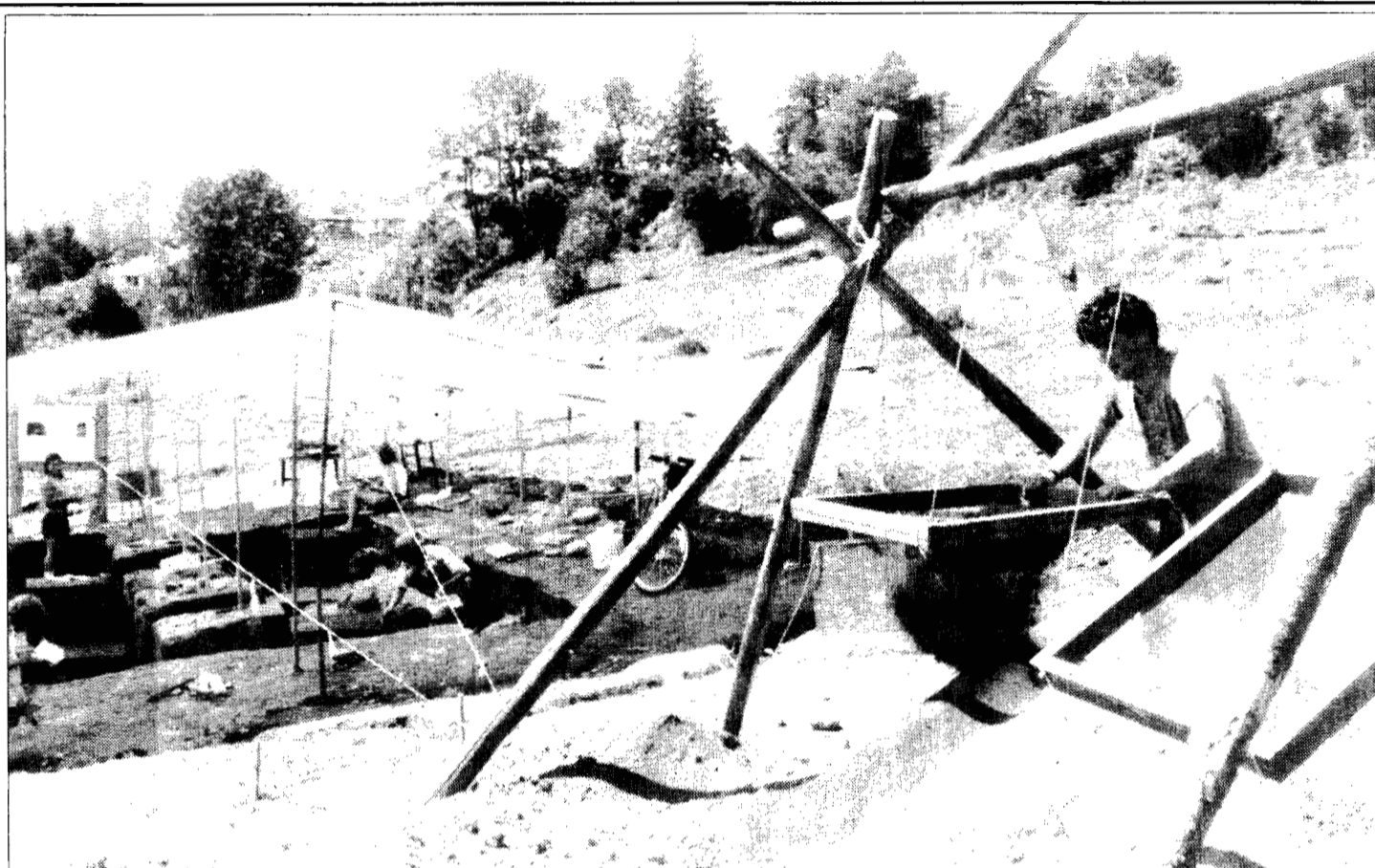


Photo by Charles Ker

UBC student Andrew Mason sifts through soil in search of artifacts from the site of what may be the earliest known dwelling in B.C.

## Ancient site dates back 5,000 years

By **CHARLES KER**

Unreal. That's how Andrew Mason describes his summer so far.

Standing in an awning-covered pit dug two metres into a farmer's field near Mission, the 25-year-old UBC archeology student is unearthing a significant piece of B.C. history.

For two months, Mason, 10 undergraduates and five members of the nearby Sto:lo

Tribe have been digging out the remains of what they believe is the oldest house in the province.

Charcoal from a hearth on the dwelling floor was given a radiocarbon date of 5,140 years, a millennium older than what was previously thought to be the region's oldest house.

"If this thing really goes back 5,000 years, people were obviously settling down a lot earlier than we ever anticipated," said UBC As-

stant Professor David Pokotylo, who supervised the Anthropology Department's summer field school. "It may very well change ideas we have about the development and origins of northwest culture as we know it."

Mason calls it unreal, but the site's discovery last fall by a local archeologist had a more surreal quality to it.

Gordon Mohs was on a Thanksgiving pic-

See **FIND** on Page 2

## Commerce tops country

By **ABE HEFTER**

UBC RECEIVED the most grants among Canadian business schools in the Natural Sciences and Engineering Research Council's (NSERC) grant competition for 1991.

The Faculty of Commerce and Business Administration picked up 16 grants totalling \$304,749. The University of Waterloo finished with the second highest number of grants, 12, with a dollar figure of \$365,750.

Former Dean of Commerce Peter Lusztig said the number of NSERC grants awarded to the faculty and the amount received has increased over the years. Last year, it received 14 grants totalling \$276,049.

"In addition," said Lusztig, "Waterloo's totals include units which would be independent departments outside the business school at UBC."

Carleton, McGill, Queen's and Simon Fraser universities, as well as the universities of Toronto and Ottawa, were next with five NSERC grants each. Among them, U of T received the most funds, at \$119,043.

NSERC grants are awarded to business schools across the country for research in areas including operations research, transportation, management information systems and statistics.

## Strong-Boag to head Women's Centre

By **CONNIE FILLETTI**

Veronica Strong-Boag has been appointed director of UBC's newly created Centre for Women's Studies and Gender Relations.

The main goals of the centre are interdisciplinary research in Women's Studies and Gender Relations, graduate education and community liaison.

"We are fortunate in being able to recruit Professor Strong-Boag as the centre's founding director," said Dan Birch, vice-president, academic and provost. "Few, if any, Canadians could offer as much potential for intellectual leadership in the field."

Strong-Boag currently holds a joint appointment in the Department of History and the Women's Studies Program at Simon Fraser University.

She received her PhD from the University of Toronto in 1973 and lectured at Trent University in Pe-

terborough, Ont. and Montreal's Concordia University before joining the faculty of SFU in 1980.

Her current research interests include women in post-confederation Canada and women, the family and suburban development from post World War II to 1960.

Strong-Boag is a member of several distinguished organizations including Resources for Feminist Research, the Canadian Women's Studies Association and the Canadian Research Institute for the Study of Women.

In 1988, she received the Sir John A. Macdonald Prize for the best book in Canadian history awarded by the Canadian Historical Society.

A year earlier, she was co-winner of the Laura Jamieson Prize, presented



Strong-Boag

by the Canadian Research Institute for the Advancement of Women, for best feminist book by a Canadian author.

"UBC has many outstanding scholars working in Women's Studies and Gender Relations," Birch said. "The coming year will see them take a much higher

profile with the approval of a Women's Studies major in the BA degree, and the establishment of the Centre for Research in Women's Studies and Gender Relations."

Strong-Boag assumes her new position as director of the Centre for Women's Studies and Gender Relations on Sept. 1.

The centre is a \$2-million project of UBC's A World of Opportunity fundraising campaign.

### Inside

**SPEAKING OUT:** The province is listening as speakers from UBC give their time to participate in the Speakers' Bureau. *Around & About, Page 3*

**THE SKY'S THE LIMIT:** Engineering students try to finish the job started by pioneer aviator. *Page 6*

**OFF TO CUBA:** A UBC sports doctor heads the medical team for Canadian athletes at the Pan-Am Games. *Page 8*

# Service recognized by Alumni awards

By CONNIE FILLETTI

Recipients of the 1991 UBC Alumni Association Awards were announced during the association's annual general meeting held June 13.

The winners are:



Lusztig

— Peter Lusztig, former dean of the Faculty of Commerce and Business Administration. He receives the Alumni Award of Distinction which recognizes outstanding achievements of UBC alumni.

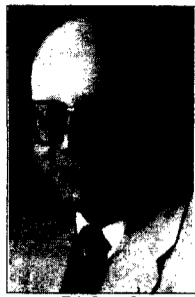
— Jim Richards, dean of the Faculty of Agricultural Sciences. Dean Richards is being honored with the Faculty Citation which is awarded to members of UBC faculty who have rendered outstanding service to the general community in capacities other than teaching and research.

— Dr. John Diggins, past presi-

dent of the Alumni Association and currently president of the B.C. College of Dental Surgeons. He is the recipient of the Blythe Eagles Volunteer Service Award which honors individuals who have contributed extraordinary time and energy to the Alumni Association.

— John Chapman, who is considered to be one of the architects of post-secondary education in B.C., and Buzz Moore, an outstanding athlete and a member of the B.C. Hall of Fame. They are co-winners of the Honorary Alumni Award which recognizes contributions made to the Alumni Association and/or UBC by non-alumni.

Each recipient of the Alumni Association Awards will be honored at special events throughout the year.



Richards

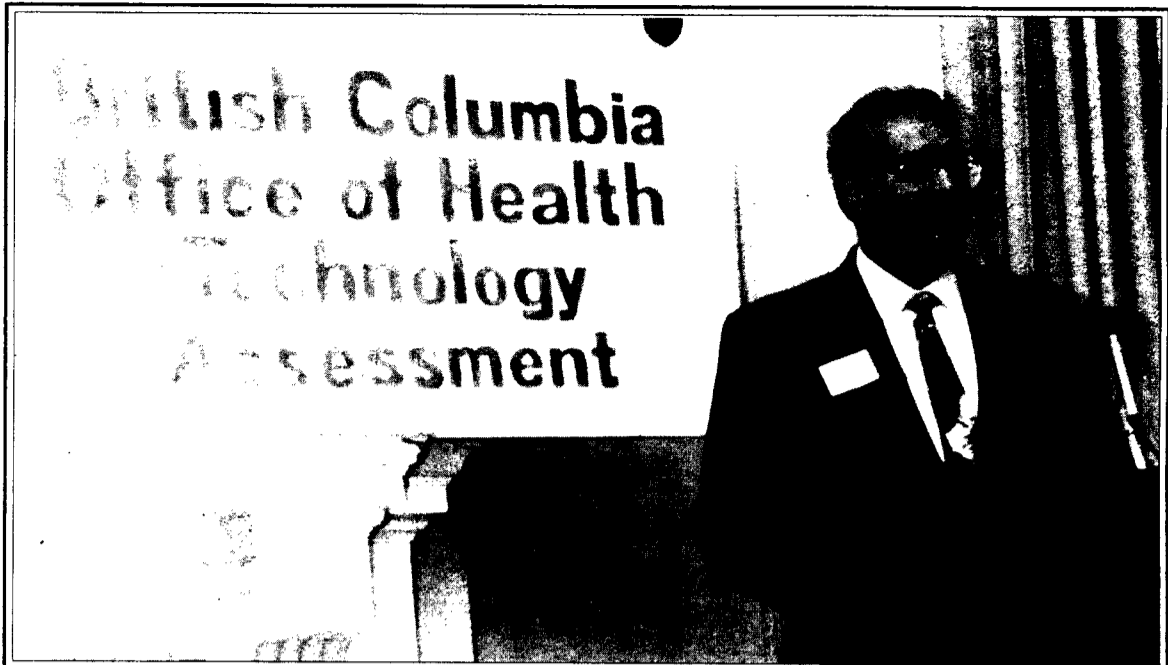


Photo by Media Services

## Health centre opens

Minister of Health Bruce Strachan was on campus to officiate at the opening of UBC's Centre for Health Services and Policy Research and the B.C. Office of Health Technology Assessment (OHTA) on July 5. The centre will be a focal point for research at UBC on health policy, population health, health human resource planning, health services research and evaluation and health care technology assessment. It will complement the educational and research activities of a variety of UBC faculties and departments. The centre is a project of UBC's fundraising campaign, A World of Opportunity.

# Job Link busier than ever this summer

By GAVIN WILSON

A tight summer job market is responsible for a huge increase in the number of students using an employment service funded by the Alma Mater Society.

"We've never had line-ups like this before," said Peter Gorgenyi, one of three coordinators at Job Link.

As an example of how demand has surged, Gorgenyi said that 173 students registered during the first week of operations last year, but this year, 178 registered on the very first day.

"The response has been pretty phenomenal," he said. Last year, Job Link found employment for 580 students.

Many of the students now registering at Job Link usually have jobs lined up in March or April, Gorgenyi said. But this year, they are still unemployed due to the effects of the recession.

"With many companies tightening their belts this year, students are often the first to suffer," he said.

Job Link was established six years ago to fill a gap left by the Canada Employment Centre, which does not provide summer employment services on campus after April.

With the Canada Employment Centre shutting down in September, Job Link is now offering permanent career placement, as well. So far, there are only a few permanent positions posted, but Gorgenyi expects the numbers will grow.

Job Link acts as a screening service for employers, pre-interviewing students to make sure that they meet at least basic qualifications for posted jobs before they are allowed to apply.

"If an employer wants someone who can type 50 words per minute or has expertise with a particular type of computer software, we make sure the student has those skills," Gorgenyi said.

Job Link operates until August 9 in



Photo by Media Services

Students line up for summer work at the Job Link centre in the SUB.

the Speakeasy office in the concourse of the Student Union Building. To register, you must be a UBC student with an active student

number. Employers who are interested in hiring students can contact Job Link at 822-5627 (UBC-JOBS) or fax 822-6093.

# UBC to receive funding from new B.C. initiative

UBC will receive funding for 371 full-time student spaces as part of a \$7.85-million provincewide initiative announced last month by Advanced Education Minister Peter Dueck.

The university will receive \$2.5-million under the program, which will fund a total of 1,076 spaces at post-secondary institutions across the province.

The additional money will not create new spaces at UBC, which has admitted about 750 more students than it has funding for in 1991/92, said President David Strangway.

"This will permit us to keep our intake at the same level and gives us partial funding for those spaces," he said.

Simon Fraser University will receive funding for 100 spaces and the University of Victoria will receive funding for 50 spaces.

The money is in addition to funds already allocated for 1991/92, Dueck said.

"This funding reinforces our commitment to giving British Columbians every opportunity to participate in the province's post-secondary education system," he added.

# Crane Library welcomes visitors

This summer, the Crane Library and Resource Centre for the blind, visually impaired and print-disabled is opening its doors to off-campus groups and individuals.

Two senior students, who are visually impaired, are employed at Crane through the end of August with assistance from the Challenge '91 program. Theresa Andrews, a graduate student in Counselling Psy-

chology, and Stephen Heaney, a recent Psychology graduate and returning Social Work student, will conduct library and recording centre tours to demonstrate special electronic and computer equipment which provides unique access to information for the blind.

"We would like to talk to interested groups about this university service, which is the only one of its kind in Canada," said Andrews. "We are especially interested in meeting other visually impaired col-

lege and high school students as well as teacher and counselling specialists and career or vocational planners."

Andrews and Heaney are also working with new and continuing UBC visually-impaired students, providing library instruction, computer tutoring and lessons in how to use Crane's unique talking UBC Library On-Line Public Catalogue.

For more information please call Theresa Andrews or Stephen Heaney at 822-6111.

# Find challenges ideas about region's earliest inhabitants

Continued from Page 1

nic with his wife when he noticed a bulldozer parked in the field where the site was later found. Mohs had long suspected that the huge boulder beside the machine had some archeological significance.

When he learned that the odd rock outcropping was to be blasted and the field cleared to make way for a 14-house subdivision, Mohs quickly went to have construction halted.

Upon his return two days later, all but a small area in the southeast corner of the property had been cleared of topsoil.

It was in this uncleared area that Mohs dug a one-square-metre hole out of which came 300 stone artifacts and the edge of what later turned out to be the house.

"A few feet in either direction and I wouldn't have found it," said Mohs. "I think it was luck, but the Native elders say otherwise."

Since late May, the field school students have dug five, two-metre by two-metre holes and uncovered close to 5,000 artifacts. Among them are spear points, fishing knives, an assortment of wood-working tools and lumps of red and yellow earth pigment used in early rituals. A small bench dug into the floor was also discovered along the back wall of the house.

Mohs guesses that the structure, roughly eight metres wide and long, was originally dug into the side of a

riverbank. Although its architectural design is still sketchy, 40 dark stains are discernible where large timber posts were driven into the ground for support.

For Mason and his field school companions, the weeknights were as much of an experience as the dig itself.

It was the first time the field school had collaborated with a Native group on a project. After 12-hour days of excavating, recording and mapping, the students would head off to the nearby Sumas Mountain Reserve where they bunked in a longhouse and shared a kitchen in the community hall.

"It was a great way to get my career off and running," said Mason, who plans to do his master's thesis on the Hatzic site.

Mason will keep digging until the end of July when construction on the subdivision is scheduled to begin.

The boulder, which Natives say has an ancient song trapped inside it, will remain.

"They're going to save the rock and we're saving the information," said Mason. "It's better than losing the site altogether."

Until then, people can still visit the site by booking a tour through the Sto:lo Tribal Council at 858-3366. To get to the site, follow the Lougheed Highway through Mission to Hatzic, turn north on Dewdney Trunk Road to Sunnyside Drive, park at the end and follow the path down to the field.

# First Nations program seeks to build on successes

By **CONNIE FILLETTI**

UBC is seeking funding from provincial and federal sources to continue and expand the First Nations Health Care Professions Program (FNHCPP) on campus.

Originally launched in 1988 as a three-year development project, the overall objectives of the FNHCPP were to recruit First Nations students into health care programs at UBC and to increase the number of Native people working in the health care professions.

Co-ordinator of Health Sciences, Dr. Paul Robertson, called the program a "major success," adding that it has made "tremendous progress" towards achieving its objectives over

the past three years.

Approximately 200 First Nations students are currently enrolled at UBC, 14 in the health sciences. At the initiation of the program, no First Nations students were enrolled in the Faculty of Medicine and few were registered in other health sciences faculties and schools.

In the 1992/93 academic year, a medical student, currently entering his third year of the four-year medical program, will be the first Native to graduate from UBC's Faculty of Medicine. Four Native students will be entering pre-med programs in the fall of 1991. At least another 20 students will be entering health sciences

faculties and schools.

"Strong interactive relationships have been developed between this new program and the health sciences at UBC, as well as with Native organizations and communities, school districts, health care agencies and a number of health care career programs at other universities," said Angie Todd-Dennis, co-ordinator of the FNHCPP.

She added that with continued funding, the program proposes to increase the enrolment of First Nations students in the health sciences disciplines by identifying prospective candidates with high potential for the health professions as early as pos-

sible in their education.

"One of the ways students are identified for the FNHCPP is through the very successful Summer Science for Native Youth Program, now in its fourth year," Todd-Dennis said. "That's the pool from where we hope

to draw our students in the future."

The program offers students academic counselling in course selection and admissions procedures, personal and financial counselling and tutorial services tailored to individual student need.

## Striving for leadership role

# UBC sets goal for staff development

By **ABE HEFTER**

The Human Resources Department, along with an advisory and steering committee, is co-ordinating efforts to make UBC a leader in staff training and development among Canadian universities.

"The opportunities and resources for staff training and development already exist here," said Bonnie Milne, Human Resources co-ordinator of training and development. "What we are trying to do is put it all together and give it some focus. Communication will be the key."

In an effort to open the lines of communication, Human Resources training and development staff and committee members met with about 50 staff groups to discuss their training and career development needs. Milne said all of the staff appreciated being consulted, were interested in the project, and wanted to be kept informed of its progress. "In response to these requests we began a training and

development newsletter to communicate information to all UBC staff," said Milne.

The results of the discussions revealed that many staff members are interested in working in other locations on campus in order to gain new skills and prevent plateauing.

"The idea of department profiles which would list positions, type of work performed, research, conducted and other items of interest, was enthusiastically received," added Milne.

Many people also identified training needs in computer skills, management training, career planning, interpersonal skills, UBC policies and project management. The idea of a campus orientation for new and long-term employees was also well received, said Milne.

The next step in the staff development project included a series of meetings with companies and organizations in the Lower Mainland to find out about their career develop-

ment programs.

"We approached representatives of the companies rated in the top 100 in terms of employee satisfaction," said Nancy Nowlan, assistant co-ordinator of training and development. "We want to find out what makes their staff development programs so successful."

Nowlan said this initiative is important to both the staff and administration. "The president's advisory committee on management and professional staff has made training and development a top priority."

Milne said the ultimate goal is to co-ordinate the facilities and expertise that already exist at UBC.

"This isn't going to be done overnight," said Milne. "We're looking at all non-academic staff — a number which approaches 7,000. What we hope to do is take a series of steps that will place UBC on the leading edge of career training and development among Canadian universities."

# Garden goes on a health kick



PHARMACY CENTENNIAL 1891-1991

By **CONNIE FILLETTI**

A stroll through Vancouver's Van Dusen Gardens at 37th and Oak could be good for your health.

In among the rhododendrons and roses, visitors will find a new array of medicinal plants, still in use for their healing properties, thanks to the Pharmacy Division of the UBC Alumni Association.

"We thought the medicinal plant collection was a fitting way to commemorate the centennial anniversary of pharmacy in the province," said Louanne Twaites, who graduated from the Faculty of Pharmaceutical Sciences in 1953.

Twaites, who is past president of the UBC Pharmacy Alumni Division, explained that medicinal gardens have historically served the purpose of cultivating plants known to be useful in healing. They also have allowed fur-

ther study of plants and their potential healing properties.

She added that the knowledge acquired by ancient cultures about plants native to their environment has expanded through the centuries, but remains largely untapped.

One plant in the garden, Taxol, an alkaloid from the taxus brevifolia or Pacific Yew, is currently being investigated by a team of UBC researchers for its cancer-fighting potential.

Labrador Tea, Saskatoon Berry, Goatsbeard and Devil's Club are just a few of the other 40 medicinal plants in the garden.

The collection, which contains plants indigenous to North America and which were used as medicinal herbs by Native Indians, forms part of Van Dusen's Canadian Heritage Garden. It was dedicated by UBC pharmacy alumni this spring.

# SPEAKING OF UBC...

By **RON BURKE**

Every year, from September through April, the UBC Speakers Bureau, and the university itself, benefits from the volunteered expertise of faculty, professors emeriti and management and professional staff.

Their service? To carry UBC's teaching and research to the community. Their reward? Lively audiences, feedback to their presentations and an occasional hot meal.

Interest in the bureau grew markedly in 1990-91, when there were 43% more requests for speakers than during the previous year. Interest was particularly strong among school groups and community organizations.

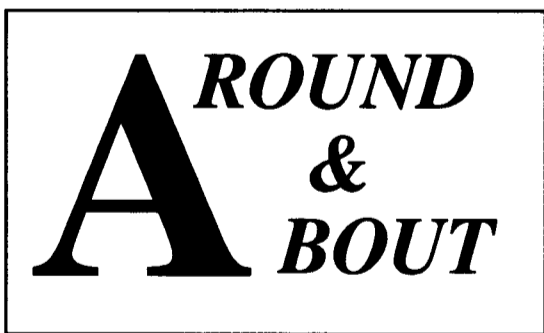
Many audiences were looking for information on politics and current affairs. During the Gulf War there was great demand for speakers to offer analysis of the events in the Middle East. One audience member wrote to the bureau to say "Our partici-

pants were thrilled to go home, only to hear on the evening news what they had heard first at [the UBC speaker's] lecture."

Other groups welcomed presentations on foreign lands and cultures as a way of opening a window on the world. Art, history and literature from around the globe are part of many talks by members of the bureau.

In 1990-91, more than 180 UBC faculty, professors emeriti and management and professional staff volunteered for the bureau. Presentations covered topics ranging from All About Spit (a favorite with younger audiences, despite — or

ementary school classes learned about Sea Monsters of the B.C.



Coast; the Richmond Seniors' Literary Circle explored Lifewriting; and groups across the Lower Mainland vigorously debated the pros and cons of the Reform of the Federal Sales Tax.

Management and professional staff form an important segment of the bureau's roster of speakers. Topics vary from Why Choose Forestry?, a discussion of forestry as a profession, particularly for women, to Mid-Life and Mid-Career: A Clash of Goals?

Speakers consistently cite au-

dience interest as the most rewarding aspect of speaking to community groups. Topical issues, such as the Goods and Services Tax and the Meech Lake Accord, frequently lead to lively question-and-answer periods.

Audiences enjoy having UBC speakers available to bring the university into the community. One person wrote to commend a speaker on world affairs for "taking the side we in Canada seldom hear. He was able to explain this opposing view without causing offence to those who thought differently about the issue." Another audience member wrote to say the bureau is an "excellent way to improve town/gown relationships."

Schools are encouraged to make use of the bureau to complement their curricula. Some speakers are particularly skilled at adapting their university presentations to the interest levels and attention spans of younger students. Talks on the environment,

earthquakes and UBC academic programs are popular with school audiences.

The services of the bureau are offered free of charge to groups in the Lower Mainland. The marketing area of UBC's Community Relations Office operates the bureau as a referral service, putting groups in touch with appropriate speakers. Occasionally speakers will receive an honorarium for speaking, but most of the user groups are not-for-profit and the vast majority of speakers donate their time.

The bureau finds itself with the pleasant problem of demand exceeding supply. In 1990-91 there simply weren't enough volunteer speakers available to meet the requests for presentations on topics such as parenting skills, the environment, politics and current affairs, and health and nutrition.

Plans are underway to attract more speakers in these and other areas for next year. All UBC faculty members, professors emeriti and management and professional staff are eligible to volunteer for the bureau.

The bureau is an "excellent way to improve town/gown relationships."

maybe due to — its potentially off-putting title), to How to Improve Your Memory, which, as memory serves, drew good reviews. El-

July 21 –  
August 17

## MONDAY, JULY 22

### Evening Public Lecture



The Universe As Creation. Dr. John Folkinghorne, President of Queen's College, Cambridge. Regent College main floor auditorium at 8pm. Call 224-3245.

## TUESDAY, JULY 23

### Vancouver School of Theology

Summer School Public Lecture: Earthen Vessels And Ordinary People. Dr. Robert Jewett, Prof. of New Testament Interpretation, Garrett-Evangelical Theological Seminary, Chancellor Bldg., Epiphany Chapel at 7:30pm. Call 228-9031.

### Computer Workshop

Introduction to Microsoft Excel 3.0 (Mac). Gary Bobroff. CSCI #121 from 9am-12pm, July 23/25. Register CSCI 452. \$75, students \$37.50. Call 822-3941.

## WEDNESDAY, JULY 24

### Micro Lunch

Academic Computing Accounts from UCS. Freddy Echeverri. CSCI #460 from 12:30-1:30pm. Call 822-3941.

### Evening Public Lecture



Evangelicals And Liberals: The Mutual Value Of Dialogue. Dr. Clark Pinnock, Prof. of Systematic Theology, McMaster Divinity College. Regent College main floor auditorium at 8pm. Call 224-3245.

### Computer Workshop

EndNote: Bibliography Maker for the Macintosh. Charles Tremewen. CSCI #121 from 9am-12pm. Register CSCI #452. \$40, students \$20. Call 822-3941.

### Micro Lunch

Academic Computing Accounts From UCS. Freddy Echeverri. CSCI #460 from 12:30pm-1:30. Call 822-3941.

## THURSDAY, JULY 25

### Vancouver School of Theology

Summer School Public Lecture. The Apocalypse: St. John's And Ours. Dr. Hans-Ruedi Weber, Dir. of Biblical Studies, WCC, Geneva. Chancellor Bldg., Epiphany Chapel at 7:30pm. Call 822-9031.

## CALENDAR DEADLINES

For events in the period August 18 to September 7, notices must be submitted by UBC faculty or staff on proper Calendar forms no later than noon on Tuesday, August 6 to the Community Relations Office, 6328 Memorial Rd., Room 207, Old Administration Building. For more information call 822-3131. The next edition of UBC Reports will be published August 15. Notices exceeding 35 words may be edited.

## MONDAY, JULY 29

### Child Study Centre Special Lecture

A Project Approach To Ungraded And Integrated Curriculum. Visiting professors Dr. Lilian Katz, U. of Illinois and Dr. Sylvia Chard, U. of Alberta. CSC #147, 2881 Acadia Rd. from 1:30-3:30pm. Call 822-2311.

### Evening Public Lecture



Why Paul Wrote A Second Time To The Corinthians. Dr. Paul Barnett, Anglican Bishop of North Sydney, Australia. Regent College main floor auditorium at 8pm. Call 224-3245.

## WEDNESDAY, JULY 31

### Micro Lunch

Accessing UBCLIB With Your Micro. Cheryl Adam. CSCI #460 from 12:30pm-1:30. Call 822-3941.

## NOTICES

### Bookstore Summer Sidewalk Sale

Continues until July 27. 10am-4:30pm, rain or shine. Hardcover and paperback books, souvenirs, gifts, art supplies and sportswear. Call 822-2665.

### Campus Tours

Enjoy a free walking tour of UBC's gardens, galleries, recreational facilities and more. Drop-in tours leave the Tours and Information desk in the Student Union Building at 10am and 1pm weekdays. To book specialized tours including those for seniors, children, ESL groups and the physically challenged, call 822-3777.

### Orientation 1991



Participate in Orientation '91 and prepare yourself for the challenges and excitement of UBC. First year students, their parents and college transfer students are invited. Times vary. Call 822-3733.

### Friday Morning Campus Tours

School and College Liaison tours provide prospective UBC students with an overview of campus activities, facilities and services. Every Friday 9:30am. Reservations required one week in advance. Call 822-4319.

### Health Sciences Bookshop Open Saturday



The Bookshop is open Mon. to Sat. from 9:30am-5pm in the UBC Medical Student/Alumni Centre at 2750 Heather Street, corner of 12th Ave. Call 879-8547.

### Call For Nominations

UBC Senate Tributes Committee seeks nominations for outstanding candidates to be awarded honorary degrees in 1992. Nominees will be selected from persons prominent in the University, the broader community, nationally/internationally. Nominations close Aug. 30. For forms/further information, call Ceremonies at 822-2484.

### UBC Summer Players/91



In repertory to Aug 3. Cowardy Custard - a musical revue about Noel Coward. Admission \$8. Freddy Wood Dorothy Somerset Studio at 8pm. Fish Tales by Simon Webb; Ten Little Indians by Agatha Christie. Admission \$8. Freddy Wood Theatre at 8pm. Reservations recommended. Call 822-2678.

### Museum of Anthropology

Open 7 days a week. Temporary exhibitions: African Indigo, Textile Gallery until Aug. 11; Fragments, early 20th Century West African Sculptures until Sept. 8. Call 822-5087.

### Fine Arts Gallery

Heroic/Romance Exhibition. Summer Hours Tue-Fri. from 10am-5pm. Call 822-2759.

### IH Reach Out



Local students correspond with international students accepted to UBC. Act as contact and provide useful information to incoming students while making global friends. All students (Canadian or International) welcome. Call 822-5021.

### Artists Wanted

The University detachment of the RCMP seeks volunteers to assist in designing and creating artwork to be used for safety awareness on campus. No experience necessary. Call Carolyn at 224-1322.

### Executive Programmes

July 25/26 business seminar: "Corporate Policy Towards The Environment". Fee: \$495. Call 822-8400.

### English Language Institute Homestay

English-speaking families needed to host international students participating in ELI programs, for periods from two-six weeks. Remuneration, \$21/night. Call 222-5208.

### English Language/Composition Training



Guided practice in writing for UBC students requiring further training in grammar and writing skills. Call 822-4463.

### Bereavement Study

Participants invited for a study investigating the long-term effects of adolescent bereavement. Young adults 18-22 years, having experienced a loss of either parent at least 5 years ago. Call Ann McIntuck in Nursing at 224-3921/3999.

### Occupational Health/Safety Seminar



Laboratory Chemical Safety Course. Directed to lab technicians, store keepers and safety committee members. Graduate and post graduate students welcome. Fees: UBC employees free, others \$200. Aug. 19 and Aug. 20 from 8:30am-12:30pm. Call 822-2029/5909. Statistical Consulting/Research Laboratory

### SCARL

Operated by the Department of Statistics to provide statistical advice to faculty and graduate students working on research problems. Forms for appointments available in Ponderosa Annex C-210. Call 822-4037.

### Step-Families Study

Married couples with at least one child from a previous union living with them, invited to participate in a study of stress and coping in step-families. Call Jennifer Campbell in Psychology at 822-3805.

### Retirement Study

Women concerned about retirement planning needed for an 8-week Retirement Preparation seminar. Call Sara Comish in Counselling Psychology at 822-5345.

### Adult Child Separation/Divorce Study

Volunteers needed for research study exploring how mothers cope with their adult child's separation/divorce. Participants required to fill out a mailed questionnaire. Call Allison Krause in Counselling Psychology at 946-7803.

### Depression Study

Participants needed for study researching a new anti-depressant medication. Depression sufferers, 18-65 years. Call Doug Keller in Psychiatry at 822-7318.

### Mothers' Health Research Study

Mothers with children of 3-12 years needed to complete questionnaires re: treatments which help children cope with pain. Approximately 20 minutes required. Call Susan Cross, Parenting Research Lab., Psychology at 822-9037.

### Daily Rhythms Study

Volunteers needed to keep a daily journal (average 5 min. daily) for 4 months, noting patterns in physical/social experiences. Call Jessica McFarlane at 822-5121.

### PMS Research Study

Volunteers needed for a study of an investigational medication to treat Pre Menstrual Syndrome. Call Doug Keller, Psychiatry, University Hospital, Shaughnessy site at 822-7318.

### Acne Study

Volunteers needed 14-35 years of age. Moderate facial acne. Four visits over 3-month period. Honorarium paid. Call Sherry in Dermatology at 874-8138.

### Stress and Blood Pressure

Learn how your body responds to stress. Participate in UBC Psychology research. Call Dr. Wolfgang Linden in Psychology at 822-3800.

### Exercise In Asthma Study

Volunteers with exercise-induced asthma needed for 2-part study (30 min. each). No medications or injections. Call Dr. Phil Robinson, Pulmonary Research Laboratory, St. Paul's Hospital at 682-2344, extension 2259.

### Memory For Places

Study on memory for places (shopping mall) requires volunteers age 65 years and older for 1.5 hours. Please call Bob Uttl, Psychology at 822-2140.

### Herpes Research Study

Participants needed for treatment studies of shingles (herpes zoster) and first herpes simplex infections with new antiviral agents. Also ongoing study for males 18-45 years with recurrent herpes simplex. Dr. Stephen Sacks, sponsoring physician. Call the Herpes Clinic, Medicine at 822-7565 or leave a message at 687-7711, page 2887.

### Hair Loss Research

Women aged 19-49 years experiencing moderate hair loss, crown area only, are needed for study. Must be able to attend 1-2 times weekly for 9 months. Honorarium paid. Call Sherry in Dermatology at 874-8138.

### Surplus Equipment Recycling Facility



All surplus items. Every Wednesday, 12-3pm. Task Force Bldg., 2352 Health Sciences Mall. Call 822-2813.

### Sexual Harassment Office

Two advisors are available to discuss questions and concerns on the subject. They are prepared to help any member of the UBC community who is being sexually harassed to find a satisfactory resolution. Call Margaretha Hoek or Jon Shapiro at 822-6353.

### Student Volunteers

Find an interesting and challenging volunteer job with Volunteer Connections, Student Counselling and Resources Centre, Brock 200. Call 822-3811.

### Narcotics Anonymous Meetings

Every Tuesday (including holidays) from 12:30-2pm, University Hospital, UBC Site, Room 311 (through Lab Medicine from Main Entrance). Call 873-1018 (24-hour Help Line).

### Fitness Appraisal



Administered by Physical Education and Recreation through the John M. Bucharian Fitness and Research Centre. Students \$25, others \$30. Call 822-4356.

### Adult Hockey Camps

Quality skill development instruction for both men and women whether experienced players or newcomers to the game. Call Community Sport Services at 822-3688.

### Adult Golf Lessons

Basic or intermediate programs. Quality fundamentals of grip, posture, stance, alignment and accuracy. Class size limited to 6. Call Community Sport Services at 822-3688.

### Neville Scarfe Children's Garden



Located west of the Education Building. Free admission. Open year round. Families interested in planting, weeding or watering the garden, call Jo-Anne Naslund at 434-1081.

### Botanical Garden

Open from 10am-6pm daily. Free admission on Wednesdays. Call 822-4208.

### Nitobe Garden

Open from 10am-8pm daily. Free admission on Wednesdays. Call 822-6038.

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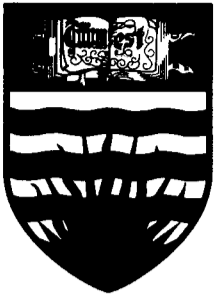
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# THREE-YEAR PLAN

## Background

In the face of a rapidly changing and evolving post-secondary education system, the Ministry of Advanced Education, Training and Technology initiated, in September 1990, a request for UBC (and other post-secondary institutions) to develop a planning document outlining key themes and issues shaping our direction over the next three years. UBC is pleased to provide this plan which draws heavily on its already approved strategic plan. On the outset it may be useful, however, to review some of the assumptions underlying the development of the attached planning document.

## Assumptions

Planning is an on-going and continuous process reflecting changing constraints and opportunities. This is as true for a university as it is for any other business or institution. A university, however, must not only ensure that current changes occur in an orderly manner, building on strengths, but it must take a medium-to-long-term perspective. And it must do this in the context of a very complex institution offering a diverse array of programs and services. It follows naturally then that this planning document is a current view snapshot of the next few years and is meaningful in the context of the following series of assumptions regarding government commitments.

Assumptions about future government plans are based on the policies and decisions made by the B.C. Government over the past four years. It is assumed then that:

- The B.C. Government will continue its Access for All program with the objective of creating at least 15,000 new university degree places, thereby enabling B.C. provincial participation rates in degree programs to reach the Canadian average. This goal is to be reached by 1994/95.

- A substantial number of the new places to be funded by the Access for All program will be created at the graduate level thereby facilitating an increase of 2,000 students in graduate programs at UBC. This will lead to the gathering of a critical mass of creative talent which is essential to the growth of new ideas and emergence of innovative solutions to problems.

- At the same time, funding will be made available for a targeted increase of approximately 1,200 students in undergraduate programs which are either unique to UBC or which are being impacted by higher retention and transfer rates.

- The new places being created by the Access for All program will be provided on a full cost per student basis, thereby ensuring that the additional places provided do not result in dilution of the existing per student funding levels.

- The B.C. Government will continue, at least in the short-term, to maintain operating grants at levels above the

Dear Colleague:

The Three-year Plan of The University of British Columbia, including the Academic Plan, as submitted to the Ministry of Advanced Education, Training and Technology in late 1990, is published here for your information. The Academic Plan is draft number 11.

It is based on input from the departments and faculties and we plan to update and modify it each year. We are now preparing the next version for 1991/92 and would appreciate receiving any comments as we prepare the next draft.

Yours sincerely,

David W. Strangway  
President

inflation rate and above the Canada-wide average on a per student basis. This will be essential for the university to maintain its competitive position in the face of: a) low retirement rates for the 1990s; b) increasingly fierce competition for excellent faculty and support personnel; and c) the increased need to provide non-salary expenses for teaching, research and support services in order to attract and keep the best and brightest.

- The B.C. Government Student Assistance Program, recently introduced, will remain in place and will be reviewed regularly to ensure that it continues to meet the financial needs of students.

- The B.C. Government Capital Construction Program, reintroduced to the universities four years ago, will remain on an on-going basis. At UBC this will require an annual capital investment of approximately \$25 million per year in 1989 dollars.

- The B.C. Government Matching Donations Program will be continued. This initiative has been highly successful in attracting substantial new resources in support of B.C.'s post-secondary educational system. With support from across Canada, the USA and increasingly from overseas, UBC, is being propelled towards world-class stature. To meet projected donations in its current campaign, UBC requires an additional \$30 million in government matching funds. It may be anticipated that for UBC to maintain internationally competitive endowment funding levels utilizing funding from outside the province, that \$18-20 million per year of B.C. Government matching funds will be required as a stimulus on an ongoing basis.

- The B.C. Government Equipment Funds announced last year will be continued, reflecting the need to continue re-tooling following B.C.'s long and difficult recession of the early to mid-1980s, coupled with the rapid technological advances which are making older equipment obsolete.

- The B.C. Government Public Works and Renovations funding, reinforced four years ago, will be continued to ensure that the universities do not incur further deferred maintenance. It is important that consideration be given to increasing the amount to 2 per cent of the capital plant replacement cost, including the operating costs of new buildings as they are brought into service.

- The B.C. Government will make provision to meet overhead costs associated with grants from research granting agencies. The need for this type of support was most recently demonstrated by the excellent provincial government support which permitted UBC to be so competitive in the National Networks of Centres of Excellence program, which has enhanced B.C.'s profile nationally and internationally.

- The B.C. Government will provide the resources necessary to implement the Public Service Pay Equity Program in the university environment.

- The B.C. Government will value and recompense UBC for the considerable direct services it provides to the clinical care mandate of the Ministry of Health.

- The B.C. Ministry of Health will work with the teaching hospitals to ensure, based on the hospitals' priorities, that they have the resources, especially space, to fully participate in developing the provincial system of health care, teaching, and research to international levels.

- The B.C. Government is committed to a broadly accessible system, in particular facilitating university/college partnerships. UBC is pleased to have the opportunity to work with Okanagan and Cariboo Colleges, as these institutions evolve to independent degree-granting status. We would welcome the opportunity to provide the same type of support to other institutions.

- The B.C. Government Science and Technology Development Fund and the

Environment Fund will continue on a fully competitive peer-reviewed basis.

- The B.C. Government will consider adopting a formula system for university funding which will establish a target weighted full-time equivalent enrolment for each provincial university at both the graduate and the undergraduate levels, plus a research infrastructure component. Building on the approach already taken in the Access for All program, departures from the target would need consultation with and agreement from the ministry. The research infrastructure component builds on the approach taken to facilitate UBC's participation in the National Network of Centres of Excellence:

What is remarkable about this formula is that it is sufficiently consistent with the present distribution that its implementation would result in nearly the same distribution of funds among the three universities as currently exists. It could, therefore, be implemented as a system-wide planning tool which in and of itself would ensure a high degree of accountability. We will shortly submit a revised version updated with 1990 data.

We strongly urge that this formula or a variant of it be adopted as a framework for planning by each of the B.C. universities. Examination of the formula reminds one that first and second year university programs are far more cost effective at universities than in colleges. The high cost of the college-based university transfer programs is, however, justifiable on the basis of regional accessibility.

These assumptions provide the context for the attached UBC planning document.

## Key Issues

In June 1989, following almost three years of exhaustive cogitation, consultation and discussion, UBC published

its mission statement and broadly conceived strategic plan in a document titled "UBC Second to None - Service through Excellence." That document reflects on some of the major changes that have occurred over the past 25 years in the B.C. post-secondary system. In particular, it notes UBC's emergence as a key research and teaching institution within the comprehensive and evolving system of higher education in British Columbia. Today, UBC's development of excellence is more and more widely recognized, not only at provincial levels, but at national and international levels as well.

Significant advances have already been made in terms of fulfilling the action items laid out in the 1989 planning document. The following sections look at how some of the strategic issues are expected to shape UBC over the next three years and consider how these issues have been evolving.

## Accessibility

We have come to realize that the term "accessibility" means very different things to different people and hence it is difficult to give a simple operational definition. To the student who has trouble making ends meet, it may mean "can I afford to go to university?" To the older person living in a small community, it may mean "can I attend classes on a part-time basis or in the evenings in my own community?" To the university administrator it is more likely to mean "can I responsibly accept more students unless I can provide a quality education?"

Recent events in British Columbia have done much to address each of these perspectives. The development of three university colleges and now a fourth university means that more than half a million residents of British Columbia who could not previously drive to a degree-granting institution can now do so. This makes part-time study easier and certainly reduces the fiscal barrier involved in living away from home. The student assistance program, with its forgivable loan provisions, sharply reduces the financial difficulty of the individual student. The development of a differentiated system (colleges, university/colleges and various universities) has permitted each institution to accept the number of students to whom it can responsibly provide a quality education. It has also permitted the development of a system of institutions much like that in many parts of the world in which some focus almost exclusively on teaching while others carry on a major research mandate as well. Within Canada the concept of an undergraduate liberal arts institution with limited research is emerging not only in British Columbia but in Ontario, at institutions such as Trent and Brock universities, and in Quebec at Bishop's University.

UBC now serves students from all parts of the province and will continue to do so. It has alumni living and serving the community all over British Columbia.

There are a number of factors affecting enrolment at UBC:

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• Applications for undergraduate places are rising. This is leading to rising grade point average cut-off levels. Increasing retention rates are already being felt, putting more pressure on third- and fourth-year places. Post-baccalaureate professional programs in fields such as Law and Education are also drawing more applicants, not only from within British Columbia but from across Canada.

• Applications for graduate school places are rising even faster than at the undergraduate level. Our commitment is to raise the number of graduate student places by 2,000. It has already risen substantially in the past two years.

• We plan to raise the enrolment of international students at the undergraduate level to 5 per cent of the total undergraduate population. It had been allowed to drop below 1 per cent.

• We have established the Education Abroad Program. By linking with the best universities around the world, we will ensure that 5 per cent of our graduating students will have had the opportunity to spend one of their years of study outside Canada. As the program is reciprocal, we will welcome a similar number of international students to UBC.

• We are also competing nationally to ensure that some of Canada's best students come to UBC.

• Through the First Nations House of Learning and the First Nations Longhouse, we are welcoming increasing numbers of Native students to UBC in a broad array of academic programs. Our Faculty of Education has recently signed an agreement with the University of Alaska which will facilitate exchange of Aboriginal students, particularly at the graduate level.

• With the recently created Disability Resource Centre and other facilities such as the Crane Library for the blind, we are striving to make UBC a more welcoming place for the disabled. We are making new provisions for diagnosing learning disabilities and for assisting students who are challenged by them.

• Women now constitute the majority in most undergraduate programs. But more must be done to involve them in science and engineering. Women are also seriously underrepresented in Ph.D. programs. This must change in the next few years at UBC and across North America, providing us with more opportunities to recruit outstanding women faculty members.

• We have recently established tuition levels for the next three years. A portion of each year's tuition revenue increase is allocated to student aid. One of the principal objectives is to ensure that no student who is otherwise qualified is denied an opportunity to attend UBC for financial reasons alone. Building on the provincial and federal student aid policies, we are the first university in Canada to adopt this as an objective, although it is common practice at some American universities. We will continue to press for enhancement of the provincial and federal student aid programs.

• We will increase our complement of student residences so that 25 per cent of our full-time students can live on campus.

### Faculty and Staff

The University of British Columbia is most fortunate to have an outstanding and dedicated complement of faculty and staff. It is they who have worked so

hard for the province and for the university and who have made it the great, internationally recognized university it is today. The speed with which our national and international reputation and competitiveness is rising is a function of their dedication.

UBC places a strong emphasis on faculty members' teaching and research responsibilities. We are developing practices that will ensure more uniform evaluations across the university and that recognize the importance of both teaching and research.

The retirement rate for faculty in the next few years is quite low. This means that the savings which become available when a senior professor retires and a junior professor is appointed are not available to provide the merit-driven promotional increases that outstanding faculty deserve. For this reason, we know that the proper cost of running the university will rise at rates above inflation. Without funding assistance, the consequence is either inadequate merit increases or a further decrease in the faculty complement. Our faculty salaries must continue to rise to levels that are fully competitive on a national or even international basis. We have made much progress in the past few years, largely through improved grants. During the academic year 1990/91, we have had to continue to reduce the faculty complement. The necessity to do this is obscured by increases from the provincial Funds for Excellence in Education and Access for All programs. These funds are for new and expanded activities and do not contribute to the core budget. The downsizing of the core faculty complement must not be allowed to continue.

The recent decision on the mandatory retirement case in the Supreme Court of Canada has been very important to orderly complement planning and steady renewal of the faculty. As a result of several factors, we have in the past four years been able to appoint a significant number of new faculty members. Specifically:

- i) an aggressive early retirement plan has resulted in over 200 faculty taking early retirement;
- ii) the Funds for Excellence in Education have permitted the appointment of new faculty members for new activities;
- iii) the Access for All funds at UBC have been reserved exclusively for new or increased program activities. These have also provided some new faculty appointments;
- iv) the endowed chairs created by the campaign will soon increase the faculty complement; and
- v) one-third of the teacher expansion funds have been committed to the continuing base budget. This also has permitted some new appointments.

The result of all of this is that 420 of our 1,800 faculty members joined UBC in the past four years.

For the rest of the century, the university plans only very limited increases in the faculty complement. Turnover will, therefore, occur within a nearly fixed complement of faculty, and a student population that will also reflect limited growth. By 1993/94 we plan to effect an increase of 2,000 graduate students from the level we had before Access funding started. We also plan to increase undergraduate enrolment by approximately 1,200 based on our unique programs and on enhanced retention.

(Note 700 of these are already unfunded.) But we must have renewal, merit-driven pay increases and a fully supportive teaching and research environment. To facilitate the recruitment of outstanding faculty, we plan to provide housing assistance to young faculty members by building an apartment complex (assisted by low interest provincial loans) and by providing some down payment and mortgage loan assistance.

The support staff at UBC is highly dedicated and should be paid competitively with the local market. There are still measures to be taken to ensure that we are locally competitive. We have embarked on a job reclassification scheme which will lead to increased job satisfaction. The university is committed to the concept of employment equity and during this coming year will be establishing new hiring objectives. We are initiating an Employee Assistance Plan.

We have recently created an elected advisory committee to ensure that issues affecting the Management and Professional Staff are dealt with in an appropriate manner. Our newly built daycare centres are an important help to the campus community, but much more is needed.

Our goal is to be one of the top 100 organizations to work for in Canada within five years.

It is interesting to compare the salaries in the health care system with those for comparable employees in the university system. The open-ended nature of bargaining in the health care system consistently leads to much higher salaries. Universities must absorb the increased costs of salary settlements, while government simply provides what is needed in the hospitals.

The university is supportive of the concept of pay equity, but it cannot absorb the cost without further shrinkage in the work force. Since faculty and staff are already working at very high levels, it is not fair to ask us to shrink the staff to absorb this provincially imposed policy. Hence we have assumed that the province will provide any needed support, as it has done within its own civil service.

### Academic Programs

UBC has been developing an academic plan. In September 1990, draft #11 of this document was submitted to the ministry. Since then, we have developed a revised version based on detailed submissions from each faculty. These submissions are used for the purpose of linking the budgeting process to the approved plans, prepared in the context of the mission statement and university-wide strategic plan. The university plan for academic programs is attached (Appendix 1). It should be recognized that this academic plan will never be fixed since academic planning is an ongoing and continuous process reflecting changing disciplines and changing opportunities. It is the current view of the next few years and is meaningful only in the context of the assumptions made at the start of this document. Because Appendix 1 describes in some detail the plans for academic program development, only a few highlights will be covered here. The interesting pattern seen in the submission is that discipline boundaries are breaking down. The continued building of excellence is increasingly more than ever dependent on networks developing within the university. The Funds for Excellence in Education (FEE) program has been an

important catalyst to these plans, as is the Access for All program. These academic plans are also strongly supported by the campaign priorities.

### Humanities and Social Sciences

UBC has about 60 faculty members engaged in research in Women's Studies and we are tapping this base in establishing a new Centre for Women's Studies and Gender Relations. These fields have challenged taken-for-granted knowledge in many disciplines and have stimulated interdisciplinary scholarship. The centre will draw on expertise from the various faculties including Arts, Education, Law, and Medicine. The Faculty of Arts recently approved a major in Women's Studies.

Many important developments are being planned. In this age of global cooperation, we need renewed emphasis on the study of languages. We have major plans to expand the Institute of Asian Research to include centres for Korean, Chinese, Japanese, Southeast Asian, South Asian and Arabic and Islamic Studies, for which we are seeking international donations. Provincial matching will give these centres a very good start. The concept of an Institute for European Research is being considered. A new Centre for Applied Ethics has been developed to assist society with a wide range of very complex issues. A number of departments in the Faculty of Education are developing Ph.D. programs that will strengthen research on the teaching and learning process. Consideration will be given to developing a Ph.D. program in Law.

A proposal to establish a Graduate School of Journalism has been formally approved.

The innovative Arts One first year program, which provides an interdisciplinary view of our world, is being expanded. It now includes a stream that incorporates a focus on South Asian and European literature and culture in comparative perspective.

The Faculty of Commerce and Business Administration is reaching out to link with other faculties. The recently implemented program in Arts Administration (a joint venture with Arts) is one example. In 1991, Commerce will join with Science and Applied Science to offer master's degrees in Science and Technology Management. A similar effort is now underway in the field of Agribusiness, linking Agriculture and Business.

With the demand for more teachers, the Teacher Education Expansion Program has permitted us to educate more teachers on a short-term basis. We plan to incorporate one-third of the new funds into the continuing operating budget base. The winning of the new CIDA Centre of Excellence in Human Settlements represents an important new thrust. The Faculty of Law has developed a leading role in Computers and the Law. It has entered into a cooperative agreement with the Society for Reform of Criminal Law and SFU to jointly establish an International Centre for Criminal Law Reform and Criminal Justice Policy.

### Physical Sciences

There are many thrusts being developed in the physical sciences. The renewed strength in Computer Science is leading to a major new centre in graphics and information (MAGIC). We

are considering extending the new option in Aerospace Engineering to the graduate level. The Centre for Advanced Materials is being developed with a multi-department and multi-faculty thrust. There is a plan to develop much stronger links in the Earth Sciences between Geology, Geophysics and Oceanography, which will increase the integration of the study of earth, ocean and atmosphere. The concept of a Pacific Mathematical Research Institute is an interesting plan for a topic that is increasingly important as the underpinning to much of today's science and technological developments. A new program in Biomedical Engineering is being developed as well as a program in Fire Protection Engineering. Engineering is examining the possibility of expanding its co-op program to other fields.

Engineering is also doing a joint study with BCIT on the question of an integrated four-year degree program which would introduce a new stream to the engineering choices.

Our Centre for Integrated Computer Systems Research involving the departments of Computer Science, Electrical Engineering and Mechanical Engineering is off to an excellent start, funded initially by FEE.

### Life Sciences

The Biotechnology Laboratory initiated by five faculties with FEE funds is flourishing. There is an extensive plan for focusing and developing the Faculty of Medicine in conjunction with the hospitals. This includes plans for focusing on areas such as Brain Research (University Hospital, UBC site); Centre for Predictive and Preventive Medicine (University Hospital and Children's Hospital); Centre for Transplantation Biology (VGH); Institute for Child, Mother and Youth Studies (Children's Hospital, Grace Hospital, G.F. Strong Rehabilitation Centre, Sunny Hill Hospital); Centre of Excellence in Cancer Biology (B.C. Cancer Agency); Pulmonary Research Centre (St. Paul's Hospital); Clinical Trials Centre (St. Paul's Hospital); and Centre for Health Care Evaluation. A new Centre for Health Promotion Research was recently formed as well as a Centre for Health Services and Policy Research. A new program in Occupational Hygiene will be initiated in 1991, with a major endowment from the Workers' Compensation Board and the province. The Faculty of Pharmaceutical Sciences plans to introduce a Pharm.D. program, the School of Nursing a Ph.D. program and the Faculty of Dentistry new Ph.D. programs. A dental hygiene degree completion program has been introduced.

We have expanded our nursing B.S.N. program in a linkage with the Vancouver General Hospital which shares resources. The program in Physical and Occupational Therapy was recently expanded with provincial support to meet more of British Columbia's needs. A new Ph.D. program will soon be introduced.

The internship program in Medicine has recently been extended to two years by the College of Physicians and Surgeons. The Ministry of Health has agreed to cover these costs because the bulk of the extension from one year to two years is in the form of direct provision of health care services. Similarly, we expect that the cost of extending the family practice internship residency will be covered by the Ministry of Health. A new province-wide outreach is proposed in which UBC would place its family practice residents not only in the teaching hospitals, but in a number of regional and rural centres.

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The Pacific Forest Science Centre is well under way with planning for a new building and with links to Forintek, Feric and PAPRICAN on campus. An Institute of Applied Conservation Biology will strengthen our presence in forest-related studies. A new Centre for Fisheries Research (including aquaculture) is in the final planning stage.

### Other

Some activities cannot be contained in the above three categories. For example, environmental issues form a basic link to many faculties and departments. A new Sustainable Development Research Institute is being created that will be funded by the provincial Environment Fund and will draw on the resources of the newly-formed Sustainable Development Foundation. This multi-disciplinary thrust promises to provide university-wide involvement with a sharp focus on the environment. Several faculties are working together to develop undergraduate programs in Environmental Sciences and Environmental Studies.

### International

From its earliest days UBC has had a strong international presence. Today, this international presence is growing even stronger as links and exchanges around the world are increased. UBC faculty members and students can be found studying in many countries. There is a steady flow of international visitors collaborating with UBC faculty members or attending any one of a large number of international congresses hosted at UBC. Our faculty members are involved with hundreds, perhaps thousands, of national and international societies.

UBC is the only Canadian member of a small group of elite Pacific Rim universities whose presidents meet on a regular basis under the sponsorship of the Asia Foundation (U.S.A.). This group of 25 universities represents the senior university from each jurisdiction in the Pacific Rim states. We meet annually to consider matters of common concern. Currently, we are examining the issues concerning student exchanges, networking and research cooperation. We are also the only Canadian member of a second group of Asia Pacific universities that meets annually in Japan and includes representation from the Soviet Union.

We are determined to increase our undergraduate enrolment of international students from below 1 per cent to about 5 per cent. Of course at the graduate level, we attract some of the best students from around the world. We are committed to developing and expanding our Education Abroad Program until 5 per cent of our graduating classes will have had the opportunity to spend a year studying at a peer institution abroad with full transfer of credit back to a UBC degree. Currently, exchanges are in place with the U.S., Japan, Korea, Hong Kong, China, Denmark, and Sweden. Within the next eight months, we plan to conclude agreements with institutions in many other countries including Singapore, Thailand, Taiwan, the United Kingdom, France, Germany, Italy and Mexico. Opportunities to study at partner institutions in Africa and Latin America are also being explored. The Faculty of Commerce and Business Administration has been operating its own study abroad and exchange program for several years.

We have framework agreements with

a large number of international universities and regular athletic exchanges with many universities, especially in Asia. We are developing a unique program with Ritsumeikan University in Japan. We are building a joint residence on the UBC campus for 100 students from Ritsumeikan and 100 from UBC. We will offer a coordinated joint academic program, which will include some courses which may be taken by students from either university.

We are examining the possibility of working jointly with Ritsumeikan in a major new research park which is being developed in Shiga prefecture near the city of Kyoto. This may be a key element in the new Canada-Japan research protocol.

We have identified the need for graduates of international universities to have a transition year in which to improve their English skills and in some cases their academic skills. A consultant is considering the question of whether such a program could operate on a self-financing basis. Some students would be eligible to enter graduate school after the transition year.

In today's society, students must increasingly be exposed to the languages and cultures of other societies and UBC is taking the lead to internationalize our programs. We will be considering the best way to develop a focus on Europe and the east European countries as political developments in these societies continue to evolve.

### Teaching and Learning

The Faculty of Science and the Faculty of Arts have both moved to develop more broadly-based undergraduate curricula to meet the needs of students in an increasingly complex society. An enhanced, broadly-based focus on the liberal arts and sciences is premised on the assumptions that i) most people will change careers several times and ii) increasingly, specialization will occur at the graduate level.

The Faculty of Arts is planning to increase its focus on Arts One - a very successful program taken by a limited number of first year students. Science is planning to develop a similar program.

The recent change in the Faculty of Education by which education degrees follow a more broadly-based preparation (prior degree needed for secondary education; at least three prior years needed for elementary education) exemplifies this pattern.

Improved equipment funding is already making a profound difference in our ability to offer state of the art facilities in our language labs and computing facilities. The Access funds have provided new teaching assistantships so that we can more suitably provide laboratory and tutorial support in the various teaching settings. Under the new tuition plan, a fund will be established to support innovative proposals to enhance the teaching and learning environment.

Workloads are very high for all members of the faculty. The balance of teaching and research duties varies widely across the university. Workloads also vary widely within faculties and departments as different people share different portions of the responsibilities. Differentiated teaching loads are commonplace but, at the level of the university as a whole, it is much more useful to look at such indicators

as the dollars available per weighted FTE student, as is proposed in the formula discussed earlier. Some attention could also be paid to the faculty/student ratio, although this ratio is as much determined by individual university strategies as it is by the funds available. Differences result, for example, from i) the use of full-time versus part-time instructors; ii) the use of teaching assistants; iii) the use of expansion money to pay higher salaries (and hence increase workloads); iv) the use of smaller or larger teaching sections (often dictated by the availability of lecture halls); v) the amount dedicated to lecture halls; and vi) the recognition of credits from other institutions that provide the high cost clinical components; and many other inter-institutional differences.

At UBC we have consistently used teaching evaluations as one of the key elements in merit and promotion decisions. We have recently introduced faculty-based teaching prizes to complement our research and service prizes. The Faculty Association has taken the initiative to develop a teaching improvement program for faculty members. This cost-shared program attracts a significant number of faculty members each year.

It is commonly said that teaching cannot be effective without research. We know from the cases of many individuals and from the experience of universities in other jurisdictions that this is not true at the undergraduate level. What is more true is that first-rate research requires teaching. One has only to look at the quality of research done in those institutions in which the researchers are continually being challenged by young emerging scholars, to see that the quality of research is enhanced by teaching.

### Continuing Education

In these times of rapid change, individuals need to learn to adapt and, therefore, society needs increased access to continuing education opportunities. Many B.C. institutions now offer a wide range of continuing education courses and programs. School boards and colleges are locally based and hence more able to respond to local needs. UBC is in the process of redefining its continuing education role.

The three units - Guided Independent Study (credit courses by correspondence or other distance education means); Extra Sessional Studies (credit courses designed for part-time students in the evenings or summer) and the Centre for Continuing Education (non-credit courses) will be put directly under the management of the Associate Vice-President, Continuing Studies - this will be a newly created position. The mandate will be to build a broadly-based program of credit and non-credit offerings that will draw on the strengths of The University of British Columbia and match them to demand and opportunities. The Associate Vice-President will work with faculties to ensure that part-time study is increasingly available. This role will be challenging and will initially focus on the faculties of Arts and Science. For example, language programs are in great demand - English, French and foreign language programs.

The Faculty of Commerce and Business Administration, the Faculty of Education and the Health Science faculties offer active and well co-ordinated programs. Each of these offers advanced level courses for those seeking professional upgrading. There are limited activities in other faculties. These

will be enhanced in collaboration with the Associate Vice-President, Continuing Studies.

Within three years, these programs will operate on a full cost-recovery basis and this will eventually include an overhead charge of 25 per cent on the costs of delivering the programs. This principle is now in place in Commerce and in the Health Sciences. Of course, as the various continuing education programs are developed, there will be considerable benefit to those faculties which participate.

Using this approach, Continuing Studies i) will draw on university strengths; ii) will relate those strengths to the community and hence be responsive to community needs, and iii) will complement and enrich teaching and research, both programmatically and fiscally.

Each course offered by a unit on campus will be reported in appropriate detail to a Senate committee to ensure that the principle of excellence in programs is given full consideration by Senate. We are examining the feasibility of using the 25 per cent overhead charge and Continuing Studies revenue to develop an appropriate facility on campus for these programs. The facility would have classrooms, language labs and perhaps a residential complex for short course programs offered year round.

### Research

The University of British Columbia is the principal site of basic and applied research in the province. Our faculty members are highly active in research in a very wide range of fields and typically function at internationally competitive levels. We have set as a goal the doubling of our research income by the end of the decade. We have already moved from \$60 million to \$100 million a year since that declaration was made. The provincial government has helped us considerably to achieve our objective through the creation of new space, the provision of research infrastructure, the establishment of the Science and Technology Development Fund, and the Environment Fund. One of the attractive features of these funds is that they are distributed on the basis of excellence and relevance and are based on open competition using peer-adjudicated mechanisms.

By creating the position of Vice-President, Research, we have brought explicit focus to this dimension of the university's activities. We have recently added two Associate Vice-Presidents in Research, one in the Health Sciences and one in the Social Sciences and Humanities.

Our faculty members, whether in Physical Sciences, Life Sciences or in the Humanities and Social Sciences, are highly competitive in receiving support from the granting agencies. Our level of research dollar per faculty member is among the highest in Canada, far higher than that in other British Columbia institutions. Our earlier proposal for a formula for the system in B.C. includes a component that will explicitly create an incentive to compete for all available external support and ensure that we can successfully carry out the research.

UBC has the highest number of NSERC Industrial Chairs of any university in Canada. The university is also a member of or a leader in each of the networks of the Canadian Institute for Advanced Research. In fact, we have

more funded fellows than any other university in Canada.

Evidence of our effectiveness can be seen from our recent success in the National Networks of Centres of Excellence competition, in the receipt of major awards in Neurodegenerative Diseases, and in Pharmacy, and from the award by CIDA of a National Centre of Excellence in Human Settlements. Our faculty members in the social sciences and humanities receive awards on a per eligible faculty basis far above the Canadian average and considerably greater than other B.C. institutions.

Many of our planned new research thrusts have already been described under the academic section of this report. The thrust in Sustainable Development has been discussed. We are continuing to review opportunities and to develop additional thrusts such as a program in Advanced Materials, one in Alternate Fuels and a strengthening of our considerable activity in Geographic Information Systems (GIS).

We have recently been asked by one of our sister universities in Japan (Ritsumeikan) to consider going in with them as partners in a new research park being developed near Kyoto. We will be studying this option very carefully as it has many attractive features. At the same time, we are seeking the return of our land which is presently under the jurisdiction of the Discovery Foundation. This would facilitate plans for the development of a multi-tenant facility in the very near future.

We have documented the impact of the research income on the Province of British Columbia. The impact is quite dramatic in terms of jobs created and other effects. The expansion of the graduate student portion of the Access for All programs, the provision of research infrastructure support, and the creation of research funds at the provincial level will sharply increase this effect.

The level of patenting and the marketing of intellectual property at UBC has increased rapidly in recent years. Workshops on these topics reinforce UBC's policies - policies that have been found to be successful in other universities. There is considerable activity in linking with industry and in promoting spin-off companies. Many of B.C.'s technology companies are direct spin-offs from UBC.

### Administrative Costs

In 1989/90, total expenditures at UBC rose to \$529 million, of which \$300 million represents operating budget expenditures. The remaining \$229 million is derived from several sources: i) endowment fund income; ii) ancillaries - i.e. units that operate on a break-even basis (Student Housing, Food Services, the Bookstore, Media Services, etc.); iii) research income from grants and contracts; and iv) capital funds. Of the \$300 million general purpose operating budget, about 15 per cent derives from tuition and almost all of the rest from provincial grants.

This \$300 million can be divided into two major parts. One portion is directly assigned to the deans for the salary and operating costs of the faculties. In departmentalized faculties this is, in turn, distributed to individual departments. In the past few years, expenditures in the faculties as a percentage of the total operating budget are shown below. This is influenced somewhat by the devolution of functions and distribu-

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tion of costs to faculties.

### % Operating Exp in Faculty Budgets

1985/86	66.8%
1986/87	66.1%
1987/88	65.8%
1988/89	65.5%
1989/90	66.8%

The remaining 33 per cent is spent on the infrastructure required to support the faculties. These items include the Library, the Computing Centre, Physical Plant operation, student aid and general administrative costs. In the past few years, many savings and efficiencies have been introduced in these areas.

• sharply reducing the Library staff complement

• decentralizing most of the Computing Services budget to the users and charging on a fee-for-service basis

• decentralizing the telephone budget to the users who must now plan for the services they wish to purchase from the central "utility"

• purchasing our own telephone switch which will lead to substantial operating savings when the borrowed funds have been repaid

• decentralizing the network service to form a utility

• investing in steam lines and better control of heating to substantially reduce energy costs

• entering an agreement with B.C. Gas and B.C. Hydro for cogeneration of electrical energy will produce energy savings and income

• significantly reducing the costs of plant operations by better work planning and by reductions in absenteeism. Maintenance costs per square foot are among the lowest in Canada and British Columbia. (It is interesting to compare these costs with those in the health care system which has been less successful in controlling operating costs. Operating costs for hospital space are typically three to four times more per square foot than those we have been able to achieve at UBC.)

• automating financial management systems

We have made or are making a number of our services more effective and are introducing needed new services.

• In the library, we have made photocopying self-sufficient and more accessible and reduced the workload of handling books and journals.

• We are moving to establish inter-library loans on a full cost-recovery basis. As British Columbia's leading research library, we lend out much more than we borrow. By setting this up as an ancillary operation, we will not be subsidizing the flow of books and journals to other institutions.

• We have established a funding policy for acquisitions that allows for changes in foreign currency exchange rates, general inflation and a modest increase for new publications.

• We plan to develop a placement office to ensure students have full access to temporary and permanent jobs.

• We are seeking assistance to complete conversion to on-line catalogue for our full library collection so that all institutions in B.C. can have remote access to the catalogues of our unique collections.

• Our library will be linked with the new public library in Vancouver.

• UBC Press has been reorganized and given a new mandate that will see it self-sufficient within five years, perhaps serving the needs of other academic institutions in British Columbia as well as UBC.

• Registration by students has been moved to an automated touch-tone system.

• We are developing a full student information system that will be fully automated within one more year.

• We are developing a human resource management system that will be fully computerized within a year and a half.

• We have automated alumni records and donation information.

• We continue on a regular basis to search for more effective and efficient ways to manage the university; for example, we have started a recycling system which will not only help to save the environment but may save costs of disposal.

• To deal with a number of new thrusts which are important to the university and its community, we have established and developed the following:

• Occupational Health and Safety Office

• Multicultural Liaison Office

• International Liaison Office

• Disability Resource Centre (funded from campaign)

• First Nations House of Learning

• Employment Equity Office

• Adviser to the President on Women's Issues and Gender Relations

• Sexual Harassment Office

• Vice-Presidency of Student and Academic Services

• Associate Vice-Presidency for Information and Computing Systems

• Associate Vice-Presidency, Continuing Studies

• Associate Vice-Presidency, Human Resources

• the Office of External Affairs with a vice-president to manage the external units of the university

• Community Relations Office

• Development Office

• an office to deal with the implementation of the Goods and Services Tax

• a major project for automation of the library

• Sharply improved purchasing practices, including more effective travel purchase policy using our bulk

purchasing power

• the Surplus Equipment Recycling Facility (SERF) to deal with environmental issues

• a university-wide committee to advise on a wide range

of environmental issues at UBC.

It is remarkable in view of all this, that UBC has been able to maintain its support expenditures at just over 30 per cent of operating expenditures so that there has been little impact on the academic budgets. The savings implemented have offset the cost increases.

UBC has always taken pride in the low proportion of its expenditures in the administrative area. In fact, UBC is one of only two universities in Canada that has been able to keep costs in the five-to six-per-cent range. We intend to maintain this record as an element of the

33 per cent or so that supports the academic mission of UBC. This is even more remarkable when, in addition to the functions supported by \$300 million in operating budget expenditures, \$229 million of other expenditures in 1989/90 generated demands on the infrastructure provided by that 33 per cent.

Our record of controlling administrative costs is exemplary on a national basis, and stands in stark contrast when comparisons are made within the province.

## Capital

UBC has a capital plan for development over the next 10 years. This plan reflects the need to increase both the quantity and quality of space, much of which was built for temporary purposes 40 or 50 or more years ago. The plan includes a cash-flow model. This level is approximately \$25 million/year in 1990 dollars. In addition to the projects that are planned using ongoing provincial capital, there are four other categories. The campaign and provincial matching funds have provided (or soon will) the support necessary for a second group of buildings. There are other projects planned based upon i) provincial hut replacement funds, ii) self-funding, and iii) projects of the UBC Real Estate Corporation. The use of temporary buildings at UBC has increased sharply as we await these crucially needed new buildings.

A campus site plan is being developed to help define future campus development. The planning process is broadly consultative and will culminate in a presentation to the Board of Governors for approval in the fall of 1991. The initial focus has been on the north campus, though more attention will be paid to the middle and the south campus later on. Now that the complete Endowment Lands have been designated as a park (2,200 acres) the campus precinct is well-defined. The campus plan deals with the most effective ways to use the 1,000 acres to which the university has clear title.

A theme that has emerged is that the UBC campus can be thought of as a university in a garden in a forest within a vibrant and dynamic city. This physical setting has much to do with the nature and character of the university and is a strong element contributing to its uniqueness. In addition to the academic nature of UBC, we have become an important destination for people from Vancouver, from British Columbia and indeed for visitors from Canada and around the world.

A few of these public attractions are listed and are being considered within the planning framework.

1. Museum of Anthropology - 150,000 visitors per year

2. Asian Centre - focus for many gatherings of specialists and groups from the community

3. Library

4. Concert Hall and Theatre - we now have many theatre and musical performances on campus that attract many visitors. The new Concert Hall will enhance this as well as provide a venue for community performances.

5. Art Gallery - the new art gallery will be an important destination for visitors.

6. David Lam Asian Garden Centre - this new facility provides even better access to our gardens and welcomes large numbers of visitors each year.

7. Geology Museum - This museum attracts many visitors. It would be very desirable in the long-term to develop a museum for natural history which could house our unique and important collec-

tions of geological, botanical, zoological and other materials.

Our triennial university open houses attract up to 200,000 people in three days, reaffirming community interest in UBC.

Our 10-year plan for capital development with provincial capital funding is as follows:

1. Chemistry-Physics Building - completed

2. University Services Building - under construction

3. Student Services Building - Phase I (with assistance from the lotteries fund for the Disability Resource Centre) - under construction

4. Hazardous Waste Disposal Facility - detailed design money released

5. Centre for Integrated Computer Systems Research - detailed design money released

6. Advanced Materials Building - detailed design money expected April 1, 1991

7. Forestry Sciences Building - detailed design money expected April 1, 1991

8. Biotechnology - Phase II

9. Chemical Engineering

10. Earth Sciences - to incorporate Geology, Geophysics and Oceanography (see below)

11. Student Services - Phase II

12. Health Sciences - Dentistry, Pharmacy, Allied Health Sciences, campus research space

13. Law expansion

14. Research space

15. Teaching space

16. Jack Bell Research Centre (\$3 million is required for completion of this centre)

The need for more Health Science space exists both at the hospitals and on campus. Each of the teaching hospitals working with the university in its central teaching and research role will identify and prioritize the needs it has to be a full partner in the University-Teaching hospital complex and seek support for these needs from the Ministry of Health.

The two stand-alone research centres at the Shaughnessy and VGH sites would then be the responsibility of the university. The Shaughnessy site research building already is, and the Jack Bell Research Centre at VGH would be transferred to the university. This would add a further capital priority to our list (see item 16 - \$3 million plus operating expenses required).

Hut Replacement funds have been set aside to help the university move out of the World War II army huts which are now unacceptable work places from the point of view of occupational health and safety.

1. Child Study Centre - now completed

2. Education Building - renovation, detailed design money expected April 1, 1991.

3. Greenhouses to replace antiquated facilities (more than 50 years old)

## Campaign Projects

The following projects are being funded by private sector donations together with provincial matching funds.

1. Museum extension (pre-campaign) - now completed

2. David Lam Asian Garden Centre (pre-campaign) - now completed

3. Medical Student/Alumni Centre -

VGH site (pre-campaign except for the final phase)

4. David Lam Management Research Centre - now under construction

5. First Nations Longhouse - detailed design underway

6. Chan Shun Concert Hall and Auditorium - detailed design now underway

7. Morris and Helen Belkin Art Gallery - detailed design now underway

8. Creative Arts Centre - detailed design now underway

9. Green College - detailed design underway (planning to house the School of Social Work displaced by this project is also underway)

10. Library Centre

11. Institute for Asian Research - expansion to include regional centres

12. Student Recreation Centre

13. St. John's College - a second graduate college with links to China is being considered

There are a number of projects on campus that are self-funding due to user charges:

1. North Parking Garage - Gage

2. Parking Garage - Health Sciences Centre - this will revert to UBC when the provincial loan is fully paid off in 2001

3. Parking Garage, West Mall - in detailed design

4. Ritsumeikan/UBC House - a residence for 100 Japanese and 100 Canadian students - under construction

5. Biotechnology - Phase I - under construction with leasing to the National Networks of Centres of Excellence from provincial infrastructure funds

6. Multi-Tenant Facility - This building would be leased to spin-off companies. (It is possible this will be assigned to UBC Real Estate Corporation.)

7. Student Residences - The university's goal is to provide housing for 25 per cent of its full-time students. This means providing accommodation for a further 661 students. Because of demand, much of this will be for married students. We will be seeking affordable housing interest rates from government to make this possible (present interest rates make it impossible). We have just completed a major expansion of student housing space. We support the principle that student housing built on university land should be at no net cost to the university or to the province.

8. International House Training and Education Centre - This project is only at the conceptual stage. What is envisioned is a residential and classroom complex that could be operated on a full cost-recovery basis to serve year round needs for short courses in Continuing Education.

9. Daycare Centre - The university recently built a number of new daycare centres to replace ones in use in old army huts. These huts were unacceptable places for modern daycare. In addition to the land, the capital funds were provided by the university (\$2,000,000), by the AMS (\$544,000), by the Vancouver Foundation (\$75,000) and by the faculty (\$50,000). The operation of these centres is funded by the users. As our community matures, there is an urgent need for more daycare centres to serve faculty, staff and students. Some units can be incorporated into the new residences to be constructed. We look forward to the development of a provincial policy on daycare. Should a matching program be introduced, we have requested that our recent investment be eligible for this match.

10. We recently established the UBC Real Estate Corporation (UBC REC) as a wholly owned subsidiary with the mandate to carry out certain developments that will bring a return to the university. Projects underway or under consideration are:



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1. Market housing (Hampton Place) - 28 acres have been set aside for commercial housing. Up to 10 lots will be sold on a 99-year lease basis. The first of these lots has now been sold and others will be marketed when conditions are right. Income generated from this project will be used only for endowment or capital purposes.

2. UBC REC has undertaken to develop a 114-unit university apartment complex for junior faculty which will be operated on a full cost-recovery basis. It is now under construction and has been assisted by the provincial government's provision of loans with interest rates comparable to those for affordable housing.

3. UBC REC has been asked by UBC to carry out a feasibility study for a hotel on campus.

4. UBC REC has been asked by UBC and the University Hospital to carry out a feasibility study for an ambulatory care centre that would be fully or partially self-funded.

5. UBC REC is developing plans for the use of fraternity row that would i) see affordable housing developed; ii) require developing a fraternity complex on campus and iii) require the province to transfer title to its portion of this site to UBC.

6. Shopping Mall/Community Centre - UBC REC is examining the question of redeveloping the shopping mall site into a more comprehensive facility, perhaps linked with a community centre, to serve the overall UEL community.

On a longer term basis than ten years, there will, of course, still be capital needs which will be evaluated in the coming years. Included in such items are several needs that can already be identified:

1. A further new library as the library complex develops further;
2. The heritage Chemistry Building needs major refurbishment; and
3. Other buildings need either refurbishment or replacement e.g. i) the old Physics building; ii) the Mathematics Building; and iii) the Geography building.

### Related Facilities

Over the years, the university has permitted several independent organizations that share an interest in activities at UBC to occupy a number of buildings on campus. We have recently developed a set of principles, approved by the Board of Governors, to guide such decisions. Individual arrangements have been worked out over the years, but these principles will guide all future agreements. UBC is seeking to develop its research park and is presently negotiating for major changes in the Discovery Park leases to make a much more effective development.

On the west side of the campus, there is a research laboratory of Agriculture Canada. The former Fisheries and Oceans Laboratory was recently turned over to UBC, though we still maintain some space in it for the use of the North Pacific Fishing Commission on a contractually renewable basis.

We have recently made an agreement with Forintek, Feric and the province that is consistent with the new principles guiding the lease of campus land (prepaid 99-year lease). Forintek will shortly abandon its old site. Unfortunately, under the terms of our earlier

agreement, the National Research Council (NRC) will move one of its laboratories into this building rent free. We hope that the NRC will make a commitment to bring in an institute that is truly outstanding and can meet the standards of excellence appropriate to the location and the setting. We will press hard for this since, at present, the NRC's primary motivation appears to be to have access to free rent, rather than to building excellence. We have asked the NRC to consider other alternatives.

PAPRICAN has a facility on the research park site and one on campus. We have the University Hospital (UBC site) on the campus. This is an independent operation funded by the Ministry of Health. The Biomedical Research Centre, funded largely by Terry Fox funds, has a long-term lease which will allow the building to be returned to the university if its operations are terminated. B.C. Research has become a private corporation and we will be developing with them a lease agreement consistent with our principles for use of campus lands.

TRIUMF is a national meson facility operated on behalf of the federal government by a consortium of universities. We are working to develop a lease agreement with this national facility. When and if KAON is approved as a joint project of the federal and provincial governments we look forward to entering a lease agreement that conforms to the board's principles.

We have had informal discussions with the Commonwealth of Learning about developing suitable space on campus and we look forward to receiving a formal request. The Vancouver School Board has been considering the development of a unique school adjacent to the campus which would serve much like a teaching hospital, i.e. a focus for teaching primary and secondary students in a setting in which university-based teaching and research could also take place. This could be near our new Child Study Centre.

The Public Works and Renovation money now being provided by government is an important factor in our ability to maintain and renovate campus facilities. The deferred maintenance problem remains serious. We plan to make the campus increasingly accessible to the physically handicapped. We will seek assistance from time to time for this purpose. We also plan to improve traffic patterns and lighting to enhance the safety of the campus.

### Campaign and Fundraising

We have recently brought the External Affairs units of the university together under the leadership of the newly created Office of Vice-President, External Affairs. This office will manage and/or co-ordinate the activities of:

- i) Community Relations
- ii) Development
- iii) Ceremonies
- iv) Alumni Association

Each of these units has its own separate mandate, but will be increasingly working together to achieve the external objectives of the university. Over time, the Office of External Affairs will link with all aspects and areas of UBC that deal with external matters in order to maximize effectiveness through co-ordination. This will include a focus on government liaison at all three levels as well as international relations. A full review of the Alumni Association activities and

their support of university objectives is now underway. The Development Office has been given the mandate to operate and coordinate university-wide fundraising based on a formal university policy.

The campaign was initiated in 1988 after we developed the university mission statement and strategic plan. It built upon the case statement which itself resulted from an extensive university-wide process of goal and priority setting. The campaign has now passed the \$90 million mark in private donations and will continue in an active phase until mid- to late 1992. By this time we are very hopeful that we will pass the \$130 million mark in pledges. Pledge payments are often spread over five years which means that we will still be collecting on pledges into 1997.

The provincial government has provided matching funds for items in the case statement on a dollar-for-dollar basis. We have now achieved a total of pledges and matching funds of about \$180 million. To fully reach our potential, we have asked the province to expand and extend the matching program. We strongly urge that this expanded program not only accommodate UBC's need, but be broadened to include the colleges and institutes and in due course the University of Northern British Columbia. We hope that some portion of the expanded program can be accelerated so we can start our construction projects in the near future (at today's prices and without having to borrow money) and so that we can start to fill the endowed chairs and show the results of bringing in new faculty.

The matching support is available for buildings, endowments and gifts-in-kind. These categories have proven to be very beneficial, since donors and potential donors understand that this provides opportunities to contribute to activities that are over and above those supported by operating grants and tuition.

The university is pleased that the provincial government created foundations that permit us to receive donations as agents of the Crown. To date in the campaign, we have raised substantial money for buildings (see earlier section "Capital"). It is anticipated that our current campaign building projects will create 1,200 person years of work in the construction industry. We have also raised substantial funds for endowed chairs. More than 40 are now expected. Each of these, in turn, will lead to further activity, in many cases competing effectively to bring research and other dollars into the province. We have also raised endowed scholarship funds to support a number of thrusts - e.g. graduate student support; education abroad scholarships; national entrance scholarships; as well as those for Native students and others. Gifts-in-kind have also been very useful, providing modern equipment as well as valuable collections that might otherwise have gone elsewhere.

The building of a sizable endowment has been a major objective of the campaign. The endowment funds at UBC were \$70 million in 1985 and by the time the campaign is complete, we expect them to surpass \$300 million. Most of this, of course, is in designated areas, but through the assistance of the Vancouver Foundation there will be a fund of \$15 million or more that will be undesignated and very helpful in responding to targets of opportunity. We are establishing a recapitalization policy to preserve the purchasing power of endowment income. In the near future, this will restrict annual

expenditures to 6 per cent of the market value of the capital.

This campaign is directly reinforcing the priority objectives of UBC. The operation is funded in part by a core budget component from the operating budget and in part by a cost-recovery component from the campaign. The core budget will be firmly established by the year 1993/94 and will support the core functions of the Development Office. The cost recovery portion is obtained by holding donations for one year and using the interest income for that year. It supports direct campaign costs.

We plan to complete the campaign by late 1992. There are still many corporations, foundations and key individuals to be approached. The Alumni campaign and the faculty and staff campaign are just getting started. We have launched a major international phase of the campaign. Access to further matching funds is very important to these groups and gives us a real edge relative to universities in other parts of Canada.

As the campaign moves to an end, we will be changing the focus to ongoing annual fundraising. One measure of success of this current campaign will be the ability to conduct future annual campaigns successfully.

In order to maximize the return to UBC, we will be taking a number of steps:

- i) conducting a review with past donors to determine their satisfaction or dissatisfaction with the campaign;
- ii) renewing the policy requiring central coordination of campaign calls; and
- iii) establishing a process to develop faculty-based and university-wide priorities and to provide decentralized fundraising support from the centralized External Affairs services.

In the past few years, UBC has worked hard to re-establish its relations with the community. The campaign success to date is just one measure of this. We have reinforced alumni branch and division activities across Canada and internationally. Our open houses and the distribution of newspaper inserts have helped. We now distribute UBC Reports, the campus newspaper, to homes on the West Side. The use of advisory committees and frequent news releases and media briefings have all contributed to increasing awareness in the community.

The campaign leadership committee has played a most valuable role in British Columbia, Canada and internationally.

### Accountability

The universities of Canada have been given considerable autonomy by the Provincial Acts. This is true in British Columbia, and there is strong evidence that this autonomy has served the province well indeed. Sometimes this has been paraphrased to say that universities determine who shall be taught, what shall be taught and who shall teach. The creation of the Tri-University Presidents' Council (TUPC) has been an important element in ensuring dialogue and co-ordination among the universities.

Increasingly, publicly funded institutions are being expected to document their accountability. Of course we have always had fiscal account-

ability through the process of annual financial statements and auditing by the Auditor-General of British Columbia. The universities are probably the most accountable institutions in society today, especially in British Columbia. Every financial transaction and all personal reimbursements whether salary or expenses, are fully documented in an annual report released publicly each year.

UBC itself has taken many steps to ensure accountability to the public:

- i) A 150-page budget and planning document is released each year and published for every community member to see;
- ii) We have (or are creating) a number of external advisory committees that report to the Dean or Unit Head and the President:

- Commerce and Business Administration
- Forestry
- Applied Science (being created)
- Agricultural Sciences (being created)
- Continuing Education
- Library (Friends of the Library);

- iii) An International Advisory Committee to the President will be created in 1991;

- iv) Every academic department and faculty is reviewed every five or six years by international discipline experts;

- v) Many non-academic units are subject to review and assessment as issues arise and changes are required;

- vi) External professional bodies carry out accreditation on a continuing systematic basis;

- vii) All research grants are subject to peer review and quality assessment;

- viii) Every faculty member is reviewed annually for merit increases;

- ix) All faculty members are thoroughly reviewed for promotion and tenure by international experts, as well as by the use of teaching evaluations;

- x) Most publications by faculty members are subject to international level peer review; and

- xi) The fundraising campaign itself has been an important accountability tool, since people and corporations will not donate funds unless they believe the funds will be wisely used and well-managed.

Thus, each individual and each program is subject to regular review both internally and externally.

The academic life is one of constant review and assessment so that there is always a testing of oneself against the standards of the discipline. It is a pleasure to record that we measure up well on these assessments.

Some of our activities have also been the subject of recent President's Reports. A report titled UBC - British Columbia's Centre for Research and Teaching in the Health Sciences is now in preparation. This will be followed by a report on research in the social sciences and humanities. I recently presented my acceptance speech for a renewed term to the Board of Governors. It documents many of the recent changes and new initiatives relevant to UBC as it approaches the 21st century.



### APPENDIX 1: ACADEMIC PLAN

Over the past 76 years, The University of British Columbia has provided academic leadership in a growing and dynamic province. For two-thirds of that period, it was the sole institution granting degrees in fields other than theology. In the past 25 years, British Columbia has developed an impressively integrated system of universities, colleges and institutes. UBC's challenge is to maintain its pre-eminent position as an internationally renowned, research intensive and comprehensive university, and thus fulfil the role it is best equipped to play among a score of post secondary institutions. In so doing it will continue to collaborate with other institutions in addressing provincial and national needs and to work with those institutions in the development of their roles, equally essential to a coherent system.

#### UNDERGRADUATE PROGRAMS

The university will maintain its role as the provider of the largest and most comprehensive array of high quality undergraduate baccalaureate and post baccalaureate degree programs.

Our 1990/91 undergraduate enrolment is 1,230 above the 1988/89 base year, more than 700 of which remains unfunded. Maintaining this level and continuing a targeted increase depends on obtaining support through Access funding. Even though we will raise further the minimum entry GPA to limit new admissions to current quotas, we plan undergraduate enrolment increases of about 500 FTE over the next three years. This will be achieved by targeting specific programs which play a strategic role in British Columbia's system of higher education. Having accomplished the transfer of responsibility for the diploma program in dental hygiene to Vancouver Community College, we now work in collaboration with the college in clinical placements. With appropriate support we will implement a B.Sc. program in dental hygiene for the most outstanding applicants with diplomas and thereby develop leaders in the field. We are addressing the province's shortage of nurses by collaborating with Vancouver General Hospital and we are expanding enrolment in that four-year B.S.N. program to take 160 students in each year, this with no decrease in our post-R.N. enrolment.

We expect to continue accepting outstanding transfer students into the upper years of programs in Arts and will consciously protect capacity for transfer students in Science as college programs expand. We will accept additional students in certain programs which are unique in the province such as Agriculture and some engineering specialties. Development of the undergraduate program in applied conservation biology will enrich the preparation of those who manage the integrated natural resources represented in our forests. It will also enable us to serve an additional 130 to 180 undergraduates, chiefly those transferring after a strong first year in Science at a college or university.

In recent years programs in Engineering, Forestry and Commerce have been reduced from five to four years in length, thereby creating some additional capacity for undergraduates and, particularly, for graduate students. Also in the recent past, the Faculty of Education has discontinued the practice of admitting students directly from secondary school to a concurrent program of Arts and Science courses and teacher preparation. Most teacher preparation has shifted to the post baccalaureate level.

As the university responsible for training about 40 per cent of the province's elementary teachers and the great majority of secondary teachers, UBC has accommodated a sharp increase in teacher education enrolment in order to address the teacher shortage. We have done so primarily on term funding in order to avoid overbuilding capacity for periods of lesser demand.

We have enhanced opportunities for obtaining a general liberal education by allowing undergraduate students to undertake "thematic" (interdisciplinary in contrast to disciplinary) majors in the B.A. degree program. For example, Women's Studies has expanded with the approval of a major. It is expected to take advantage of strengths not only in the Faculty of Arts but in other faculties as well. The B.Sc. degree in general science has been made more readily available. The increased emphasis on degree programs less specialized than the usual major or honours degree is, in part, a byproduct of our collaboration with colleges where the number of faculty members in any given discipline will necessarily be small. However, it is certainly an attractive alternative for students on the Point Grey campus and is, without doubt, preferable preparation for elementary or junior secondary school teaching. The Faculty of Science is committed to undergraduate curriculum renewal and the Faculty of Arts is expanding its highly acclaimed Arts I program. The Faculty of Science is considering a parallel Science I.

The Faculty of Agricultural Sciences is revitalizing the B.Sc. (Agr.) program, reducing complexity, placing greater emphasis on the development of thinking and communication skills, an understanding of the role of agriculture in society, and the need for sustainable development. The faculties of Agricultural Sciences, Applied Science and Forestry are collaborating with the faculties of Arts and Science to ensure that students in professional and scientific disciplines receive a foundation in the liberal arts and that students in the liberal arts can acquire an understanding of the scientific, technical and professional issues which influence their lives and careers. We are now considering the identification of a common two-year pre-professional program in the liberal arts and sciences.

The appointment of the first professor to the Maurice Young Chair in Applied Ethics, the commitment of endowment for at least one more chair (this one in business ethics), and the forthcoming development of the Centre for Applied Ethics, grounded in the Department of Philosophy and extending into several faculties, will multiply the inclusion of ethics as a subject for study within undergraduate programs, both in the Arts and Sciences and in professional fields. Business ethics, biomedical ethics, environmental ethics, and professional ethics have all become fields of lively discourse at UBC and among professionals in these fields.

One important development at the undergraduate level will be the bachelor's degree in environmental sciences/environmental studies. The faculties of Arts and Science are engaged in this development, which is necessarily interdisciplinary in nature. Other faculties, e.g. Forestry, Agricultural Sciences, and Applied Science, are substantially involved and will mobilize their considerable strengths in addressing issues important in our society and of concern to today's and tomorrow's graduates. A program in environmental studies within the Faculty of Forestry will balance the current

professionally oriented programs of the faculty.

The Department of Mechanical Engineering recently introduced an undergraduate option in Industrial Aerodynamics and Aircraft. It is offered in the co-operative education mode with related employment and academic study in alternating terms. Indeed, year-round co-op education programs in Mechanical Engineering, Electrical Engineering and Computer Engineering will be strengthened as the Faculty of Applied Science places less emphasis on summer-only co-op programs.

Support from the Fund for Excellence in Education and, more recently, from the Access program, has enabled us to increase enrolment in the School of Rehabilitation Medicine by 50 per cent. The result is a significant increase in the number of occupational therapists and physiotherapists taking up professional practice in the province. The Faculty of Dentistry has approved a program to enable the strongest college graduates in dental hygiene to obtain a B.Sc. in that field.

A further effort to enhance opportunities for the preparation of health care professionals is a joint venture with the Vancouver General Hospital School of Nursing. This venture has the potential to double, from 80 to 160, the number of students admitted annually to the first year of our four-year B.S.N. program. We are discussing with some of the colleges the desirability of creating closer links between their R.N. programs and our B.S.N. program as we approach the time for implementation of the nursing profession's goal of making the baccalaureate degree the standard for entry.

Our major strategy for enhancing access (in terms of regional distribution, if not numbers) at the undergraduate level remains the facilitation of degree program development at the colleges, particularly Okanagan College and Cariboo College. 1989/90 saw the negotiation of principles and guidelines under which UBC's B.A. and B.Sc. degrees will be awarded this year for programs at these colleges in Kelowna and Kamloops respectively. In addition, UBC's B.Ed. degree will be offered for a program at Cariboo. UBC's commitment is to participate fully at the outset, to award degrees (the first in 1991) with confidence in the academic standards they reflect, and to work toward the goal of the colleges receiving the authority to grant their own degrees at the appropriate point within the next three to eight years. Third-year enrolments at Okanagan and Cariboo have been respectable in the first two years of the joint ventures. (They have been stronger in Arts than in Science.) The presence of degree completion programs has had a positive effect on first and second year enrolments - so much so that the colleges are considering capping first-year admissions in 1991/92.

In addition to the joint ventures in Kamloops and Kelowna, we are active in the Kootenays where the Faculty of Education offers its 12-month elementary and secondary certification programs for holders of first degrees in Castlegar through a rural teacher education consortium including Selkirk College and six school districts.

Applications for post baccalaureate programs are increasingly national in origin. As many British Columbians study elsewhere it is gratifying that outstanding students from all provinces make UBC their first choice. The entering class in Law, for example, includes a nice balance from across the country.

Each year more students from other provinces apply for teacher education. Our campaign includes the raising of endowment for national entrance scholarships so that it will become as common for the top students from Quebec and Ontario to come to UBC as it is for BC students to attend McGill or the University of Toronto.

Education Abroad Programs (EAP) are among the university's fastest growing ventures. Our goal is to have five per cent of UBC's undergraduates undertake a term or a year of study overseas for credit toward their baccalaureate degree. At the same time, overseas students attending UBC for a year will enrich the mix and contribute to the education of our students. Current EAP agreements extend from California to Copenhagen and from London to Korea. Our largest scale experiment includes 100 students each year from Ritsumeikan University in Kyoto studying at UBC for a full session to improve their English, enhance their intercultural understanding and learn about the Pacific Rim. These students will live with 100 UBC students in a special residence jointly funded by the two universities. Recent gifts and bequests will provide scholarship support for students going in both directions between UBC and major universities in other countries. In addition to EAP, we have a goal of encouraging faculties to ensure that four to six per cent of their undergraduate students come from other countries. This year we have managed to increase the proportion of international students in undergraduate programs from .8% to 1.6%, still the lowest in Canada.

Although the university plans to award a fairly constant number of baccalaureate degrees, undergraduate programs are anything but static. The constant revision of course and program content, the emergence of new majors, minors and options, the extension of interdisciplinary activity, the increase in education abroad opportunities, the stimulating presence of students from other provinces and other countries, and the development of joint ventures with other institutions all ensure the continued vibrancy of undergraduate education at UBC.

#### RESEARCH AND GRADUATE PROGRAMS

Our Mission Statement and Strategic Plan reflect the university's distinctive contribution in research and graduate programs. These are the areas in which we are uniquely positioned to continue our record of outstanding achievements on behalf of the province. In endorsing this particular mission, Senate and the Board of Governors committed the university to continuing its development as an internationally recognized leader in advanced education and research while continuing to offer first-rate education to undergraduate students. Many of our programs are already considered among the best in the world; many are unique in the province, and in Canada.

UBC is the province's major research centre. In 1990/91 we successfully competed for and won more than \$100 million in research grants and contracts, mainly from outside the province. This maintains the rate of increase above 10 per cent annually though space has become a critically limiting factor. This is not an achievement of one or two fields but of every faculty in the university. Research funding provides more than 3,000 jobs to the people of British Columbia. Including facilities on and

associated with the UBC campus (B.C. Research, PAPRICAN, Forintek, FERIC, TRIUMF, Agriculture Canada, Biomedical Research Centre and NRC), we constitute the nucleus of a complex responsible for 60 per cent of all research in B.C. in all sectors. UBC alone carries out more than 80 per cent of the research done in the universities of the province. The scope, quality, and number of our faculty scholars and researchers make it important for us to build on these strengths and to educate students at the graduate level for research and for increasingly complex professional practice.

In the national program of Networks of Centres of Excellence, no other university matched UBC's achievement. The university is a participant in 12 of the 14 NCE's, and UBC is the national centre for three. Science, Applied Science, Medicine and Agricultural Sciences are all involved and the program will bring \$34 million in direct research support to the campus. The province's provision of overhead support currently committed at \$19.5 million makes it possible to house and operate this quantum increase in research activity.

In planning for an increase in accessibility at the postgraduate level, we expect our graduates to participate fully in developing and leading, rather than merely experiencing intellectual, technological and social developments. The provision of access is important not only to the students, thus provided an opportunity for advanced study, but to the society which will need highly educated and competent leaders and citizens in the coming decades. We will expand current graduate programs and develop new and innovative programs to address these needs. Our postgraduate enrolment in 1990/91 is approximately 4,800 exclusive of medical residents. Our Strategic Plan calls for an increase in accessibility to provide an additional 2,000 places over five years for a total of about 6,500 by 1995/96. At that point the university's total enrolment will be about 27,500 - a target we expect to re-assess as it is achieved.

Many graduate and research programs within our departments and faculties are leaders in Canada, in North America and in the world, and have been documented as such through the external reviews we undertake regularly. Plans for change and innovation must be built upon a solid foundation of excellence in the basic fields of the humanities, social sciences and natural sciences. One cannot prepare for the future if one does not understand the past and the present; and progress toward reaching both social and individual potentials requires more than technical and economic development.

More than 40 endowed chairs will be taken to Senate and established as they are funded through the campaign. Some are now fully funded and the rest will be during the five-year campaign pledge period. These chairs are strategically distributed in the faculties in keeping with academic priorities and private sector support, reinforced by provincial matching funds. They complement operating budget support in enabling UBC to extend its reputation as a world renowned centre of research and education.

The visibility and reputation of our graduate student activities will be enhanced by the addition of Green College, a residential college generously endowed by Cecil Green (with matching provincial funds). The new college is expected to provide about 80 residential places for students enrolled in graduate

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programs across the university. The will share the college's accommodation with a small number of faculty members and post-doctoral fellows. Green College will enrich the intellectual quality of campus life with an interdisciplinary program of seminars and academic events.

We are beginning to explore the potential for fundraising to establish a second residential college with potential links to the soon-to-be expanded Institute for Asian Research.

#### EXPANSION OF DISCIPLINARY PROGRAMS

This section highlights some of the planned increases in our existing programs and outlines new programs where student interest, scholarly significance, and societal importance support such an expansion. Faculties are planning for increases or changes in their graduate programs consistent with the university plan. The examples discussed in this section are representative of these plans. Many programs initiated by a faculty are interdisciplinary in nature and, in outlining the initiatives of a faculty, it is sometimes simplest to carry on with a description of interfaculty programs in which it is involved. Hence the distinction between this section and the next is blurred if not eliminated. Entries are not proportionate to the scope of existing graduate programs or their academic importance. For example, the innovative approach to planning adopted by the Faculty of Medicine has resulted in that faculty getting more play than others in this draft.

The Faculty of Agricultural Sciences is developing a master's program in Landscape Architecture and a Ph.D. program in Bio-Resource Engineering. The initial emphasis in the latter will be bio-waste management. This will complement other developments emphasizing environmental management and protection. Food and agribusiness management provide the focus for a graduate program being developed by Agricultural Economics with the Faculty of Commerce and Business Administration.

The Faculty of Applied Science is engaged with the Faculty of Commerce and Business Administration in launching an M.Eng. program in Advanced Technology Management which will accept its first students in September, 1991. Two departments, Chemical Engineering and Mechanical Engineering, will join with the faculties of Medicine and Science in offering an M.Sc. program in Occupational Hygiene, which will be supported by an endowment from the Workers' Compensation Board (WCB) and a matching gift from the Government of British Columbia. The Senate has approved an M.Eng. program in Biomedical Engineering to be offered jointly with the Faculty of Medicine. Collaboration with hospital-based biomedical engineering departments and the potential for technology transfer and industrial development make this a promising program although significant expansion awaits future funding.

Fire Protection Engineering (M.Eng.) has the support of professional organizations and the Union of B.C. Municipalities, but requires provincial support if it is to get underway in the near future. Loss of life and of property to fire makes this a socially and economically important field.

Consideration is being given to redefining the baccalaureate degree in Architecture as a master's program in

recognition of the fact that most students enter with a baccalaureate degree and to bring it in line with similar programs throughout North America. The Master of Advanced Studies in Architecture will be enlarged and strengthened with an emphasis on interdisciplinary design and project work undertaken in collaboration with Engineering departments, and such units as the Centre for Human Settlements, the School of Nursing, and the Media and Graphics Interdisciplinary Centre (MAGIC).

The Ph.D. program in the School of Nursing follows naturally from the increase in scholarly activity. It will enable the school to take its place among the select schools in Canada preparing researchers and professional leaders at the doctoral level.

The Faculty of Arts includes the humanities, the social sciences, the creative and performing arts, and several professional schools. As global society becomes more interdependent, we must know and understand the languages and the cultures of other societies as well as our own. We need to have a better sense of policy issues as they are reflected in the social sciences. The creative and performing arts are important to our society in their own right, as well as being key elements of our cultural activities and hospitality industry. Significant expansion is planned in these areas. A co-operative Ph.D. program in philosophy will be established in collaboration with Simon Fraser University.

The faculty plans to participate in inter-faculty and inter-disciplinary courses in environmental studies; science, technology, and society; and women's studies, and to continue developing innovative graduate programs such as the program in Arts Administration.

The Faculty of Commerce and Business Administration will offer, in addition to its evening section, four day-time sections in the M.B.A. program, rather than the present three. The increase of 35-40 students is made possible by shifting resources from the undergraduate program, now that the four-year B.Comm. has been fully implemented.

The faculty is engaging energetically in the development of innovative joint ventures - both graduate programs and research initiatives. The MBA option in Arts Administration (joint with the Faculty of Arts) has graduated its first students. The M.Eng./MBA in advanced technology management (with Applied Science) and the MBA/LL.B. (with Law) are examples of collaboration and the faculty is prepared to consider others.

The Faculty of Dentistry is expanding its highly successful M.Sc. in Dental Science and Ph.D. in Oral Biology and adding new graduate programs in Oral Medicine, Oral Pathology and Oral Radiology - interdependent fields.

In the Faculty of Education, a plan is being developed to change and substantially reduce the number of separate M.Ed. programs and the M.Ed. enrolment. The new format will be a faculty-wide master's program, with some core and some specialty courses. The faculty will also establish Ph.D. programs in Curriculum and Instruction and in Exercise Science (based in the School of Physical Education and Recreation). It is planning to enhance access by offering components of a master's program in the Interior. In general, the faculty will strengthen the research-oriented M.A. and Ph.D. degrees, while continuing to improve, but to reduce

emphasis on, the professional M.Ed. and Ed.D. degrees, transferring resources to accomplish these goals. Endowments will stimulate research and graduate studies in multiculturalism, special education and literacy.

The Faculty of Forestry is committed to broadening the intellectual and geographic scope of its activities and to increasing the interdisciplinary activities within the faculty and with other faculties. One strategy is to develop a centre or institute of applied conservation biology. In addition to a B.Sc. program, the unit will provide the focus for master's and Ph.D. level studies. The emphasis will be on the application of the principles of conservation biology and landscape ecology to problems arising in the management of forests. Programs will incorporate courses in Forestry, Zoology, Landscape Architecture, Community and Regional Planning, and the social sciences. Departmental graduate programs will be strengthened and scholarly activity will be further stimulated by involvement in international forestry.

The Faculty of Law has entered into an agreement with the Society for the Reform of the Criminal Law which will provide a stimulus to research and graduate study. In so doing it will give impetus to planning for the introduction of a doctoral program to complement the current LL.M. program.

Medicine 2000, a concept paper, identifies research foci for development by the Faculty of Medicine with the affiliated teaching hospitals. Seven centres are proposed to build on existing strengths, consolidate current support and generate additional external support. The Centre for Predictive and Preventive Medicine, to be developed with University Hospital and Children's Hospital, will aim at screening appropriate segments of our population for genetic susceptibility to disease and then acting with the individual to prevent or delay disease onset. Since about 60 per cent of the population will experience a disease with a significant genetic component (atherosclerosis, diabetes, inflammatory bowel disease, some common cancers), further development of appropriate technology for screening and clinical intervention has far-reaching implications.

The Centre for Transplantation Biology will be focused at Vancouver General Hospital. Better understanding of the immune system leads to better success rates and fewer complications in organ and tissue transplantation. Vancouver will become one of the world's leading centres for research and clinical care as this thrust takes full advantage of works in immunology at the Biomedical Research Centre, and related research strengths at the B.C. Cancer Agency's Terry Fox Lab, the Biotechnology Lab and in the Faculty of Pharmaceutical Sciences and the departments of Chemistry and Physiology. Clinical trials are linked with a Canadian Clinical Trials Network. Links will be strengthened with international pharmaceutical companies as immunology/transplantation offers rapid transfer of results in the molecular laboratory to the clinical situation.

The Institute for Child, Mother and Youth Studies involves the Faculty of Medicine, other units such as the Department of Microbiology, and the hospitals at the Oak Street (Shaughnessy) site in the alleviation of potential life-long problems. This includes pregnancy outcomes analysis, study of neurological development, developing better non-invasive technology for monitoring ba-

bies during pregnancy and in the newborn period, and research in childhood infectious illnesses. Newly endowed chairs in Paediatrics and in Microbiology will stimulate this latter field.

The Centre of Excellence in Cancer Biology at the Vancouver General Hospital/BC Cancer Agency Site will develop new therapeutic manoeuvres based on gene transfer and cell targeting and aimed at diagnosing and treating cancer. This approach is made possible by the existence of relevant expertise at UBC not only in clinical departments but in Chemistry and Microbiology.

The Brain Research Centre will aim at a better understanding of key brain diseases leading to more effective and cost efficient diagnosis and treatment. This centre, focused on the campus and at the University Hospital (UBC site), builds on strengths in that hospital and in the faculties of Medicine, Pharmaceutical Sciences, Science, Arts and Dentistry. Four endowed chairs will enhance research capacity. Newly developed techniques in molecular and cell biology and new methods of imaging the brain enable investigators to delve into the intricacies of such disorders as Alzheimer's disease, Schizophrenia, Multiple Sclerosis and Huntington's disease, which together affect a significant proportion of the population. The university will build on an established international reputation in the neurosciences with this centre providing the capstone.

The Pulmonary Research Centre is a joint venture of the university and St. Paul's Hospital built on existing research and clinical strengths in pulmonary and cardiopulmonary diseases. These strengths are already recognized through participation in the national Network of Centres of Excellence, which also serves to reinforce the links with industry. Not only will it further develop its reputation as a national centre for the study and treatment of pulmonary disease but the potential for spin-off technology is substantial.

The Clinical Trials Centre, focused at St. Paul's Hospital, will provide "one-stop" access for the pharmaceutical industry with assured access to the teaching hospitals and the community. UBC-led, the centre will hasten access to new drugs and vaccines, provide the expertise to guide rational decisions regarding choice of cost-effective drug therapy and serve as a venue for the training of clinical pharmacists and physicians who must provide leadership in the evaluation and dissemination of new drug therapies. Further, the centre should serve as a magnet for the location and development of the pharmaceutical industry in BC.

The Faculty of Medicine is engaged in a major expansion of M.Sc. and Ph.D. programs. Among proposals approved in the past year are a re-orientation of the master's and a new Ph.D. program in Health Care and Epidemiology, concentrating on clinical epidemiology and on occupational and environmental health; the only program in Canada to train genetic counsellors; expansion of the research Ph.D. in Experimental Medicine to a number of clinical areas (e.g., respiratory medicine, gastro-intestinal medicine, paediatrics); a new Ph.D. program in Audiology and Speech Science and a new graduate program in Rehabilitation Medicine.

The Faculty of Pharmaceutical Sciences will place more emphasis on preparing students for clinical/administrative activities, because of perceived need in the community as well as student interest. A new program in Pharmacy

Administration will be implemented and possibly a combined M.Sc./M.B.A., that will bring in about 12 students in addition to the current complement of about 30. Senate will be asked to consider approval of a professionally oriented Doctor of Pharmacy (Pharm.D.) degree program. This will complement the strong research-oriented Ph.D. program enhanced by the recent receipt of a \$2.7-million program grant and a development grant of \$500,000 over five years.

The Faculty of Science carries out research in the life, physical, earth and mathematical sciences. In these areas there is a continual upgrading of research facilities to maintain our position at the forefront of research. A number of new interdisciplinary programs have been developed and more are in the planning stages. Plans are underway to reorganize the Earth Sciences, bringing together our considerable expertise in Geophysics, Geology, Oceanography and the Atmospheric Sciences. Outstanding new faculty have been added to the Computer Science Department which has been identified as a growth area within the faculty.

#### INTER- AND MULTIDISCIPLINARY PROGRAMS

As in the discussion of disciplinary programs, we will only discuss a selected list of novel and important interdisciplinary thrusts in which UBC is now or will soon be engaged at the level of graduate education and research. Progress in these areas is based on our wide-ranging strength in the relevant disciplines, coupled with the breadth of training and vision to recombine these as needed to address various opportunities and problems. Private sector support and provincial matching are giving a tremendous stimulus to work in each of these areas. Endowed chairs, NSERC Industrial Chairs and capital construction are all extremely helpful. For convenience, they have been arranged in five major categories.

#### Advanced Technology

The University of British Columbia is a leading institution of research and graduate studies in a wide variety of fields that have emerged from, and continue to advance, sophisticated scientific and technological innovations. There are three general areas:

**Biotechnology:** The Biotechnology Laboratory, established with FEE support, is already internationally recognized. It brings together scientists and advanced students from Applied Science, Medicine, Science, Forestry, Agriculture, and other areas in multidisciplinary collaborative work. In view of the increasing importance of biotechnology in environmental protection, food production, medicine, and other vital pursuits, the significance and impact of this lab on the various faculties promises to be substantial. We also have expanding programs in aquaculture, food science and nutritional science built on activities in several departments and faculties.

**Physical Sciences and Engineering:** The Department of Computer Science (Faculty of Science) is a major component in the Centre for Integrated Computer Systems Research (CICSR), along with the departments of Electrical and Mechanical Engineering (Faculty of Applied Science). A new Media and Graphics Interdisciplinary Centre (MAGIC) leads UBC's involvement in the fascinating field of computer graph-



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ics, linking with industry as well as with other departments and programs (for example, film studies in the Department of Theatre and Film, Faculty of Arts). Chemistry and Physics provide key connections with TRIUMF and the proposed KAON factory.

The Faculty of Applied Science is also active in these areas, and has developed strong links with industry and with other academic units. Together with the Faculty of Forestry, Applied Science and Science will benefit from provincial funding of the CICSF/Computer Science Building, the Advanced Materials Building, and the Forestry Sciences Building. These faculties contribute to and benefit from UBC having the largest number of NSERC Industrial Chairs in the nation. Many other advanced technology areas, including Space Dynamics and Zero Gravity Flow, Control and Robotics, Industrial Automation, and Computer-Aided Design, are also under active study in the faculty. In Metals and Materials Engineering, the new Centre for Metallurgical Process Engineering has already achieved international stature, and will be encouraged to grow. In the facilities provided by the new Advanced Materials Building, other planned expansions will be focused on Ceramics/Composites and Polymers.

**Technology Management:** The Faculty of Commerce and Business Administration, the premier Canadian institution in its field, and one of the best in the world, is addressing the unique aspects of management in the rapidly changing and highly competitive world of high-technology business. It has responded to the faculties of Applied Science and Science and is offering jointly with them master's programs in Science and Technology Management to start in 1991/92. The Faculty of Commerce also has a program of Management Information Systems that applies the latest technological advances to management, in the same way as the Computers and the Law program does to legal studies.

Equally fundamental (although perhaps somewhat less obvious) is the matter of the many moral and ethical problems raised by technological advances. The Maurice Young and the Patricia Rogers chairs in Applied Ethics (Department of Philosophy) and the Centre for Applied Ethics, whose faculty members may be cross-appointed in a relevant faculty such as Commerce, Law or Medicine, will be devoted to exploring these fundamental issues.

#### Environmental Studies

The physical environment and the related issue of natural resources have become topics of global importance and controversy. The issues include pollution and the degradation of the environment; the provision of sufficient food to sustain a growing world population; and the preservation of air, water, forests, farmlands, and wildlife habitats, in the face of competing demands and needs. Both the problems and their solutions are international in scope, and both involve scientific/technological as well as social and policy issues. UBC's planning takes into account the complexity and interdisciplinary nature of the analysis of current situations and the development and evaluation of novel approaches.

Remote sensing technology is crucial in identifying the nature and scope of environmental conditions and problems. The Department of Geography, recently identified by an external review as one of the best in the English-speaking world,

is planning jointly with the departments of Forest Resources Management and Computer Science to develop a Geographic Information Centre that would exploit new approaches to remote sensing to ensure that our research and training in this area remains at the leading edge of the field. With support from FEE, the departments of Geography and Oceanography have already collaborated to increase our strength in Atmospheric Science and graduate programs have been implemented. Both of these activities involve an increase in graduate studies.

The Faculty of Forestry currently has the highest graduate enrolment of any in Canada. The provincial commitment to the new Forestry Sciences Building will provide very badly needed space for expanding activity, and will permit us to bring together forestry-related activities from a number of disciplines. Together with Paprican, Forintek and Feric (the latter two of which will be moving into new facilities), the faculty will be able to continue its major transition toward producing leaders in a major interdisciplinary area of crucial importance to British Columbia as well as the world. Support from FEE made it possible to expand the faculty's cross-appointments with Science and Engineering, and thus to establish closer links with the new Biotechnology Laboratory, and with the departments of Botany, Civil, Chemical and Mechanical Engineering.

The Department of Civil Engineering is planning new programs in Pulp and Paper Wastewater Management and Construction Management. In the same context, the Department of Mining and Mineral Process Engineering is in the process of developing a program in Acid Mine Drainage, a topic of extreme importance in British Columbia as mine tailings have for many decades been allowed to contaminate soils and rivers. Provincial and industrial support have enabled us to establish two endowed Chairs in Minerals, Mining and the Environment.

The Faculty of Agricultural Sciences is planning a new Ph.D. program in Bio-Resource Engineering, specializing in bioprocessing technology in packaging, storage and waste disposal as these relate to the food chain. New graduate programs in Food Process Science and in Food Biotechnology are also at an advanced planning stage.

At the present time, a number of interdisciplinary units and programs within the Faculty of Graduate Studies are focused on various aspects of natural resource studies. Among them are the Westwater Research Centre, which conducts research at the interface of natural sciences and policy development dealing with the water resource, a crucial aspect of natural resources both world-wide and provincially, the Forest Economic Policy Analysis project, and the Centre for Human Settlements, which deals with the planning of human habitats and the evaluation of their impact on the environment. The latter has recently obtained a multi-million dollar CIDA grant for establishing a Centre of Excellence in the field.

A proposal has been developed to establish a Research Centre in Fisheries and Aquatic Sciences. With collaboration among Oceanography, Animal Science, Zoology and Agriculture, the fisheries and aquaculture programs are leaders in Canada. The new centre is seen as an opportunity to bring together and integrate work in this area. The provincial Ministry of Environment's Fisheries Research Group and the regional research staff of the federal Department

of Fisheries and Oceans will be important participants. New strengths will be added in fisheries ecology, population dynamics, and limnology. On the policy side, connections with Anthropology and Economics will be established. The Faculty of Law's specialization in Natural Resource and Environmental Law will also contribute to this effort.

The Sustainable Development Research Institute is being jointly planned by the faculties of Graduate Studies, Science, Arts, Forestry, Agriculture, Law, Medicine, Applied Science and Commerce. The proposal to establish an institute will be before Senate for approval in March 1991. A director will be appointed imminently and funding is already committed for several important research thrusts. Other units whose graduate enrolments are expected to grow in response to increasing needs in the area of natural resources are the departments of Agricultural Economics and Soil Science, both in the Faculty of Agricultural Sciences. The first of these is concerned with a key aspect of policy development, and has an extensive collaborative program with Commerce and Economics; the second collaborates with Civil Engineering, Forestry, Geology, Geography and other units in studying soil, a fundamental resource. The new Chair in Automated Fish Processing will bring aspects of Mechanical Engineering into the field.

#### Health Care

Changes in expectations, population dynamics, and lifestyles — as well as continuing advances in relevant scientific and clinical fields — go far beyond the technical problems of curing illness. They interact with philosophy, law, economics, sociology, and many other areas of concern. Below, we mention some of the current plans of UBC to meet these needs.

**Chronic Medical and Social Problems:** Chronic conditions and disabilities have attracted increasing attention as the population ages, and also as medicine has made dramatic improvements in its ability to treat acute diseases. The university plans to increase its activity in these important areas. For example, our School of Rehabilitation Medicine (Physiotherapy and Occupational Therapy) has been substantially strengthened and expanded through FEE and Access funding, to the point where the establishment of a Ph.D. program is now being planned.

Proper attention to these problems also demands a concern for the growing proportion of elderly people in the population. The Faculty of Dentistry will use an endowment from the fundraising campaign to establish a Centre for Geriatric Dentistry. However, our activities in Gerontology and in Geriatric Medicine require considerable strengthening.

Support services related to physical, as well as mental, health require both a systematic search for knowledge and the application of this knowledge by caring professionals. The School of Social Work and the School of Family and Nutritional Sciences (Faculty of Arts) both have growing multidisciplinary graduate programs in these fields, studying such problems as refugee and immigrant acculturation, family development and problems and living conditions for the elderly. The Department of Social and Educational Studies (Faculty of Education) prepares teachers to help their pupils cope with the complexities of a quickly changing multicultural community.

The Department of Educational Psychology and Special Education deals with the problems of those with learning or physical disabilities and the means for our educational system to most effectively prepare such people to reach their potential. The Crane Library for the blind and the new National Disability Centre (funded from federal, provincial and private sources) are important assets in this area. In 1991 the Education Clinic will be redesigned as a Psychoeducational Research and Training Centre which will facilitate interactions with the health sciences and clinical psychology. Consideration will be given to new interdisciplinary programs with Rehabilitation Medicine and the planned Biomedical Engineering program, which will emphasize the optimal use of new technology in overcoming disabilities.

**Health Promotion and Maintenance:** Another change of major importance is society's increasing orientation toward health promotion and fitness — preventive health based on individual behaviour and lifestyle change. The Institute for Health Promotion Research will seek a director and sources of financial support as it stimulates research and graduate studies in this important field. The Centre for Health Services and Policy Research maintains the Health Manpower Research Unit (which collects and compiles province-wide data on health manpower, supported by the Ministry of Health). The Centre includes experts from Economics and from Health Care and Epidemiology and has an extraordinary record of research and publication in the field of Health Policy. Its most recent activity is the development of the capacity for evaluating health care technology.

Aided by a generous endowment of \$3 million from the Workers' Compensation Board of British Columbia, and by matching funds from the provincial government, the university has approved a new interdisciplinary program in Occupational Hygiene and is currently recruiting faculty to hold the endowed chairs. There is strong demand for qualified hygienists and there are no programs west of Ontario. Representatives of the faculties of Applied Science, Graduate Studies, Medicine and Science, have drawn up a curriculum and structure for a master's program which has now been approved. The plans call for all four faculties to be involved and most students to complete the program by taking courses (which will include laboratory and practical exercises as well as seminars by practising hygienists) and undertaking a major project. We expect the first students to enrol in September 1991.

**Neuroscience:** Over the past 20 years there has been enormous growth and spectacular advances in the field of neuroscience. Neuroscience is an area of strength at UBC with research efforts ranging from molecular neurobiology to clinical trials of experimental treatments for neuropsychiatric disorders. UBC neuroscientists bring in more than \$7 million per year in research grants. The graduate program in Neuroscience at the master's and doctoral levels has been in place since 1984. More than 60 faculty members are affiliated with the program. Sixteen students have graduated with Ph.D. degrees and 26 are now enrolled. Graduates have consistently secured postdoctoral positions in leading neuroscience laboratories around the world, and many of the program's graduates now hold faculty positions at other universities. The program has been very successful in recruiting highly qualified students, most of whom hold independent scholarship support either

from MRC or NSERC. The establishment of four or five endowed chairs in the current campaign will greatly enhance research capacity.

**Health-Related Studies:** Basic sciences, the foundation of medicine and allied fields, have strong and growing graduate programs. Increased graduate enrolment is planned in several of these areas. Speaking to a dispute of serious concern to biological scientists, as well as to students of ethics, the Department of Animal Science (Faculty of Agricultural Sciences) is developing a plan for a Chair in Animal Welfare, to be supported by NSERC and the SPCA. This activity will address the increasingly active and sometimes bitter controversy over the use of animals and alternate approaches in research. The new Maurice Young Chair in Applied Ethics is also relevant to the moral problems growing out of medical advances.

#### Canadian Society

Obviously, the university must devote attention to Canada's own culture and environment. Many courses are offered in humanities and social sciences departments. As well, UBC publishes BC Studies, Canadian Literature, and Pacific Affairs, all highly regarded journals. Our units in Anthropology and Fine Arts plan to extend the study of Northwest Indian cultures, languages, and arts. The School of Community and Regional Planning (Faculty of Graduate Studies) is actively involved in the study and teaching of Native Band Planning. There are new thrusts in Canadian studies — including Canadian politics, politics and media, and public administration (Department of Political Science) and Canadian and Commonwealth literature (Department of English). The Faculty of Law has a major program in Canadian constitutional law, and a new Nathan Nemetz Chair in Legal History. It is also looking at novel quasi-legal alternatives in setting up a Centre of Alternate Dispute Resolution, which will draw on expertise in the area of conflict resolution in Arts, Commerce, and other fields.

Communications is a crucial aspect of modern society. The new Maclean Hunter Chair in Creative Nonfiction Writing, and the recently endowed Writer-in-Residence program, are only a beginning in approaching our goals. We plan to implement existing plans for a School of Journalism, entirely at the graduate level, which had been approved by the UBC Senate and the Universities Council of British Columbia, but never funded. The School of Library, Archival and Information Studies will be strengthened, with particular attention to the unique program in Archival Studies. The graduates of these programs are in high demand in government, corporate, and academic positions.

On the artistic side of the communications area, our program in creative and performing arts draws on the departments of Creative Writing, Fine Arts, Music and Theatre. The current campaign will develop a Creative and Performing Arts Complex that will provide first-rate facilities (an art gallery, concert hall, and creative arts building) for these endeavours, and will make possible an increase in artistic activity and graduate education that will more closely match public interest and student demand. The Department of Theatre has recently instituted Master of Fine Arts degrees in design, directing, and film production, and plans a further one in acting. The Artist-in-Residence and the Writer-in-Residence programs, both newly en-

# UNIVERSITY OF BRITISH COLUMBIA

## THREE-YEAR PLAN



### APPENDIX 1: ACADEMIC PLAN

Page 13

dowed, will bring distinguished artists, musicians and writers to campus for limited periods. The growing importance and unique characteristics of musical, theatrical, and other cultural enterprises has also led to the recent establishment of a Master of Business Administration program in Arts Administration (jointly by the faculties of Arts and Commerce and Business Administration).

A Centre for Literacy in the Faculty of Education will coordinate the activity of researchers from several faculties as well as focusing on the most effective ways to improve literacy rates among adults, immigrants of all ages, and children. Sophisticated teaching and learning systems and evaluative techniques need to be developed to enhance literacy, numeracy, oracy, and computer literacy and the many sub-areas of literacy such as legal literacy.

The recently established Centre for Applied Studies in Evaluation (CASE) has been invited by the International Association for the Evaluation of Educational Achievement to serve as the international coordinating centre for major international studies on the teaching and learning of mathematics and science. This places the university in the forefront of the assessment of educational achievement, a subject of vital national importance.

#### International Studies

It should be clear that many of the fields discussed above have international implications and concerns. Beyond those, however, the university must directly address issues of international relations on many levels, as required by the growing interdependence of countries and areas. We expect to build on the already stellar reputation of the International Relations program, which provides a focal point for research and for a popular undergraduate major.

Europe and the United States: Although, as will become obvious, UBC has a major investment in Asian studies, it cannot replace the understanding of Canada's founding areas and our current prime partners and allies, Europe and the United States. Even at the most pragmatic level, we might note that — excluding Japan — the "economic miracle" countries of Asia (the Republic of Korea, Singapore, Taiwan, and Hong Kong) have a gross industrial output which in total is hardly larger than that of the Netherlands alone. European languages and literatures are the focus of Germanic Studies, which in the near future will integrate the study of Swedish and Dutch into its programs; Italian and Hispanic Studies, which intends soon to initiate a Ph.D. program reflecting the importance of this linguistic group; and Slavonic Studies, which must be strengthened over time, especially in recognition of the significance of events unfolding in the Soviet Union and Eastern Europe and of the potential increase in those countries between Canada and those countries. The Department of Language Education (Faculty of Education) prepares teachers who in turn will educate the children of British Columbia in the languages increasingly needed to prosper in the emerging international climate.

UBC's Institute of International Relations, an interdisciplinary unit with participants from several departments and faculties, pursues research ques-

tions dealing with strategic and economic policy. In this, it adds its strengths to the very active work of the Faculty of Commerce and Business Administration, which has established a Centre for International Business. This Centre, along with the federally supported Chair in International Trade Policy and Centre for International Business Studies, will draw upon the newly funded David Lam Management Research Centre and Library, funded by private and matching contributions in the current campaign. The Faculty of Law is also active in international trade law.

Asia and the Pacific Region: Our emphasis on the Asia Pacific region will continue to be developed. For example, the museology program in the Department of Anthropology and Sociology will concentrate on this region. The departments of Economics, Geography, and Political Science, each ranked among the best in Canada, have used FEE support to strengthen the study of Asian (especially Japanese) society and economy. Law has a special interest in Japanese and Chinese legal studies and has recently increased its involvement with issues and institutions in Southeast Asia. Pacific Rim international relations is a specialty of our Department of Political Science.

The Department of Asian Studies, specializing in language and literature, and the Institute of Asian Research, focusing on politics, demography, and other social sciences, work together for a well-rounded approach to the area. The former has recently added a Chair in Korean Studies (with plans for further development), a Chair in Punjabi and Sikh Studies, and a position in Indonesian language (with FEE funding). Japanese studies have also been strengthened, and studies of South and Southeast Asia (including Buddhism and Hindu studies) are in line for increases. The institute has a recently-established documentation centre concentrating on Indonesia, and is due for strengthening and reorganization along area lines with the establishment of five component centres (Japanese, Chinese, Korean, Southeast Asian, and South Asian Studies). We are anticipating a major expansion of activity supported by endowment funds generated in our campaign. These steps will maintain UBC as the principal Canadian university in studying this region.

International Education. One other aspect of our world-wide involvement is the education of graduate students from other countries. Approximately 20 per cent of our graduate enrolment comes from abroad. This is not only evidence of UBC's outstanding international reputation, it is also an opportunity to enrich our programs by incorporating the novel perspectives of such students. Problems, techniques, solutions, theoretical ideas — the intellectual effort of doing important research at a high level requires the widest range of inputs possible, and cannot be restricted to viewpoints developed in one country alone. We now have agreements with more than 100 universities and this network will be used to strengthen our graduate student programs and research ensuring that the latest ideas flow in both directions. Our alumni constitute a far-flung and loyal group of supporters for future interactions among their own institutions, corporations and nations, and those of Canada in general and British Columbia in particular.

#### CONCLUSION

As the only university in B.C. offering a wide array of professional programs around a strong academic core, UBC is constantly enhancing the range and quality of its undergraduate and post baccalaureate offerings. A vibrant context of research and graduate studies enhances the undergraduate experience.

It is clear that new programs, both in existing units and cutting across disciplinary boundaries, present novel challenges as well as opportunities. To keep our leading place in the exciting and rapid evolution of society and intellectual endeavour, British Columbia and its premier research-intensive university must ensure that graduate-level education and research experience are accessible to qualified students. In addition, many existing graduate programs must expand to meet both current needs and those that will develop as part of innovative activities.

At the present time, the Faculty of Graduate Studies rejects large numbers of excellent applicants across the many fields of graduate study. We would expect the outstanding applicants always to exceed available places. However, the university's ability to offer admission is limited too greatly by competing calls on faculty time; shortages of physical space, equipment, supplies, and other aspects of infrastructure; and insufficient financial support for students. There is no plan to eliminate all such restrictions, nor to increase graduate enrolment in areas where the need, the supply of outstanding applicants, or our ability to deliver first-class programs dictate otherwise; but many of our units and programs could handle more graduate students with modest increases in resources. The planned growth in graduate studies will enable us to build upon these strengths for the benefit of society, the university, and students.

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# Engineers compete internationally



Photo by Media Services

Mechanical Engineering professor Robert Evans and his crew of students recently took part in the Natural Gas Vehicle Challenge. The UBC entry, shown here, was one of three Canadian entries.

By GAVIN WILSON

UBC's entry in the Natural Gas Vehicle Challenge, held last month in Norman, Oklahoma, finished 16th overall, but took top score in the category of vehicle design and for the written paper.

The team of engineering students led by Mechanical Engineering Professor Robert Evans was one of 24 university teams that took part in what was billed as the most comprehensive test ever conducted using natural gas to power production vehicles.

The teams converted GMC Sierra pick-up trucks to run on natural gas. They faced extensive design, performance, fuel economy and endurance tests.

But the test that stymied most teams, including UBC's, was the rigorous emission guideline. It was a

qualification that all but three of the teams failed.

First place went to the University of Tennessee. The top-ranked Canadian team was Concordia University of Montreal, which placed fourth overall.

Meanwhile, UBC's entry in the Second International Human Powered Submarine Race in Riviera, Fla., was disqualified after a chain used to power their sub came off, said team leader Ronan Oger.

The mishap occurred at the start of the 100-metre time trials. The chain jumped off its sprocket just as the 4.5-metre-long fibreglass sub was taking

off under eight metres of water.

One of the two crew members swam out to replace the chain. Thinking that the sub's occupants were in trouble, volunteer U.S. Navy divers moved in to rescue the crew, automatically disqualifying them.

Eleven of the 34 teams entered in the race were disqualified. It was the first time that UBC had entered the event, which is sponsored by Florida Atlantic University.

The team members came home with the Challenge Prize as a reward for their perseverance and effort. Damaged in transport, their sub required major repairs at the race site.

## Star high schoolers challenged at Shad

Fifty-two teenagers arrived on campus earlier this month for the start of Shad Valley, a month-long brainstorming session for some of Canada's brightest high schoolers.

Now in its 10th year, the Shad Valley program stretches the intellects and imaginations of the country's top Grade 11 and 12 students. This year, 400 "shadlings" will gather at eight Canadian universities for a summer of lectures, seminars and workshops on various aspects of science, computer technology, business and mathematics.

In addition to the daily lecture circuit, Shad participants will also be asked to invent, design, build and market a product.

Last year's UBC inventions included a compost mixer, a kitchen can-crusher, a children's math toy and a floating spinal board designed to help rescue people who suffer back injuries while in the water.

The jam-packed schedule at UBC consists of 16-hour days, seven days a week.

"It's basically a study in sleep deprivation," said Ron Foreman, UBC's program director. "The question we try to answer is: How do you motivate somebody who has always been the best in his or her class?"

Foreman said lectures and seminars given by faculty and local entrepreneurs range from biotechnology and engineering to real estate and the film industry.

After completing four weeks on campus, the Shad graduates will finish the summer gaining practical work experience at various government and private-sector job postings.

Sponsored by Canadian corporations and advanced technology companies, Shad Valley was created in 1981 by the Canadian Centre for Creative Technology at the University of Waterloo. Since then, the rigorous program has tested the talents of more than 2,000 young Canadians.

This year's B.C. participants include: Aurora Chan, Vancouver; Cathy Greenhalgh, Taylor; Cheryl McDonald, North Vancouver; Roberta Robson, Powell River; Christine Wong, Vancouver; Ryan Cownden, Victoria; Trevor Hindson, Richmond; Michael Mustard, West Vancouver; Paul Miyagawa, North Vancouver; Daniel Ressler, Vancouver; Steve Graham, Fort St. John; Eric Ruljancich, Castlegar; Andrew Lau, Richmond; Daljit Dhadwal, Golden; Shahid Gul, Vancouver; Jason Krause, Terrace; and Robert Schonfeld from Vancouver.

## Students aim for the sky

By GAVIN WILSON

A team of UBC engineering students is trying to succeed where one of the world's great aviation pioneers failed — in getting the Stringfellow monoplane off the ground in sustained flight.

The students are entered in an Airshow Canada contest called Seeking Wings That Work, a flight competition based on designs of heavier-than-air, powered airplanes that pre-date the Wright Brothers.

Although Orville and Wilbur were the first to successfully achieve human-operated, powered flight in 1906, many attempts had been made before, as early as the 18th century.

The UBC team, joined by students from BCIT and UVic, will build and fly a balsa wood and carbon fibre model of British aviation pioneer John Stringfellow's 1848

monoplane design.

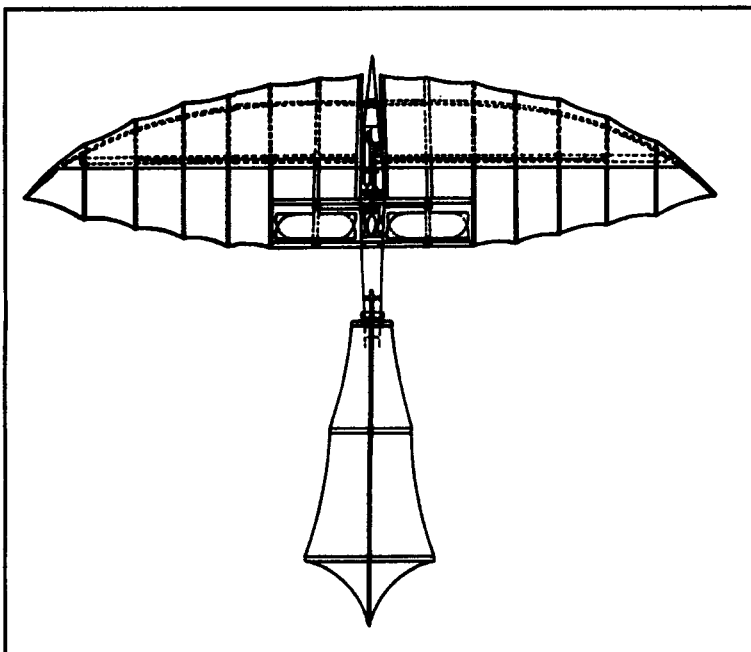
"People tried the weirdest things and a lot of them crashed," said team

Tung and Scott Montague, have spent long hours writing a detailed design report and constructing the model,

based on blueprints from the London Museum of Science.

A total of 10 teams from universities in five countries, including Japan, Australia, France and England, have entered the competition. It culminates with flight testing of the radio-controlled models at Jericho Beach Park West on Aug. 4. The

winner will be announced Aug. 7.



Stringfellow's monoplane

member Carrie Bogisch of the early aircraft designs. "This one almost worked. But it needs lots of modifications to fly controllably."

Bogisch, who graduated from UBC this year in Mechanical Engineering, and other team members such as Ivan

## Exchanges to grow to 1,200 by 1995

By CHARLES KER

Preparing home-cooked meals for 16 wasn't in the job description, but as UBC's first student exchange coordinator, Martha Kertesz wanted to give the position a bit of a jump-start.

"I thought it would be a good idea to have the students over while the numbers were still manageable," said Kertesz, who took up the post in January.

Kertesz will need a caterer and a bigger apartment if the dinner tradition is to continue. By 1995, UBC's goal is for five per cent of students receiving their first degree to participate in its Exchange Abroad Program (EAP). This works out to about 1,200 students.

The program allows selected third-year students to live and study abroad for one year while earning credits toward a UBC degree. A reciprocal number of international students from affiliated universities would attend

UBC under similar arrangements with their home institution.

"The opportunity to spend a semester or a year abroad is attractive to a lot of students," said Kertesz. "It's part of an overall strategy to internationalize the campus and provide greater student mobility at the same time."

In the past, students who chose to study elsewhere often had difficulty getting credit towards a UBC degree for work done at another institution. With the new university-sponsored exchange program, participating students will not only receive transfer credit for their work, but will remain registered at UBC, pay UBC fees and remain eligible for UBC awards, scholarships and financial aid.

Kertesz said while she will assume responsibility for the day-to-day management of the EAP program, the International Liaison Office will continue to work with the various faculties to develop new EAP agreements with other universities. Working out

of the Registrar's Office, Kertesz will implement these Senate-approved agreements, help faculties select students, co-ordinate orientation, as well as organize registration, housing and the transfer of credits.

"Visiting international EAP students are only here for eight months," said Kertesz. "They therefore have a very special set of needs which this program will now take care of."

UBC currently has about 25 student openings in seven exchange agreements with all nine campuses of the University of California, Hastings College of Law in California, Ritsumeikan University in Japan, the University of Copenhagen, Yonsei University in Korea, the Chinese University of Hong Kong and the University of Hong Kong.

This year's participants will include 19 students from California, four from Denmark and two students each from Hong Kong, Japan and Korea. Ten of these positions will be with the Faculty of Law.

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**People**

# UBC five named to 1991 Order of B.C.

Three UBC professors and two members of the Board of Governors are among the 17 people named to the 1991 Order of B.C., the highest form of recognition given by the B.C. Government.

Board members **Asa Johal** and **Tong Louie** and professors **Dr. Vivien Basco**, **Ian McTaggart Cowan** and **Harry Warren** were chosen from



Basco

about 300 nominations by an independent advisory council headed by Chief Justice Allan McEachern. UBC President David Strangway was a member of the advisory council.

The recipients were officially invested by Lt.-Gov. David Lam at a ceremony in Victoria June 13. This is the second year the Order of B.C. has been awarded to citizens who have given outstanding service to the province.

Basco, clinical professor of surgery, is a tireless fighter for the prevention of breast cancer.

Johal, founder of Terminal Sawmills Ltd., UBC benefactor and member of the Board of Governors, is also president of the B.C. chapter of the International Punjabi Society and a director of the B.C. Children's Hospital.

Louie, a business entrepreneur and community leader, is chairman and CEO of H.Y. Louie and London Drugs and honorary campaign chairman of St. Paul's Hospital Foundation.

McTaggart Cowan, dean emeritus of Graduate Studies, is a zoologist, naturalist and educator who has dedicated a lifetime to expanding knowledge of the living natural resources of Canada and B.C. and to working for their conservation.

Warren, honorary geological sciences professor, is renowned as a sportsman, scientist and researcher.

Also among those named to the Order of B.C. are: **Jack Bell**, a Vancouver businessman and philanthropist who donated \$1 million to UBC's First Nations Longhouse and B.C. Tel Chairman **Gordon MacFarlane**, a former member of the Board of Governors.

**Dr. George Beagrie**, dean emeritus of UBC's Faculty of Dentistry, has been awarded an honorary degree from the University of Montreal.

During his early career at the University of Edinburgh, Scotland, Beagrie developed new methods of pre-clinical teaching related to periodontology and restorative dentistry. At UBC, Beagrie introduced a new approach using simulated clinical techniques and performance logic — a method now used worldwide.

His research interests include cell kinetics, the reaction of oral tissues to clinical procedures and clinical research in management of periodontal diseases. He has been involved with the World Health Organization as a consultant in oral health and dental education since 1976.

Beagrie served as UBC's dean of the Dentistry Faculty between 1978 and 1988. He was presented with his honorary doctorate at convocation ceremonies held in Montreal on May 31.



Beagrie

Law Professor **Dennis Pavlich** has been appointed volunteer chair of the World of Opportunity campus campaign.

During the next year, the university is seeking \$30 million in contributions from a wide range of prospective donors including the campus community, alumni, international donors and private and corporate donors.

The campaign has raised \$200 million to date — \$110 million from donors and \$90 million in matching funds from the provincial government.

Pavlich has been a member of UBC's Board of Governors since February, 1990 and was a member of Senate, UBC's academic parliament, between 1986 and 1988. A former president of the Faculty Association, Pavlich also

served as president of the Vancouver Institute from 1989 to 1990.

**Catherine Vertesi**, director of the UBC Study Abroad and Exchange Program, has been honored by the Danish International Study (DIS) program at the University of Copenhagen.

Vertesi, assistant dean in the Faculty of Commerce and Business Administration, was given an award of appreciation recognizing her "unselfish contribution to Denmark's International Study Program and to its goals of academic excellence and international understanding."

Vertesi was honored last month in Copenhagen during the 12th biennial DIS program conference. She is only the third North American to receive the award.

The award was also given to recognize the outstanding work being done by Vertesi to establish study abroad programs for Canadian students. Under her guidance, the program developed between UBC and the University of Copenhagen has grown from three students in 1985 to 130 students in 1991.

UBC Professor **Paul Tennant** and **Scott Watson**, curator of the university's art gallery, have each been awarded a 1991 B.C. Book Prize.

Aboriginal Peoples and Politics, Tennant's book about the Native people of B.C., won the Roderick Haig-Brown Regional Prize for the book that contributed most to an appreciation of B.C. in 1990.

Watson's book, *Jack Shadbolt*, a comprehensive analysis of the acclaimed B.C. artist's 60-year career, won the Hubert Evans Non-Fiction Prize.



Tennant

Established in 1985, The B.C. Book Prizes award \$1,500 to the best book in each of six categories.

Tennant was also awarded the Lieutenant-Governor's Medal by the B.C. Historical Federation for his publication.

Geological Sciences Professor **Kenneth Fletcher** has been named the 1991-92 president of the Association of Exploration Geochemists at its 15th annual International Exploration Geochemical Symposium held in Reno, Nevada.

The association is the premier international body for the application of geochemical methods to mineral exploration.

Fletcher previously served two terms as the association's distinguished lecturer with tours in North and South America, Australia and Europe. His principal research interest is in the behavior and transport of heavy minerals, such as gold, by streams.

**Gordon McBean**, chair of UBC's Atmospheric Science Program, has been awarded the Patterson Medal for distinguished service to meteorology by a Canadian resident.

McBean was cited for his research and leadership in scientific programs, particularly his involvement in Canada's talks with the U.S. on acid rain and the long-range transport of air pollutants.

A UBC graduate, McBean is also chair of the scientific committee for the World Climate Research Program. He has headed the Atmospheric Science Program at UBC for three years.

The Patterson Medal has been awarded annually since 1961 in honor of John Patterson, controller of the Meteorological Service of Canada from 1929 to 1946.

## Classified

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## Milton scholars meet at UBC

The largest-ever international gathering of Milton scholars will meet at UBC next month to discuss the poetry and politics of the 17th century author.

Arguably the greatest writer in the English language since Shakespeare, John Milton is best known for his epic, *Paradise Lost*, a poem viewed by many as one of the most influential works of English literature.

Close to 300 scholars are expected to attend the Fourth International Milton Symposium, including participants from the Soviet Union, The Peoples' Republic of China, India, Australia, Japan, New Zealand and South Africa.

"It will definitely be the most significant congregation of Milton scholars to date," said UBC English Professor Paul Stanwood.

Previous international Milton conferences have been restricted

to Europe with the most recent being held in Florence, Italy, three years ago.

The UBC symposium takes place Aug. 4-10 in the Faculty of Law's Curtis Building, except for Aug. 7 events which will be held at the Empress Hotel in Victoria. It is sponsored by UBC, SFU, the University of Victoria and the Milton Society of America.

For more information call 822-5301.

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## UBC Reports

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## Taunton accompanies Canadian athletes

# UBC sports doctor heads PanAm medical team

By ABE HEFTER

Don't drink the water.

That's just one piece of advice that Dr. Jack Taunton has to offer to Canadian athletes who will head to Cuba next month for the Pan American Games.

Taunton, co-director of the Allan McGavin Sports Medicine Centre, will head up the Canadian medical team in Cuba as chief medical officer. From Aug. 2-18, Taunton and his crew of 19 medical personnel will be responsible for maintaining the health of 670 Canadian athletes, coaches and officials. The medical team will also include Dr. Connie Lebrun and physiotherapist Ron Mattison, from the Sports Medicine Centre.

"The biggest challenge we will face as a medical staff will be Cuba's heat and humidity," said Taunton, a veteran of more than a half-dozen major international multi-sport competitions. "On top of that, Cuba's water just isn't safe for our athletes to drink."

As a result, the Canadian team will arrive with 44 tonnes of water in tow. The water will be trucked to Toronto from Nova Scotia and then flown to Havana. Taunton said this is the

first time he's aware a Canadian team bringing all its own water. In addition, the competitors are being told not to eat anything once outside the athlete's village.

"At the 1983 Pan Am Games in Caracas, we were informed that the water was safe to drink," said Taunton. "And the pre-games analysis seemed to back up that statement. However, the first few Canadian athletes who arrived there immediately fell victim to the food and water. So we put the rest of the team members on antibiotics before they even arrived, in order to ward off similar gastric attacks."



Dr. Jack Taunton faces the challenge of keeping Canadian athletes healthy in the upcoming PanAm games in Cuba.

What are some of Taunton's other concerns as he begins to pack his bags, which will include 3,500 pounds of medical equipment?

"A lack of fresh fruits and vegetables, shortage of light bulbs, sun exposure, dehydration and...stray dogs. I was almost bitten by one during an earlier trip to Cuba. However, officials are trying to keep the problem in hand."

Despite the checks and balances that he must keep in mind as the team's chief medical officer, Taunton said he has received strong support from the Cuban organizing committee members.

"They are determined to put on a good games," said Taunton. "Well over 90 per cent of the facilities for the games are brand new and the hospitals are excellent. It's not unusual for us to go into a competition like this in a self-sufficient manner. We did the same thing at the 1988 Summer Olympics in Seoul."

Taunton said it's as a result of this organized state of preparedness that Canada is recognized as the leader in sports medicine around the world.

"Americans may win more medals, but Canadians are number one in sports medicine. It's a tribute to the work done by the Sports Medicine Council of Canada. We've got a system here, and it works."

It's a system that Taunton plans to have fully in place when he arrives in Havana July 28th for what he calls his biggest personal challenge ever.

"I look back at the other competitions I've been associated with — like the 1981 World Student Games in Bucharest — when you pretty well had to fly by the seat of your pants. Teams are now so much bigger, and so much more is expected of you. As a member of the medical staff, you just want to make sure you're ready for anything."

## Gas gun useful tool for research

By GAVIN WILSON

Physics Professor Andrew Ng calls it "the fastest gun in the West."

It's a claim that's hard to dispute, at least in Canada. Ng's gas gun, a research tool unique in this country, can fire a projectile at speeds of up to 28,000 kilometres an hour.

The two-stage, light-gas gun is the

centrepiece of the new Dynamic High Pressure Facility which officially opened on campus in May.

The six-metre-long gun is a hypervelocity projectile launcher which produces shock waves that cause high compression and temperature in solids. It is one of the most effective tools for studying the properties of

materials under extreme conditions.

"Researchers are always searching for new ways to produce novel materials and to understand their behavior," said Ng. "We are creating conditions not easily achieved by any other laboratory means."

The gas gun works in two stages. A chemical propellant drives a heavy

piston down a tube filled with helium or hydrogen. The compressed gas bursts open a diaphragm and pushes a small projectile down the barrel into a vacuum chamber where it strikes a mounted target.

The only other two-stage, light-gas gun in Canada is located in the Defence Research Establishment at Valcartier, Que., and is not used for academic research.

Among the industrial users of the gas gun is Vortek, a UBC spin-off company in Vancouver which manufactures the world's brightest light source. It is interested in developing materials that will withstand extreme temperatures for electrode applications.

Another potential user of the facility is the aerospace industry. It needs to develop structural and protective coating materials for spacecrafts and space stations that can survive the impact of micrometeoroids



Photo by Media Services

Physics Professor Andrew Ng and his six-metre-long gas gun. Capable of shooting a projectile at 28,000 kilometres an hour, it is one of the most effective tools for studying the properties of materials under extreme conditions.

and space debris.

Funding of \$700,000 for the development and initial operation of the gas gun facility was provided by the Natural Sciences and Engineering Research Council of Canada. The university provided another \$300,000 for construction of the building that houses the facility, located at the corner of Main Mall and Stadium Road.

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