

# UBC Reports

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## Engineer awarded medal

Prof. Vinod Modi of UBC's Mechanical Engineering Department has been awarded a 1986 B.C. Science and Engineering Gold Medal from the Science Council of British Columbia.

Three medals are awarded each year to recognize outstanding achievements by B.C. scientists and engineers in the fields of the health sciences, natural sciences, industrial innovation and applied science.

Prof. Modi, who joined the UBC faculty in 1961, was honored for his research in fields as diverse as aerospace engineering, alternative energy sources, the "three-body problem" of planetary motion and biomechanics.

His research in aerospace engineering centres on the use of natural forces, such as the pressure of sunlight, to maintain the orbital stability of artificial satellites. In the field of biomechanics Prof. Modi has received international acclaim for his work on artificial valves designed for implantation in the human heart.

## Policy change on royalties will aid UBC Faculties

A change in UBC's policy on royalty distribution will mean more money for Faculties.

Previously, net royalties from patents and licences were split equally between inventors or inventors and the University.

Under the new policy, inventors will still keep their half share of net proceeds. But the University will provide a part of the proceeds to the dean of the Faculty where the research work was carried out.

The new distribution formula will be one-half to the inventor, one-third to the University and one-sixth to the Faculty.

Dr. Peter Larkin, Vice-President Research, said that the cumulative total the University had received in royalties from patents and licences up until a few years ago was only about \$100,000. Last year alone, royalties were \$300,000 and this year should reach \$600,000.

"It takes a few years for royalties to grow," Dr. Larkin said. "Products that went on the market four or five years ago are now beginning to pay off."

About 90 per cent of UBC royalties are accounted for by two Faculty of Science departments -- Physics and Computer Science.

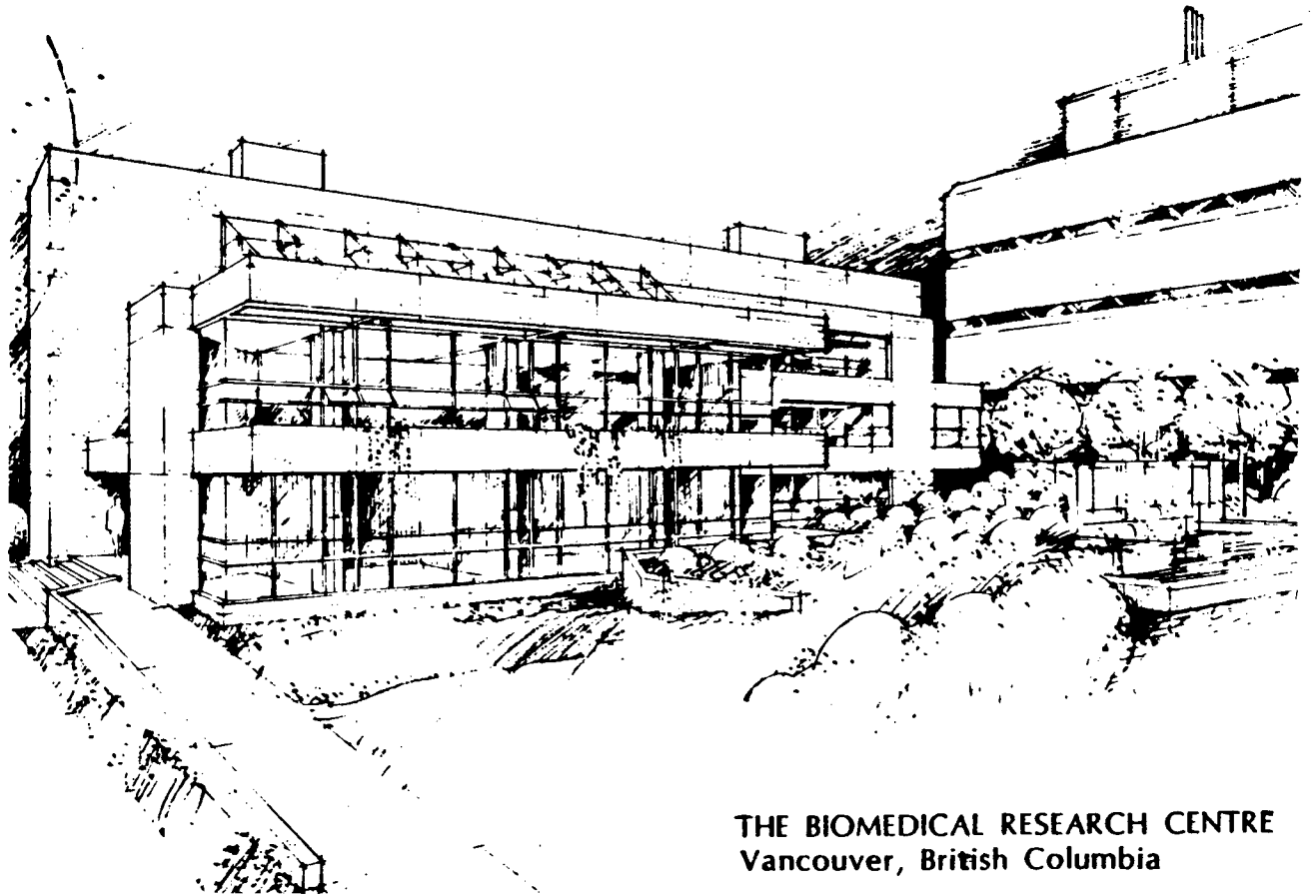
But Dr. Larkin says he anticipates an increased flow of royalties in the next two to three years from many other departments including Physiology (Faculty of Medicine), Microbiology (Faculty of Science), Food Science (Faculty of Agricultural Sciences), and Chemical Engineering and Mechanical Engineering (Faculty of Applied Science).

## Two UBC foresters honored for research contributions

Two UBC forestry professors, Drs. J.P. "Hamish" Kimmins and Peter Dooling, have been honored for outstanding contributions to the field of forestry. Prof. Kimmins has received the 1986 Scientific Achievement Award of the International Union of Forestry Research Organizations (IUFRO) and Prof. Dooling is the recipient of the National Parks Centennial Service Award presented by Parks Canada.

Prof. Kimmins travels to Yugoslavia this month to receive the Scientific Achievement Award, which is presented every five years at the IUFRO World

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THE BIOMEDICAL RESEARCH CENTRE  
Vancouver, British Columbia

## Four building projects underway

The vision that prompted Terry Fox's run across Canada came a step closer to reality when shovels were symbolically plunged into the foundation of a Biomedical Research Centre, now under construction on campus, west of the Health Sciences Centre Hospital.

Sod turning ceremonies Aug. 7 drew officials from a large number of government departments, private foundations, research and health agencies, private industry, the hospital and university.

Four years in the planning, the \$16 million facility is a joint venture of the Terry Fox Medical Research Foundation and the Wellcome Foundation, a British-based pharmaceutical company.

The centre will focus on the discovery, development and clinical testing of new biologically-active substances. Some of the new compounds, such as interferon, may eventually be used to treat cancer.

So far interferon has been approved in Canada for the treatment of only one type of cancer, hairy cell

leukemia. The clinical trials were carried out by UBC medical researchers at the Cancer Control Agency of B.C.

Taking advantage of architectural features of some other successful medical research facilities, the centre will be physically linked to the Health Sciences Centre Hospital at UBC, placing basic laboratory scientists as close as possible to the clinical investigators responsible for patient treatment.

The hospital already provides internationally renowned medical imaging experts and world-class imaging research facilities. Sophisticated positron emission tomography (PET) and magnetic resonance imaging (MRI) scanning machines allow researchers to investigate the structure and chemical changes occurring in the living body. The PET scanner uses radioisotopes produced at the TRIUMF cyclotron on UBC's south campus.

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## Retirement judgment appealed

A UBC professor and an administrative officer have appealed a judgment, handed down earlier this year in the Supreme Court of B.C., which ruled that UBC's mandatory retirement policy at age 65 is valid and does not contravene the federal Charter of Rights and Freedoms.

The B.C. Court of Appeal will be asked to consider an appeal from a judgment by Mr. Justice Martin Taylor of the B.C. Supreme Court in a case brought by Dr. Robert C. Harrison of the Department of Surgery and John Connell, an administrative officer in the Registrar's Office.

Dr. Harrison and Mr. Connell sought a ruling in the B.C. Supreme Court that UBC's application of the mandatory age-65 retirement policy amounts to "age-based discrimination" in violation of the "equality rights" guaranteed under Section 15 of the Canadian Charter of Rights and Freedoms.

Justice Taylor ruled that:

\* The federal charter applies only to the federal parliament, legislatures and governments. UBC, he said in his judgment, "is neither engaged in the exercise of governmental authority nor does it provide a government service, nor in determining its employment policies does it perform a function of government."

\* He also ruled that Section 15 of the charter applies to laws and the application of laws. UBC's mandatory retirement policy, however, is private contract and is not mandated by law, nor is it the application of law.

In discussing the question of whether mandatory retirement amounts to discrimination under section 15 of the federal charter, Justice Taylor held that such

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IF YOU ASK ME....

# An interview with David Suzuki

Both scientists and humanists at UBC come under attack from Dr. David Suzuki in this provocative interview with UBC Reports. The interview is the first in a series of articles on opinions of various members of the UBC community.

Dr. Suzuki, Canada's foremost science broadcaster and full-time member (at one-third salary) of UBC's zoology department, says scientists are misrepresenting the relationship between research and its application.

He believes that UBC scientists, starved for research funds, are succumbing to the allurements of government and industry by claiming their research will have immediate commercial spin-offs.

On the other hand, he feels humanists, with a broader perspective that scientists lack, should speak out on the issue but remain silent. "The actions of both are a threat to tenure."

Dr. Suzuki joined UBC in 1963 and quickly established a reputation in genetics research. He has received seven honorary degrees and recently won this year's \$100,000 Royal Bank Award for Canadian Achievement and the Governor-General's Award and a United Nations Gold Medal for "A Planet for the Taking," a series broadcast last fall on CBC television.

UBCR: With an established and successful career as a science broadcaster, why do you remain a UBC faculty member?

Dr. Suzuki: I've seen a lot of academics go into either politics or the media. There are a number of Ph.Ds now working in news and current affairs on CBC television, for example. But once they become part of another group, they often have nothing but contempt for the one they left. There is no one more contemptuous of lawyers than a former lawyer working for the CBC.

I could feel myself drifting into that feeling. But I value universities as a vital institution to society -- one I am committed to and will defend. That's why I've tried to keep a toehold here. I think it is important as much to me as it may be to the University for me to remain a member of this community, to feel the pressures it faces, to get angry at what government is doing to it.

UBCR: You've spent at least half of the last 10 years or so in the media, interviewing academics from other universities. That's a unique overview. How does UBC compare?

Dr. Suzuki: As a broadcaster I feel I have a special insight to offer my colleagues. A lot of the criticism we academics now aim at government are aimed the wrong way. They should be aimed at ourselves.

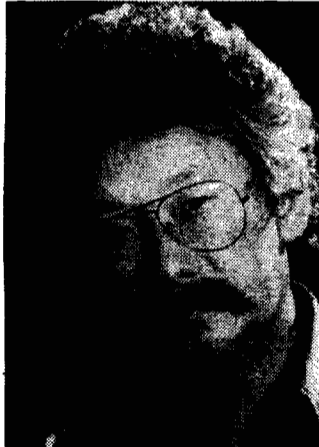
The terrible financial position we are in is the result of long years of total neglect -- indeed, arrogance -- on the part of faculty. We felt very special, and believed it was obvious why we mattered, and we didn't want to soil ourselves with the vulgar activity of communicating with the masses. It's still evident today, even though we know it is those people who pay taxes, elect politicians and decide whether their kids ought to go to the university.

UBCR: Do you feel UBC faculty have an obligation to deal with the public?

Dr. Suzuki: Of course, for very selfish reasons -- to maintain its support. But more importantly, universities are elite institutions. Society confers on them a unique privilege -- tenure. Tenure has allowed me, for example, to do what I've done in the media without fear of being turfed out. We can explore radical, crazy ideas without fear that Victoria or Ottawa will come down on our heads. It isn't a 2 UBC REPORTS September 25, 1986

coincidence that a lot of revolutionary movements in other countries start in their universities.

Unfortunately, tenure has come to mean a sinecure, distorted into a job guarantee. Once we get tenure, we think we can relax, when in fact we assume an obligation to society. Our obligation is to share our expertise with the public whenever needed without fear of reprisal. We don't do that often enough.



David Suzuki

A few years ago we did a Nature of Things program for CBC television on the tar sands in Alberta. Then the only plant up there was Syncrude and it was putting out 50 to 60 tons of sulphur dioxide a day. That's a lot of acid rain.

Because of the oil crisis then, the federal government was projecting at least 10 plants as big or bigger than Syncrude within 10 years. We went to ecologists at the Universities of Alberta and Calgary to find out about the possible environmental effects. Not one would talk to us. They all had grants from the oil industry and would not jeopardize their grants.

Those people did not deserve tenure. They were holding out on the public because they had a different master. If the universities say they're going to take outside money -- and that's fair enough, it's been done in forestry and other areas -- you have to say that those people should not have tenure. Tenure is not to guarantee the jobs of faculty. It's to free their tongues.

UBCR: Do you feel UBC is making unwarranted claims about the practicality of its expertise?

Dr. Suzuki: UBC is in the middle of a crisis and it comes from within as much as from without. Politicians are emphasizing that research should be devoted to pulling the country out of its economic problems. Governments want us to get into "hot" areas like robotics, biotechnology, microelectronics and they think it's simply a matter of cranking money into those areas. But it doesn't work that way. Getting into a competitive position in biotechnology or microelectronics is not like setting up a shoe factory. First of all, you have to believe in yourself, support your best and let them do what they want. But secondly, science doesn't move linearly -- having a nice logical proposal that says, put money into this project and you'll really find a cure for hernia. A good lab may end up finding a useable idea from a completely unexpected source. The key is to support good people and to give them freedom.

Scientists across Canada, including UBC, are selling a false model. They are saying that if you put money into a lab with a defined goal, it will pay off directly. Our national investment in research is the lowest in the industrialized world. Canada does less than four percent of all research in the world. So the probability that one of our scientists is going to make an important discovery that can be applied is less than four per cent.

I can understand politicians trying to find short-term solutions to social and economic problems. This is nothing new.

But because of the short horizon of governments -- the next election -- they demand quick pay offs. That's why they like megaprojects where they can pump a lot of money in and get tangible results. You can't do that with science. Science takes a long time and the payoff isn't obvious.

Look at the history of genetic engineering. Some of the important tools came from studying digestive enzymes in snail guts, toxic compounds in snake venom and how bacteria resist virus infection. No one could have predicted that those projects would have anything to do with biotechnology.

UBCR: What research should scientists be doing and what should they say about it?

Dr. Suzuki: I'm not saying we shouldn't be supporting science. As a broadcaster, I know lay people are amazed at the ability of scientists to describe the world around us. People are deeply moved by a scientific description of the complexity of the ecosystem, a black hole or a cell structure. They feel uplifted and spiritually enriched by those insights. That's what scientists do best and should do more of, not engage in a unseemly rush to make products or projects.

Five years ago the existence of micro-plankton in the oceans was unknown. They can only be seen with an electron microscope and today it is believed that they are so numerous they may produce much of the oxygen in the air. Yet five years ago we didn't even know they existed!

What we have learned about the AIDS virus in a mere five years is absolutely amazing. But compared to how much we have yet to learn about the immune system, we've barely started.

As scientists, we should be a lot more humble. We are too anxious to apply every new insight we have, though the vast majority of those insights will probably be wrong. Scientists are in the business of disproving our current hot ideas. Most theories will either be modified or replaced. The only way we know which ones will be kept is to wait -- to give them time to be verified. If scientists and even engineers spent more time in describing nature, this unseemly rush to apply the little that we know would slow down.

UBCR: But how do we become international players in science?

Dr. Suzuki: I'm writing a book called Breakthrough: Canadian Science at the Forefront. It's about 14 Canadian world-class scientists, including Harold Copp, Neil Bartlett and Gobind Khorana from UBC. Their experience shows that what matters are individuals. You don't become a world-class presence by erecting a first-class building with all the latest equipment and then filling it with mediocre people. What you must do is bring together brilliant people who then fight like hell to get enough money to see their ideas through.

What we should do is support a first rate scientific community who then will be part of an elite international group. They become our eyes and ears to the scientific community. They will go to meetings and talk to colleagues, and bring back ideas that may be applied.

UBCR: Do you perceive other dangers in closer links with government and the private sector?

Dr. Suzuki: Yes, for the reasons I've already mentioned concerning tenure. When private industry or the

military has large investments in universities, then free discourse can no longer be sustained. It happened at McGill a couple of years ago.

We have not had an adequate questioning of the role of private enterprise on campus and the relationship between the academics involved and the University and the public.

UBCR: Where should that dialogue come from? Scientists?

Dr. Suzuki: People in the humanities are the single most important group at universities today. That's because while science is a powerful influence in our lives, scientists are too deeply embedded in what they're doing to see the wider picture. Humanists can provide perspective. They should be telling scientists, "Listen, you guys are extremely knowledgeable within your little sphere. But the consequences of your work extend far beyond your laboratories. You need a broader view and we can provide it. Yours is one way of knowing but not the only or even the best one."

The university is demonstrating a profound failure by the very absence of any questioning. We're all lying down and letting people run roughshod through the university in their rush to get cash and appear to be relevant. I can understand why scientists are going after the money. They're only human. What I don't understand is why historians, who know better and have a broader perspective, aren't screaming about what is going on in the Faculty of Science and other applied faculties. Historians should be telling us that we've learned a massive amount, relative to what we knew in the past. But compared with what we have yet to learn, we've barely begun.

Where are the philosophers who can tell us that there is a terrible flaw in science -- that scientists can only look at nature in bits and pieces? A fragmented view of nature can never provide a complete program to manage it. Philosophers know that and should say so.

The fact that those in the humanities are saying nothing is a terrible indictment of the university. This should be a community in constant ferment -- disagreements, arguments, radically different opinions -- that's what a diverse community of scholars exploring the enormous range of thought and creativity should be doing.

UBCR: What should UBC be telling government and the public?

Dr. Suzuki: Silicon Valley is where it is because Stanford and Berkeley are there. You don't get it by building a Discovery Park. You do it by building a university full of world class scholars and everything will flow from that. But it takes time, and faith.

Our greatest natural resource is our young people. If politicians are really concerned about the future direction of the economy, they should be putting massive amounts of money into universities for our best people. Our universities in B.C. have been so starved for money that we've developed a bunker mentality and we aren't able to devote the time and attention to our scholars that we should. We should be selling the idea that this is a vital place for the best of our young people.

Ed. Note: Dr. Suzuki was recently awarded the 1986 Royal Bank Award and gold medal. This annual Award is intended to recognize "a Canadian citizen, or person domiciled in Canada, whose outstanding achievement is of such importance that it is contributing to human welfare and the common good." Previous recipients of the award include Dr. Wilder Penfield, His Eminence Paul-Emile Cardinal Leger, Dr. H. Northrop Frye and Hugh MacLennan.

## CELEBRATE THE TEAM

# Top UBC research group awarded \$4m MRC grant

A team of UBC medical researchers has received a grant of more than \$4 million from the Medical Research Council of Canada to do basic research into chemical messengers that help control body functions.

The previous discoveries of this group have already won world acclaim and stimulated intense commercial interest.

The MRC research grant will run for a six-year period, and is the first MRC grant to support a group of researchers at UBC.

Principal investigator is Dr. John Brown of the physiology department in UBC's Faculty of Medicine. Other members of the team are Drs. Alison M.J. Buchan, K. Yin Nam Kwok, Christopher H.S. McIntosh, and Raymond A. Pederson.

The team are the principal UBC researchers in the field of regulatory peptides. Regulatory peptides include hormones, those often mysterious chemicals produced in ductless endocrine glands. Hormones are part of the body's communication system. They

travel through the blood to effect subtle or profound changes in different parts of the body.

Insulin, essential in the control of carbohydrate metabolism, is a type of regulatory peptide. It is normally released by the pancreas. Failure to release insulin can lead to diabetes.



The regulatory peptide research team. Left to right: Drs. John Brown, Christopher McIntosh, Alison Buchan, K. Yin Nam Kwok and Raymond Pederson.

The team are working to discover how the organs of the gastro-intestinal system are regulated. They have already established an international track record since their inception in 1972.

In 1973, they made their first major breakthrough with the discovery of two

hormones in the duodenum, the short section of the small intestine leading from the stomach. They called the hormones "GIP" and "Motilin".

They later discovered that Motilin controls contraction of the muscular walls of the intestine and that GIP has two functions. It slows down secretion of acid into the stomach, helping to end digestion. And it is the hormone used by the intestine to trigger pancreatic secretion of insulin. It is the most potent releaser of insulin from the pancreas known to medicine.

In recognition of the team's achievements, Dr. Brown has received the Jacob Biely UBC Faculty Research Prize, Ernst Oppenheimer Award of the U.S. Endocrine Society, MacLaughlin Medal of the Royal Society of Canada, and a gold medal from the Science Council of B.C.

"We're recognized as an international centre of excellence in our area, proven by the fact that we were asked to host the sixth International Symposium on Gastro-Intestinal Hormones in Vancouver this summer," Dr. Brown said.

Dr. Brown explained the origins of peptides. "Peptides can come from a variety of sources," he said. "For example, only a few years ago peptides were discovered in the nerve fibres in the gut.

"Naturally, this discovery led others to look for them in the brain and many of them have been found there. More research revealed that the regulatory peptides in the nerve fibres of the brain have a profound influence on communication between brain cells and could well be involved in a variety of brain diseases.

"All this is very new.

"What we want to do is find out more about the way regulatory peptides work in the gastro-intestinal system. We need to know how the different methods of regulation work, how they interrelate with each other, and how they behave in health and in disease.

"In particular, we want to know more about the cause of diabetes, obesity, and reactions that occur following intestinal surgery.

"To do this we will have to discover the exact make-up of a variety of peptides in the gut, and develop specific monoclonal antibodies for use in a number of different studies.

"Each member of the team is an expert in specific areas of research. The contribution of each is essential if we are to succeed."

Commercial interest in the group's work centres on a hormone called somatostatin. Somatostatin inhibits the release of growth hormone.

"The release of growth hormone can be inhibited or stimulated. We've created a monoclonal antibody that blocks the action of somatostatin. When inhibition is removed the release of the hormone is stimulated and you've got growth."

The group's monoclonal antibody has been used in field trials with hogs conducted by Salsbury Laboratories in Charles City, Iowa. The result was a major acceleration in the rate of weight gain by the hogs.

"There is no doubt that the monoclonal antibody works but we still have a lot of work to do before it becomes commercially viable and even more work before the technique can be used to treat certain growth problems in humans," Dr. Brown said.

## OUTREACH

# UBC attracts athletes from abroad

UBC's Community Sports Program, one of the largest and most successful summer sports programs for children and adults offered in North America, is attracting participants from around the globe.

This summer, 3,500 participants from as far away as Japan, Germany, Czechoslovakia, England and Mexico, took part in the program, which offers training for both elite and recreational athletes. Offered as a non-profit community service, the program features instruction by highly trained professionals in more than 20 sports, including hockey, basketball, gymnastics, golf, tennis, volleyball, soccer and even fencing.

"Our goal is to create an atmosphere where individuals don't judge their self worth by their athletic performance," says program director Brent Berry. "Too often parents enrol children in recreational sports programs and expect them to perform like miniature professional athletes. The pressure on the children can be tremendous, and they become anxious and less likely to take the risks necessary to develop their skills.

"Our focus is on effort, personal development, and enjoyment of a sport, rather than on winning. In this type

of environment athletes can reach their full potential."

Hockey and soccer make up the two largest components of the Community Sports Program, and students typically participate in one or two weeks of training ending with a special wrap-up event. Every week the soccer program youngsters take part in a Mini World Cup, complete with national flags, uniforms and banners. Other popular programs are the Sports Camps, where participants learn several different sports, and the Computer Sports Camp, designed to help sports-minded youngsters develop computer skills.

The program's success can be attributed both to the range and quality of instruction offered, and the unique philosophy behind the program.

Instructors are screened carefully each summer to make sure they have the "right stuff" to create such an environment. "We look for coaches who are willing to take the time and effort to get to know the participants as individuals and make them feel special," says Berry. "This is the first, and sometimes the only, link to the university for some people, particularly for families from out of town, and we want to leave them with a good feeling about UBC."

Berry and his staff members spend many of their non-working hours promoting this positive feeling. For instance, instructors greet out-of-town participants at the airport, often housing them in their own homes and showing them the local sights while they are in Vancouver.

Despite the long hours and minimal salary, the program is so popular with instructors that physical education teachers from universities and schools throughout B.C. and from countries as far away as Europe and Asia apply to teach each summer.

"Good coaching is a very unique talent," says Berry. "Most children are introduced to sports through participation on teams coached by a parent or some other volunteer. These people mean well, but they tend to imitate coaching styles they see on television in professional sports, and because our society is so success-oriented, the focus is often on winning at any cost instead of enjoying the game and developing skills. Consequently, participation in sports can be threatening for some youngsters, because they associate their self worth with their athletic achievements."

Berry notes that less than 7 per cent of children participating in an organized sport at the age of 12 are still involved five or six years later. "In our programs we use sports to develop self-esteem and sportsmanship. People enrol their children in sports programs to develop character, but the sport itself is neutral. Its the way it is taught that develops character."

About 80 per cent of participants enrolled in this year's programs are "repeat customers". One 13-year-old boy, back for his third year of hockey camp, says he comes to the UBC program because "the instructors make you feel good about yourself. They believe in you and it motivates you to do your best."

Berry is hoping to expand the offerings of the Community Sports Program to regions outside the Lower Mainland. "We'd like to set up two-week camps in areas such as Squamish, Sechelt, Hudson Hope, and other communities throughout B.C. UBC is a provincial resource, and we're interested in serving as wide a community as possible."





# A special report on the contemporary university

A unique, broadly based profile of the North American university student is emerging from a mass of specialized data collected by a UBC educational psychologist.

Dr. David Whittaker, who collected the data as a post-doctoral research psychologist at the University of California at Berkeley, says analyses indicate some pitfalls to be avoided by universities and areas of concern that need to be monitored continuously.

"For one thing," he says, "a substantial proportion of any student body is made up of people with a strong practical bent. That's a warning to universities that many students are quite unable to profit by a curriculum heavily weighted in the direction of the speculative or theoretical."

Only about 20 per cent of the students can handle the truly abstract and are the stuff that graduate students and future university teachers are made of. Thus, Dr. Whittaker adds, a well balanced curriculum is a necessity.

Another area of concern for universities should be the 7 per cent of students who have significant problems of a personal or academic nature and who need counselling.

An analysis of data on university seniors indicates that about 5 per cent are not involved in social or cultural activities, sports, or even studying. "These students are poorly adjusted and have a low self-concept. They're unhappy, shy and a bundle of anxieties.

"They will be very ineffective individuals until they overcome their personal problems. They would have profited by early identification and referral to counselling."

## Nose to the grindstone

All work and no play makes university life a dull affair. It compromises both students and the University.

The president of the Alma Mater Society says increased emphasis on academic performance at UBC is having a major impact on students now and could have significant negative effects on the University in the future.

Mr. Simon Seshadri said students who spend most of their time chasing marks are limiting their education and are not participating in the life of the University community. As future alumni, they may be less enthusiastic about supporting the University because of their narrow experience here.

"In-coming freshmen students had a struggle just to get into UBC," said Mr. Seshadri. "They had to write the provincial exams and took them very seriously. They couldn't take for granted that they would get in.

"Now they are in first year Arts or Science. But the emphasis among students now is on professional schools because they're told that's where the jobs will be when they graduate. If they want to get into first year Commerce say, they have to compete against 1700 students for 350 places.

"So it's nose to the grindstone throughout first year, and they say they have no time for anything else but study.

"But once they're in Commerce they know they'll have to compete against their classmates for the better jobs. Again, it's study, study, study.

"The results are students with better results but who are also much less rounded.

"Eighteen months after exams they can only remember the fundamentals of what they were taught in any course because they emphasize rote memorization rather than thinking. It's literally information in and out."

He said students are depriving themselves of the essence of a univer-

Dr. Whittaker emphasizes that the socializing influence of the university is one of its central functions.

"It's important that the university provide the facilities that meet those social needs, particularly in the case of UBC as well as SFU and UVic, which are geographically isolated from other centres of urban life. At present, none



## Student patients are uncomplaining

Today's UBC student smokes less tobacco and marijuana than students in the 60s, is more fit and more conscious of nutrition, may have fewer sexual partners and is more interested in relationships, but is more likely to suffer from depression and has returned to alcohol.

That description of a statistical rather than a real student should be highly qualified, says Dr. Robin K.L. Percival-Smith, director of UBC's Student Health Service.

He describes student patients as very pleasant, considerate, educable,

of these campuses can develop a truly intellectually exciting, 'left-bank' sub-culture as is associated with some of the world's leading universities."

Nevertheless, Dr. Whittaker rates UBC highly in terms of avoiding many pitfalls and providing facilities and services that meet student needs. "We have a broadly based curriculum that

straightforward, gracious and uncomplaining.

"Perhaps they should complain more," Dr. Percival-Smith said. "They seem more passive than their predecessors in the 60s, though it may be that it is we, the older generation, who have changed.

"Their relationship with their parents seems much healthier than the 60s generation of students. The 60s parents were more dependent on their children, more concerned that their children do what they wanted them to do. Today's parents seem more inclined to discuss their children's goals with them."

### Psychology

"The greatest single increase in the past five years is the number of students we are diagnosing as depressed. It's doubled. But it isn't rampant. The increase is from five cases per thousand students to nine.

UBC's Student Health Service sees approximately 40 per cent of all UBC students each year. Students make appointments for an annual examination or for individual health problems.

"They are very considerate of our time. They don't come in with one minor problem but save them up until they have a list."

A health profile of today's student from Dr. Percival-Smith:

"We're not sure if it's because we are diagnosing depression more accurately or whether the increase is real. It's probably real, since the incidence of sleeping problems often associated with depression has increased at the same rate. Also, the incidence of anxiety -- the hyper feeling that you're always about to have an examination or give a musical performance -- has remained the same.

"We tend to treat depression aggressively with anti-depressants followed by psycho-therapy. Depression is extremely important because it can reduce the academic performance of a brilliant student.

"Depression occurs when people are doing what they don't want to do. This is speculation, but the increase in depression may be because the students don't want to be here and it may have to do with financial problems. A student may not have been able to earn as much as they wanted during the summer and the burden of additional loans depresses them. Or the student may be here because they lost a job that they would prefer to be at.

### Sexually Transmitted Infections

"The incidence of all sexually transmitted diseases amongst students is about the same as one would see in general practice off the campus, if not a bit lower.

provides a wide range of intellectual and practical challenges, excellent counselling and medical services for those student who take advantage of them and an impressive range of clubs as well as athletic and cultural activities that encourage social interaction.

"The facilities provided on campus are not luxuries," he says. "They are necessities in terms of the traditional view that universities develop all aspects of an individual -- mind, body and spirit."

What happens to students during their undergraduate years at a university? Here are some of the major trends that emerge from Dr. Whittaker's analyses.

\* During four years as an undergraduate, a student will become a more complex and theoretical thinker, and more independent in attitude towards authority figures.

"Syphilis and gonorrhoea are almost unheard of but chlamydia is now the most important infection on campus in terms of its potential effect. It's caused by a bacteria that grows within cells, which is a bit unusual. Viruses usually grow within cells and most bacteria grow outside of them. The disease is probably one of the major causes of silent fallopian tube damage that can result in infertility later in life.

"Seven per cent of women who attend the clinic have chlamydia. Men and women can have chlamydia without knowing it. It is picked up during the student's annual physical examination.

"Young men and women are more monogamous now than we think they are. They may practice serial monogamy -- a series of partners with whom they have monogamous relationships. Students today want a partner, a relationship. Syphilis and gonorrhoea are more likely to be features of multiple sexual partners. Multiple partners are not common on campus, particularly among women.

### Eating Disorders

"We see fewer obese students now. If anything the problem is the reverse. We do have a few anorexia nervosa patients who see themselves as fat when in fact they are extremely thin. These patients use a variety of methods to try to become thinner, including starving themselves or inducing vomiting after eating. The condition can be life-threatening.

### Drugs

"Smoking is much less prevalent but we are back to alcohol abuse. We have been asked by Student Housing to run information programs in residences on what a poisonous level of alcohol is.

"Alcohol doesn't interfere with memory as much as marijuana. We don't see the heavy marijuana use we used to. Students who use marijuana in high school probably don't get to university because they never make it academically. I think marijuana is a destructive drug in the potentially bright student.

"The number of bulimic cases has increased. In this disease the person can genuinely be overweight and they want to lose weight to meet a socially-accepted image of what they should be. They indulge in binge eating and then induce vomiting. The condition is more common among women.

### Lifestyle

"Our students now exercise more and are very conscious of nutrition and diet. They place a high value on personal health, both physical and psychological. The majority of UBC students are healthy and happy."

# student

\* Some 20 per cent, however, will become less intellectually inclined, which may not necessarily be a bad thing, Dr. Whittaker is quick to point out. "It's entirely possible that some freshmen enter the university on Cloud 9 with an entirely unrealistic view of themselves and the world. A shift in a practical direction would make them better equipped to cope with life."

\* Most students will become more outspoken and self-confident and will leave the university with a clearer idea of who they are and what they want and, equally important, what they don't want to do in life.

\* On the whole, students tend to become less narrowly focused, showing an increasing interest in broader topics and acquiring a larger, more complex world view.

"And that's precisely what a university education should do," Dr. Whittaker comments.

Analysis of data on seniors reveals that most fit into one of six well-defined student sub-cultures that range from the studious type -- about 15 per cent -- to those whose university life really centres on sports and physical attainments -- again about 15 per cent.

In many ways, the group of seniors who exhibit the best 'personal adjustment' from a psychological point of view are those whose lives centre on physical fitness, formal athletics, informal sports or even spectator interest.

"I find members of this group are interesting to teach," Dr. Whittaker comments. "In the classroom they'll challenge what you say and at times I enjoy playing the devil's advocate just to get their reaction. A lot of learning takes place because this group generates discussion and the determinedly passive student hears a wider exchange of ideas."

The largest single group of seniors is made up of individuals who are basically interested in self-fulfilment and altruism. They have cultural interests, are autonomous, attracted to complexity and show various individual degrees of creative potential.

Among the smaller groups of seniors -- 5 per cent of the total -- is an impressively intellectual elite who are fond of and seek out novel situations, are the most independent in their thinking and are primarily interested in social change.

"This group has the lowest anxiety level of any group," Dr. Whittaker says, "and have fewer personal problems, apparently."

"The various classic types of students are easily recognizable at UBC and elsewhere," Dr. Whittaker says.

"Inter-campus comparisons indicate there are more similarities than differences between universities in terms of student populations."

## New Charter may have impact on rights

Lynn Smith, an associate professor in UBC's Faculty of Law, says the new Canadian Charter of Rights and Freedoms could have a significant impact on student rights at universities and colleges, if the Charter is held to apply in the context of higher education.

Speaking this summer at a UBC meeting of Canadian university and college administrators of student aid, admissions, counselling and other student services, Prof. Smith said that decisions made by courts in the U.S. indicate that "students don't leave their constitutional rights at the schoolhouse door."

"Several cases in the U.S. have involved student groups who were denied recognition as official campus organizations," says Prof. Smith. "The U.S. Supreme Court has tended to rule in their favor, citing the students' right to freedom of assembly and association."

"In another U.S. Supreme Court case, a male student brought action against the Mississippi School of Nursing after being denied admission to the all-female institution. The judge agreed that the student's equality rights had been violated and he was admitted to the school."

She adds that there are several rights in the Canadian Charter that could affect students' academic and social activities on campus, such as the rights to freedom of expression, thought, opinion, assembly and religion, as well as the equality rights."

Prof. Smith notes that decisions on student rights made in the U.S. may or may not influence Canadian courts. "Whether these rights do have an impact depends largely on what the courts say about the application of the Charter to institutions such as universities, which are not directly governmental. There has been one decision of the B.C. Supreme Court that the Charter does not apply in the context of the university's mandatory retirement policy, but it is possible that higher courts will reach the opposite conclusion, or that the decision would be otherwise in a different context, such as freedom of expression."

"The ultimate decision will be made by the Supreme Court of Canada, probably not for several years."

Prof. Smith says the statement of equality rights in Section 15 raises some interesting issues with respect to the potential application of the Charter. "If all individuals are protected against discrimination based on sex, age, race, color, religion and physical and mental disability, then what is a university's obligation to provide resources for students with various disabilities? Or to reschedule examinations that take place on Saturday, the Sabbath for some religions? Or to refuse to administer scholarships and bursaries awarded to a particular age group, sex or nationality?"

Other Charter rights may affect students as well. "For example, protection against unreasonable search and seizure may apply to dormitory searches for alcohol or drugs by campus security," says Prof. Smith. "Or a student's right to enhanced privacy of his or her academic records could be asserted through the 'life, liberty and security of the person' guarantee found in Section 7 of the Charter."

In any event, Prof. Smith believes the Charter should be seen in a positive light by universities and colleges. "The Charter sets out fundamental values that we as Canadians have identified as important to our society. Presumably we are already living up to these values. If not, our institutions have an obligation to initiate reforms."

## Students better qualified

Brighter. Better prepared academically. But likely to graduate with larger debts.

That thumbnail sketch summarizes students entering first year at UBC compared with their predecessors in recent years.

Mr. Byron Hender, director of the Awards and Financial Aid Office, said the quality of students graduating from B.C. high schools varies from year to year.

"But judging from the scholarship applications we have received this year, I think the students are better qualified academically than students in many previous years," he said.

"Their grades indicate they are brighter and better prepared to deal with what they'll face here.

"We have received more applications this year from well qualified students from the interior of the province. They are as well prepared academically as those from Vancouver and Victoria."

Students in all years are also in a better financial position this year, he said.

"They seem to have been able to earn more money. We received applications for about 2,200 Canada Student Loans before the July 1 deadline this year, about 200 less than last year.

"If my impression is accurate, more student were able to work this summer. They may not have earned much, but they had an opportunity to work, which many didn't last year. They should be better off financially as a result."

But he said there will be a continuing demand for financial assistance. Debts owed by graduating students have increased since the provincial government replaced bursaries with loans three years ago. Students who

graduated in 1985 owed an average of about \$10,000.

"We're very concerned about the increasing debt load. Students who graduated last year carried a maximum of two years of provincial government loans. Students entering first year this year have a potential for at least four years of debt before they graduate. We suspect that the total amount of debt will eventually rise and level off at between \$14,000 and \$17,000."

He said the provincial government may discover that substituting loans for bursaries as part of its restraint program was a financial mistake. It has resulted in an "alarming" increase in the number defaults among holders of provincial loans, primarily because they don't have jobs to pay the loans off.

"Ten years ago, when the economy was better, the default rate was five or six per cent. Although the current default figure is not public, my guess is that it is about 20 per cent."

Mr. Hender said the government has successfully addressed another economic problem facing some B.C. students. In recent years there has been an exodus of top B.C. students to universities in other provinces. This was because top students from outside of Vancouver and Victoria faced comparable costs whether they attended a university in B.C. or in another province.

Early this summer the provincial government announced new scholarships to assist interior students and to cover travel and living costs associated with attending a B.C. university.

"The scholarships should mean that more of our top students will come to UBC rather than Queen's, McGill or Toronto," he said. "It's healthy for some students to study out of province but it's unhealthy when our best students vote with their feet and leave."

## Shad Valley program brings best to UBC

Entrepreneurs of the future? You'll find them among students of the Shad Valley summer program for gifted Canadian high school students. That's the view of David Vogt, director of the UBC's first Shad Valley experience.

This summer, 50 carefully chosen grade 11 and 12 students from all parts of Canada visited UBC from June 22 to July 19 to participate in the program.

Sponsored by Canadian companies, Shad Valley also provides the students with a six-week, paid work term in a high-tech environment.

This has paid off. Even though Shad Valley was started only five years ago by the Canadian Centre for Creative Technology in Waterloo, Ont., three of today's sponsoring companies were begun and are headed by former "shadlings," as those who are chosen for the program like to call themselves. The program runs at five Canadian universities -- New Brunswick, Waterloo, Calgary, Manitoba and B.C.

The 250 students chosen annually for the program are high academic achievers who have indicated their creative approach to problems, and demonstrated initiative and drive.

In the mornings, three-hour seminars gave students intensive, hands-on exposure to significant research and new technologies on such topics as computing tools, biotechnology, robotics, marketing, genetic engineering and astronomical imaging.

Students attended lectures and computer sessions in the afternoon. Twice a week special guests, including UBC's president, Dr. David Strangway, gave evening talks to share their experiences, successes and ideas with the students.

In addition, students participated in one of nine special projects. These included: making a short promotional videotape aimed at potential Shad Valley sponsors; organization of a drama, music and comedy night; development of a portable speech synthesizer for use at Sunnyhill Hospital for disabled children; and setting up an electronic mailing and conferencing system that will enable the UBC shadlings to keep in touch with one another in future.

The most popular special project, construction of a working, scale-model hovercraft, attracted 16 of the Shad Valley students, who were divided into three groups to compete against each other.

"One of the models worked beautifully and another was a complete failure," Mr. Vogt said. "But the failure was an educational experience in itself, because the students went out on an engineering limb that was sawed off behind them."

Readers might care to make a note of the name Douglas Dale-Johnson of Delta, B.C. In a stock exchange simulation game devised by one project group, Dale-Johnson parlayed a \$10,000 stake into a \$44,000 profit in less than a month!

Was UBC's first venture into the Shad Valley experience a success? "All the students were told that this was a once-only experience," Mr. Vogt said, "but more than 20 of them came to me before the end of the program and begged to be involved next year. And the amount of electronic mail I get every day," he said, glancing at the computer display terminal in his office, "certainly indicates that it was a memorable experience."

# Prizewinner hopes to set up Asian Centre fund

Dr. Shotaro Iida of the Department of Religious Studies says he will give \$20,000 of a prize awarded to him by the Japan Foundation to establish a general activities fund associated with the campus Asian Centre.

Dr. Iida will be in Japan on Oct. 1 to receive the special prize of three million yen (about \$28,000 Canadian) for his role in establishing the Asian Centre and other activities associated with Asian studies at UBC.

It was Dr. Iida who suggested to the Sanyo Corporation that it donate to UBC the steel girders that support the unique, pyramidal roof of the building following Expo 70 in Osaka, Japan.

He has also played a key role in the acquisition of the tea house and a number of stone lanterns in the Nitobe Garden as well as the bell tower in front of the Asian Centre.

Dr. Iida says his initial donation to the Asian Centre Activities Funds is seed money to encourage other donations. He sees the funds as being available to entertain prominent Asian visitors, among other things.



Dr. Thelma S. Cook, of the Department of Social and Educational Studies in the Faculty of Education, has been elected chairman of the B.C. Health Association.

## SENATE

# Library crisis averted

UBC's administration has averted what could have been "a serious crisis" in book and serial buying by increasing the Library's acquisitions budget by \$562,000, UBC's Senate was told at its September meeting.

Dr. Jon Wisenthal, who chairs the Senate Library Committee, reported that plans for extensive cancellation of serials in 1987-88 could now be set aside as the result of the budget increase.

The sources of the increase were the provincial Fund for Excellence in Education (\$339,000) and savings in salaries within the Library system (\$223,000), which had been reallocated for acquisitions.

Despite the increase for the 1986-87 fiscal year, Dr. Wisenthal said, it had been necessary for the Library to cancel subscriptions to about 900 serial titles, which had resulted in savings of \$163,000.

Part of the money saved was to be designated for the purchase of new serials. The Library Committee was proposing that \$50,000 be available for the purchase of new serials in future, he said.

The Senate also discussed the outline for several UBC initiatives aimed at improving liaison with secondary schools and community colleges in B.C.

President Strangway said that UBC was planning to invite the heads of B.C. community colleges to the campus sometime in November to "review issues of common concern."

He also announced that terms of reference had been drawn up for a President's Task Force on Liaison, Recruiting and Admissions and that academic vice-president Prof. Daniel Birch was in the process of forming the group. Recommendations that affect Senate would be brought forward for debate, he said.

Prof. Birch told Senate that the University was also in the process of forming an Office of School and College Liaison "to ensure we have a more coordinated approach and an appropriate policy framework for the participation of students, faculty, alumni and staff in liaison with colleges and schools."

He said UBC graduate Mary Stott had been named coordinator of the office and had prepared a report recommending a structure and a set of procedures for carrying out the mandate of the office. A report on "a coherent program for school and college liaison" would be available soon, Prof. Birch said.

Prof. John Dennison, who chairs a Senate committee on liaison with other post-secondary institutions, outlined for Senate matters of concern that had been raised by B.C. community colleges in response to an invitation from the committee.

He said most of the concerns centred on two areas, admissions and credit transfer.

In a written report before Senate, seven college concerns were outlined. These included: block transfer of credit, rather than course-by-course credit; the amount of information required in negotiating courses for transfer credit; limitation of part-time study opportunities at UBC; and the problem of admission to UBC of foreign students who have earned credit in colleges.

The committee, Prof. Dennison said, had either requested additional information from the colleges or referred the concerns to appropriate UBC deans or task forces.

President Strangway also told the Senate he had asked academic vice-president Prof. Daniel Birch to form a small committee to recommend terms of reference and style of appointment for the post of senior fellow at UBC.

Dr. Strangway's move came as a result of the controversy that arose during the summer following the appointment as a senior fellow by the UBC Board of Governors of Dr. Norman Spector, who at the time was deputy minister to B.C.'s former premier, Bill Bennett.

Dr. Spector subsequently informed UBC that he would be unable to take up the post in 1986 because of his appointment to a federal deputy minister's post. President Strangway said the invitation to Dr. Spector has not been withdrawn and there is a possibility that he will take up the post in September, 1987.

The association, which includes in its membership 160 institutions and more than 2,000 hospital trustees, provides representation, liaison and negotiations on behalf of its members with governments, allied associations and other groups.

UBC's Vice-President for Research, Dr. Peter A. Larkin, has received the outstanding achievement award for an individual from the American Institute of Fishery Research Biologists.

Dr. Larkin has published more than 130 research papers, mostly on resource management, science policy and mathematical modelling of the dynamics of fish populations.

Four members of UBC's Chemistry Department have been named the recipients of major teaching and research awards administered by the Chemical Institute of Canada.

The winners and their awards are:

Prof. Ross Stewart, a 31-year member of the department, winner of the Syntex Award in Physical Organic Chemistry, which carries with it an honorarium of \$1,000;

Prof. Michael Gerry, winner of the Union Carbide Award for Chemical Education and an honorarium of \$750;

Dr. Ray Andersen, who holds a joint appointment in Chemistry and Oceanography, winner of the Merck Sharpe and Dohme Lecture Award for 1987 and a \$2,000 honorarium; and

Dr. Michael Blades, the first winner of the Chemical Society of Canada's McBryde Medal, which honors a Canadian scientist under 40 who has made a notable contribution to the field of analytical chemistry.

Each of the winners will give a lecture at the 70th Canadian Chemical Conference in Quebec City in June, 1987.

Dr. Juhn Wada of UBC's neurological sciences division, Faculty of Medicine, has received an honorary degree from his Alma Mater, Hokkaido University in Japan.

Dr. Wada has an international reputation for research into epilepsy, the neurological disorder that affects close to 50,000 British Columbians, most of them children and adolescents. It is second only to strokes as the most common neurological disease in Canada.

About 20 per cent of epileptics cannot be successfully treated with drugs. Some of them are candidates for surgical removal of those areas of the brain where their seizures occur. But surgery must be done in such a way that it does not impair functions controlled by the brain.

While still in Japan, Dr. Wada developed a test to determine exactly where a patient's speech centre is located in the brain. The test involved injecting a fast-acting barbiturate, sodium amytal, into arteries leading into each of the two brain hemispheres. By testing the patient's memory and ability to speak immediately after injection, scientists can both determine in which hemisphere speech is located, and also evaluate memory function.



UBC chemists (left to right) Ray Andersen, Michael Gerry and Ross Stewart are the recipients of major awards for teaching and research.

# Victoria funds new aid programs

Four new awards programs for college and university students, involving allocations totalling \$1,250,000 from the provincial Fund for Excellence in Education, were announced during the summer by the Hon. Russ Fraser, B.C.'s post-secondary education minister.

\* The largest single allocation of \$1 million provides for Grade 12 Scholarship Supplement Awards.

An estimated 500 grade 12 students who won \$1,000 provincial scholarships and who must relocate more than 50 kilometres to attend a B.C. post-secondary institution on a full-time basis will get a one-time award of \$1,500. An estimated 250 students who graduated from grade 12 in June and who ranked just below the scholarship level in provincial exams will get a one-time \$500 grant if they have to relocate.

\* The College Transfer Scholarship Program of \$75,000 will provide a \$500 one-time award to B.C. college students who have completed a minimum of one-year's full-time study in the university transfer or technology program and who have transferred to another post-secondary institution in the province.

\* The student societies of the universities, colleges and institutes have been asked to make submissions to the

ministry for shares of a \$100,000 special fund that will aid students suffering financial hardship. The government will match the funds raised by student societies on a 1-to-1 basis.

An official in the post-secondary ministry said he expected UBC would receive \$25,000 or more under this scheme. The funds, he added, would be administered by the UBC Awards Office.

\* Fifteen of B.C.'s top grade 12 students who combined scholastic ability and community service will each receive \$5,000 Premier's Excellence Awards if they enrol full-time in a B.C. post-secondary institution. A total of \$75,000 has been allocated for this fund so that one award can be made in each of the province's college districts.

UBC will also receive more than \$1.5 million for graduate student assistantships under a revamped provincial JobTrac program that consolidates a number of existing aid programs and adds some new ones. The Universities Council of B.C. made recommendations to the ministry on the split of the \$2.4 million fund.

UBC's allocation for work-study programs has also been substantially increased to more than \$800,000. A total of \$96,000 has been allocated to UBC for job placements through the Cooperative Education Program.



# Psychiatrist heads mental health task force

UBC psychiatrist Dr. Morton Beiser will head a 12-member task force to study mental health problems encountered by some immigrants and refugees.

The two-year, \$200,000 study, initiated and financed by the federal departments of Multiculturalism and Health and Welfare, will be administered by the Canadian Mental Health Association.

Multi-cultural Minister Otto Jelinek said the stress to some immigrants and refugees of adapting to a new homeland with its cultural and linguistic differences is a monumental task that sometimes leads to mental health problems.

"This largely hidden problem needs to be examined and the issues dealt with so that new immigrants to Canada can reach their potential," Mr. Jelinek said.

Dr. Beiser, who has a track record in multi-cultural psychiatry and the problems of new immigrants, said the task force held its first meeting in Toronto in May and will meet again in Vancouver in September.

"Our first step will be to review research that has been done on the subject," Dr. Beiser said.

"Then we will invite written submissions from health services and immigrant and refugee groups who will also attend a series of national hearings.

"From this we will determine what needs exist and what services there are to meet them.

"We will also study the training of people who provide the services.

"The final result will be a report and recommendations for future government policies."

The task force is being helped in its work by research assistant Dr. Merry Wood who took her PhD from UBC in anthropology and sociology with a specialty in health services.

Health and Welfare Canada in 1984 named Dr. Beiser a national health research scientist, its most prestigious award, with a prize of \$122,000 over two years.

## TERRY FOX

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UBC President Dr. David Strangway said, "UBC's strength in biotechnology, the presence on campus of the TRIUMF nuclear research facility and a collaborative research relationship with the teaching hospitals affiliated with the University make UBC a desirable location for the centre."

"Further recognition of our abilities came recently from the provincial government. Under its centre of excellence program, the government will provide \$5 million over the next three years for research into biotechnology at UBC."

A second structure, the Bioprocessing Centre, will be constructed in the UBC Discovery Park on the south campus. It will be a cell culture "fermentation" plant that will use modern biotechnological methods to produce cell products for further study in the Biomedical Research Centre.

The two structures will cost \$16 million each to build and equip. An additional \$8 million will be used to further equip and operate the Bioprocessing Centre.

Both structures will be owned by the Fox Foundation. The Fox and Wellcome Foundations will jointly operate the Biomedical Research Centre.

Revenues from the sale of biomedical products will be re-invested in further research. This will eliminate the need to seek ongoing funding from governments and other granting agencies.

The products will be marketed through Pacific Pharmaceuticals, a wholly-owned subsidiary of the Fox Foundation. An agreement already exists between Pacific Pharmaceuticals and the Wellcome Foundation to produce and sell Wellferon, the trade name for alfa interferon.

As part of the centre's agreement with UBC, the University's considerable scientific community interested in biotechnology will have access to all equipment and laboratories. UBC faculty will also be involved in co-operative research programs with Centre staff.

The centre, with about 50 scientists and technologists, will be directed by Dr. John Schrader, formerly head of the immunoregulation laboratory at the

Walter and Eliza Hall Institute of Medical Research in Melbourne, Australia.

Three other major projects with a total value of more than \$11.3 million are also under construction on the campus.

\* A family housing development that will cost a total of \$10,222,900 is being built on a six-acre site in Acadia Camp. UBC has arranged to borrow funds to build the 164 townhouse units that make up the development and will repay the loan out of future housing revenues.

Gauvin Construction has been awarded a \$8,079,873 contract to build the development, which is scheduled for completion in June, 1987.

\* Construction has begun on a 12-bedroom addition to the Faculty Club that will cost a total of \$758,000. Club members have authorized the board of directors to borrow the funds, which will be repaid out of rents charged to users. Pax Construction has been awarded a contract valued at almost \$600,000 to build the addition, to be completed in January, 1987.

\* Currently in the design stage is a new facility for the storage of dangerous chemicals and the cleaning and storage of solvent containers. A total of \$753,000 has been allocated for the project, scheduled for completion in March, 1987. Funds for the project will come from the provincially funded Public Works and Renovations budget.

## FORESTERS

Continued from Page One

Congress. IUFRO was established more than 100 years ago and is the oldest union of scientific research organizations in the world. Scientists from 25 countries were nominated for this year's award.

Prof. Kimmins received the award in recognition of his outstanding work on computer modelling of forest management practices. The UBC forester has developed an ecological computer model that is being used in forestry education and research in many parts of Canada and in 12 other countries around the world.

Called FORCYTE (FORest nutrient Cycling and Yield Trend Evaluator), the model can be used to identify management systems that are likely to

result in optimum growth of forests, taking into account a variety of factors, such as growing conditions, availability of water, wildfires, thinning, damage by insects, fertilization and slash burning.

Prof. Kimmins, who joined UBC's Faculty of Forestry in 1969, is also developing a major research project at UBC on problems associated with vegetation management, an area of increasing concern to Canadian forest managers.

Prof. Dooling was honored by Parks Canada for his involvement in the organization of Heritage for Tomorrow, the Canadian Assembly on National Parks and Protected Areas, held in Banff last year to celebrate the National Parks centennial.

The assembly developed from a 1984 symposium organized by Prof. Dooling which focused on the future of national parks and protected areas. This symposium also led to the creation of provincial committees to review the future of protected lands in each province. Prof. Dooling chaired the B.C. Caucus.

A UBC faculty member since 1968, Prof. Dooling has conducted numerous studies on landscape preservation and park and recreational resources in B.C.

## APPEAL

Continued from Page One

discrimination must be shown to be unreasonable, unjustified or unfair.

"We live in a society that puts much importance on the age of 65," Justice Taylor said. "This is the age at which Canada Pension Plan and old-age pension benefits become available, income tax and property tax reductions are granted, various 'senior citizen' concessions...become available.

"The complainants in these proceedings...start at 65 to draw pensions....This is also the age at which their term of employment comes to an end and their jobs normally become available to others, thereby...creating employment opportunities for those previously unemployed."

UBC, Justice Taylor continued, has recently been experiencing difficult times as the result of annual funding cuts, resulting in a salary freeze and dismissal of some employees and professors.

"In times such as these mandatory

retirement reduces the need for layoffs of less senior personnel as well as making it possible to provide employment opportunities which would not otherwise exist."

Justice Taylor said he had concluded that the distinction based on age had not been shown to be unreasonable or 'unfair' within the meaning of Section 15 of the federal Charter.

"I have reached this conclusion because the retirement scheme has always been well-understood as a term of the contracts of these complainants, because it is combined with reasonable pension arrangements under a plan to which employee and employer contribute, because it is effective at an age when other extensive benefits become available, because it serves reasonable employment objectives of the employer, and...because its abolition must ultimately have a potentially more severe impact on other people less fortunately situated and whose interests must be balanced with those of the complainants in assessing the 'reasonableness' of the scheme."

The plaintiffs also argued that the provincial Human Rights Act was in conflict with the federal charter. They sought to have declared invalid a clause in the provincial act prohibiting employment discrimination in the 45-65 age bracket.

This clause, by inference, authorized age discrimination before 45 and after 65, it was argued. Elimination of the clause would prohibit discrimination in employment on the grounds of age generally.

Justice Taylor rejected this argument on the grounds that the B.C. Human Rights Act does not directly deal with mandatory early retirement. If it were accepted by inference that it did, prohibition of mandatory retirement would mean that the courts would be initiating major social and economic property, something it ought not to do.

The judgment also said that the federal charter provides for "affirmative action" that might be regarded as discrimination. Protection of those in the 45-65 bracket, Justice Taylor maintained, is affirmative action because it protects those whose employment is in jeopardy but who have not yet reached the age where pensions become payable.

# UBC Calendar

## THE VANCOUVER INSTITUTE

Saturday, Sept. 27

Life Under Communism: Soviet Union and China. Prof. Eugene Kamenka, History of Ideas, Australian National University, and Prof. Alice Erh-Soon Tay, Jurisprudence, University of Sydney.

Saturday, Oct. 4

Enlightenment in the Mass Media Age. Lister Sinclair, Canadian broadcaster, writer and critic.

Lecture Hall 2, Woodward Instructional Resources Centre. Free. 8:15 p.m.

## MONDAY, SEPT. 29

### Medical Lecture.

The Biomedical and Molecular Genetic Heterogeneity of ALL. Dr. Erwin Gelfand, McLaughlin Travelling Professor, College of Physicians and Surgeons of Canada and Pediatrics, University of Toronto. Taylor Fidler Lecture Theatre, Laurel Street Pavilion, VGH. 9 a.m.

### Medical Lecture.

Pathogenesis and the Treatment of Immunodeficiency. Dr. Erwin Gelfand, Toronto, McLaughlin Travelling Professor. Hurlburt Conference Room, St. Paul's Hospital. 12 noon.

### Germanic Studies Lecture.

Die Literatur und die Freundschaft. Arnold Zweig and Lion Feuchtwanger in Exile (in English). Dr. Geoffrey V. Davis, Rheinisch-Westfälische Technische Hochschule Aachen, Federal Republic of Germany. Buchanan Penthouse. 12:30 p.m.

## Astronomy Seminar.

Ap Stars. Dr. Nickolai Piskenov, Astronomical Council, Soviet Academy of Sciences, Moscow. Room 260, Geophysics and Astronomy Reading Room. 4 p.m.

## Immunology Seminar.

Cytosolic Calcium as a Regulator of T Cell Proliferation. Prof. E. Gelfand, Immunology, Hospital for Sick Children, Toronto. Salon B, Faculty Club. 8 p.m.

## TUESDAY, SEPT. 30

### Bookstore Event.

Canadian author Alice Munro will visit the campus Bookstore to sign copies of her new book of short stories, entitled The Progress of Love. Bookstore. 12:30 - 1 p.m.

## Chemistry Seminar.

The Halogenation of Acetone: What Really Happens. Prof. J. Peter Guthrie, Chemistry, University of Western Ontario. Room 250, Chemistry Building. 1 p.m.

## Medical Lecture.

Immunological Aspects of Bone Marrow Transplantation. Dr. Erwin Gelfand, Toronto, McLaughlin Travelling Professor. Room 3336, 3rd floor, Laurel Pavilion, VGH. 1:30 p.m.

## Chemical Engineering Seminar.

Modelling of Coal Liquefaction and Pyrolysis Kinetics. Dr. John Agnew, Chemical Engineering, University of Adelaide, Australia. Room 224, Chemical Engineering Building. 2:30 p.m.

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# UBC Calendar

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## Tuesday, Sept. 30

### Oceanography Seminar.

Bottom Stress Estimates from Vertical Dissipation Profiles. R. Dewey, Oceanography, UBC. Room 1465, Biological Sciences Building. 3:30 p.m.

### Comparative Literature Colloquium.

From Skutschno to Prawda - The Destruction of the Germans and Jews in Eastern Europe in the Mirror of Literature. Prof. Peter Stanberg, Germanic Studies, UBC. Room B330, Buchanan Building. 3:30 p.m.

### UBC/Community Concert Band.

First of ten Tuesday night band sessions that continue until Dec. 9 under the direction of Martin Berinbaum, School of Music. Fees: students-\$30; UBC faculty and staff-\$50; community member-\$70. Enquiries--222-5254. Old Auditorium. 7-9:30 p.m.

### Medical Lecture.

New indications for the Use of Intravenous Gamma Globulin for Autoimmune Disorders and Replacement Therapy. Dr. Erwin Gelfand, Toronto, McLaughlin Travelling Professor. Lecture Theatre, Cancer Research Centre, 801 West 10th Ave. 7 p.m.

## WEDNESDAY, OCT. 1 Pharmacology and Therapeutics Seminar.

Current Understanding of Glutamate Actions on Neurons. Dr. E. Pui, Pharmacology and Therapeutics, UBC. Room 317, Basic Medical Sciences Building, Block C. 12 noon.

### Applied Mathematics Seminar.

On Uniqueness of Axisymmetric Deformations of Elastic Plates and Shells. Dr. H. J. Weinitschke, Institute of Applied Mathematics, University of Erlangen-Nurnberg, West Germany. Room 229, Mathematics Building. 3:45 p.m.

### Animal Resource Ecology Seminar.

The Influence of Natural Predation on the Population Dynamics of Pacific Salmon. Michael Jones, I.A.R.E. and Zoology, UBC. Room 2449, Biological Sciences Building. 4:30 p.m.

### Thunderbird Hockey.

UBC Thunderbirds will play the Vancouver Canucks in an intersquad scrimmage. Proceeds from the game go towards the Father Bauer Hockey Scholarship Fund. Tickets: Adults \$3, students \$1.50. Thunderbird Arena. 6 p.m.

### Classical Music Nights.

The Graduate Student Society sponsors jazz and classical music nights every Wednesday evening in the Graduate Student Centre Lounge. 8:30 - 11:30 p.m.

## THURSDAY, OCT. 2 Psychiatry Lecture.

Collective Fantasy: A Way of Reaching the Unconscious. Dr. Emilio Romero, Psychiatry, University of Texas. Room 2NA/B, Psychiatric Pavilion, Health Sciences Centre Hospital. 9 a.m.

### Archaeology Lecture.

The Tombs of the Emerging State of Qin, 6th Century B.C. Lecture, slides, video presentation by Jiao Nan-Fang, Shaanxi Provincial Archaeological Research Institute, China. Room 207-209, Anthropology-Sociology Building. 12:30 p.m.

### Condensed Matter Seminar.

Some New Liquid Crystal Devices. Dr. Satyendra Kumar, Tektronix. Room 318, Hennings Building. 2:30 p.m.

### Environmetrics Seminar.

Slicing Regression: A Link-Free Regression Method. Dr. Naihua Duan, Rand Corporation, Los Angeles. Room 102, Ponderosa Annex C. 3:30 p.m.

### Psychology Colloquium.

Forms of Memory: Perspectives from Research Involving Normal Subjects, Aging Individuals and Amnesic Patients. Dr. Peter Graf, Psychology, University of Toronto. Peter Suedfeld Lounge, Kenny Building. 4 p.m.

### Theatresports.

The Graduate Student Society sponsors Theatresports featuring the Vancouver Theatresports League every Thursday evening. Graduate Student admission is \$3. Regular admission is \$4. Bar service available. Graduate Student Centre Ballroom. 8 p.m. - 10 p.m.

## FRIDAY, OCT 3 History Seminar.

National Socialism and the German Universities. Prof. Robert P. Eriksen, Olympia State College. Room A104, Buchanan Building. 12:30 p.m.

### Pharmaceutical Sciences Seminar.

Primary Cultures of Human Hepatocytes - a Model for Predicting Toxicity? Dr. G. Hawsworth, Pharmacology, University of Aberdeen. IRC 3. 12:30 p.m.

### History Seminar.

Researching the Records of Nazism in the German Universities. Prof. Hans-Joachim Dahms, Gottingen. Buchanan Penthouse. 3:30 p.m.

### Music of India Series.

Recital of Bharatanatyam dance by Hema Rajagopalan, accompanied by four musicians, including Akhila Krishnan, vocalist. Enquiries: 228-4688. Auditorium, Asian Centre. 8 p.m.

## SATURDAY, OCT. 4 Continuing Education Workshop.

Voice care for singers and professional voice users. Dr. Murray D. Morrison and Linda Rammage, UBC/VGH Voice Clinic and Rod Menzies, Theatre, UBC. Fees: general public-\$65; National Association of Teachers of Singing members-\$44; voice students of NATS-\$33. Enquiries--224-5254. Lecture Hall 4, Woodward IRC. 9 a.m. - 4:30 p.m.

### Football.

UBC Thunderbirds vs University of Manitoba Bisons. Thunderbird Stadium. 7:30 p.m.

## MONDAY, OCT. 6 Germanic Studies Lecture.

Die Entwicklung der Literatur in der DDR. Karl-Heinz Jakobs, German writer. Buchanan Penthouse. 12:30 p.m.

### Cecil H. and Ida Green Visiting Professorships.

First of three lectures on Concept of Needs: Poignant; Belittled; Indispensable. What's at Stake with the Concept of Needs? Prof. David Braybrooke, Philosophy and Political Science, Dalhousie University. Room A108, Buchanan Building. 12:30 p.m.

### English Lecture.

Drama in Northern Ireland. Dr. Conor O'Malley, Dublin. Room B314, Buchanan Building. 12:30 p.m.

### Germanic Studies Reading.

German writer Karl-Heinz Jakobs reads from his work in German. Buchanan Penthouse. 3:30 p.m.

### Preventive Medicine and Health Promotion Lecture.

The Canadian Fitness Summit: A Progress Report. Dr. Peter Grantham, Family Practice, UBC. For more information, call 228-2258. Room 253, James Mather Building. 4 p.m.

### Archaeology Lecture.

Bronze Age Greece and the SE Mediterranean. Prof. A. Leonard, Classics, University of Arizona. Theatre Gallery, Museum of Anthropology. 8 p.m.

## TUESDAY, OCT. 7 Chemistry Seminar.

Gout: A Biophysical Investigation. Prof. F. Herring, Chemistry, UBC. Room 250, Chemistry Building. 1 p.m.

### Oceanography Seminar.

Sulphur and Iodine Enrichment in Marine Sedimentary Humic Substances. R. Francois, Oceanography, UBC. Room 1465, Biological Sciences Building. 3:30 p.m.

### Statistics Seminar.

Estimation of a Functional of a Multivariate Density. Room 102, Ponderosa Annex C. 3:30 p.m.

### Canadian Association for Information Science Seminar.

The Evolving Role of Satellite Communications. Ake Sewerinson, Microtel Pacific Research. Conference Room, Sedgewick Library. 7:30 p.m.

## WEDNESDAY, OCT. 8 Pharmacology and Therapeutics Seminar.

Tolerance to Anticonvulsants: Effects of Behavioural Manipulations. Dr. J. Pinel, Psychology, UBC. Room 317, Basic Medical Sciences Building, Block C. 12 noon.

### Forestry Seminar.

Invermere and Fraser Canyon Fires - Experiences of a Front Line Fire Fighter. Mr. Jack Carradice, District Manager, Chilliwack District Office, Ministry of Forests. Room 166, McMillan Building. 12:30 p.m.

### Cecil H. and Ida Green Visiting Professorships.

Second of three lectures on Concept of Needs: Poignant; Belittled; Indispensable. The Charges Against the Concept of Needs and the Confusion Surrounding It. Prof. David Braybrooke, Philosophy and Political Science, Dalhousie University. Room A108, Buchanan Building. 12:30 p.m.

### Germanic Studies Lecture.

Poet im Pott (in German). Karl-Heinz Jakobs, German writer. Goethe Institute, 944 West 8th. Avenue. 3:30 p.m.

## THURSDAY, OCT. 9 Psychiatric Lecture.

Biological Theories and Pharmacological Treatment of Depression. Dr. Gary Tollefson, Psychiatry, University of Minnesota. Room 2NA/B, Psychiatric Pavilion, Health Sciences Centre Hospital. 9 a.m.

### Germanic Studies Lecture.

Mein Neues Deutschland (in German). Karl-Heinz Jakobs, German writer. Buchanan Penthouse. 12:30 p.m.

### Office for Women Students Workshop.

Career Decisions For An Uncertain Future. Preparation of a flexible career plan to meet technological and economic changes effecting women. To be repeated on Nov. 8. Enquiries: 228-2415. Free. Room 223, Brock Hall. 12:30 p.m.

### Gerontology Lecture.

Geriatric Care in the UK: Lessons for Canada? Dr. James Williamson, Geriatric Medicine, University of Edinburgh. IRC #3. 1 p.m.

### Psychology Colloquium.

Crying Infants and Their Mothers: Between a Rock and a Hard Place. Dr. Elinor Ames, Psychology, SFU. Room 2510, Peter Suedfeld Lounge, Kenny Building. 4 p.m.

### Cosmogony Seminar.

Modern Cosmogony and Creation. Dr. Owen Gingerich, Astronomy and History of Science, Harvard, and astrophysicist, Smithsonian Astrophysical Observatory. Jointly sponsored by Regent College, Inter-Varsity Christian Fellowship and the Canadian Scientific and Christian Affiliation. Room 100, Scarfe (Education) Building. 4:30 p.m.

### Botanical Garden Illustrated Lecture.

Clematis From Around the World. Raymond Evison, managing director of the famous English nursery Treasures of Tenbury, Ltd. Sponsored by the UBC Friends of the Garden. Tickets are \$5 and are available by calling 228-4188 or at the door. Faculty Club. 8 p.m.

## FRIDAY, OCT. 10 Germanic Studies Lecture.

In Praise of Censorship. Karl-Heinz Jakobs, German writer. Buchanan Penthouse. 12:30 p.m.

### Germanic Studies Lecture.

Widows I Have Known. Jurgen Hesse, Vancouver writer and producer reads from his work-in-progress. Co-sponsored by Department of English. Buchanan Penthouse. 3:30 p.m.

### Germanic Studies Lecture.

The Writer and Ideology: Three Views. A round-table discussion with Karl-Heinz Jakobs, Jurgen Hesse and Michael Mercer. Goethe Institute, 944 West 8th. Avenue. 8 p.m.

## SATURDAY, OCT. 11 Diplomatic Service Seminar.

How to get into Canada's diplomatic service. A six-hour seminar of practical advice and strategies to improve performance on the foreign service exam (scheduled for Oct. 25), essay and interviews. Fees: \$85 for students, \$115 for non-students. Room 212, Student Union Building. 10:30 a.m.

## NOTICES Agricurl.

Curling will commence Tuesday, Oct. 14 at 5 p.m. in the Thunderbird Curling Rink. For both experienced and beginning curlers. Fees (Oct. through March) and the closing banquet are \$85.00. More information may be obtained from A. Finlayson, 228-4707, P. Willing, 228-3240 and J. Shelford 228-6578.

### Badminton Club.

Faculty and Staff Badminton Club meets Tuesdays 8:30 - 10:30 p.m. and Fridays 7:30 - 9:30 p.m. (except Oct. 3 and 10) in Gym A of the Robert Osborne Sports Centre. Fees \$15.00 per year. New members welcome. For more information, call Bernie, 228-4025.

### SOFA and CPR Courses.

St. John Ambulance will offer its Safety-Oriented First Aid Course (SOFA) and Cardiopulmonary Resuscitation Course (CPR) to UBC students on Saturdays in October and November. These courses are strongly endorsed by the Health Sciences' faculties and schools and have been given excellent ratings by students who have taken the courses in previous years. The SOFA course requires 8 hours to complete. Upon completion an Emergency First Aid Certificate will be issued, valid for three years. The CPR course requires 4-1/2 hours to complete. Each course costs \$20, payable at registration on Sept. 23 and 25 from 10:30 a.m. to 2:30 p.m. in the centre mall of the Woodward Instructional Resources Centre.

### Pipers and Drummers.

Any pipers and drummers among faculty, students and staff interested in practicing and playing on campus are asked to contact Dr. Edward Mornin, Germanic Studies, 228-5140.

### Wilderness Skills.

The UBC Centre for Continuing Education is offering a combination lecture and five-day wilderness skills course in cooperation with the Outward Bound program in Keremeos, Monday to Sunday, Oct. 6 to 12 and Saturday and Sunday, Nov. 8 and 9. The course, Changing Your Life Through Creative Risk Taking, is instructed and supervised by psychologist Arthur Ridgeway. A reasonable degree of fitness and a medical certificate are needed to participate. \$815. Orientation, Oct. 6, 7-9 p.m. Room 2N A&B, Psychiatric Unit, Health Sciences Centre Hospital. For information, call 222-5238.

### Language Programs.

Non-credit conversational programs in French, Spanish, Japanese and Chinese begin the week of September 22. A Saturday morning class in teaching Languages to Adults is available. For more information, contact Language Programs and Services, Centre for Continuing Education, 222-5227.

### International Forestry Conference.

UBC and the Forest History Society are sponsoring an international conference entitled Forests and the 49th Parallel Oct. 8-11. Speaker at an Oct. 9 luncheon is William Ruckelshaus, former administrator of the U.S. Environmental Protection Agency. Registration \$55; luncheon only \$25. Further information: Graeme Wynn, Geography, 228-8228. The conference will be held in the York Room and Regal Ballroom of the Hotel Georgia.

FIRST CLASS MAIL

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### Calendar Deadlines.

For events in the period Oct. 12 to Oct. 25, notices must be submitted on proper Calendar forms no later than 4 p.m. on Thursday, Oct. 2 to the Community Relations Office, 6328 Memorial Road, Room 207, Old Administration Building. For more information, call 228-3131.