UBC REPORTS

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Analysis director appointed

Dr. John S. Chase will join the University of B.C. on April 1 as director of the campus Office of Institutional Analysis.

Dr. Chase is currently executive assistant to the president and director of the Office of Analytical Studies at Simon Fraser University.

Dr. Chase, 45, succeeds Dr. William Tetlow, who resigned as director of the UBC office in June, 1982, to accept a position with the U.S. National Centre for Higher Education Management Systems in Boulder, Colorado.

As director of the UBC office, Dr. Chase will report to Prof. Michael Shaw, UBC's vice-president academic and provost.

UBC's Office of Institutional Analysis provides data, information, reports and analyses to the President's Office, the Board of Governors, Senate and other officers of the University or committees charged with developing or implementing policy on such matters as budget, enrolment, space and faculty.

Dr. Chase is a graduate of the University of Michigan, where he was awarded the degrees of Bachelor of Business Administration in accounting in 1960, Master of Arts in economics and higher education administration in 1968, and Doctor of Philosophy in higher education and administration in 1969.

Prior to joining SFU in 1969, Dr. Chase

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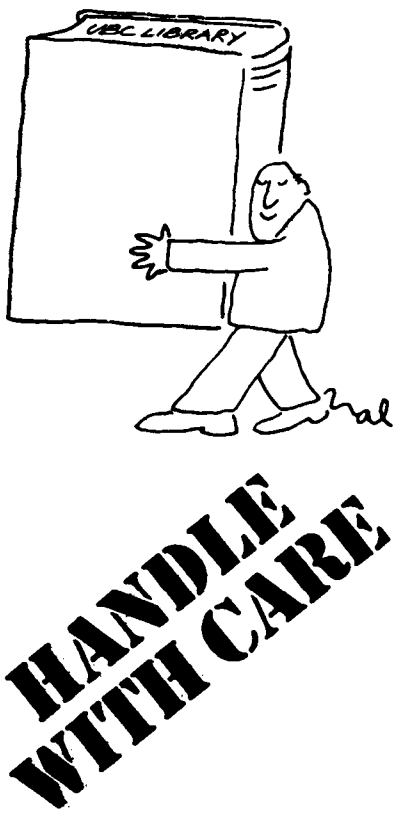

The UBC Library has launched a campaign to combat the "battered book syndrome." For details, see story on page 2.

Chemistry department head Larry Weiler confers with research associate Margot Alerdice.

A DAY IN A LIFE AT UBC

Prof. Larry Weiler, who became head of UBC's Department of Chemistry last year, inaugurates a new *UBC Reports* feature — "A Day in a Life at UBC." We got the idea from a talk that Prof. Weiler gave in November, 1982, when he spoke on the topic, "A Day in the Life of a University Professor," to an evening gathering sponsored by the UBC Alumni Association.

In future issues of *UBC Reports* we'll be asking members of the University community — faculty, students, administrators and support staff — to describe their working day on the UBC campus in their own words. If you know someone on campus whom you think is a candidate for the series, drop a note to the editor into campus mail.

My day begins shortly after 8:30 a.m. when I arrive at my office in the Chemistry Building. It's impossible to describe a typical day because each one is made up, in differing proportions, of the three basic things that occupy a professor who also happens to be a department head — teaching, research and administration.

I teach a graduate seminar twice a week and in a second graduate course once a week. Preparation for courses at that level is very demanding...at least four or five hours is spent making ready for one hour in the classroom.

Some of the lecture material comes out of research results obtained in my own laboratory but, in addition, I have to keep abreast of the latest developments in my field — organic chemistry — by reading some 25 chemistry journals, some published weekly, some monthly. I subscribe to about ten of them personally and the rest I see in the departmental reading room or in the Main Library.

Keeping abreast of things is no simple task. I read somewhere recently that the publication *Chemical Abstracts* had recorded the six millionth chemical compound. At the turn of the century, there were perhaps 50,000 known compounds and 25 years ago there might have been a million. That gives a rough idea of the phenomenal growth of knowledge in chemistry alone.

I could probably get away with a little less time in preparing for lectures if I was teaching undergraduate courses. But preparation time at that level is offset by after-class time...providing additional assistance to students who need it.

We take teaching duties in Chemistry seriously. We enrol 5,000 students every year for the 88 courses we offer. Many of those students, of course, are enrolled in other faculties, so we're a service department to a certain extent.

One of the things we're proud of is the fact that UBC students get the highest aggregate score in Canada in the chemistry section of the MCAT exam that has to be written for admission to medical school. UBC students rank in the top ten in all of North America in the chemistry section. Our curriculum is very important to us.

A sound university curriculum should work towards three goals and the professor must see that his lectures direct students towards these goals. The first is the ability to communicate in plain language. The ability to communicate is the key to freedom and the guarantor that your point of view will be listened to. Unless we can convey an idea clearly and concisely to another human being our choices in life will be greatly reduced and our opportunities unrealized.

The second goal of an effective teacher is to develop problem-solving skills in our students. The analytical skills acquired in formulating and testing hypotheses, and in

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evaluating possible solutions, are readily applicable in a broad spectrum of problems that will face a person in life. It isn't crucial if these skills are developed in economics or quantum chemistry, linguistics or thermodynamics, it is the genuine skill which is important.

The third goal of a university education is to develop good judgment in our students. What is important to our society? Where should our priorities be? In chemistry we frequently ask what is the most significant experiment we can do to unravel a problem.

But it's only by analysing the great, the significant, the elegant and the profound can we learn to recognize these qualities. Here we see the intermingling of research and teaching.

I would always try to give a short lecture on the work of a Nobel laureate on the day the award was announced so that the students would gain some appreciation of why this scientist was being recognized as great. It is important that professors stimulate students to distinguish the enduring from the ephemeral, to distinguish fact from fraud...to develop good judgment.

Part of my day is also taken up with supervising, conferring with, guiding, call it what you will, a research team. This year there are nine of us — myself, five graduate students, a post-doctoral fellow, a research associate and a visiting professor from Israel, who's interested in the same field as I am.

It's been my experience that you can't separate the teaching and research function...they're inextricably linked together...they're two sides of the same coin.

When I get together with members of my team to discuss the results of something we've been doing, it's both a teaching and learning situation for each of us.

The most exciting thing about research is the fact that you're asking a question that has never been asked before. And no matter what the answer turns out to be, you can't help but have a sense of excitement about it. Perhaps I'd better explain that more fully.

All scientists carry around with them models of nature...notions of how the physical world works. When we ask a question, we frequently have a general idea of what the answer will be. When things work out in the way we expect, that's exciting because it confirms and amplifies our understanding of nature.

If the experiment works out in ways quite different from our expectations, that's just as exciting because it may open a door to some new direction. I got interested in pheromones in just that way ... a reaction which I had anticipated would yield a predictable result produced something quite unique and different.

Pheromones are a class of compounds that are produced by insects and which they use to communicate with each other. The Science Council of B.C. has provided funds to enable us to develop ways of synthesizing and to synthesize a number of these compounds which have enabled a Vancouver company to get off the ground and run a profitable pest management program.

And it all happened because a research team puzzled over that one unique chemical reaction and had the opportunity to follow it up. That wouldn't have happened if the granting agency had said we couldn't continue the work because it didn't fall within the terms of reference of the grant application.

That's something that bothers me more and more about research in Canada today — the tendency of granting agencies to target research money. Technology — the practical application of knowledge — stems from basic research, from giving people the freedom to ask the questions which have never been asked before and letting them explore the results thoroughly.

At present, scientists are under tremendous pressure to study "relevant problems." The pressure is particularly strong in Canada. I believe this philosophy is absolutely lethal to the development of Canadian science and technology. It is essential that our most creative and productive scientists have the opportunity and the support to follow their research programs wherever it takes them. I'm not suggesting they be given a blank cheque — they should be accountable for the scientific quality and merit of their programs, but not for its "relevance."

Why? Because we never know where these discoveries will lead. However, we must ensure that the results of these curiosity research programs are eventually developed for our well being, if possible.

In Canada, we don't concentrate our research resources...we tend to dilute our efforts by funding any and every project that is considered "worthy." And this situation isn't helped by the fact that the policies of the federal and provincial governments are often at cross purposes on the subject of research.

When you focus your strengths, of course, it means that most of the available money goes to people with proven records or innovative ideas and that funds are denied to others. That's not politically palatable to some people, but I think that if you went to the public, you could sell that concept.

Therefore, we should insure that our scientists are informed of the critical problems facing society and we should encourage those who are so inclined to turn their energies and results to the solution of these problems. But we should not force the most elite and creative scientists in our midst to do this, and that is what is happening at all levels of research funding in Canada today.

It boils down to a question of why the public wants an outstanding university. I think they want to back a winner...they want to associate with excellence.

Why were people so excited about the Canucks last year and with the phenomenon of Terry Fox a few years ago? People followed them because they achieved excellence.

I haven't said anything about my other major task — administration. It's an inescapable function when you have a department with a total budget of more than $7.5 million for teaching and research and 51 full-time faculty members.

Quite apart from the full-time faculty, the chemistry department has associated with it about 70 post-doctoral fellows and about 100 graduate students, most of whom teach for a varying number of hours, depending on the level of outside support that each has.

The faculty meet twice a month to discuss major issues and hear reports from committees that give direction to the department. I believe in the collegial model of administration ... in fact, I believe it's the only way in which a university can operate efficiently.

My main administrative job is to supply leadership in the setting of priorities for dealing with the most important and pressing problems facing the department and to assist committees in getting on with their work. In a department as large and complex as Chemistry, there is absolutely no way I could do it all myself.

Of course, my 'day' doesn't end at five in the afternoon. At least one night a week I'm here until 10 or 11 o'clock at night and most other nights I don't get away until 6:30 or 7 o'clock.

And it's a rare night I'm free of chemistry or departmental business at home. Much of my journal reading and refereeing of grant proposals and papers is done there and I don't get to bed much before midnight most nights.

I divert my mind slightly from chemistry by working on ways in which a personal computer can be used for my work at UBC. The one I have at home is linked up to the UBC Computing Centre. This enables me, for instance, to summarize the results of journal reading and put them into the computer, where they're stored permanently and recallable at any time.

One thing I do insist on...on Saturday night at five o'clock I drop everything to watch Hockey Night in Canada.

Another campus personality with a book problem different from the one described below is Ruby Rudd, a senior buyer in the Purchasing Department. She's overrun with books that have been ordered by people on campus but have ended up in Purchasing because the full delivery address wasn't given. If you've ordered books in the past year which haven't arrived, check with Ms. Rudd. She may have them and she's more than willing to give them up. You can reach her at 228-2861.

Library begins drive to cut book damage

The UBC Library has launched a campaign to raise public awareness about the "battered book syndrome" which costs the Library thousands of dollars each year.

Bookmarks and leaflets will be distributed to library users, posters and examples of damaged material will be on display, and the Library will be giving training sessions for its staff on the proper ways to handle books.

Joan Sandilands of the Information and Orientation Division in the Main Library said that the campaign was being launched because damage to books, either through carelessness or deliberate mutilation, is diminishing the Library's collections and affecting its reputation for good service. She added that the cost of repairing or replacing materials is substantial.

For example:

- It costs an average of $7 to mend a book with torn pages, bent corners or a broken spine or hinges. The Library's mender handles about 2,300 items a year. (This figure represents only a fraction of the damaged material that could be mended if the staff and facilities were available.)
- It costs about $19 to replace pages removed from a book or a bound periodical. The Library replaces pages and rebinds more than 150 items a year.
- It costs about $10 to replace a missing or damaged issue before a periodical is bound. The Library replaces more than 1,200 issues a year.

For more information about the campaign, call 228-2076 or look for displays in the Main, Sedgewick, Law, Woodward and Curriculum branches of the Library.

Talking computer aids blind

UBC's Crane Library for visually impaired students has acquired a talking computer that reads books aloud to the blind.

The Kurzweil electronic reading machine, which resembles a desk-top copier, recognizes virtually any print or type style and relays the printed material verbally.

Purchase of the machine was made possible by a $40,000 grant from the UBC Alumni Association's Wesbrook Society, an organization of more than 300 individuals and corporations who make major donations to the University.

Paul Thiele, head of Crane Library, says the machine also functions as a complex calculator with voice output and a talking computer terminal.

"To operate the machine, you just place the printed material face down on a glass plate and push a button that activates the machine's scanning device," he says. "The machine then forms letters into appropriate clusters, checks the words in a dictionary of pronounciation and reads the material aloud in a computer voice."

Mr. Thiele says the reading machine will make studying easier for visually impaired students, particularly those in the Faculties of Law and Commerce.

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was a grant and contract administrator at the University of Michigan, a contract negotiator with the National Aeronautics and Space Administration in Washington, D.C., and assistant to the dean of the University of Michigan's Medical School.

Dr. Chase has also taught in SFU's Department of Economics and Commerce and this year is a sessional lecturer in UBC's Faculty of Education.

Guys and Dolls

MUSSOC, UBC's student musical theatre society, is staging a production of Frank Loesser's *Guys and Dolls* in the Old Auditorium beginning Jan. 27.

The musical continues until Saturday, Feb. 5 (except Sunday). Tickets are $5.50 regular and $3.50 for students and seniors, and are available at the Student Union Building box office, by calling the MUSSOC office at 228-5656, and at the door.

Curtain time is 8 p.m.

Dean doesn't doubt value of Arts faculty

There are no doubts in the mind of Dean Robert Will about the value to the University of the faculty he heads.

"I think it's safe to say," he says, "that if there were no Faculty of Arts, it would be difficult to envisage there being a University of British Columbia.

"The liberal arts...the humanities and social sciences, call them what you will, are absolutely essential to the basic purpose of the University. The institution that ignores or downgrades them is not worthy of the name university," he said.

The dean has been heartened recently by the fact that the Vancouver Foundation, without direct representations from the University, decided to divide $1 million between B.C.'s three public universities for support of the humanities. (UBC got $500,000 and SFU and UVic each received $250,000.)

"The foundation's decision was far-thinking and enlightened," he said. "They realize that the humanities are at the heart of university-level studies and have sought to redress some of the difficulties we've encountered in recent years in terms of retrenchment and inflation.

"I'm enormously encouraged by this kind of unsolicited support and I regard it as a vote of confidence in the quality of the programs we offer."

Dean Will believes there are a good many myths circulating about the Faculty of Arts and what it does.

One of these is that students are turning away from liberal arts studies in favor of degrees offered in career-oriented faculties.

First, Dean Will points out that enrolment in Arts continues to increase annually. "Our overall enrolment is up 5.16 per cent in the current year to 6,069 students. We're still far and away the largest faculty at UBC."

Last year, the dean adds, 4,925 enrolled in Bachelor of Arts programs. This year, B.A. students total 5,265. "That's an increase of 340 students, or 6.9 per cent over last year."

The dean likes to think that such increases are another vote of confidence in the quality and range of liberal arts studies at UBC. "We offer a wide range of programs spanning the humanities, the social sciences and the fine arts," he said, "and I'm prepared to defend the quality of any of them to anyone."

Dean Will admits there is a trend to place more emphasis on science and technology at the expense of the liberal arts. "Universities," he says, "are increasingly being asked to dance to the tune of manpower studies and their dire predictions of a shortage of this or that type of professional or trained operative.

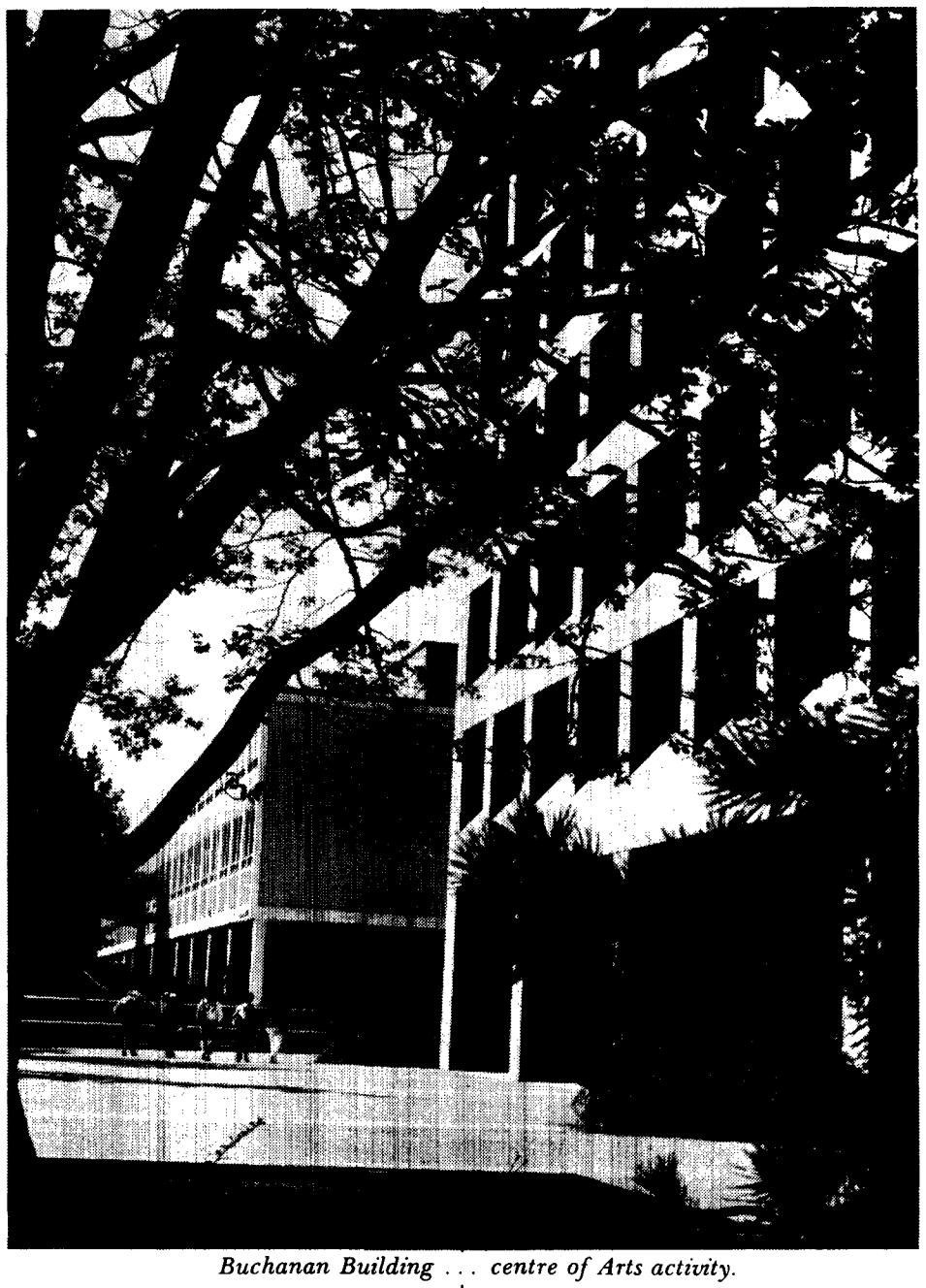
"But I'm not aware of any recent study that sounds the alarm over a possible shortage of educated people. Maybe there's a need for one. I'm confident that this university is too strong, too sure of its responsibilities, to reflect baldly all the pressures of the market place and society that now bear down on it."

At the same time, Dean Will agrees that it's understandable, considering current economic conditions, that people should want knowledge and know-how that can help improve the economy. "But," he adds, "I think people are mistaken in underestimating the importance and relevance of the liberal arts and a liberal education in resolving society's immediate problems.

"Most critics of arts faculties fail to recognize the centrality of the liberal arts to the well-being and development of professional faculties. No university can achieve excellence if they do not have strong core faculties of arts and science."

Which brings Dean Will to another prevalent myth about arts faculties — the one that characterizes them as ivory towers isolated from other UBC faculties and from the public generally.

"In addition to the degree programs we offer through 20 departments and three schools," he said, "we are a service organization for every other faculty on campus, except Law. Some 40 per cent of the students who are taught annually in the Faculty of Arts are registered in other UBC faculties."



Buchanan Building . . . centre of Arts activity.

And as for the criticism that Arts is isolated from the public generally, Dean Will points out that his faculty offers significant services to the public through museum and art exhibits, theatrical and musical performances and a wide range of free public lectures.

Last year, 140,000 visitors paid to see the UBC Museum of Anthropology's magnificent collection of Northwest Coast Indian artifacts, as well as displays from other world cultures.

Another 20,500 persons, many of them school children and their teachers, visited the museum for special events such as lectures, demonstrations and performances.

The Department of Music staged 46 faculty concerts and 90 student recitals in the last academic year and student ensembles gave 36 off-campus performances in areas ranging from the Kootenays to Vancouver Island.

In addition, some 21,000 persons attended a winter and summer season of plays in the Frederic Wood Theatre and many hundreds viewed eight exhibits in the cramped facilities of the Fine Arts Gallery in the basement of the Library. It's difficult to put a fine point on the number who attended lectures because most are free.

Another myth that Dean Will wants dispelled about his faculty is the one to the effect that it provides no training for careers in the professions. "The arts faculty at UBC trains librarians, home economists, musicians, social workers and archivists, as well as experts in the translation of French and German," he said. "And if we get the funding, we'll be offering a postgraduate program in journalism next year."

Many people, the dean said, believe that arts graduates are not trained for careers and that each year's graduating class is largely unemployable.

"The fact is that only about 50 per cent of arts faculty graduates in any one year are available for employment," he said. Some 40 per cent continue in some form of training — in graduate or professional schools as architects, teachers, lawyers, dental hygienists and doctors. The residual ten per cent are not available for employment, for one reason or another.

"And the last time the University did a survey of graduates in 1981," the dean adds, "it showed that the unemployment rate for 1980 arts graduates was only 5.4 per cent, which is a signficant decline from the 9.9 rate that was obtained in 1977.

"I'm not trying to duck the fact that the unemployment rate for arts graduates may have deteriorated again in the light of current economic conditions," he said, "but I'm prepared to bet that there has been a significant deterioration in every field, including the professions."

Despite the fact of retrenchment, Dean Will doesn't feel his faculty has been treated badly. "We're feeling the effects like every other faculty," he says, "but I think each faculty has to guard against the assumption that it has a right to be funded.

"I feel very strongly that the work we do is basic and critical, not just to the goal achievement of other faculties, but also to the preservation of our culture and civilization. We must strive to get that point across. If we don't receive as much money as we need, we must work that much harder to maintain the quality of what we do."

The frightening thing about retrenchment, Dean Will says, is that a slip in the quality of education often goes unnoticed or is less dramatic than a cut in programs.

"The result is that one may soon become accustomed to doing things less well, and perhaps even lose the resolve to put things right at a later date. This year, we have larger class sizes and a smaller number of sections offered, which restricts course options open to students because of timetabling constraints.

"Inevitably, all these factors affect the quality of education. We are also not able to replace many key faculty members in important areas of study. If that continues, we may well lose our reputation for excellence in areas which took decades to build up."

Looking to the future and possible academic expansion, Dean Will again mentions the proposed journalism program, as well as a program in atmospheric science, which would be offered jointly by the Arts and Science faculties.

"I think most future expansion in Arts is likely to take place within existing programs rather than as completely new ventures," he said. "We also have a responsibility to expand continuing education programs in areas such as social work and librarianship.

The diversity of programs which characterizes the Faculty of Arts is really one of its strengths, Dean Will said. "Initiative for change resides in the faculty's departments and schools and my involvement in programming is either reactive or persuasive.

"My main task is to obtain the funds needed to do the faculty's work and seeing to it that the human and financial resources of the faculty are allocated and deployed to the best advantage. I also have a major responsibility in the maintenance of academic standards and the excellence of our programs," he said.

"And one other thing," he adds quickly. "I take great pleasure, from time to time, in waving the faculty's flag."

Info expert speaks Feb. 1

A British-born library educator and leading thinker in the field of information systems will speak at UBC on Feb. 1.

Prof. F.W. Lancaster of the graduate school of information science at the University of Illinois will discuss the future role of communication and the role of the information specialist at a 4:30 p.m. lecture in Room A104 of the Buchanan Building sponsored by the School of Librarianship.

Prof. Lancaster's work deals with the underlying intellectual problems of information retrieval systems. He has made major contributions in areas such as interaction between system and user, evaluation of systems effectiveness and the implications of advanced information systems for the future of libraries.

Competition date set

Undergraduate students from all disciplines are eligible to take part in a $1,000 essay competition on Saturday, Jan. 29.

The annual prize was made available by the late Dr. William G. Black, a former UBC faculty member.

The competition, which is open to all students enrolled in undergraduate programs who do not already possess a graduate degree, is based on an essay on some aspect of Canadian contemporary society. The topic will be revealed at the time of the examination.

The competition takes place from 1 to 3 p.m. in Room 106 of the Buchanan Building. For more information, contact the Office of Awards and Financial Aid at 228-5111.

UBC on leading edge of research on brain

What appears to be science fiction is making UBC a world leader in brain research.

In a few days on campus matter and anti-matter will annihilate each other in an infinitesimally-small explosion in the brain of one of Canada's 250,000 Parkinson's disease patients.

The event will be a watershed in the history of the University with profound implications for patients with brain diseases as well as for the Health Sciences Centre Hospital and TRIUMF cyclotron project on campus.

It also promises significant spin-offs for Canadian high-technology industry.

So far, scientists have been able to make sense of the universe only by assuming the theoretical existence of another physical universe. Every particle of matter in the universe we know has a counterpart with the same mass but with opposite electrical charge in the other universe. When complimentary particles from the two universes meet, they annihilate each other and completely disappear.

We have evidence of the other universe. Anti-matter visitors from the other world appear in three ways:

Anti-matter is created in large nuclear accelerators such as the TRIUMF cyclotron. It is also formed as the result of cosmic rays from outer space colliding with particles of matter. And it is also created in the decay of certain radioisotopes.

It is through radioisotope decay that anti-matter is created for use in brain research at UBC.

Central to the enterprise is PET, the positron emission tomograph that has been built at TRIUMF over the past 18 months under the leadership of Dr. Brian Pate, who is also a professor in UBC's Faculty of Pharmaceutical Sciences and former associate director at TRIUMF responsible for its applied program.

PET will produce a series of unique, color images of the chemistry going on in the patient's brain while the patient is fully conscious and without the patient feeling any discomfort.

The machine is one of only four in Canada. It differs from machines at McGill, McMaster and Queen's Universities in its superior accuracy and speed. It can also produce much larger amounts of data and will have at its disposal a wider variety of radioisotopes, the source of positrons, than any other PET scanner in the world.

"What makes all of this possible," said Dr. Pate, "is the presence of a large number of University scientists, the hospital and the extremely sophisticated expertise of TRIUMF on the campus.

"Nowhere else in the world does this happy combination exist."

The first patient studied with the scanner will be a patient of Dr. Donald Calne, head of the division of neurology in the hospital on campus. Dr. Calne is an expert on diseases such as Parkinson's disease which impairs a person's ability to move their muscles normally.

The gamma rays are registered by an array of detectors in a large halo device surrounding the patient's head. The detectors feed the information through a glass fibre optic cable one kilometer long to a computer in UBC's Electrical Engineering department. After processing in the computer, the data are transmitted by the cable back to the PET team as a series of color images.

The UBC PET scanner will continuously produce a series of seven simultaneous slice images (tomo, Greek for slice) of the working of the brain.

The spouse of the Parkinson's disease patient will also have a scan so that Dr. Calne and his team can compare the metabolism of glucose in various regions of the brain of a Parkinson's victim with someone without the disease.

"The patient and spouse are volunteers," Dr. Calne said, "who are helping us with our research program."

PET is one of the newest techniques available for clinical brain research, Dr. Calne said. He has recently been joined in his research by Dr. Wayne Martin, assistant professor in the Division of Neurology in the Department of Medicine in UBC's Faculty of Medicine. Dr. Martin has completed a year of research into the applications of PET at Washington University in St. Louis, Mo.

Dr. Pate emphasized that patients will receive about the same or less radiation as from other scanning procedures. One important PET measurement gives the same amount of radiation as absorbed by someone travelling from Vancouver to London and back by air. The high altitude source of radiation, incidentally, is cosmic rays, most of which are normally absorbed by the atmosphere before reaching sea level.

"It is difficult to convey the opportunity the project gives us," Dr. Pate said. "Up until now much brain research was done by examining brains postmortem. But chemical changes that take place in the brain after death make whatever information is obtained inferential.

"Many researchers have also used animal models of certain diseases which occur in humans. But there are some human diseases which have no animal counterpart.

"Now, for the first time, we can look at the changing chemistry of a living, alert human brain that is undistracted by discomfort."

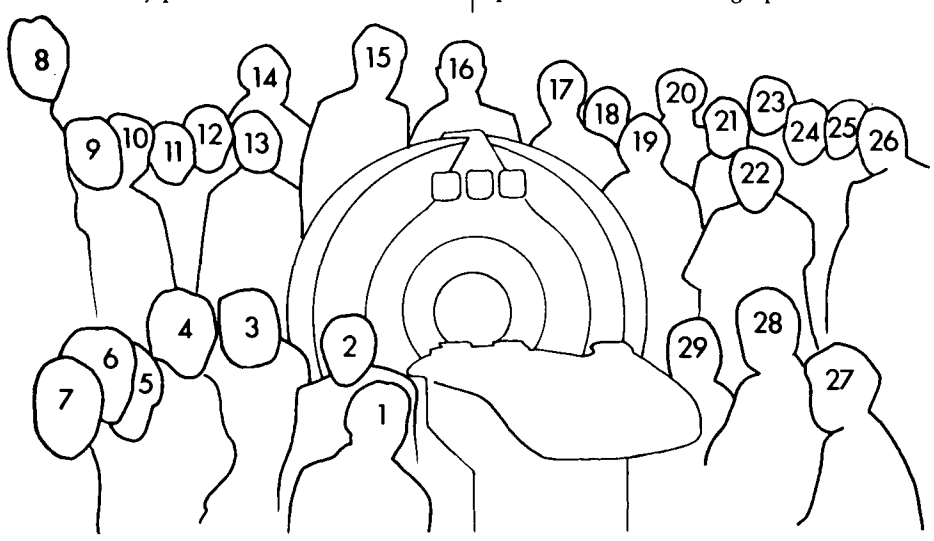
The PET project is part of UBC's new Imaging Research Centre. The centre will include another sophisticated imaging device called a nuclear magnetic resonance (NMR) scanner. The first NMR scan of a patient is expected this spring.

The Imaging Research Centre has been made possible by the presence and co-operation of a variety of scientists and organizations. Although located at UBC, TRIUMF and the hospital are not administered by UBC. TRIUMF is operated by a consortium of four western universities — Simon Fraser, the University of Victoria, University of Alberta and UBC. The hospital has its own board of trustees which reports not to UBC, but directly the Ministry of Health, as do all hospitals in B.C.

The Centre will also contain a more conventional CT scanner. There are about a half dozen CT scanners in hospitals. CT scanners do not obtain an image by detecting radioactivity within a patient as a PET scanner does. CT's operate on the same principle as x-ray machines. X-rays from a source outside the patient are directed through the patient's body, and CT scanning devices produce x-ray pictures of the result.

A major limitation of x-ray images is that they provide gross anatomical information only. The x-ray plates reveal organs and other structures where x-rays have been absorbed, compared with less dense areas of the body which allowed the x-rays to pass through.

PET scanners will provide information on the changing biochemistry of the brain.



Almost everyone who had anything to do with the acquisition and construction of the new Positron Emission Tomograph (PET) is shown gathered around the device, which was constructed at TRIUMF, the cyclotron project located on the UBC campus. 1. Nicholai Van Oers, 1982 summer student at TRIUMF, PET mechanical technician; 2. Dr. Lawrance Hall, chemistry UBC, PET organic chemistry; 3. Derek Stuart, TRIUMF-Acute Care Unit (ACU), PET pipeline; 4. Jeffrey Lofvendahl, TRIUMF, PET Mechanical Technician; 5. Dr. Wayne Martin, UBC medicine department, PET medical interface; 6. Dean Neumann, SFU student at TRIUMF, PET software assistance; 7. Christine Sayre, TRIUMF and pharmaceutical sciences faculty, UBC, PET detectors and software; 8. Dr. Michael Adam, TRIUMF and UBC pharmaceutical sciences, synthesis of PET scanning agents; 9. Dr. Yoshio Homma, TRIUMF visitor; 10. Neil England, TRIUMF, PET electronics assembly; 11. Vijay Verma, TRIUMF, PET project scheduling; 12. Dr. Ronald Harrop, TRIUMF and SFU science-mathematics, PET software; 13. Dr. Thomas Ruth, TRIUMF and UBC pharmaceutical sciences, nuclear chemistry of PET scanning agents; 14. Roy Moore, TRIUMF, PET electronics and ACU installation; 15. Dr. Erich W. Vogt, TRIUMF director; 16. Dr. Brian Pate, TRIUMF and UBC pharmaceutical sciences, PET program director; 17. Daryl Bishop, TRIUMF, PET data link; 18. Hart Sprenger, TRIUMF-ACU PET pipeline; 19. Brian Evans, TRIUMF, PET electronics; 20. Joop Burgerjohn, TRIUMF, PET engineering supervision; 21. Dr. Bernard Riedel, dean of pharmaceutical sciences and co-ordinator of Health Sciences, UBC; 22. Dr. Walter Koerner, vice-chairman, board of trustees, Health Sciences Centre Hospital (HSCH); 23. Donald Heywood, PET electronics design and supervision; 24. David Cameron, TRIUMF, PET electronics assembly; 25. Janet Mackintosh, PET detector technician; 26. R.E. McDermit, administrator, HSCH; 27. Cornelia Schofield, nuclear medicine, HSCH; 28. Anthony McLintock, nuclear medicine, HSCH; 29. L.F. Detwiller, consultant, HSCH. Bonny Van Tol, HSCH nuclear medicine, is at right but not visible in photo. Not able to be present were Dr. Joel Rogers, PET physics and software, and John Cresswell, TRIUMF, PET electronics design.

Dr. Pedersen steps down at SFU

UBC's president-designate, Dr. George Pedersen, will step down as president of Simon Fraser University on March 31 for three months of leave and vacation before taking up his new post at Point Grey.

Dr. Pedersen will become UBC's eighth president on July 1, succeeding Dr. Douglas Kenny, UBC's chief executive officer since 1975.

Recommended for the post of acting president of SFU, effective April 1, is Dr. George Ivany, dean of that university's Faculty of Education.

In addition to his duties as president, Dr. Pedersen will also have an academic appointment at UBC. He's been appointed a full professor in the Department of Administrative, Adult and Higher Education in the UBC Faculty of Education from July 1.

Want a good night's sleep? Avoid hospitals!

If you're looking for a good night's sleep, Ann Hilton suggests you stay out of the hospital.

Miss Hilton, an assistant professor of nursing at UBC, says that patients in hospitals, particularly those in intensive care units, have difficulty sleeping because of noises and interruptions in the hospital setting. She has carried out a major study on how much sleep patients get in hospitals and what factors disturb their rest, and a second study on noise levels in hospital areas.

"In intensive care units, sleep is understandably not a top priority because constant monitoring of a patient's condition is critical," says Miss Hilton. "But rest is obviously an important factor in a patient's recovery and I think there are ways that sleep can be given a higher priority without jeopardizing their safety."

Miss Hilton discovered that some patients get as little as six minutes sleep in a 24-hour period. She documented the sleep patterns of patients in a respiratory intensive care unit of a large metropolitan hospital, using an EEG machine to measure the activity of brain waves, eye movements and skeletal muscle tension for 48-hour periods.

"While the stages and cycles of sleep were being recorded, observers sat near by and noted any occurrences that may have been disruptive to the patient's rest.

"I found that patients slept an average of five hours in a 24-hour period," says Miss Hilton. "But the quality of sleep that they had was very poor.

"In a normal sleep cycle, we move from light to deeper sleep in four stages, move back to lighter stages, dream for a short period of time and repeat the cycle. This takes from 90 to 120 minutes. The study showed that not one of the patients completed a normal cycle, and that they rarely went deeper than the second stage of sleep.

"If they did move into stages three or four it was only for a minute or so."

Miss Hilton says that it was noises generated by people that proved to be the most disruptive to sleep.

"About 22 per cent of sleep interruptions were caused by the staff talking," she says.

"Other major interruptions to rest were noises in the environment such as doors closing, papers rattling, radios, telephones and cupboards being opened and closed. Medical assessments (i.e. checking vital signs) and procedures such as taking a patient for an x-ray accounted for 17 to 13 per cent of sleep interruptions, respectively."

This summer, Miss Hilton did a study on the noise levels in various intensive care units and wards in Vancouver and Richmond hospitals.

Using sophisticated recording equipment, she measured noise levels over a 24-hour period by placing a microphone close to the patients and documenting each noise and its decibel level.

"Noise levels seem to vary from ward to ward and hospital to hospital," says Miss Hilton. "In some units the noise level was quite high 24 hours-a-day. In others, the noise level dropped off at night, and in some units it was always fairly quiet. I'm in the process of analysing all the data now."

Miss Hilton says that some implications for health care are emerging from the noise study and the previous study on sleep.

"There are some interruptions that just can't be helped in a hospital, and you can't expect the staff not to converse at all. But I think it's possible to improve the situation.

"Glass sound barriers could be erected around the nursing station, telephone noises could be muted, interruptions by staff could be co-ordinated so that a patient is awakened once instead of three or four times for various reasons — any number of changes could be made, depending on the particular unit.

"In some cases, something as simple as oiling a squeaky door can make a big difference."

Institute resumes on January 29

Nuclear weapons, genetic engineering, the future of broadcasting, hormones and the brain, and the origin of the universe are just a few of the topics that will be under discussion during the Vancouver Institute's 1983 spring series of free public lectures at UBC.

The series opens on Jan. 29 with a lecture on "Hormones and the Brain" by Dr. Joseph Martin, head of Neurology at Harvard Medical School.

All Vancouver Institute lectures take place in Lecture Hall 2 of the Woodward Instructional Resources Centre at 8:15 p.m.

Here's a complete listing of the institute's spring series:

Jan. 29 — Dr. Joseph Martin, head of Neurology, Harvard Medical School, on "Hormones and the Brain."

Feb. 5 — Prof. Ezra Mishan, Economics, University of Victoria, on "Faith, Capitalism and Technology."

Feb. 12 — President Peter Meincke, University of Prince Edward Island, on "Small is Profitable."

Feb. 19 — Prof. Robert Miller, head of Microbiology, UBC, on "Genetic Engineering: How it Can Affect You."

Feb. 26 — Prof. J. David Singer, Political Science, University of Michigan, on "Military Strategy, Political Tactics and Survival."

March 5 — Prof. Michael Pentz, dean of Science, British Open University, on "A European Scientist Looks at Nuclear Weapons."

March 12 — Pierre Juneau, president, Canadian Broadcasting Corporation, on "The Future of National Broadcasting."

March 19 — Prof. Ian Ross, head of English, UBC, on "The Scottish Enlightenment and that Gadfly David Hume."

March 26 — Prof. James Peebles, Physics, Princeton University, on "The Origin of the Universe."

April 2 or 9 — The Vancouver Sun Annual Lecture. To be announced.

A brochure listing Vancouver Institute lectures is available by calling 228-3131.

25th Avenue route starts

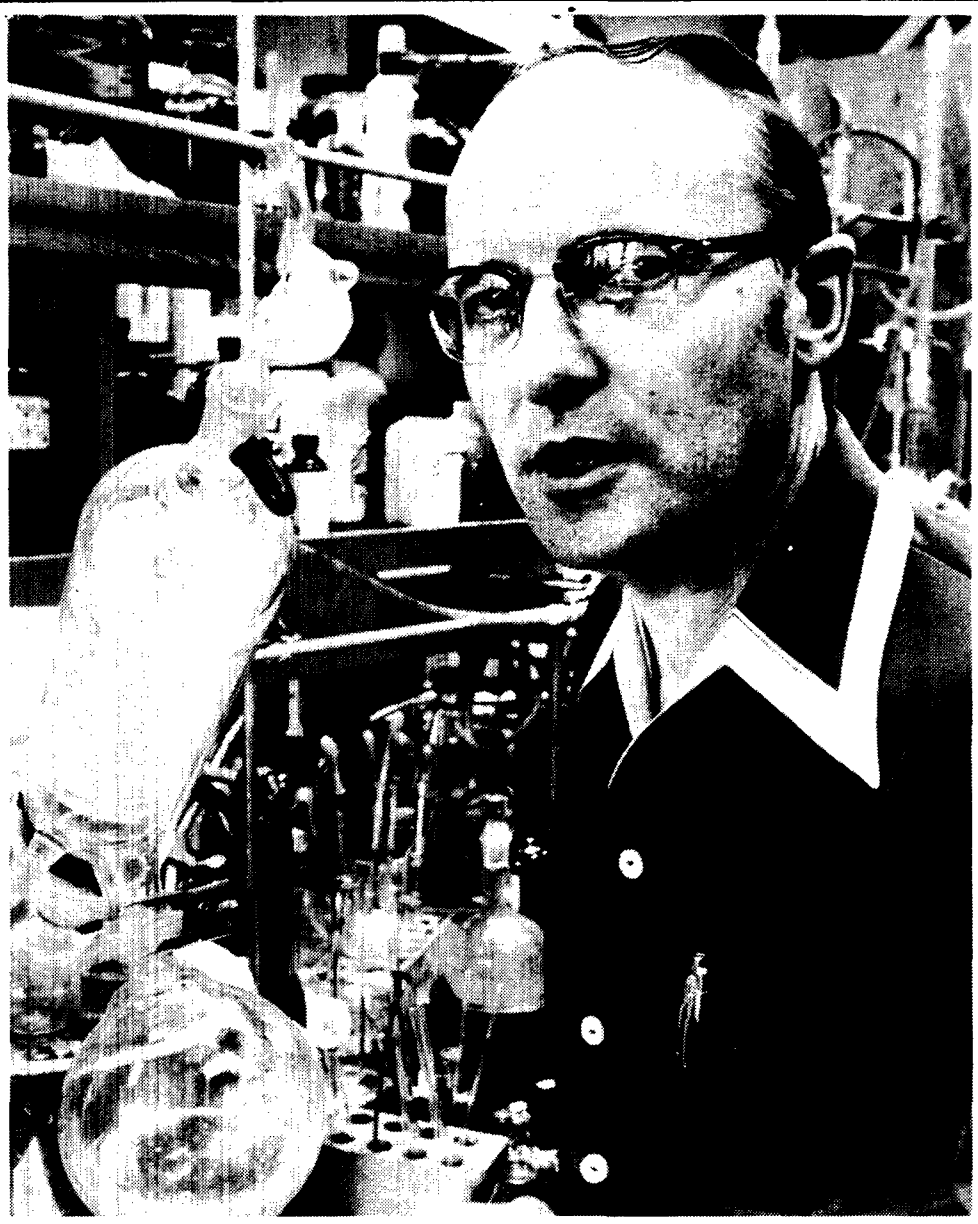
A new crosstown bus route is now in operation for people travelling to UBC from Vancouver and Burnaby.

The route crosses the city via King Edward (25th) and 22nd avenues from the Brentwood Mall in Burnaby to the Blanca Loop. When UBC is in session, bus service extends onto the UBC campus during peak class hours.

Service on the new route is at 15-minute intervals from 6 a.m. to 6:30 p.m. weekdays and from 7 a.m. to 6:30 p.m. on Saturdays. Buses run every half hour in the evenings and on Sundays.

The route is intended to meet a high-priority need for people travelling to a number of institutions, including UBC, BCIT and Shaughnessy, Burnaby General, Grace and the new Children's hospitals.

Further information is available by calling 324-3211.



Jim Kutney . . . moving into phase two of research.

Salmon, pulp mills aided by UBC research

A recent breakthrough by a team of scientists led by UBC chemist Jim Kutney may lead to greater efficiency in B.C. pulp mills and a safer environment for Pacific salmon.

The team has isolated a micro-organism — *Mortierella isabellina* — that can convert six lethal compounds in pulp mill effluent into substances that are non-toxic to young salmon.

"We've spent four years developing the research with micro-organisms in order to find one that would transform the poisonous compounds quickly and effectively," says Prof. Kutney. "One of our tasks now is to fill in the gaps between the isolation of the micro-organism and its commercial application."

The six lethal substances tested by Prof. Kutney's group are resin acids. Three are natural substances found in trees, and three are a result of a chemical reaction involving the chlorine used in the bleaching process. The compounds are lethal to salmon in a few parts per million.

Prof. Kutney says the current method of treating pulp mill effluent is unreliable. "The effluent is transferred into a biobasin or holding pond, where it is treated with an activated sludge containing a number of micro-organisms before being released into rivers and lakes.

"Until now, it wasn't known which micro-organisms were acting on the toxic compounds, it was difficult to determine if detoxification was complete, and the process took several days.

"*Mortierella isabellina* transforms the resin acids in about 24 hours, which is a significant improvement when you're talking about millions of gallons of water."

The team has received a two-year extension of a grant from the Natural Sciences and Engineering Research Council to carry out similar studies on a group of toxins known as chlorinated phenolics.

"First we'll test to see if *Mortierella isabellina* can biodegrade the chlorinated phenolics as well as the resin acids. If not, we'll go back to square one to find another micro-organism that acts on the new group of toxins and can co-exist in a biobasin with *Mortierella isabellina*."

Involved in the project with Prof. Kutney are chemists Eugene Dimitriadis, Brian Worth, Mahatam Singh and microbiologists Gary Hewitt and Philip Salisbury of UBC's Department of Chemistry.

"Our department is unique in the fact that we have microbiologists on staff," says Prof. Kutney. "This project is just one example of how efficiently research can be carried out when interdisciplinary work can be done within a single department."

Also contributing to the project are researchers from the Sweltzer Creek Salmon Research Laboratory, operated by the International Pacific Salmon Fisheries Commission, at Cultus Lake.

In addition to carrying out studies on the chlorinated phenolic toxins, Prof. Kutney says his group will use the next two years to prepare *Mortierella isabellina* for commercial use.

"We're looking at whether the fungus can grow in the natural temperatures of the biobasins, if it will propagate itself, or if the ponds will have to be re-inoculated. We're also testing to see how cheaply it can be grown and if it can be produced in the form of, say, a powder than can be kept on the shelf until it is needed.

"We've already done some studies which seem to indicate that the micro-organism can survive in the natural environment and we know it can be grown on bran. We're now exploring the possibility of growing it on sawdust."

Prof. Kutney says he's received positive feedback from industry so far, and he adds that when the research phase on the second group of toxins is complete, his team will accelerate their efforts in the direction of commercial application.

CAMPUS PEOPLE

Prof. A.D. "Tony" Scott of UBC's Department of Economics and **Dr. William Armstrong,** a former deputy president of the University, were among 63 Canadians recently appointed to the Order of Canada for distinctive contributions to Canadian society.

Prof. Scott, who has been a faculty member since 1953 and who headed the economics department from 1965 to 1969, is a key figure in an on-going study of the economics of resource management, which began in 1976 with a grant of nearly $1 million from the Canada Council.

Dr. Armstrong, who was a UBC faculty member from 1946 until 1974, was successively professor of metallurgy, head of the metallurgy department, dean of the Faculty of Applied Science and deputy president under the late Dr. Walter Gage.

In 1974, he became the first chairman of the Universities Council of B.C., which was provided for under the new Universities Act of that year. He stepped down as UCBC chairman in 1978 to chair a B.C. government research advisory board, which was later absorbed into the B.C. Science Council.

Prof. J. Lewis Robinson of the Department of Geography was one of nine recipients of the Distinguished Teaching Award at University level awarded by the National Council for Geographic Education, an interntional organization of geography teachers at primary, secondary and university levels. Prof. Robinson was the only Canadian to receive the award in 1982.

Prof. June Gow of the history department was named president-elect of the Canadian Research Institute for the Advancement of Women when it met in Ottawa last November. She takes office in November 1983.

CRIAW is a national organization with board members representing all the provinces and territories. Its purposes are to facilitate the carrying out of feminist and non-sexist research, to encourage interaction on research matters among women and to make research results widely accessible.

CRIAW is holding a conference in Vancouver Nov. 11-13 on the theme "Feminism in Action: New Knowledge, New Education, New Society."

Two UBC professors and 11 students in the Faculty of Applied Science have been named as recipients of 1982 awards of the Association of Professional Engineers of B.C.

The professors honored — both members of the Department of Mechanical Engineering — are **Dr. James P. Duncan,** who receives the association's Meritorious Achievement Award, and **Dr. V.J. Modi,** who is the recipient of the Editorial Board Award.

Prof. Duncan, who was head of Mechanical Engineering from 1966 to 1978, was honored for his achievements in the application of optics and mathematics to computer-aided manufacturing and design.

One of his most notable achievements is the development of a tool used by computers to instruct machines which produce surfaces of great complexity. The method has wide application in industry in the production of everything from marine propellors to prosthetic devices and is the subject of a book to be published soon by the Cambridge University Press.

Prof. Modi was honored by the association for an article entitled "Man and Machine," first published in the Journal of the Japan Society of Mechanical Engineers, and which appeared in the association's journal in May, 1982.

The article deals with machines and their impact on society and the philosophy of man's responsible use of machines. Dr. Modi is a former winner of UBC's top research award, the Prof. Jacob Biely Faculty Research Prize, and is widely known for his research, which encompasses space satellite dynamics, prosthetic heart valves and wind-operated irrigation systems.

Nine fourth-year UBC engineering students each received $75 book prizes from the association based on UBC departmental recommendations.

The 1982 recipients were: **N.M. Carter,** bio-resource engineering; **J.A. Langman,** chemical; **D.Y.K. Siu,** civil; **E.L. Froese,** electrical; **G.W. Prytula,** engineering physics; **Anton Brkic,** geological; **D.A. Lillico,** mechanical; **Carlos Ang,** metallurgical; and **J.D. Whitehead,** mining and mineral processing.

The $200 Christopher E. Webb Prize, awarded annually by the association to a fourth-year student interested in B.C. water resources, was awarded in 1982 to **Douglas C. Gairns** of civil engineering.

The $500 Association Proficiency Award in 1982 was made to Randy Brent Osborne, who headed the engineering graduating class last May. He is now a student at Massachusetts Institute of Technology.

Assistant professor of metallurgy at UBC, Dr. Indira Samarasekera, will be in Atlanta, Georgia, early in March to receive the Robert W. Hunt Silver Medal of the American Iron and Steel Society. The award is given annually for the best original paper published in 1981-82. Her paper, co-authored by metallurgy professor Dr. Keith Brimacombe, deals with methods of improving the quality of billets formed in moulds in steel mills. Some mills, she said, are using the recommendations in the paper to improve the quality of billets.

Multicultural harmonies featured in museum exhibit.

Show explores harmonies

No one can accuse Museum of Anthropology curator Marjorie Halpin of not planning in advance for her exhibits.

Sensibilities — Unsuspected Multicultural Harmonies, the feature exhibit at the museum until April 17, is the result of weekly and sometime semi-weekly meetings and discussions held over a three-year period.

Dr. Halpin, who is also an associate professor of Anthropology at UBC, talked with *UBC Reports* about the process involved in turning an idea into an exhibition.

"The idea for the exhibit was first conceived when I was teaching students in Anthropology 431, a general course on museum principles and practises. In the course I always address the problem of presenting academic material in a way that is appealing to the average museum visitor.

"Most of us are trained so totally in our academic disciplines that we sometimes tend to speak a secret language — I call it 'curatorese' — which is easily understood by experts in anthropology, but not necessarily by members of the public. I think this is often reflected in the museum displays.

"Out of discussions with my students came the idea for an exhibit that would present museum artifacts and contemporary objects in a manner that the public could interpret themselves." Three years (and many meetings) later came the Sensibilities show.

The exhibit is composed of two circles of cases, one inside the other, with objects arranged in "still life" groupings. Although the objects span 25 centuries and represent many different cultures, each case has a common "dominant sensibility" or visual property — i.e. irridescence, color or tone, texture, pattern, etc. The exhibit highlights the harmonies and common aesthetic features found in arts and crafts throughout the ages.

"In a sense, we had to forget everything we knew as academics and concentrate on our personal responses to the objects," says Dr. Halpin. "We want people to apply their own perceptions to the displays."

She says that the Sensibilities exhibit is "almost unrecognizable" from the original concept she began with three years ago.

"The idea that the students and I started with was an exhibit that would present artifacts from a particular country over a period of time to show the changes in art from earlier centuries to contemporary works.

"Then I realized that we would be making a very negative statement. A lot of art is now mass-produced to sell to tourists — we refer to it as 'airport art.' To put these pieces beside earlier works would have represented a loss of tradition, skill and integrity. I wanted to make a more positive statement than that about what is happening in contemporary art."

A committee consisting of Dr. Halpin, Glenn Allison, curator UBC's Fine Arts Gallery, and several museum staff members, Anthropology students and museum associates (volunteers) reworked the idea until it took the shape of the Sensibilities exhibit.

"We started playing with artifacts down in the lab, putting objects from different periods and cultures together, and we discovered that they created their own harmonies," says Dr. Halpin. "The word unsuspected was used in the exhibit title because we couldn't predict which combinations would work and which wouldn't."

Dr. Halpin adds that the exhibit breaks the "cardinal rule" of museum collections. "We're taught that objects from different cultures should always be kept very distinct from each other. We're told to store, display, work with, teach about and write about objects in terms of their cultural differences.

"We brushed that rule aside, and proceeded by trial and error, and deep similarities and harmonies emerged that stimulated thought and questions."

Dr. Halpin says the committee then decided to use the eight inner display cases to display contemporary Canadian works against a world background.

"Members of the committee volunteered to take responsibility for individual display cases, and once the objects had been chosen, total freedom was given to museum designer Herb Watson to design the layout of the cases."

Dr. Halpin says the public response to the exhibit has been very enthusiastic. One woman, she says, has returned eight times.

GRANT DEADLINES

Faculty members wishing more information about the following research grants should consult the Research Administration Grant Deadlines circular which is available in departmental and faculty offices. If further information is required, call 228-3652 (external grants) or 228-5583 (internal grants).

February (application deadlines in brackets)

- Alcoholic Beverage Medical Research Fdn. — Research (1)
- AUCC: National Defence Program — Fellowships: Strategic Studies (1); PDF: Military History (1)
- Austral. Inst. Nuclear Sc. & Eng. — AINSE Research Fellowship (28)
- Cancer Research Society Inc. — Fellowships (15); Research (15)
- Deutscher Akadem. Austauschdienst (DAAD) — Study Visits of Foreign Academics (1)
- Distilled Spirits Council of U.S. — Grants-in-aid for research (1)
- Educational Research Inst. of B.C. (ERIBC) — ERIBC Research Grant (1)
- Employment & Immigration Canada — Fed. Summer Youth Employ. Program (SYEP) (10)
- Environ. Canada: Wildlife Service — University Research Support Fund Program (15)
- Health & Welfare Canada: Welfare — National Welfare: Senior Research Fellowship (1)
- Health & Welfare: Family Planning — Family Planning: Awards/Demonstrations (1)
- Hereditary Disease Foundation — Research (1)
- Intern. Copper Research Assoc. — Research Contract (15)
- Intern. Development Res. Centre — Professional Development Award **(cancelled)**
- Labour Canada — University research (15)
- National Huntington's Disease (U.S.) — Postdoctoral Research Fellowships (15)
- Royal Bank Award (28)
- Scottish Rite Schizophrenia Prog. — Research Grant (1)
- Secretary of State — Canadian Ethnic Studies Program: Professorships (15); Canadian Ethnic Studies: Research (15)
- Secretary of State: Women's Prog. — Project Grant (1)
- Spencer, Chris Foundation — Foundation Grants (28)
- Weizmann Inst. of Science — Joseph Meyerhoff Fellowship (28)

March (application deadlines in brackets)

- American Chemical Society: PRF — Research Type AC (1)
- AUCC: International Relations — Poland/UNESCO Copernicus Fellowships (1); Poland/UNESCO Fellowships in Slavonic Studies (1)
- B.C. Health Care Research Fdn. — Development & Training Fellowship (1); Research (1); Research Scholar Award (1)
- Banting Research Foundation — Research (1)
- Bell, Max Foundation — Research (1)
- Bronfman Foundation — Seagram Business Faculty Award (15)
- Canada Israel Fdn. Academic Exchange — Canadian Studies Program at Hebrew University (1)
- Canada Mortg. & Housing Corp. — Research Contract Type B (over $3,500) (1)
- Canadian Diabetes Association — Research Fellowship (15)
- Canadian Heart Foundation — Symposia (1)
- Dept. Education, Dublin, Ireland — Research Fellowship in Science and Engineering (20)
- Donner Canadian Foundation — Research (1)
- Health & Welfare Canada — Health Promotion Contribution Program (30)
- Huntington's Chorea Fdn. (U.S.) — Research (1)
- Intern. Atlantic Salmon Fdn. — Fellowship (15)
- Intl. Development Res. Centre — Education Research Awards Program (1)
- Juvenile Diabetes Fdn. (U.S.) — Research (1)
- Koerner, Leon & Thea Foundation — Foundation Grants (15)
- Manning, Ernest C. Awards Foundation — Ernest C. Mannings Awards (31)
- March of Dimes Birth Defects Fdn. — Intensive Course in Maternal Nutrition (1)
- National Inst. of Education (U.S.) — NIE Research Grants (25)
- National Research Council — France-Canada Exchange (Natural/Applied Sc.) (31); France-Canada Exchange (Social Sc. & Human.) (31)
- North Atlantic Treaty Organiz. — International Collaborative Research (31)
- NSERC: Intl. Relations Division — CIDA/NSERC Research Associates: LDC's (15); Exchange: Brazil, Czech., Japan, Bulg. (15); International Collaborative Research (15); International Scientific Exchange Awards (15)
- NSERC: Strategic Grants Division — Stategic — Open Areas (25)
- Rolex Awards for Enterprise — Rolex Awards (31)*
- Royal Geographical Society — Society Bursaries (15)
- Royal Society — The Royal Soc. Commonwealth Bursaries Scheme (15)
- Science Council of B.C. — B.C. Science & Engineering Awards (31)
- Scottish Rite Schizophrenia Prog. — Research Grant (1)
- SSHRC: Intl. Relations Division — Travel to Int'l Scholarly Conferences (1)
- SSHRC: Research Communic. Div. — Aid to Occasional Conferences (30)
- SSHRC: Strategic Grants Division — Canadian Studies: Research Tools (1); Library: Strengthening of Specialized Collections (31)
- University of British Columbia — UBC: Biely Faculty Research Prize (7)
- University of Cambridge — Visiting Fellowship in Commonwealth Studies (11)
- University of London — Dame Lillian Penson Travel Grants (1)
- U.S. Dept. of Health, Educ./Welfare — NIH Grants to Foreign Institutions (1)
- Von Humboldt Fdn. (W. Germany) — Research Fellowship (1)
- Woodward's Fdn. (Mr. & Mrs. P.A.) — Foundation Grants (1)

** UBC deadline March 1*

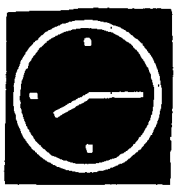
Note: All external agency grant applications must be signed by the Head, Dean, and Dr. R.D. Spratley. Applicant is responsible for sending application to agency.

UBC CALENDAR

Calendar Deadlines

For events in the weeks of Feb. 6 and Feb. 13, material must be submitted not later than 4 p.m. on Thursday, Jan. 13. Send notices to Information Services, 6328 Memorial Rd. (Old Administration Building). For further information, call 228-3131.

The Vancouver Institute.



Saturday, Jan. 29
Hormones and the Brain. Dr. Joseph B. Martin, head of Neurology, Harvard Medical School.

Saturday, Feb. 5
Faith, Capitalism and Technology. Prof. Ezra Mishan, Economics, University of Victoria.

Both lectures take place in Lecture Hall 2 of the Woodward Instructional Resources Centre at 8:15 p.m.

SUNDAY, JAN. 23

SUB Films.
Raiders of the Lost Ark. Will also be shown at 7 and 9:30 p.m. Admission is $1.50. Auditorium, Student Union Building. 3 p.m.

Hillel House.
Folk rock and country music sung by Rabbi Moshe Shur. Admission is $6; $5 for Hillel House members and seniors; $3 for children. Lubavitch Centre, 5750 Oak St. 8 p.m.

MONDAY, JAN. 24

Mechanical Engineering Seminar.
Dynamics of a Large Class of Satellites with Deploying Flexible Appendages. A. Ibrahim. Room 1215, Civil and Mechanical Engineering Building. 3:15 p.m.

Statistics Workshop/Management Science Seminar.
Tutorial on the Mathematics of Gambling. Dr. William T. Ziemba, Commerce and Business Administration, UBC. Room 212, Angus Building. 3:30 p.m.

Applied Mathematics Seminar.
Simple versus Complex Models for Resource Management. Dr. Don Ludwig, Mathematics and Animal Resource Ecology, UBC. Room 229, Mathematics Building. 3:45 p.m.

TUESDAY, JAN. 25

Forestry Seminar.
Forestry: Getting the Job Done. Mike Apsey, Deputy Minister of Forests. Room 166, MacMillan Building. 12:30 p.m.

Hillel House.
The B'nai B'rith Women are sponsoring a free salami lunch. For more information, call 224-4748. Hillel House. 12:30 p.m.

Science in Society Series.
When a Standard is Inadequate in the Workplace: Fluorosis in Kitimat. Mr. Whiho Papenbrock, president, Canadian Association of Smelter and Allied Workers, Kitimat. Lecture Hall 3, Woodward Instructional Resources Centre. 12:30 p.m.

Botany Seminar.
A Case Study on Changing Nutritional Values of Host Plants and Insect Cycles: The Larch Bud Moth System in the European Alps. Dr. A. Fischlin, Animal Resource Ecology, UBC. Room 3219, Biological Sciences Building. 12:30 p.m.

E.S. Woodward Lecture.
Why is Productivity Not Increasing? Prof. Lester C. Thurow, Management and Economics, MIT. Room A104, Buchanan Building. 12:30 p.m.

Oceanography Seminar.
River Ocean Interactions. Dr. L. Albright, Biological Sciences, SFU. Room 1465, Biological Sciences Building. 3 p.m.

Transportation Engineering Seminar.
Human Factors in Design of Traffic Control Devices. Dr. Robert Dewar, University of Calgary. Room 1210, Civil and Mechanical Engineering Building. 3:30 p.m.

Chemistry Lecture.
Synthesis of Lipoxygenase Products (Importance of Leukotrienes in Normal and Disease States). Dr. J. Rokach, Merck Frosst Canada Inc., Montreal. Room 250, Chemistry Building. 4 p.m.

Faculty Club.
Scotch Whisky Blending and Burns Night Supper. Cost for whisky blending seminar is $5, $12.50 for dinner. Reservations required. Faculty Club. 6 p.m.

Gerontology Lecture.
Environmental Quality and Spatial Behavior. Richard Seaton, Architecture, UBC. Lecture Hall 3, Woodward Instructional Resources Centre. 7 p.m.

Development Education Series.
CUSO is presenting a weekly series of programs exploring international development issues. This week's topic is "Sharing Global Resources — The How and Why of Resources Distribution." For further information, call 228-4886. Upper Lounge, International House. 7:30 p.m.

WEDNESDAY, JAN. 26

Pharmacology Seminar.
The Physiology of G.I.P. Dr. John Brown, Physiology, UBC. Room 114, Block C, Medical Sciences Building. 12 noon.

Noon-Hour Concert.
Music of Barber, Hindemith and Webern performed by Eric Wilson, cello, and Harald Krebs, piano. Recital Hall, Music Building. 12:30 p.m.

E.S. Woodward Lecture.
Whither the World Economy? Prof. Lester C. Thurow, Management and Economics, MIT. Room A104, Buchanan Building. 12:30 p.m.

Ethnic Studies Lecture.
Ethnicity and Education: Implications of Multiculturalism. Prof. Kogila Adam-Moodley, Social and Educational Studies, Education, UBC. Room A203, Buchanan Building. 12:30 p.m.

Animal Resource Ecology Seminar.
Daily and Annual Cycles in the European Kestrel: Individual Tuning to Vole Availability. Dr. Serge Daan, Zoology, Gronigen State University, The Netherlands. Room 2449, Biological Sciences Building. 4:30 p.m.

SUB Films.
Poltergeist. Will also be shown at 12:30, 7 and 9:30 p.m. on Thursday, and at 7 and 9:30 p.m. Friday through Sunday. Admission is $1.50. Auditorium, Student Union Building. 7 p.m.

Geological Museum Meeting.
There will be a meeting of the "Friends of the Geological Museum" with guest speaker Dr. R.L. Armstrong of the Department of Geological Sciences. Dr. Armstrong will be speaking about the field of geochronology, in which he has done extensive research. Visitors are welcome. Donation at the door of $2.50/person or $4/couple. For further information, contact Joe Nagel at 228-5586. Room 135, Geological Sciences Building. 8 p.m.

THURSDAY, JAN. 27

Political Science Seminar.
Machiavelli on the Necessity of War. Dr. Anthony Parel, University of Calgary. Room A203, Buchanan Building. 12:30 p.m.

Oral Biology Discussion Group Seminar.
Metalloenzymes in Collagen Degradation. Dr. Paul G. Scott, Dentistry, University of Alberta. Room 388, MacDonald Building. 12:30 p.m.

Asian Studies/Religious Studies Lecture.
Buddhism in Gilgit: Between India and Central Asia. Prof. Oskar von Hinuber, Indological Seminar, Mainz University, Germany. Room 604, Asian Centre. 12:30 p.m.

So You Want to Get a Job?
The first program in this three-part series will focus on Resume Writing and will teach women students the basics of developing both an effective resume and covering letter. Sponsored by the Women Students' Office. Room 302, Brock Hall. 12:30 p.m.

Hillel House.
The North American Jewish Students' Network is sponsoring a seminar on media update. For more information, call 224-4748. Hillel House. 12:30 p.m.

Faculty Recital.
Music of Schubert performed by John Loban, violin, and Lee Kum-Sing, piano. Recital Hall, Music Building. 12:30 p.m.

Financial Planning Session.
Tax Planning Issues; RRSP's and Annuities. Larry James, Peat, Marwick, Mitchell & Co., and John Gives, Solguard Annuity Consulting Services. Sponsored by the Faculty Association and the Centre for Continuing Education. Room 201, Hennings Building. 12:30 p.m.

Animal Resource Ecology Lecture.
Water Allocation Systems and Their Implications for Management. Dr. Dixon Thompson, Environmental Design, University of Calgary. Room 2000, Biological Sciences Building. 12:30 p.m.

Institute of Asian Research Film.
Kung Fu As Folk Art. Admission is free. Auditorium, Asian Centre. 12:30 p.m.

Geological Sciences Lecture.
Sand and Pepsi-Cola or an Introduction to the Mechanics of Gassy Sediments. Dr. J. Sobkowicz, R.M. Hardy and Associates, Edmonton. Room 330A, Geological Sciences Building. 12:30 p.m.

Fine Arts Lecture.
Richard Wilson and his Friends at Cicero's Villa at Arpinum. Dr. David H. Solkin, Fine Arts, UBC. Room 102, Lasserre Building. 12:30 p.m.

Condensed Matter Seminar.
Quantum Hall Effect in a Periodic Potential. Marcel Den Nijs, University of Washington. Room 318, Hennings Building. 2:30 p.m.

Asian Studies/Religious Studies Lecture.
The Origin of Pali and Buddhist Hybrid Sanskrit. Prof. Oskar von Hinuber, Indological Seminar, Mainz University, Germany. Room B223, Buchanan Building. 3:30 p.m.

Underwater Science Seminar.
MANTA — remotely operated, self-powered/towable underwater vehicle with side scan sonar, low light video, still camera, and Guildline 8770 capability (conductivity, temperature, depth, dissolved O_2 pH). Tom Barnes, president, SEA-I Research Canada, Ltd. Room 1465, Biological Sciences Building. 3:30 p.m.

China Seminar.
The Significance of Place in Chinese Place Names. Richard Copley, Geography, UBC. Room 604, Asian Centre. 3:30 p.m.

Biomembranes Discussion Group Seminar.
Dynamics of Exchange in Plasma Membranes of Plant Cells: Frequency of Lysis and Freeze Injury in Plants. Dr. Joe Wolfe, Physics, University of New South Wales. Lecture Hall 5, Woodward Instructional Resources Centre. 4 p.m.

Physics Colloquium.
Antenna Holography. Carman Costain, Dominion Radio Astrophysical Observatory. Room 201, Hennings Building. 4 p.m.

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UBC CALENDAR

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FRIDAY, JAN. 28

Bio-Resource Engineering Lecture.
R & D Techniques and Institutional Changes for Generating Appropriate Technology in Agricultural Systems. Dr. H. Zandstra, International Development Research Centre. Room 1212, Civil and Mechanical Engineering Building. 11:30 a.m.

Audiology and Speech Sciences/ Linguistics Lecture.
The Importance of Input for Language Acquisition: Some Evidence from the Blind. Dr. Elaine Andersen, Linguistics, University of Southern California. Sponsored by the Leon and Thea Koerner Foundation. Lecture Hall 6, Woodward Instructional Resources Centre. 12:30 p.m.

Medical Genetics Seminar.
The Porphyrias: Clinical Aspects and Case History. Dr. J. Allanson, Medical Genetics, UBC; and Biochemistry and Diagnostic Testing. Dr. M. Bernstein, Pathology, UBC. Parentcraft Room, Grace Hospital. 1 p.m.

Political Science Seminar.
Recent Major Interpretations of Machiavelli. Dr. Anthony Parel, University of Calgary. Penthouse, Buchanan Building. 3:30 p.m.

Linguistics Colloquium.
The Role of Visual Perception in Early Language Development. Dr. Elaine Andersen, Linguistics, University of Southern California. Sponsored by the Leon and Thea Koerner Foundation. Room D121, Buchanan Building. 3:30 p.m.

Faculty Club.
Winetasting featuring the wines of the State of Oregon. Reservations required. Cost is $4.50. Faculty Club. 6 p.m.

SATURDAY, JAN. 29

International House.
Pot-luck Supper featuring international cuisine. Bring a main course dish — enough for yourself and several others. For information and reservations, call 228-5021. International House. 6:30 p.m.

MONDAY, JAN. 31

Terry Fox Cancer Seminar.
Drug Resistance — A Major Obstacle to Curative Chemotherapy of Cancer. Dr. Frank M. Schabel, Microbiology and Pathology, University of Alabama Medical Centre. Lecture Theatre, B.C. Cancer Research Centre, 601 W. 10th Ave. 12 noon.

Out-to-Lunch Phycologists.
UBC Algal Culture Collections: Freshwater and Marine. Judy Acreman and Carol Ann Borden, UBC. Room 3000, Biological Sciences Building. 12:30 p.m.

Applied Mathematics Seminar.
Optimal Fishery Investment With Fluctuation and Uncertainty: Bayesian Decisions. Part 1. Dr. Colin W. Clark, Mathematics, UBC. Room 229, Mathematics Building. 3:45 p.m.

TUESDAY, FEB. 1

Bio-Resource Engineering Lecture.
The Roots of the Appropriate Technology Movement. Prof. W. Nicholls, Religious Studies, UBC. Room 1212, Civil and Mechanical Engineering Building. 12:30 p.m.

Asian Studies Lecture.
World Views of Asian Theatre. Prof. James R. Brandon, Drama and Theatre, University of Hawaii. Room A203, Buchanan Building. 12:30 p.m.

Practical Writing Lecture.
Eliminating Jargon. Robert Katz, Arthur Andersen and Co. Room 201, Computer Science Building. 12:30 p.m.

Assertiveness in Social Situations.
A three-session workshop designed for women. It will include some focus on learning how to make requests, set limits, and take risks. Sponsored by the Women Students' Office. Room 301, Brock Hall. 12:30 p.m.

Forestry Seminar.
Rehabilitation of Some Plantations of Coastal Douglas-Fir Exhibiting Distorted Growth. Dr. K. Klinka, Faculty of Forestry/Ministry of Forests. Room 166, MacMillan Building. 12:30 p.m.

Electrical Engineering Seminar.
Adaptive Control: Overview and Work in the Field at PPRIC. Dr. Guy Dumont, Control Engineering Section, Pulp and Paper Research Institute of Canada. Room 402, Electrical Engineering Building. 1:30 p.m.

Asian Studies Seminar.
The Shadow Theatre in India and Southeast Asia. Prof. James R. Brandon, Drama and Theatre, University of Hawaii. Room A203, Buchanan Building. 3:30 p.m.

Geological Sciences Lecture.
Geologic History of Reefs. Dr. Noel James, Memorial University. Sponsored by the American Association of Petroleum Geologists Distinguished Lecture Series. Room 330A, Geological Sciences Building. 3:30 p.m.

Chemistry Lecture.
Sulfur Production from Natural Gas: Problems and Recent Advances. Prof. Axel Meisen, Chemical Engineering, UBC. Room 250, Chemistry Building. 4 p.m.

Librarianship Lecture.
The Future of Communication and the Role of the Information Professional. Prof. F.W. Lancaster, Graduate School of Information Science, University of Illinois. Room A104, Buchanan Building. 4:30 p.m.

Employment Seminar.
The Canada Employment Centre and the UBC Alumni Association's Student Affairs Committee have again organized an employment seminar for non-professional students. Resume writing, interview preparation and the methods for conducting an effective job search will be discussed. To register or for further information, please call 228-3313. Cecil Green Park. 5 p.m.

Gerontology Lecture.
Managing the Liveable Environment for the Aging Urban Population. Peter Oberlander, director, Centre for Human Settlements, and Community and Regional Planning, UBC. Lecture Hall 3, Woodward Instructional Resources Centre. 7 p.m.

Development Education Series.
Using Technology — Transplanting High-Technology or Encouraging Local Ingenuity? Sponsored by CUSO. For further information, call 228-4886. Upper Lounge, International House. 7:30 p.m.

WEDNESDAY, FEB. 2

Pharmacology Seminar.
Studies of Glial Cells in Tissue Culture. Dr. V.K. Singh, Pathology, Children's Hospital. Room 114, Block C, Medical Sciences Building. 12 noon.

Ethnic Studies Lecture.
Polishness: A Historical Approach. Prof. Bogdan Czaykowski, Slavonic Studies, UBC. Room A203, Buchanan Building. 12:30 p.m.

Noon-Hour Concert.
Music of Devienne, Joliet and Enesco performed by Isobelle Chapuis, flute, and Ellen Silverman, piano. Recital Hall, Music Building. 12:30 p.m.

Hillel House.
Hillel House presents a talk by Dr. Norman Rose. Hillel House. 12:30 p.m.

Asian Studies Seminar.
The Structure of Kabuki Performance. Prof. James R. Brandon, Drama and Theatre, University of Hawaii. Room B321, Buchanan Building. 12:30 p.m.

Anatomy Seminar.
Micro-Mechanical to Bio-Mechanical Models of Physiology: Haller to Spallanzani. Dr. John Norris, History of Medicine, UBC. Room 37, Anatomy Building. 12:30 p.m.

Statistics Workshop.
Shock Processes with After Effects and Multivariate Lack of Memory. Dr. Sudhish G. Ghurye, Statistics and Applied Probability, University of Alberta. Room 308, Angus Building. 3:30 p.m.

Pacific Rim Lecture.
The Mobility of Real Estate Investment Capital Among Pacific Rim Countries: A Preliminary Survey. Prof. Michael Goldberg, Commerce, UBC. Room 604, Asian Centre. 4:30 p.m.

Animal Resource Ecology Seminar.
The Sociobiology of Population Dynamics in White-tailed Deer. Dr. Dale R. McCullough, Forestry and Resource Management, University of California. Room 2449, Biological Sciences Building. 4:30 p.m.

Hillel House.
Hillel House is sponsoring a dinner and speaker Dr. Norman Rose. The film *The Peace Crisis* will also be shown. Hillel House. 6 p.m.

SUB Films.
Star Wars. Shows are at 7 and 9:30 p.m. Wednesday through Sunday with matinees at 12:30 p.m. on Thursday and 3 p.m. on Sunday. Admission is $1.50. Auditorium, Student Union Building. 7 p.m.

THURSDAY, FEB. 3

Asian Studies Lecture.
Early Kabuki Theatre. Prof. James R. Brandon, Drama and Theatre, University of Hawaii. Room A203, Buchanan Building. 12:30 p.m.

Hillel House.
North American Jewish Students' Network is sponsoring a talk by John Rothman. For information, call 224-4748. Hillel House. 12:30 p.m.

So You Want to Get a Job?
Job Search Strategies will be the focus of this lecture, the second in a three-part series sponsored by the Women Students' Office. Room 302, Brock Hall. 12:30 p.m.

Institute of Asian Research Film.
Voices of Hunger. Admission is free. Auditorium, Asian Centre. 12:30 p.m.

Condensed Matter Seminar.
Basic Physical Mechanisms of Reactive Sputtering. John Affinito, UBC. Room 318, Hennings Building. 2:30 p.m.

Asian Studies Seminar.
Performing Kabuki in English. Prof. James R. Brandon, Drama and Theatre, University of Hawaii. Room A203, Buchanan Building. 3:30 p.m.

Physics Colloquium.
Proton NMR Studies of Biological Systems. Alex MacKay, Physics, UBC. Room 201, Hennings Building. 4 p.m.

Quintet West with Pacific Motion.
Music of Barber, Reicha and Stravinsky. Janice Le Blond, choreographer. Recital Hall, Music Building. 8 p.m. Tickets are $6; $5 for students and seniors, and are available by calling the Vancouver Ticket Centre at 687-4444.

FRIDAY, FEB. 4

UBC Wind Symphony.
Music of Dahl, Milhaud, Hill and Strauss directed by Martin Berinbaum. Recital Hall, Music Building. 12:30 p.m.

Financial Planning Session.
UBC Pension and Insurance Plans. Prof. William Wood, Commerce, UBC, and Prof. Donald Paterson, Economics, UBC. Sponsored by the Faculty Association and the Centre for Continuing Education. Room 201, Hennings Building. 12:30 p.m.

Medical Genetics Seminar.
Pregnancy Outcome in a Large North American Population. Dr. R. Ward, Medical Genetics, UBC. Parentcraft Room, Grace Hospital. 1 p.m.

Philosophy Lecture.
Distributive Justice in Aristotle's Ethics and Politics. Prof. David Keyt, University of Washington. Sponsored by the Distinguished Visitors' Program. Penthouse, Buchanan Building. 2:30 p.m.

Institute of Asian Research Seminar.
Kawabata Yasunari. Prof. Kinya Tsuruta, Asian Studies, UBC. Part of the Ohira Commemorative Program in Japanese Studies. Room 604, Asian Centre. 2:30 p.m.

UBC Wind Symphony.
Music of Dahl, Milhaud, Hill and Strauss directed by Martin Berinbaum. Recital Hall, Music Building. 8 p.m.

Folk Music Night.
Sponsored by the Graduate Student Society. Bring your own instruments and join in. Admission is free. Bar service available. Garden Room, Graduate Student Centre. 8:30 p.m.

Notices . . .

Language Programs
UBC's Centre for Continuing Education is offering programs in conversational French, Spanish and Japanese in the spring and summer. Some classes begin the last week of January. For details and registration forms, call 228-2181, local 227.

Reading, Writing and Study Skills
Improve your reading speed, comprehension, composition, speech and study skills. The UBC Reading, Writing and Study Skills Centre offers non-credit courses beginning the week of Jan. 24. Pre-registration is required. For information, phone 228-2181, local 245.

Ballet UBC Jazz
Ballet UBC Jazz is offering various levels of ballet, jazz, and dancercise classes to students, faculty and staff Jan. 15 - March 18. Of special note are an intermediate ballet class with pointe, a men's dance class, and performance classes. For more information, please come to Room 216E, Student Union Building.

Blood Donor Clinic
The Forestry Undergraduate Society is sponsoring blood donor clinics Monday, Jan. 31 through Friday, Feb. 4 from 10 a.m. to 4 p.m. The clinics will be held in Rooms 207, 209, 211, 213 and 215 of the Student Union Building.

Food Service Hours
The Auditorium snack bar, Buchanan snack bar and the Bus Stop coffee shop are open from 7:45 a.m. to 4 p.m. Monday through Friday; the Barn coffee shop is open from 7:45 a.m. to 3:45 p.m. Monday through Friday; the Education snack bar opens at 7:45 a.m. and closes at 6 p.m. Monday through Thursday and at 3:30 on Friday; the IRC snack bar is open from 8 a.m. to 3:45 p.m. Monday through Friday; Ponderosa cafeteria operates from 9 a.m. to 2 p.m. Monday through Friday and the SUBWay cafeteria is open from 7:30 a.m. to 7 p.m. Monday through Thursday, from 7:30 a.m. to 4 p.m. Friday and from 10 a.m. to 5 p.m. Saturday and Sunday.

Lost and Found
The Lost and Found is located in Room 208 of Brock Hall. Telephone, 228-5751. Hours of operation are 10:30 a.m. to 1:30 p.m. Monday, Wednesday and Friday; from 11:30 a.m. to 12:30 p.m. and from 2:30 to 3:30 p.m. on Tuesdays and from 11:30 a.m. to 3:30 p.m. on Thursdays. Items are located in the Women Students' Office in Room 203 of Brock Hall when the Lost and Found is closed.

UBC Geological Museum
The Geological Museum is holding a clearance sale in preparation for obtaining new inventory. All mineral and fossil specimens will be discounted 25 per cent or more during the month of January. Treat yourself to a beautiful piece of the earth, complete with descriptive information. Proceeds go toward new acquisitions for the permanent collection.

Tap Workshop
Ballet UBC Jazz has organized an Introductory Tap Workshop. This two-day workshop on Jan. 22 and 23 will be taught by Bonnie Hauss, a well-known Vancouver instructor. Registration is necessary. Please come to Room 216E, Student Union Building, for more information.

UBC Research on CKVU
Television station CKVU has started a new series on research at UBC. The first segment was carried Tuesday night on The Vancouver Show and featured Prof. Doug Kilburn of Microbiology, discussing new approaches to the treatment of cancer. Although the series started on Tuesday, CKVU says it plans to carry the programs every second Monday, with the next three scheduled for The Vancouver Show (7 to 9 p.m.) on Jan. 31, Feb. 14 and Feb. 28. The Jan. 31 show will feature Prof. William Oldham of Civil Engineering, on pollution control.

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