

UBC Reports

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GENETICS REPRIEVE

by Debora Sweeney

Administrators at Grace Hospital have given UBC's medical genetics clinic until December 31 to come up with \$154,000 to keep the clinic open.

"We've been given more breathing space, but no promises," said Dr. Patricia Baird, head of Medical Genetics at UBC.

Unless Baird can come up with the money she needs, the genetics clinic will be forced to shut down. More than 20 people will be laid-off, including genetic assistants and clerical staff.

Baird said her last hope is the provincial government's \$20 million hospital funding program.

"I'm optimistic because I'm getting signals from Grace Hospital that they're hopeful the money will come from the Ministry of Health," she said.

Earlier this month, Baird received a letter from Major Gerald McInness, Administrator of Grace Hospital, saying her budget would be capped as of December 1, three-quarters of the way through the fiscal year. It means the clinic's funding would be cut off until the new fiscal year beginning in March and layoffs would go into effect almost immediately.

Baird said the layoffs would close the service indefinitely because valuable staff would be snapped up by other genetic departments throughout North America.

Last year, more than 4,000 families used the clinic's services and staff made more than 2,000 telephone consultations.

Baird said recently she had a letter from a man in his early 30's who was advised by the clinic to go for a cancer check-up. One of his relatives had been diagnosed with an unusual form of bowel cancer. Clinic staff located other family members who were at risk and contacted them.

"The young man wrote to say he was diagnosed at an early stage and went in for surgery," she said. "The surgery was entirely successful. He would have been dead if we hadn't warned him."

Baird said news of the imminent closure of the clinic has prompted scores of telephone calls to her UBC office and to the Grace Hospital clinic.

One of the callers was Ann Morrison, the mother of two healthy infant boys. Her first son was born in 1982 with a rare genetic disorder. It caused degenerative brain damage which resulted in the baby's death shortly before his first birthday.

"He suffered tremendously," said Morrison, "and the heartbreaking thing was that nobody could do anything to stop it."

Morrison said her decision to have more children depended entirely on prenatal testing, which is provided only by the Grace Hospital clinic. Doctors performed amniocentesis 18 weeks into her pregnancy and told her her baby would not be born with the defective gene. If that service had not been available, Morrison said she would not have tried to get pregnant again.

"After going through something like that and knowing there is a one-in-four chance it could happen again, nobody would attempt to have children," she said. Now, I have two beautiful children and feel indebted to the clinic."

Supercomputers

A sub-committee looking into supercomputing needs at UBC has decided it would be too expensive to introduce the system on campus.

"It's not worth it at this time," said Dr. James Varah, a member of the sub-committee. "The University doesn't have the financial resources to purchase a multi-million dollar supercomputer."

However, the sub-committee has come up with recommendations to study the matter further and to assist researchers with supercomputing needs.

Details of those recommendations, along with the sub-committee's report appear in a special insert in this issue of UBC Reports.

Continent-wide search for new registrar

Registrar overhaul needed

by Debora Sweeney

The registrar's office must be overhauled, according to K.D. Srivastava, vice-president, student and academic services and the chairman of a task force studying the office.

"The student service aspects have to be given a very high priority," said Srivastava. "Our counter services have to be reorganized and we must look at adequate staffing."

UBC is scouring North America for a new registrar and the task is not easy. Administrators say the successful candidate must have "a soft tongue and an iron hand."

"Previous registrars didn't provide good student services or ever ask for resources,"

said Dr. Stanley Oberg, who will be on the selection committee to hire the new registrar. "I expect whoever seriously goes for the job to demand the resources to do the job right."

Another member of the task force, Dr. John Gilbert, said the registrar's office has not provided adequate job training.

"We must make proper training resources available," he said. "We can't send these people on three-hour courses and expect them to do their jobs properly."

Each of the task force members contacted by UBC Reports agreed the new registrar will have to see his or her job from the student's point of view.

"Large institutions tend to become

impersonal not by design, but more by default," said Srivastava. "The person in the registrar's office has to be very conscious of that."

"We live in the 20th Century and it's all about marketing," added Gilbert. "If you don't have a good registrar's office, you don't have good enrolment."

The registrar is responsible for undergraduate admissions and registration; graduate and undergraduate student records; scheduling of courses, examinations and classrooms; and maintaining Senate and faculty secretariats.

While the task force is expected to recommend significant changes to the registrar's office, the members contacted by UBC Reports agreed the staff has held up admirably under incredible pressure.

Oberg pointed out that since the former registrar Ken Young died last year, the acting registrar Alan McMillan stepped in without naming a replacement. Then, the assistant registrar left on maternity leave.

"The one job I wouldn't want in this university is acting registrar," said Oberg. "Here they are scheduling a new registration system (telereg) and no one has worked for more than six months in that office."

McMillan said he will apply for the job and that his stressful initiation as acting registrar has made him a stronger candidate.

"Now, I'm more aware of the issues and the problems in this office," he said. "This has given me time to reflect on how areas that need reorganization can be changed with the proper support."

McMillan said he shares the task force members' philosophy on providing better student services.



Researchers check out the damage after a Honda hits the crash barrier.

Crash course underway

by Jo Moss

Skid marks used to make it easy for police to estimate the speeds of vehicles involved in a car accident

With the growing use of anti-lock braking systems (ABS) on cars, that evidence is frequently absent. The tires don't skid any more.

UBC's Accident Research Team is working to solve that problem by investigating a method that will determine vehicle speed from the condition of the car body after the accident. Researchers are gathering data on how vehicles crumple after hitting a concrete wall at various speeds. Eventually, they hope to have a set of 'stiffness co-efficients' for many car models on the market.

Housed in the Civil Engineering department, the Accident Research Team is one of nine such groups located in universities across Canada. Coordinated by engineering professors Frank Navin and Gerald Brown, researchers work on contract with Transport Canada. They maintain close contact with the R.C.M.P., city police, I.C.B.C., car manufacturers and other groups involved in vehicle safety.

According to Collision and Defect Investigator Michael Macnabb, ABS is one of the most important advances in car safety.

"With ABS the wheels do not lock even on slippery surfaces, they slow down in a precise and controlled manner," Macnabb said.

Depending on speed and road conditions, ABS can decrease the stopping distance by up to 20 per cent and it allows the driver to retain control of the car at all times. Macnabb predicts ABS will become increasingly common in cars and trucks.

In the crash project, researchers use a barrier of interlocking two-ton concrete blocks located at an ICBC test site in Burnaby. They direct cars toward the wall at speeds of up to

30 m.p.h. The resulting smash-up is carefully noted and logged.

According to Macnabb, preliminary crash research with cars such as Honda Civic and Renault show that damage varies surprisingly from model to model.

"If you take five different models of small cars and crash them into the barrier at the same speed, you'll get five different degrees of deformation," Macnabb said. "The Renault 5, for example, is a stiff car that shows little damage at 10 m.p.h."

The prospect of low repair bills may sound good to drivers, but the fact is the more damaged the car, the less damage there usually is to the occupants.

"We call it ride-down time," Macnabb said. "The longer the ride-down time of your car, the better you will fare."

Once the research is completed, Macnabb said the crumple test will prove to have a wide application, in ICBC claims for example.

"If you're involved in an accident and the other guy swears he was only going 25 m.p.h. the deformation of the car may prove he was actually going faster," Macnabb said. "That's one use we envision for the data."

But researchers won't be testifying in court on a motorist's behalf.

"We're strictly data collectors," Macnabb said. "We also provide the expertise and background for organizations such as ICBC to conduct their own tests."

According to Macnabb, each of the nine accident research units work on different provincial safety needs.

"We pick up on localized safety needs and help move things along in road safety," he said.

Macnabb and Navin will be demonstrating the Accident Research Team's role in safety at an upcoming Traffic Safety Fair to be held at Robson Square, December 4 and 5.

Millions in patents

by Jo Moss

UBC can make millions of dollars from patenting and licensing innovative devices and processes, says Al Fowler, manager of patents and software licensing at the Research Services and Industry Liaison office.

"There's lots of potential out there. We haven't scratched the surface," Fowler said.

According to Fowler, UBC raises a paltry half million dollars a year from royalties and equity in patents. Two patents now making money are on the Vortek lamp and the Moli battery.

"The lead time between a product being patented and becoming successful can be anywhere from three to 10 years," Fowler explained. "We haven't been doing it seriously for very long."

According to Industry Liaison Officer Jim Murray, there's an increasing awareness among faculty members that by-products of their research can be commercially viable to themselves and the university.

"Research sometimes leads to important and patentable innovations. They don't sidetrack the main research goals," Murray said. "Our main problem is that most faculty don't realize how valuable some of their stuff is."

The Research Services office currently has more than 100 patents in inventory. None of them are there because someone set out to invent something new, Murray said.

"If we knew what it was that creates innovation, we would all be millionaires," Murray said. "It's chance, brilliance, an offhand remark that someone makes in a seminar. Our job is to create the environment for that kind of creativity to flourish and provide the mechanism to make it useful to society as quickly and as efficiently as possible."

Information on recent patent applications was unavailable--all applications are strictly

Millions in Patents continued on Page 2

How to teach the teachers to teach



University of Victoria professor Andy Farquharson fields questions from UBC faculty during a seminar on effective lecture design.

by Lorie Chortyk

Too many university professors don't know how to teach.

Gail Riddell, coordinator of a new program that helps UBC teachers improve their classroom skills, said too often new faculty are "thrown to the wolves" to learn teaching skills by trial and error.

Common mistakes made by professors include lack of structure in a lecture, trying to do too much or too little in an hour and not letting students know what's expected of them, "Doctoral students aren't taught how to teach, they're taught how to do research," said Riddell. "The goal of our program is to help both new and experienced faculty be more productive in the classroom."

The new Faculty Development Project, offered jointly by the Centre for Continuing Education and the Faculty Association, was funded by a one-year, \$30,000 grant from the President's Office.

Riddell said faculty have responded well to the new service.

"I think academics are beginning to understand how much their teaching affects the way the community views UBC," said Riddell. "They're on the front lines. A student's image of UBC after he or she graduates and moves into the private or public

sector is going to be shaped directly by the excitement or lack of excitement generated in the classroom."

Six instructional seminars have been offered for faculty and teaching assistants this fall on topics ranging from how to structure a lecture to effective use of overhead projectors. Riddell also produces a newsletter which offers suggestions for effective teaching.

Riddell said most other universities in Canada and the U.S. already offer similar programs.

James Forbes, a professor of Commerce and chairman of the program's advisory committee, said the program is as important for experienced teachers as it is for new faculty.

"I've had a lot of comments from faculty who tell me how helpful it is to be reminded of some of the basics," he said. "It's important for experienced faculty to keep their ideas fresh and to be challenged in their work."

Forbes said the program tends to attract UBC's better teachers.

"It's easy to get good teachers out because they're the ones that want to sharpen their skills and keep up with the latest instructional techniques," he said. "It's a little harder to get faculty out if they think they're doing fine without any help. Unfortunately these are the ones who need the program the most."

Forbes said a common nightmare for faculty is the infamous 1:30 lecture.

"The worst possible scenario for a teacher is having a large class at 1:30," he said. "There's 250-300 students in the lecture hall, most students are crunching lunchbags, others are dozing off, and it's your job to grab and keep their attention."

"No matter how much teaching experience you've had, this can be very intimidating. Our program is designed to help faculty deal with these situations."

Meech Lake saps cities' control

by Lorie Chortyk

Canada's cities and towns will lose control over federal-provincial funding policies that directly affect them as a result of the Meech Lake Accord, according to the director of the Centre for Human Settlements.

Peter Oberlander said municipalities should have lobbied for more control over housing, transportation, and environmental policies.

"The municipalities have done nothing to bring themselves into the governing circle," said Oberlander. "They're like Victorian children -- seen but not heard."

Oberlander is organizing a two-day symposium in January to examine the impact of the Meech Lake Accord on Canadian Settlements. Scheduled speakers include GVRD Regional Manager Michael O'Connor, UBC political scientist Alan Cairns, West Vancouver Mayor Donald Lanskaill, and other experts from Canadian and U.S. universities.

Oberlander's main concern with the Meech Lake Accord is the "opting out" clause, which enables provincial governments to opt out of federal programs in return for compensation in other areas.

"If a provincial government decides it doesn't want to participate in a federal housing program, for example, it's the cities and towns that lose out," he said.

Not all municipal officials share Oberlander's concern over the Meech Lake agreement. A UBC Reports telephone survey of mayors across the country turned up limited opposition to the accord. In most cases, officials said the impact of the agreement on local government hadn't been discussed.

But Mayor Donald Lanskaill of West Vancouver agrees with Oberlander.

"I'm pleased Quebec has been brought into the constitutional family, but I think municipalities are paying too a high price in the accord," he said. "My concern is that Meech

Lake will lead to a hodge-podge of policies across the country as provincial governments opt out of programs at will."

Lanskaill said no dialogue took place between the premier and B.C.'s municipalities before the Meech Lake talks.

"We are an important level of government and we were virtually ignored."

New Westminster Mayor Tom Baker said most municipalities take their cue on federal policy issues from the Federation of Canadian Municipalities, an Ottawa organization that analyzes federal policies and keeps local governments abreast of changes that affect them.

According to the federation's executive director Jim Knight, Meech Lake "just isn't an issue to us".

He said the federation sent a letter of congratulations to the prime minister and provincial premiers when the accord was signed, but no dialogue has taken place since.

"We deal with matters between the federal government and municipalities. Obviously constitutional changes don't fit into this mandate," he said. "It's a federal-provincial matter and we don't intend to take a position on it."

Knight said he was familiar with Oberlander's point of view on local self-government.

"He's very persuasive and he knows the issues. But I don't share his perspective on the situation at all."

Oberlander said he hoped the two-day symposium will get people thinking about the impact of Meech Lake and about self-government.

"I have some real concerns about a nation totally engulfed in urbanization that doesn't recognize municipal governments in its constitution," he said.

"If provinces are able to opt out of federal programs, we could end up with a

checkerboard of standards across the country for services like health and unemployment insurance and pension funds.

"If that happens Canada becomes nothing more than a collection of disparate communities."

Business sector urges more aggressive stance

by Lorie Chortyk

Educators are adopting a "wait and see" attitude following a four-day national forum on post-secondary education held in Saskatoon Oct. 25-28.

President David Strangway said there was widespread agreement among participants of the increasing significance of post-secondary institutions in Canada, but that the real test of the forum will come when the Council of Ministers of Education meet with Secretary of State David Crombie in February. The ministers will discuss a recommendation made at the forum for a national council that would plan and develop strategies for post-secondary education.

The forum was sponsored by the provincial and federal governments and included private sector participants as well as representatives from post-secondary institutions.

Prof. John Dennison of the Faculty of Education was a member of the UBC delegation which attended the conference. He said there was some concern on the part of the provinces that a national council would develop programs which the provinces would



Dr. David Strangway

be expected to finance, but that the overall atmosphere of the forum was "very open, very cooperative".

Dennison said business leaders at the conference called on universities to be more assertive in letting the community know about the resources and expertise available on campuses across Canada.

"At the beginning of the forum, the general feeling from private sector participants was that universities were already getting enough money. By the end of the four days they were amazed at what was going on at Canadian universities and they wanted to know why they hadn't heard about it before."

According to Dennison, most of the discussion at the forum focused on managing and financing institutions, although issues such as accessibility and quality of education were also examined by the forum's 600 participants. Daily reports from 21 working groups were condensed into three final reports at the end of the four-day session.

Political scientist Paul Tennant, who also attended the conference, said the good will and spirit of cooperation generated at the conference could be a key factor in leading to policy changes.

"If you're looking for some sort of immediate, short term impact from a meeting like this, it's probably not going to happen," he said. "But don't underestimate the political changes that can come about by having more active, motivated spokespeople out there in the private sector, in government and at our own institutions raising awareness about universities."

"I think the forum achieved that new awareness."

Patents from Page 1

confidential while patenting is underway. It's a lengthy and expensive process, particularly if the university is seeking patents in several different countries.

Faculty members receive half of royalties earned on a patent. The inventor's department gets one sixth and the university takes the remaining third.

"We haven't had any millionaires yet," Fowler said. "But we have certainly had one or two people who could have nicely paid for a reasonable house."

For researchers who dream of striking it rich, Fowler has some sobering statistics.

"Only about one per cent really make a lot of money," he said. "Five to ten per cent make a healthy amount; 30 to 40 per cent make some money--the rest we do badly on."

According to Fowler patenting a device or process is an extremely complex business.

To begin with, countries differ on what can, and can't be patented. New types of plants or seeds, species of insects and principles of theory can't be patented in Canada.

"It depends on what you've got. You don't have to be aggressive if you've got a good invention. If you develop a basic application, you can make millions," he said.

The biggest problem for university researchers is disclosure.

"In most countries, if you disclose the information, you can't patent it," Fowler explained. "That's a serious situation for faculty who must publish or perish. In patenting, if you publish--you perish."

Canada and the U.S.A. both allow a grace period to publish and follow with a patent. But Fowler said new federal legislation will soon change that.

While many Canadian institutions, including UBC, have recently adopted a more aggressive approach to patenting university research, many faculty members resist the idea.

"Universities found they could make a buck. But some faculty feel it's a sacrilege to patent," Rowley said.

Fowler echoed similar concerns.

"It's not a very good approach because most companies won't even look at new technology unless it's patented. Without it they

don't have protection from competition," he said. "It's erroneous to believe that if you develop something and give it to the world, the world will be grateful--it's not grateful."

According to Fowler, Science and Engineering are the two UBC areas where most patenting occurs. He said medical research is one area he would like to see make patenting gains.

UBC recently established a Patscan office for faculty to check out existing patents in Canada and the U.S.A.

"You couldn't have patented the law of gravity, for example," Fowler said. "Although bacteria can't be patented in Canada, you can sometimes get around that by patenting a process in which they play a part."

Computer programs also can't be patented, but they can be copyrighted.

Cec Rowley, Manager of Patents and Licences at MacMillan Bloedel, has worked with several Canadian universities, including UBC, on forestry-related projects. He said there's no hard and fast rule as to what patented product will be commercially successful.



Double Identity: Identical twins Dick and Syd Cannings live and work side-by-side.

Entomology twins keep them bug-eyed

by Debora Sweeney

For first year biology students, it's like walking into the Twilight Zone.

The place: the entomology (insect) museum in the biological sciences building. A student brings a bug to curator Syd Cannings for identification.

Together, they identify the bug and the student leaves the museum. He heads for the elevator. The elevator doors open. He moves to step in, but suddenly stops and blinks in stunned disbelief.

Out walks Cannings -- mysteriously transported from the museum to the elevator.

"They just about drop dead," laughs Syd Cannings.

"It happens all the time," adds Syd's identical twin, Dick.

They're sitting side-by-side in Dick's domain -- the vertebrate museum located next-door to the entomology museum. They're about 6-foot-3, with red hair and bushy red beards. For about the first 15 minutes, it's difficult to tell them apart.

Both studied zoology at UBC at the same time. Their father got them started.

"After the war, he moved to the Okanagan and started watching birds," said Syd. "By the time we were born, he was into general natural history. Every Sunday, we'd pile into the car and go for a little drive into the hills and look at birds and animals and insects."

Their older brother Robert also caught the zoology bug. He's the chief of biology at the

provincial museum in Victoria. The three brothers have collaborated on a book called *Birds of the Okanagan Valley of British Columbia*.

Back at Dick's vertebrate museum at UBC, there are about 30,000 stuffed birds and mammals. The museum is crammed with rows of cabinets piled three high, almost to the ceiling.

"I've talked to other museum curators around the world," says Dick. "They're always shocked when they come in here. We stick everything into one room. A large part of my job is trying to squeeze things in."

The birds, mice, rats, porcupines and other animals are "squeezed" into cabinet drawers -- and there are rows and rows of them. The birds are on their backs, the mammals on their stomachs.

Next-door, Syd's entomology museum is the home of 500,000 insects, including butterflies, spiders, beetles and cockroaches, stuck on pins in nearly 1,000 drawers.

"Because of the great diversity of our climate and geography, we have far more species of insects than in other parts of Canada," says Syd. "We're focusing on developing the best collection of insects in northwestern America."

The Cannings brothers say they love their jobs and are content to work side-by-side. But, they don't just work in close quarters.

"We live in the same house," says Dick. "It's a duplex," adds Syd. "We couldn't afford to buy one each so we went together."

Overseas market studied

by Lorle Chortyk

UBC has set up a task force to explore the potential of selling education to overseas markets.

Vice-President Academic Daniel Birch said the task force on international education was established in response to growing interest on the part of the B.C. government to promote higher education as an export commodity and to use education to attract foreign resources to the province.

"Both the Ministry for Economic Development and the Ministry for Advanced Education and Job Training are very interested in this," he said. "The big market seems to be the Pacific Rim at the moment, but the task force will be looking at the broad international picture."

Birch said no decision has been made on who would fund special programs if they were set up, but the provincial government has shown interest in supporting developments in this area.

Birch said major universities in the U.S. are already offering special programs for foreign students and have set up campuses in Japan, Hong Kong and other overseas centres.

"UBC isn't rushing into anything, but I think as B.C.'s major university we have a responsibility to examine the situation."

The task force's mandate is to "consider the desirability" of offering UBC programs abroad as well as special programs in B.C. for international students, and to identify strategies of carrying out such activities. Although UBC is active in setting up educational programs for institutions in developing nations, the only program leading to a UBC diploma or degree is offered in Brazil through the Faculty of Education.

Birch said private organizations in B.C. are already moving into the overseas market.

"An organization called the Canadian International College has signed a long-term lease on the David Thompson campus in

Nelson and plans to offer first-year university courses for Japanese students," he said. "When the college was advertised in a Tokyo newspaper, they had 2,000 enquiries in a week."

Birch said the CIC eventually plans to set up a four-year college in the Lower Mainland for international students.

He said foreign programs usually focus on English language training and other high-demand disciplines.

"There's a big demand for business programs, for example," he said, "and at present we've got strict enrolment limitations in Commerce. Obviously if we're going to respond to the needs of foreign scholars, we've got to explore other options."

Birch said he expects there'll be some reaction to the idea of offering special centres for foreign students when Canadian students are competing for spots in programs with enrolment limitations.

"The committee will examine these kinds of issues when it makes its report to the president in January."

Campaign officially over

United Way nears goal

by Jo Moss

UBC faculty and staff are donating more this year to UBC's United Way campaign.

Total donations to date are up almost \$5,000 over last year.

The campaign officially closed the end of October, but campaign chairman Cy Finnegan said donations are still being received and tallied. Pledges and donations will continue to be accepted by the Finance Office until the end of December.

As UBC Reports goes to print, 724 people pledged \$111,247 in the 1987 drive. At the same time last year, 721 donors had given \$106,884.

Again this year campaign organizers chose to emphasize participation rate rather than dollars collected. To date, UBC is only two and a half per cent short of its 15 percent participation rate goal. Last year 12.9 per cent of the more than 5800 faculty and staff on campus donated to the United Way campaign.

Finnegan said he is confident the 1987 goal will be met by the end of the month.

"Although our campaign is in the final stages, a number of pledges still have to be included in the total," he said.

Five UBC faculty and staff who pledged to support the United Way will be joining UBC President David Strangway for lunch December 7. John Andrews, Education; Marcia Boyd, Clinical Dental Sciences; Philip Stone, Computing Centre; Peter Simmons, School of Library, Archival and Information Studies; and Dale Rolfsen, Mathematics were the winners in a final draw held earlier this month.

United Way advisory committee members

UBC diagnostic test calms hemophilia fears

by Debora Sweeney

A UBC biochemist has developed a diagnostic test which will answer the questions that distress thousands of Canadians who fear they have inherited hemophilia.

Dr. Ross MacGillivray said his tests will tell women with family histories of hemophilia, virtually beyond a shadow of a doubt, if they carry the disease and will tell pregnant mothers if their babies will be born with it.

"We can isolate the DNA -- the genetic material -- and actually analyse the gene," said MacGillivray. "As long as we can tell the difference between the affected and the unaffected gene, we can diagnose whether the

female will be a carrier."

Hemophilia is a genetic disorder that results in delayed blood clotting. In British Columbia, it is estimated 1,250 women are at risk of carrying the disease and there are 12,000 estimated cases in Canada. In mild cases, excessive bleeding occurs only after dental, surgical or severe physical trauma. Severe hemophilia is characterized by frequent spontaneous bleeding into muscles or joints, often resulting in the crippling of joints. MacGillivray said it costs \$10,000 a year in blood products alone to treat a severe hemophiliac.

The defective hemophilia gene is located on one of the two X chromosomes carried by the female. When males are conceived, they randomly receive one of the X chromosomes from their mother and there is a 50-50 chance it may be the affected one.

MacGillivray said many women who know they are carriers agonize about whether to have children. Although hemophilia is a treatable disorder, complications such as hepatitis, liver disease and AIDS are major concerns for prospective parents.

"Some carriers got pregnant, had amniocentesis and had the child sexed," he said. "Sometimes, a male fetus was aborted because there was a 50 per cent risk of the child becoming a hemophiliac."

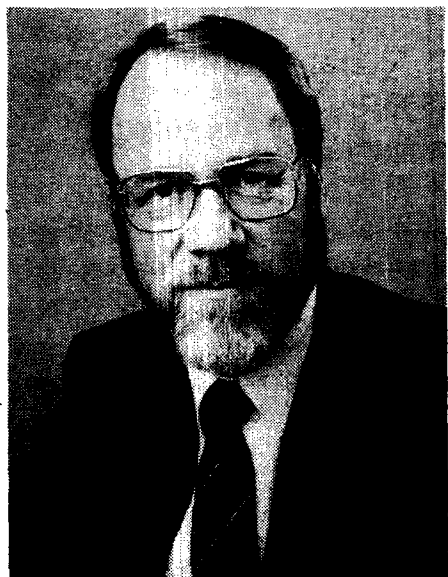
Collaborating with physicians at Grace Hospital, MacGillivray has developed a safe testing procedure which can determine, during the first trimester of pregnancy, whether a baby will be born with the disease.

MacGillivray added when couples know that there is a chance their children will inherit hemophilia, they can make informed reproductive choices, before and after conception. But, he notes in his tests at UBC, "we have yet to have anyone abort."

During the last year, he has made nine prenatal diagnoses. Of those, two boys were born with hemophilia. He also has diagnosed 42 women -- 19 are carriers, 23 are non-carriers.

MacGillivray is transferring the DNA diagnosis technology to a lab at Vancouver General Hospital which should be available to the public in January. Women who think they may be carriers will be referred by their doctors to Drs. Barbara MacGillivray and Siu Li Yong from UBC's Medical Genetics department at Grace Hospital. Their blood samples, and samples taken from other family members will then be sent to the VGH lab.

According to MacGillivray, existing techniques for determining if a woman carries hemophilia genes are inaccurate or ambiguous, 10 to 20 per cent of the time. He said his diagnostic tests have a 99.9 per cent accuracy rate.



Dr. Daniel Birch



United Way campaign chairman Cy Finnegan.



Campus Advisory Board on Computing

Interim Report of the Supercomputer Subcommittee

October 1987

Introduction

At the request of President Strangway, K. D. Srivastava, Vice President Student and Academic Services and Chairman of the Campus Advisory Board on Computing, formed a Subcommittee to investigate the University's current and potential use of supercomputer facilities. The Subcommittee was formed on March 13, 1987, with the following membership:

Chairman:

K. D. Srivastava
Vice President, Student and Academic Services

Members:

M. S. Davies
Associate Dean, Faculty of Applied Science
J. L. Leigh
Acting Director, Computing Centre
M. McMillan
Associate Dean, Faculty of Science
P. A. Murtha
Professor, Forest Resources Management, Faculty of Forestry
J. M. Varah
Head, Department of Computer Science, Faculty of Science

The Terms of Reference of the Subcommittee were:

1. To survey and evaluate the needs of UBC researchers, including those at TRIUMF, for a high power, large capacity computing facility at UBC.
2. To prepare a preliminary report, including estimates of capital and operating budgets and projected revenue for such a facility, and including a recommendation concerning the advisability of proceeding further with the study.

It was stated that if the Subcommittee decided on further study, additional members would be added and the terms of reference expanded to include detailed estimates of funding required, location and organization of the facility, and its relationship with the UBC Computing Centre.

The Subcommittee met for the first time on March 26, 1987.

Supercomputers

Supercomputers have been defined as that class of computers which have computational capacity far beyond that accepted as normal for general purpose computing. Such computers usually have hardware allowing efficient solution of problems which can be formulated in a vectorized (or parallel) manner, as opposed to a scalar (or serial) manner. Thus problems suitable for supercomputer use generally have a large component of vector computation.

Today a supercomputer will be rated by its manufacturer at a calculation speed of several hundreds of megaflops (millions of floating point operations per second) as compared to a few tens of megaflops for the largest and most recent general purpose computers. The manufacturer's rating is a theoretical maximum; achievable speeds are usually much lower than the peak rating, and are heavily dependent upon the software in use (particularly the compiler), the formulation of the problem (in particular whether or not the formulation allows extensive use of the parallel computation inherent in vector processing), and the tools available to aid the programmer in converting code which is not vectorized to vectorized form.

Manufacturers whose names are most often connected with supercomputing are Cray Research and Control Data Corporation. However, several other companies, including Hitachi, Fujitsu, Amdahl, and NEC also sell supercomputers. And the IBM 3090 with attached vector facility has been characterized as a "near supercomputer."

A supercomputer is rarely, if ever, operated as a stand-alone computer. The computational capability of these machines is not normally squandered on day-to-day computing tasks such as program preparation and checkout. In fact, supercomputers are often relatively inefficient at these tasks, and most scalar computing tasks, when compared with general purpose computers. For this reason, a supercomputer will usually be "front-ended" with a general purpose computer which can be a substantial computing facility in its own right.

In view of their status as the currently most powerful computers, it is not surprising that supercomputers are very expensive. The initial capital required is of the order of seven to fifteen million dollars for a new computer. Physical facilities are also

extremely expensive and total startup capital of twenty million dollars is not unusual. Operating costs are typically more than a million dollars a year, depending upon the manufacturer and upon the extent of the support infrastructure surrounding the supercomputer.

In recent years, several governments have taken the decision that the support of supercomputing is a strategic requirement for the advance of knowledge in their countries and to remain competitive in the technological world. The most notable initiative is the Supercomputer Program of the National Science Foundation in the United States. This Program has been funded for approximately two hundred million dollars (US) per year for five years and has resulted in the installation of five major NSF supercomputer sites in the US each with budgets of many millions of dollars per year. Access to these supercomputer sites is available to industry and research on either a commercial basis or government (NSF) supported basis.

Supercomputers are used primarily in the following fields: fluid dynamics (chaos, turbulence, vortices), meteorology (atmospheric models, weather forecasting), geophysics (seismic exploration, oil reservoir calculations), chemistry (reactions, combustion), structural analysis (crash simulation), plasma physics (fusion), astrophysics (stellar evolution, cosmology), graphics, and economics. They are widely used in system simulation via Monte Carlo methods (for example, simulation of particle accelerator beam dynamics). New applications will emerge as the facilities become more widely available.

Large-scale Computing

The term "large-scale computing" is often used instead of supercomputing. This allows broader interpretation and can include many classes of computer hardware, not only supercomputers themselves, but smaller computers and peripheral devices which don't meet the requirements of the supercomputer definition, but nevertheless are designed for efficient calculation of vectorizable problems. Besides supercomputers, there are:

- *array processors* which are usually limited-capability peripheral devices with vector processing hardware. These must be directly attached to general purpose computers. More powerful equivalents are sometimes called *attached vector processors*.

- *vector processing facilities*, a term used to describe vector hardware which is incorporated directly into otherwise general purpose computers

- *superminicomputers* which are "supercomputers" within the subset of computers classed as minicomputers

- *minisupercomputers* which are smaller versions of supercomputers. At least one manufacturer markets minisupercomputers which are compatible with one class of true supercomputer.

In fact, a general purpose computer, appropriately operated, can be considered to be a large-scale computing facility if the problems of concern are primarily scalar in nature. This is because some general purpose computers are equally as efficient as supercomputers for scalar computation.

Large-scale Computing at UBC

Computing Centre Services

The Computing Centre offers three services for those interested in large-scale computing. The first of these is access to the general purpose computing system at an attractively low rate factor of 20%. The conditions of use of this "extra-low priority" service are that the computing be "compute intensive" as opposed to "input/output intensive" and that the jobs be startable and stoppable at the discretion of the computer operators. The intent is to utilize those times when the computing system is not busy. While the rate factor of 20% is very low, the fact that there is a charge is enough to deter some of those who pay a portion of their computing in real dollars via a grant surcharge. Nevertheless, despite the fact that this service is not widely advertised, there are currently 100 computing accounts which are authorized to use it.

Secondly, within its Numerical Analysis Group, the Computing Centre has programmer/analysts who are familiar with the operation of remote supercomputers. In particular, these employees will consult with University faculty and graduate students regarding the

use of supercomputers at The University of Calgary, the Canadian Meteorological Centre at Dorval, and The University of Toronto. Consultation regarding communications with these sites, operational procedures, and conversion of software is available.

Unfortunately, the experience of faculty members in the use of these facilities has not been particularly positive, largely because of the difficulties in converting programs to incompatible systems, in transferring large quantities of data to remote sites, and the need to learn how a new system works.

Thirdly, the Computing Centre operates and supports the FPS 164/MAX attached vector processor described in the next section.

The FPS 164/MAX Attached Vector Processor

In 1985, a group of researchers from UBC, SFU, and TRIUMF received funds from NSERC to purchase an attached vector processor. This processor, a Floating Point Systems FPS 164/MAX SC (Scientific Computer), is available to researchers on a peer review basis and at a real dollar charge of \$24.00 per hour with a maximum charge of \$500.00 per month. Usage in the 3rd quarter of 1987 averaged more than 475 hours per month. There are currently 64 computing accounts which are authorized to use the FPS 164/MAX.

The vector processor is attached to UBC's Amdahl 580 computer within the Computing Centre and is available to UBC, SFU, and TRIUMF researchers on the same basis. However, the fact that there are real dollar charges has meant that SFU researchers make no use of it. SFU and UBC have differing policies on charging for computer use, with SFU having no real dollar charging. UBC charges researchers with appropriate grants 62.5% of the computing charges in real dollars, both for the use of the Amdahl 580 and for the use of the attached vector processor.

Interest in Supercomputing at UBC

The members of the Subcommittee informally canvassed the Faculties of Science, Applied Science, and Forestry, as well as TRIUMF, to determine current use and potential interest in supercomputing facilities. The results of the surveys were not unlike the situation found elsewhere—high interest amongst a small number (somewhere between 30 and 50) of researchers.

A preliminary list of departments which have interest in supercomputer access is:

Chemical Engineering, Chemistry, Civil Engineering, Electrical Engineering, Geography, Geological Sciences, Geophysics and Astronomy, Mechanical Engineering, Metals & Materials Engineering, Microbiology, Oceanography, Physics, and TRIUMF.

An Ad Hoc Committee on Large-scale Computing at UBC has been formed by interested researchers. This group will be preparing a proposal for consideration by the University.

With respect to supercomputing support, it became clear to the Subcommittee from its discussions and investigations of the situation elsewhere, that a major ingredient in the successful use of supercomputing was organized access to a facility, with a support infrastructure including knowledgeable consultants. In addition, of course, the issue of real dollar charging is an important factor.

Options for British Columbia

In April 1987, members of the Subcommittee, as well as other UBC faculty members and Computing Centre staff, attended a meeting at Simon Fraser University on the subject of large-scale computing in B. C. Representatives from all three universities, from TRIUMF, and from industry participated. The discussions indicated that the largest number of potential users of large-scale computing facilities is at UBC.

As a result of the meeting, The Science Council of B.C. is coordinating a study of large-scale computing needs in British Columbia's universities, research institutions, government agencies, and industries. Funding for the study has been provided by the Science Council, the universities, TRIUMF, and industry. Mr. J. L. Leigh, Acting Director of the Computing Centre, has been appointed to represent UBC on the Steering Committee for the study. Mr. A. G. Fowler of the Office of Industry Liaison is also on the Steering Committee as a representative of the Science Council.

The options which might be considered should the Science Council study find that a large-scale computing initiative should be taken in B.C. are the same as those described elsewhere:

- a large central facility such as those put in place by the National Science Foundation in the United States
- use of excess capacity at one or more existing supercomputer sites
- several minisupercomputers located at the universities possibly with access to a central supercomputer.

It is clear that a prerequisite for shared use of a supercomputer facility is the existence of good data communications. Of course, good data communications between participating institutions benefits a much larger community than the supercomputer users.

A proposal from the U.S. Pacific Northwest universities (the Northwest Academic Planning Forum) to the National Science Foundation has as its first phase the linking of the universities with good data communications facilities to allow access to an existing supercomputer facility located in industry. The second phase of the proposal calls for the installation of super-minicomputers at universities which demonstrate the required need. The proposed third phase calls for the establishment of an NSF-supported supercomputer facility in the U.S. Pacific Northwest.

With respect to B.C., the basis for good data communications between the three provincial universities is being installed now in the form of BCnet which has its central hub at UBC. A great many computing initiatives and cooperative research projects can be built upon this data communications base, including large-scale computing.

UBC would be the natural choice for the location of a large-scale computing facility in B.C. given its geographic location, its supportive infrastructure, the presence of research facilities such as TRIUMF, and its role as the central hub of BCnet.

Options for The University of British Columbia

The Subcommittee has concluded that the interest in supercomputers at UBC is similar to that at other institutions—a small number of re-

searchers have need for regular access to supercomputers. There is no doubt that if access is made available, there will be significant growth in supercomputer usage. However in absolute terms, researchers with needs for supercomputer access are measured in the tens of users and not in the many thousands of users as is common for mainframe and personal computing, and for data communications. It is clear, however, that the largest number of potential users of large-scale computing facilities in B.C. are located at UBC. While the number of potential users is relatively small, the cost of supporting them is high.

The Subcommittee has also concluded that most of those who perceive an immediate need for supercomputer access already have some access through formal and informal collaborations with researchers elsewhere, or through purchase of time at remote facilities such as The University of Calgary or The University of Toronto. It appears that most researchers obtain such access without direct cost for the computer time, although there is obviously considerable inconvenience in having to compute remotely.

It is clear from the technical literature and from personal contacts, that many supercomputer facilities are slow in reaching their cost recovery goals, particularly with respect to industry involvement and the sale of supercomputer time. This is true of The University of Calgary and of at least some of the National Science Foundation sites in the United States. From this, the Subcommittee has concluded that there appears to be excess supercomputer capacity available. For example, The University of Toronto and NSERC have recently made an agreement whereby NSERC will make available to approved researchers a total of 750 hours of supercomputer time for the year June 1987 to May 1988. This program requires the researcher to purchase 10 hours of Cray time at about \$140 per CPU hour. A similar NSERC program for access to the Cray computer at Dorval is continuing.

The extremely high costs of purchase and operations imply that UBC does not have the option of installing and supporting a supercomputer facility of its own out of current operating funds. The potential for on-campus cost recovery does not seem to be much beyond several tens of thousands of dollars. On the other hand, a decision at the national or provincial level to support supercomputing would stimulate the demand for these facilities.

The new minisupercomputers may be a more affordable alternative. For example, the Scientific Computer Systems SCS-40 minisupercomputer operates at approximately 25% of the speed of a Cray XMP at far less than 25% of the cost. However, purchase prices for these computers are still of the order of one million dollars, and operating costs are significant.

An option which might be attractive to UBC is to support good high speed access by UBC researchers to facilities elsewhere. Such support implies good local advice and consultation on the use of the remote facilities, and on the conversion of software to effectively use them. Currently within the Computing Centre there are two employees who are available for consultation and advice of the nature described. They have, however, many other duties, including support of the FPS 164/MAX vector processor, and cannot spend full time on remote supercomputer consultation.

Another major requirement is good communications facilities interconnecting UBC with the remote sites. Currently, for example, The University of Toronto supercomputer is available via the telephone companies' cross-Canada Datapac network which is easily available via UBCnet. Other alternatives have been used in the United States, including satellite access and leased land lines.

The University might wish to consider direct support for those wishing to use remote facilities. This could take the form of negotiation of lower fees at remote sites, probably via a guaranteed minimum. Alternatively, the University could institute a program of direct cost sharing of supercomputer access for researchers. Cost is extremely important, of course, and it is unlikely that those who currently have arrangements for free access to remote supercomputers would replace this with access that carries a real dollar charge. Supercomputer costs are in the \$500 to \$3,000 per hour range depending upon the priority of access. The University of Toronto price is \$2,000 per hour, and there is an expectation that this would be lowered significantly with a "bulk purchase."

Closer to home, the University might consider expanding upon the Computing Centre's current extra-low priority service. Perhaps late night and weekend time on the current Amdahl computer could be made available via an approval mechanism and at no cost to the researcher. If this is pursued, it will be important to take into account the implications with respect to growth of the system load and with respect to Computing Centre cost recovery from grants.

Recommendations

The Subcommittee recommends:

1. That the University continue to participate with the Science Council of B.C. in the study of large-scale computing needs in B.C.
2. That the University make known its interest as a suitable location for a large-scale computing facility if a decision to establish such a facility in B.C. is taken.
3. That the University continue its involvement with BCnet and encourage the Advanced Systems Institute to continue its support of BCnet as a high priority, recognizing that BCnet is the data communications base upon which many computing initiatives and cooperative research efforts will be built, including access to large-scale computing facilities for those researchers needing such access.
4. That the University support UBC researchers doing large-scale computing by:
 - supporting expansion of the Computing Centre's consultative facilities for large-scale computing
 - supporting expansion of the Computing Centre's extra-low priority service
 - providing direct support to UBC researchers who wish to use remote large-scale computing facilities.
5. That any further study of large-scale computing undertaken by this Subcommittee be done jointly with the Ad Hoc Committee on Large-Scale Computing at UBC.

UBC gains access to abandoned mine

by Jo Moss

An abandoned mine in B.C.'s Interior will soon become a treasure trove for UBC.

Instead of glittering gems, the treasure is sparkling crystals—just as impressive and almost as valuable.

Under a recently signed agreement, UBC will gain access to the mine to recover top-quality crystals. And the best of these fragile mineral specimens will enhance the Department of Geology's already impressive crystal collection.

It's all part of a deal involving an American entrepreneur, a B.C. mining company, M.Y. Williams Geological Museum curator Joe Nagel, and an old mine near Grand Forks.

Mention Rock Candy Mine to anyone who knows anything about crystals, and you'll have his undivided attention.

It's one of the few places in Canada that produces not only top-quality crystal specimens, but lots of them.

Nagel said those two features make it extremely valuable to people who are interested in crystals. In fact, it's so valuable, that Nagel says it should be a national heritage site.

Crystals are formed when water containing minerals trickles down the walls of underground openings. As the chemical nature of the water changes, the crystals change in colour and shape.

"At Rock Candy mine these underground pockets are unusually large and there are many of them. That's why it has produced thousands of specimens," Nagel says. "I've

seen an underground pocket that's four feet wide and 35 feet long lined with crystals."

An active mine in the early part of the century, Rock Candy was closed in 1929. In 1978, Cominco decided to close all the underground openings for safety reasons. But recognizing the value of the crystals, the company allowed Nagel to recover hundreds of specimens—about 65 of which are in the UBC collection.

According to Nagel, Cominco offered to donate the mine to the university last year. But UBC discovered the costs of insurance were too high. Unwilling to lose the mine, Nagel located a Seattle entrepreneur, an anonymous businessman with a decade of experience in the crystal business.

Cominco gave the Seattle entrepreneur a good deal on the mine. The entrepreneur is happy to be the owner of a money-making enterprise, and Nagel is ecstatic that UBC will get some of the best crystals in Canada.

Under terms of the agreement, the university retains access to the mine, first marketing rights to the best crystal specimens, and a percentage of the profits.

"The best specimens from Rock Candy Mine could be worth thousands of dollars," Nagel said.

Putting a price tag on these natural works of art is highly subjective. Composed of green colored or purple fluorite, golden yellow or grey barite, and white quartz they're as often bought by individuals to display in an office or on a coffee table, as they are by collectors or museums.

Work will begin at the mine next year.



M.Y. Williams Geological Museum curator Joe Nagel holds a crystal specimen from the Rock Candy mine.

Off-campus degree studied

A UBC task force is looking at ways in which future students could complete a university degree without coming to the UBC campus.

Established earlier this month, the task force on off-campus degree completion will explore how UBC can cooperate with B.C. post-secondary institutions to provide third and fourth year courses, according to Academic Vice President Dan Birch.

"It's time we looked at the options for the future and determined what the university's role will be," Birch said.

Eighteen community colleges throughout the province currently offer programs equivalent to first and second-year university. But with increasing enrolment at the three B.C. universities, some private and public sector groups are calling for colleges to be made degree-granting institutions.

Birch said that idea is not as revolutionary as it may seem.

"There's a long tradition of developing programs under the aegis of another institution," he said. "The University of Victoria started as a college and went on to become a university. It's a natural kind of development."

The task force will provide a preliminary report at the end of November.

Students unaware of drug pitfalls: Hotline provides the answers

by Jo Moss

High school athletes looking for performance-enhancing drugs are unaware of the dangerous side effects, according to the director of the Sport Medicine Council of B.C.

Lynda Filsinger hears about the problems through the Drug Hotline, a phone-in service the council provides in an attempt to inform recreational athletes of all ages of the dangers of using drugs in sports. The practice is banned outright in all national and international competition.

"We don't have a good idea of the numbers, but in the past three to four years, I've noticed more interest from high school students in performance-enhancing drugs," Filsinger said. "The awareness of these substances is such that anabolic steroids is a household word."

The hotline service is part of the council's public education program. Begun in 1984, it offers callers a simple, scientific, and reliable source of information on the use and abuse of drugs in sports.

"We felt there were a lot of people who were using drugs for performance enhancement in recreational sports, but had no idea of what they were getting involved in," Filsinger said.

"There are a lot of myths out there in the gym. There's a whole underground network of people who are promoting drugs, selling them illegally, and telling athletes it's a great way to improve their strength."

Athletes usually aren't told about well-documented evidence of long-term side effects. The most commonly used drugs, anabolic steroids, are taken to improve muscle size and strength. They also causes liver tumours and cancers, and the risk of an early heart attack.

"In males, anabolic steroids lower sperm production, decrease testicle size and increase aggressive tendencies. In females there's a whole host of masculine effects such as an increase in hair growth and reproductive changes that may be irreversible," Filsinger said.

Located in a trailer behind the Sports Medicine Clinic on campus, the Drug Hotline service is a one-person operation which is advertised by word-of-mouth. Dialing 228-3049 puts callers through to Filsinger's office. If they wish, they can remain anonymous.

In four years of operation, Filsinger has answered more than 700 hotline questions about performance enhancing drugs. She estimates the youngest callers are in grades 9 and 10.

The drugs seem to be used in a variety of sports. Filsinger has talked to weight trainers, cyclists, football players, track and field athletes, and runners as well as coaches, teachers, trainers, parents and spouses. One call came from the Los Angeles Police Department asking for information for its drug awareness program.

According to Filsinger, many calls are from men who are not jocks, but want to improve their macho image.

"They think a drug will drastically alter their physical size. What they don't realize is that if they are five foot four and 120 pounds, physically and genetically that's not possible," she said.

To combat this widespread misinformation, Filsinger said, the hotline service needs to expand.

"We need to reach more athletes by putting up posters in the gyms. It's up to them to make up their own minds. But at least if they have all the facts, they are aware of the

consequences."

She said many recreational athletes don't realize that a good training program is the key to athletic performance. They just want to get fit fast.

"They want an easy way out. They don't understand that it takes time to train. They believe there's a magic pill that will help them."

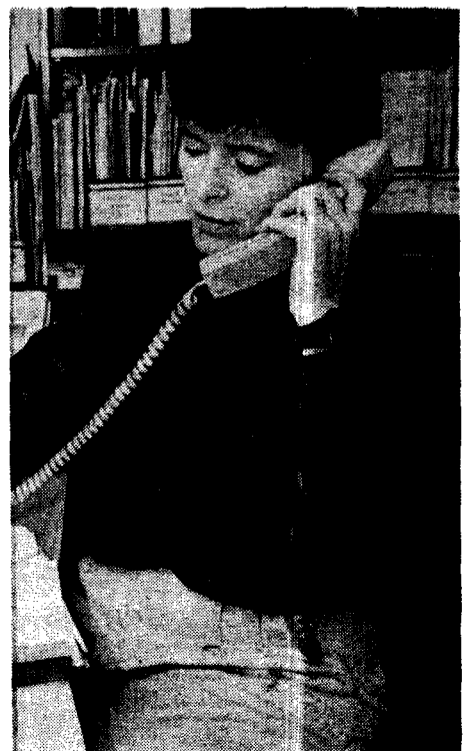
Drugs such as anabolic steroids, stimulants, and beta blockers that slow the heart rate can be obtained through a physician's prescription. Obtained illegally and combined with sports, they're dangerous.

According to Filsinger, part of the problem of drug abuse at the recreational level lies in the public perception of professional athletes. Despite Canada's strong anti-doping policy, people think athletes have to take drugs to win.

"I get calls from athletes asking what 'safe' drugs there are," Filsinger explained. "Sports scientists and physicians don't recommend any performance enhancing drugs."

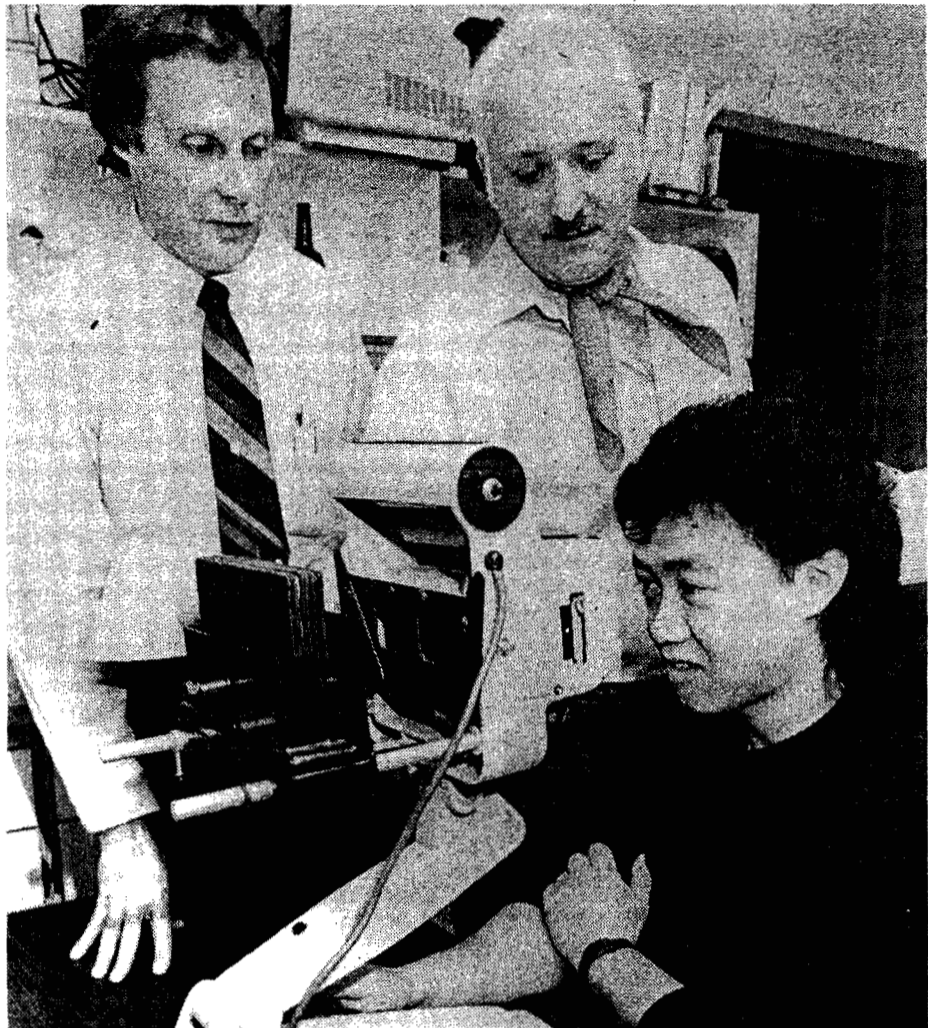


NDP MLA Emery Barnes makes a point to Dr. David Suzuki at a reception held at Cecil Green House last month to launch Suzuki's new autobiography, *Metamorphosis*.



Lynda Filsinger

Rural areas helped by new eye quiz



UBC Photo Warren Schmidt

Using ophthalmology lab tests to back up the results of their new eye quiz are, left to right, Dr. Ralph Hakstian, Dr. Stanley Coren and research assistant Wayne Wong.

by Lorle Chortyk

Residents of Canada's isolated communities will soon have a simple quiz to determine whether or not they have vision problems.

Developed by UBC psychologist Stanley Coren, the quiz asks questions about everyday activities that point to vision problems.

The test measures color vision and visual acuity with 90 per cent accuracy, making it possible for the first time in history to test an individual's eyesight by mail and even by telephone. The test takes about seven minutes to fill out and can be graded by any lay person in five minutes.

By asking questions such as "do you keep your house tidy, can you discriminate between red and brown, do you have trouble parking a car?" Coren can pinpoint visual levels in acuity and color discrimination. A third component on depth perception has just been completed.

After testing individuals with 400 sample questions, the researchers narrowed their quiz down to 20 questions which most accurately predicted specific visual problems.

Coren admits that most people, including his UBC colleagues, were skeptical about his idea at first. But ophthalmology lab tests back up the accuracy of the quiz results. He is now adding a hearing component to the questionnaire.

Coren hopes the questionnaire will lead to a national survey of eyesight and hearing

levels of Canadians.

"A survey of this kind has never been possible anywhere in the world as far as we know," he said. "The U.S. government tried to do a cross-section study of 30,000 Americans a few years ago with lab tests done by several thousand ophthalmologists in 61 centres across the country. They spent millions of dollars to set up the study, but the project had to be abandoned because it just wasn't feasible to carry out lab testing at that scale."

Coren said his questionnaire makes it possible to reach every person in Canada, with a 36 cent stamp and return postage.

"The questionnaire could even be attached to a census sheet," he said. According to Coren, the test could be ready for a national survey in three to five years if funding were available to complete final testing on the hearing component.

Coren said the test is not designed to replace trained ophthalmologists.

"The questionnaire is a screening device," he said. "We can tell people what their vision is like, but we're not trying to replace the interpretive skills of an eye specialist."

"It's meant to be a device to collect information and to flag people who need medical care. This is particularly important in isolated communities where a doctor may visit only twice a year."

Funding for pilot study was provided by the Koerner Foundation and the B.C. Health Care Research Foundation.

People

UBC profs honored

Columbia University Press recently presented a UBC Political Science professor and a UBC alumnus with The Edwin W. Rickert Award in Political Economy.

Mark Zacher, Director of UBC's Institute of International Relations, and Jock Finlayson, now a post-graduate student at Yale University, also received a cash prize of \$5,000 for their work Managing International Markets: Developing Countries and the Commodity Trade Regime.

In this analysis of the policies of developing countries in the international commodity market, Zacher and Finlayson reached new conclusions about the role new nations play. Columbia Press will publish the book next spring.

Prof. Harold Knutson of the Department of French has been awarded a visiting fellowship at the Humanities Research Centre of the Australian National Fellowship in Canberra. He will be conducting research in the field of comparative English-French and French-Italian comedy.

Two UBC special needs students are the first recipients of the new Rick Hansen Special

Needs Bursary.

Ken Roesch, Law, and Gordon McGee, Education, were each awarded \$1,000.

Roesch is a wheelchair athlete and McGee took his wheelchair around the province last summer as a spokesperson for Hansen's Man in Motion tour.

Established in recognition of Rick Hansen's outstanding accomplishments, the bursary will go each year to two UBC students who have special needs brought about by physical disability.

* * *

UBC Oceanographer Tom Pedersen has spent the last two months aboard a ship on the Indian Ocean, drilling for evidence of the monsoon's evolution.

The force of the monsoon critically affects rainfall in Asia and Africa, as well as regional atmospheric and oceanographic conditions. Previous deep-sea drilling investigations have allowed scientists to reconstruct the monsoon's history during the past 150,000 years, a period critical in human evolution. The objective of Dr. Pedersen's team is to push that wall of time back more than 25 million years.

The effects of the monsoon are recorded in the depths of submarine sediment layers.

UBC, UCal sign exchange

UBC has become the first Canadian university to participate in a student exchange program with the University of California.

The five-year exchange program allows UBC students to attend any of the U of C's nine campuses for up to one academic year. Students remain enrolled at UBC, pay UBC fees and can transfer credits earned in California to their UBC degree.

Vice-President Academic Daniel Birch said the University of California has also agreed in principle to allow UBC students to participate in exchange programs the U.S. university already has with institutions in Russia, Australia, Japan, France, Germany, China and the U.K.

Birch said the University of California carried out an extensive review of Canadian universities before approaching UBC to participate in the exchange.

"They already had a number of exchange programs with institutions in different cultural settings," he said. "They were looking for a university that was similar to them in terms of cultural setting, range of programs and academic status."

Between five and 15 undergraduate and graduate students from each institution will be accepted for the program each year, depending on the availability of desired programs and other qualifications.

To apply, UBC students must have completed two years of full-time study with at least a 70 per cent average and have obtained permission from a faculty advisor. Students must also pass the English composition test to qualify for the program.

More information about the program is available at the International Liaison Office, Room 608, Asian Centre, or by calling 228-3114.

UBC Calendar from page 8

WEDNESDAY, DEC. 2

Pharmacology & Therapeutics Seminar

O₂ dependence of metabolism in hypoxia tolerant versus hypoxia-sensitive systems. Dr. P.W. Hochachka, Zoology and Sports Medicine Div., UBC. Room 317, Basic Medical Sciences Building, Block "C". 12 noon.

Noon-Hour Series Recital

Sponsored by School of Music. Pawel Chechinski, piano. Admission by donation. For information call 228-3113. Recital Hall, Music Building. 12:30 p.m.

Forestry Seminar

The Effects of Wildfire on Wood Supply in the Fort Nelson Timber Supply Area! Mr. Darrell Errico, B.C. Ministry of Forests & Lands, Research Branch, Victoria. For information call 228-2507. Room 166, MacMillan Building. 12:30 p.m.

THURSDAY, DEC. 3

UBC Choral Union Choir Concert

Sponsored by School of Music. James Schell, director. Free. For information call 228-3113. Recital Hall, Music Building. 12:30 p.m.

Public Lecture - The Walter S. Owen Lecture

Sponsored by Faculty of Law and the Vancouver law firm of Campney Owen. Senate Reform - Is the Game Worth the Candle? Prof. B.M.L. Crommelin Cowen, Law, University of Melbourne. Room 101, Curtis Building. 5:30 p.m.

Psychology Colloquium

The Sound of Meaning in Mothers' Speech to Infants. Dr. Anne Fernald, Stanford University. For information call 228-6771. Room 2510, Kenny Building. 4 p.m.

UBC Symphonic Wind Ensemble

Sponsored by School of Music. Marint Beninbaum, director. Free. For information call 228-3113. Old Auditorium. 8 p.m.

FRIDAY, DEC. 4

Health Care & Epidemiology Rounds

The Marriage of Epidemiology and Behavioural Science: Program Development Research for Smoking Control. Allan Best, Ph.D., Health Studies, University of Waterloo. For information call 228-2772. Room 253, Mather Building. 9 a.m.

Graduate Student Colloquium

Sponsored by Asian Studies. The World in the Eyes of the Chinese in the Ch'un-ch'iu and Chan-kuo Periods. Pan Yi-hong. For information call 228-3881. Room 604, Asian Centre. 12:30 p.m.

Pharmacology and Toxicology Seminar

Cytosol to Membrane Translocation of Cyclic AMP-Dependent Protein Kinase as a Mechanism of Action of B-adrenoceptor Agonists: Fact or Artifact? Dr. Mark Gienbycz, Pharmaceutical Sciences, UBC. Lecture Hall #3, IRC. 12:30 p.m.

Chemical Engineering Seminar

Crystallization of Sodium Sulphate from Chlorine Dioxide Generator Wastes. Mr. A. Nyakima, Graduate Student. Coffee at 3:15. Room 206, Chemical Engineering Building. 3:30 p.m.

UBC Choral Union Choir Concert

Sponsored by School of Music. James Schell, director. Free. For information call 228-3113. Recital Hall, Music Building. 8 p.m.

Story Telling Performance

Winter Tales. Gioia Timpanelli, MA, considered one of the most talented figures in the revival of traditional storytelling. \$8. For information call 222-5261. The Epiphany Chapel, Chancellor Building, 6050 Chancellor Blvd. 8 p.m.

SATURDAY, DEC. 5

Workshop of Storytelling & Discussion

Winter Tales. Storytellers Gioia Timpanelli, Mary Love May, Nan Gregory and Melanie Ray. \$60 includes lunch and Friday (Dec. 4) lecture. For information call 222-5261. Level III, Iona Building, 6000 Iona Drive. 10 a.m. - 5 p.m.

NOTICES

Anthropology Shop Christmas Market

Featuring items from around the world. For information call 228-6240. Upper Lounge, Museum of Anthropology. Nov. 17-29: 11 a.m. - 4 p.m. except Nov. 17-24: 11 a.m. - 9 p.m.

1987 Hoffmann Lecture

Vitamin A Absorption, Metabolism and Function: Involvement of Specific Carrier Proteins. Dr. David Ong, Assoc. Prof., Biochemistry, Vanderbilt University. For more information call Dr. Sheila Innis, 875-2492. Lecture Hall #4, IRC. Friday, Nov. 20. 11:30 a.m.

UBC Fine Arts Gallery

Thirty Years of Design on the Land: The Work of Sasaki Associates Inc. Now to Dec. 18. Tues.-Fri. 10 a.m. - 5 p.m. Sat. noon - 5 p.m.

UBC Office Equipment Show

Presented by the AMS in cooperation with the UBC Purchasing Dept. Come and see the latest from UBC's suppliers. Free admission. For information call 228-3456. Nov. 25-26. 10 a.m. - 4 p.m. SUB Ballroom.

Nitobe Memorial Garden

Open Monday to Friday 10 a.m. - 3 p.m. No charge. Closed weekends.

Botanical Garden

Open daily 10 a.m. - 3 p.m. No charge.

Language Exchange Program

This program is for those interested in learning foreign languages or in exchanging a foreign language for English. Call International House between 9 a.m. and 5 p.m. Monday - Friday at 228-5021.

Thea Koerner House Graduate Student Centre

Fireside Lounge lunch service 11:30 a.m. - 2 p.m. (M-F); Lounge open 11:30 a.m. - 11:30 p.m. (M-Th), Friday 'til 1 a.m.; Monday: Video Nights - 8 p.m.; Wednesday: Music Nights - 8 p.m.; Friday: Dance Parties - 8 p.m. Everyone welcome!

Badminton Club

Faculty, Staff and Graduate Student Badminton Club meets Tuesdays 8:30-10:30 p.m. and Fridays 7:30-9:30 p.m. (except Nov. 13) in Gym A of the Robert Osborne Sports Centre. For information call Bernie 228-4025 or 731-9966.

Statistical Consulting and Research Laboratory

SCARL is operated by the Department of Statistics to provide statistical advice to Faculty and graduate students working on research problems. For information call 228-4037. Forms for appointment available at Room 210, Ponderosa Annex C.

Student Counselling and Resources Centre

'Students Helping Students' is a service that provides disabled students with assistance in disability-related tasks affecting school. For information call 228-4840.

UBC Calendar

MONDAY, NOV. 23

Germanic Studies Reading

My homeland is my head. Edgar Hilsenrath, German author, reads from his work and discusses (in English) his life, work, and times. Penthouse, Buchanan Building. 12:30 p.m.

Film Showing

The people of Asia, and Asian immigrants to Canada. Enemy Aliens: 1975: 27 mins.; Korea: 1977: 26 mins. For information call 228-2746. Auditorium, Asian Centre. 12:30 p.m.

Plant Science Seminar

Effects of Ozone on Peas and Potatoes. Elaine Wright, Plant Science, UBC. For information call 228-2329. Room 342, MacMillan Building. 12:30 p.m.

Germanic Studies Reading

German author Edgar Hilsenrath reads and discusses his work (in German). Penthouse, Buchanan Building. 3:30 p.m.

Biochemical Discussion Group Seminar

Messenger RNA Splicing in Yeast. Dr. John Abelson, California Institute of Technology. For information call 228-6475. Lecture Hall #4, IRC. 3:45 p.m.

Astronomy Seminar

A New View of the Galactic Neighbourhood. Dr. Marshall McCall, University of Toronto. For information call 228-2267. Coffee at 3:45 p.m. Room 260, Geophysics & Astronomy Building. 4 p.m.

Continuing Education Lecture

The Collected Works of Billy the Kid by Michael O'Dahe as produced by the Frederic Wood Theatre. Arne Zaslove, Theatre, UBC. \$10. For information call 222-5254. Conference Room, Carr Hall, Centre for Continuing Education. 7:30 p.m.

TUESDAY, NOV. 24

Health Promotion & Systems Studies

Influence of Stress on Mammary Tumour Growth in Mice. Drs. Joanne Weinberg and Joanne Emerman, Anatomy, UBC. For information call 228-2258. 4th floor boardroom, IRC. 12:30 p.m.

Chemistry Seminar

Theoretical Studies of Stereoselective Organic Reactions. Prof. Kenneth G. Houk, Chemistry, University of California at Los Angeles. Refreshment at 12:30 p.m. Room 250, Chemistry Building. 1 p.m.

Botany Seminar

Responses of Roots to Environmental Stress. David Reid, Biology Department, University of Calgary. Room 2000, Biological Sciences Building. 12:30 p.m.

Statistics Seminar

Some Results on Kernel Density Estimation. Professor Constance Van Eeden, Mathematiques et Statistique, Universite de Montreal. Coffee and cookies at 3:30 p.m. Room 102, Ponderosa Annex C. 4 p.m.

Research Centre Seminar

Research and Development of Sperm Antigen-Based Contraceptive Vaccines. Dr. Gregory C.Y. Lee, Obstetrics & Gynaecology, UBC. Refreshments at 3:45 p.m. Room 202, Research Centre, 950 W. 28th Ave., Vancouver. 4 p.m.

WEDNESDAY, NOV. 25

Pharmacology & Therapeutics Seminar

Single Channel Currents in Hypothalamic Neurons and Glial Cells. Dr. J.G. McLarnon, Pharmacology & Therapeutics, Faculty of Medicine, UBC. Room 317, Basic Medical Sciences Building, Block "C". 12 noon.

Forestry Seminar

Recent Changes in Forest Management in British Columbia and Their Probable Effects on Forestry Education and Research. Chief Forester, Mr. John Cuthbert. For information call 228-2507. Room 166, MacMillan Building. 12:30 p.m.

Noon-Hour Series Recital

Sponsored by School of Music. Darryl Nixon, organ. Admission by donation. For information call 228-3113. Recital Hall, Music Building. 12:30 p.m.

Slavonic Studies Lecture

Nobel Prize Winner 1987: Joseph Brodsky. Fr. Victor Sokolov. For information call 228-2402. Room A102, Buchanan Building. 12:30 p.m.

Religious Studies Seminar

Sponsored by Leon and Thea Koerner Lecture. Dogma and Heresy in Maimonides. Prof. Menachem Kellner, Dept. of Jewish Thought, University of Haifa, Israel. For information call 228-5825. Room E273, Buchanan Building. 1:30 p.m.

Applied Mathematics Seminar

Some Numerical Computation Required in Early Vision. Dr. Robert J. Woodham, Forestry & Computer Science, UBC. Room 229, Mathematics Building. 3:45 p.m.

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Dracula sports a false moustache while impersonating a Dentistry student in the UBC Dental Clinic on Halloween.

UBC Photo Warren Schmidt

Division of Human Nutrition Seminar

Drug-Ascorbate Interactions. Dr. Tapan Basu, Visiting Professor, Foods and Nutrition, University of Alberta. Dr. R.D. Russel, Geophysics and Astronomy, UBC. For information call 228-6253. Room 120, Family Nutrition Science Building. 4 p.m.

Geophysics Seminar

Seismoelectric Prospecting for Gold and other Minerals. Dr. R.D. Russel, Geophysics and Astronomy, UBC. Coffee at 3:45 p.m. Room 260, Geophysics and Astronomy Building. 4 p.m.

1987 Ecology-Resource Ecology Seminar

Ecology, Economics and Population Growth in African Agricultural Development. Mr. Michael Wells and Dr. A.R.E. Sinclair, Zoology, UBC. Room 2449, Biological Sciences Building. 4:30 p.m.

THURSDAY, NOV. 26

Psychiatry Academic Lecture

Latest Studies with Tryptan (1-tryptophan) for the Manic-Depressed. Dr. G. Chouinard, Allan Memorial Institute, Montreal, Quebec. For information call 228-7341. Room 2NA/B, Psychiatric pavilion, HSCH. 9 a.m.

Religious Studies Seminar.

Sponsored by Leon and Thea Koerner Lecture. The Virtue of Faith in Medieval Jewish Thought. Prof. Menachem Kellner, Dept. of Jewish Thought, University of Haifa, Israel. For information call 228-5825. Room E273, Buchanan Building. 12:30 p.m.

Philosophy Lecture

Sponsored by Committee on Lectures & Philosophy Dept. Analytic Philosophy and the Nature of Thought. Prof. Laurence Bonjour, Philosophy, University of Washington. For information call 228-2511. Room E360, Buchanan Building. 12:30 p.m.

Visiting Speakers Seminar

Platinum Group Element Concentrations in Gabbroic Rocks: Field & Petrographic Evidence for the Role of Late Magmatic Fluids. Dr. David Watkinson, Geology, Carleton University, C.I.M. Visiting Lecturer. Room 330A, Geological Sciences Centre. 12:30 p.m.

Calendar Deadlines

For events in the period December 6 to December 19, notices must be submitted on proper Calendar forms no later than 4 p.m. on Wednesday, November 25 to the Community Relations Office, 6328 Memorial Road, Room 207, Old Administration Building. For more information, call 228-3131.

Physics Colloquium

Kaser Spectroscopy. G. Kenney-Wallace, University of Toronto. For information call 228-3853. Room 201, Hennings Building. 4 p.m.

Asian Research Lecture

(part of IAR Seminar Series). Factory Daughters and the Family Economy in Rural Java. Dr. Diane Wolf, Professor of Sociology, University of Washington. For information call 228-4688. Room 604, main floor, Asian Centre. 4:30 p.m.

Faculty Concert Series

Sponsored by School of Music. Geoffrey Michaels, violin. \$7 adults, \$3 students/seniors. For information call 228-3113. Information Lecture at 7:30 p.m. Recital Hall, Music Building. 8 p.m.

FRIDAY, NOV. 27

Neuro-Ophthalmology Clinical Day

Neuro-Ophthalmology. Dr. J. Trobe, University of Michigan; Dr. T.A. Cox, Dr. D.E. Nelson, and Dr. S.F.J. Pilley, Ophthalmology, UBC. For information call 875-4199. Hurlburt Auditorium. St. Paul's Hospital. 8 a.m. - 5 p.m.

Paediatric Grand Rounds

Recent Advances in Diagnosis and Treatment of Endocrine Disorders in Children. Dr. R. McArthur, Professor and Head, Paediatrics, University of Calgary. For information call 875-2437 or 875-2451. Auditorium, G.F. Strong Building. 9 a.m.

Health Care & Epidemiology Rounds

Statistics and The Health Effects of Air Pollution. Dr. David Bates, Medicine and Physiology. For information call 228-2772. Room 253, Mather Building. 9 a.m.

Educational Psychology/Audiology & Speech Sciences Seminar

Varieties of Children's Verbal Conflicts. Dr. Catherine Garvey, Psychology, University of Maine. For information call 228-5591. Lecture Hall #1, IRC. 12:30 p.m.

Pharmaceutical Sciences Seminar

The Pharmacology & Toxicology of New "Designer Drugs". Mr. Wayne Jeffery, Head Toxicology Section, RCMP Forensic Laboratory. Lecture Hall #3, IRC. 12:30 p.m.

Medical Genetics Seminar

A New Developmental and Genetic Model for Study of Neural Tube Defects. Ms. Beth Macdonald/Dr. D. Juriloff, Medical Genetics, UBC. For information call 228-5311. Parentcraft Room, Main Floor, Grace Hospital, 4490 Oak St., Vancouver. 1 p.m.

Physical Plant Retirement Party

For Bob Black, Area Supervisor, Plant Operations Dept., to be held at Ponderosa Cafeteria. For information call 228-5505. 3:30 p.m.

Chemical Engineering Seminar

Axial Diffusion in Packed Bed Adsorption Columns. Mr. J. Audry-Sanchez, Graduate Student. Coffee at 3:15. Room 206, Chemical Engineering Building. 3:30 p.m.

UBC Opera Workshop

Sponsored by School of Music. An Evening of Opera, French Tickner, director. Free. For information call 228-3113. Old Auditorium. 8 p.m.

SATURDAY, NOV. 28

UBC Opera Workshop

Sponsored by School of Music. An Evening of Opera, French Tickner, director. Free. For information call 228-3113. Old Auditorium. 8 p.m.

MONDAY, NOV. 30

Film Showing

The People of Asia and Asian Immigrants to Canada. Titles: Gui Dao - On the Way; A Station on the Yangzi: 1980: 59 mins. For information call 228-2746. Auditorium, Asian Centre. 12:30 p.m.

Plant Science Seminar

Physical and Chemical Bases of Resistance to Spider Mites in Beach Strawberry, *Fragaria Chiloensis*. Anna Luczynski, Plant Science, UBC. For information call 228-2329. Room J42, MacMillan Building. 12:30 p.m.

Applied Mathematics Seminar

Numerical Modelling of Mesoscale Atmospheric Phenomena. Dr. Douw G. Steyn. Room 229, Mathematics Building. 3:45 p.m.

General and Comparative Physiology Seminar/Neurosciences Discussion Group

Spinal Cord Injury and Repair: Insights Derived from Intrasplinal Grafts of Fetal CNS Tissue. Dr. P.J. Reier, Neurological Surgery, University of Florida. Lecture Hall #3, IRC. 4:45 p.m.

TUESDAY, DEC. 1

UBC Stage Band Concert

Sponsored by School of Music. Ian McDougall, director. Free. For information call 228-3113. SUB Auditorium, SUB Building. 12:30 p.m.

Chemistry Seminar

The Physical Properties of Biological Membranes. Prof. Myer Bloom, Physics, UBC. Room 250, Chemistry Building. 1 p.m.

UBC Stage Band Concert

Sponsored by School of Music. Ian McDougall, director. Free. For information call 228-3113. Recital Hall, Music Building. 8 p.m.

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