

# UBC REPORTS

2 UBC in the News

3 35th in the World

4 Dangers of Nursing

6 The First Cyberpunk

8 Micro Gadgets



UBC law professor Joel Bakan (centre) with film-makers Mark Achbar and Jennifer Abbott.

## The Pathological Pursuit of Profit and Power

A conversation with Joel Bakan, author of *The Corporation*. BY ERICA SMISHEK

UBC law professor Joel Bakan has a hit movie on his hands.

*The Corporation*, which *Variety* calls a “cogent, entertaining, even rabble rousing indictment of perhaps the most influential institutional model of our era,” has won critical acclaim, audience appreciation and awards from such film festivals as the International Documentary Festival in Amsterdam and the Sundance Film Festival in Park City, Utah. It is currently playing in a number of Canadian centres, including Vancouver, and will be released in select U.S. cities in June.

Penguin Group has just released Bakan's book, *The Corporation: The Pathological Pursuit of Profit and Power*, upon which the film is based to Canadian bookstores; Simon and Schuster will do the same in the U.S. later this month.

Bakan recently sat down with *UBC Reports* to talk about the unique project.

*Q. The film deals with a phenomenon so pervasive that it is difficult to see. What first inspired you to tackle this?*

Around 1996, I realized the world was changing in some profound ways. Corporations were being transformed from economic institutions into governing institutions, ones that were governing societies and the lives of individuals in ways that they had never done before. At the same time, I thought, people know very little about the corporation as an institution. We are aware necessarily of corporations; they touch every aspect of

our lives. But we don't understand how the corporation operates as an institution – and, as corporations gain more power over our lives and societies, we really need to, especially in light of the corporation's peculiar institutional character, which, in the book and the movie, we liken to that of a psychopath.

*Q. The climate when you started this project was quite different than today, given recent scandals like Enron. Even six or seven years ago, CEOs were still being hailed as heroes.*

Well, I'd like to say we were prescient. But we may have just been lucky in terms of the timing. Certainly around 1997, several things were clear. One is that due to the processes of economic globalization, privatization, deregulation and relaxation of merger and acquisition requirements, corporations were becoming much larger and much more powerful than they had ever been. They were operating on an international scale and they were pressuring governments in ways that they had never had the capacity to pressure them before. So the corporation was truly looking like it was becoming the world's dominant institution.

At the same time, government was in rapid retreat from its traditional role of providing checks and balances on corporate power through deregulation, and, through the process of privatization, governments were handing over to corporations authority over the fundamental institutions of civil society.

*continued on page 3*

## Solving the Mysteries of Spider Silk

UBC researcher freeing industry from a web of problems. BY MICHELLE COOK

People have been using silk for more than 2,000 years but scientists are still trying to unravel the mystery of its strength and flexibility. One question that continues to stump them is why spider silk contracts to almost half its size when wet.

In a recent study, UBC physicists found the answer, and it could help synthetic fibre manufacturers create better artificial silk.

“One of the things that the people making silk-inspired fibres should be able to control is supercontraction,” says Carl Michal, an assistant professor who conducted the study with PhD candidate Philip Eles.

“Can you remove it? Can you enhance it? Do you need it at all? Can you tailor a material with that sort of property? My feeling is ‘yes’ and this study identifies what parts of the silk's molecules [called polymers] are responsible for the supercontraction. We've laid the groundwork for the people developing these fibres to be able to control that.”

Spider silk is one of nature's material marvels. Lightweight, biodegradable and five times stronger by weight than steel, it is one-tenth the width of a human hair but can snag a bee flying at 32 km/hour without breaking.

For decades scientists have been trying to duplicate these remarkable properties with a view to developing higher performance sporting equipment, stronger nets and parachutes, more protective clothing for police and

military personnel, and improved sutures, bandages, artificial tendons and ligaments.

While researchers already know a lot about spider silk's molecular architecture, opinions differ on why it supercontracts when it comes into contact with water.

Spider silk undergoes an interesting transformation when it gets wet. As it soaks up water, it swells in diameter but shrinks to almost half its length.

Popular theory is that this supercontraction tightens up a web weighed down by rain or morning condensation, helping it to keep its shape. For this reason, some researchers claim, supercontraction lasts for as long as conditions require it to – that is, as long as the silk is wet. But other researchers suggest that wet spider silk only shrinks to a certain point then stops, and it has nothing to do with a sagging web.

Using a technique called nuclear magnetic resonance (NMR), Michal and his research team studied the dragline silk of the golden orb-weaver, a fist-sized arachnid from the tropics that produces honey-coloured silk.

The orb-weaver uses its dragline as a frame for spider webs and it also allows the spider to dangle and plummet down to nab prey.

*continued on page 7*

Carl Michal has unravelled how spider silk shrinks to half its size in water.





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## IN THE NEWS

Highlights of UBC Media Coverage in February 2004. COMPILED BY BRIAN LIN

### Why Canadians Are Healthier

An impressive array of comparative data shows that Canadians live longer and healthier lives than their neighbours south of the border. What's more, Canadians pay roughly half as much per capita – \$2,163 versus \$4,887 in 2001 – for the privilege.

Infant-mortality rates show striking differences between the United States and Canada, according to Clyde Hertzman, associate director of the Centre for Health Services and Policy Research at UBC.

To counter the argument that racial differences play a major role, Hertzman compared infant mortality for all Canadians with that for white Americans between 1970 and 1998. The white US infant mortality rate was roughly six deaths per 1,000 babies, compared to slightly more than five for Canadians.

### B.C. Genome Scientists Pop the Cork on Wine Project

For centuries, winemakers have tested soil conditions and meticulously planned when to harvest to produce the perfect grape. Now scientists at UBC's Wine Research Centre will be part of the mix thanks to a \$3.1-million grant from Genome Canada and Genome B.C. to sequence the genome of cabernet sauvignon grapes.

"The whole point is to build not just a high-quality wine, but a consistent high-quality wine," Steven Lund, an assistant professor in the agricultural sciences faculty told *The Vancouver Sun*. "The vintage is affected by the environment, but the genetic makeup is responding to the environment."

By sequencing the genes of the grape berry, researchers at hope to look at the pathways for compounds that contribute to the taste of wine.

Lund says the role of scientists is to work with viticulturalists, the people who plan, supervise and coordinate the growing of grapes for the production of wine.

"It's bringing 21st-century genomics to wine and what we call wine science."

### Brain Research Facility Opens In Vancouver

The Vancouver Coastal Health Authority and UBC recently opened the \$20 million New Brain Research Centre at UBC Hospital, where specialists will be trying to unlock the mysteries surrounding such neurological diseases as autism, Parkinson's disease and fetal alcohol syndrome.

"You've got people with skills that range from physics to chemistry to biology to engineering to medicine to anatomy," director Max Cynader told *CBC Television*, who adds that the formation of the centre comes at a crucial time because the number of people with brain disease is expected



PHOTO: MICHELLE COOK

To help winemakers improve their product, Steven Lund of the Wine Research Centre is studying the genes of the Cabernet Sauvignon grape.

to triple in the next 20 years without new treatments.

### Classtalk Puts Damper On Classroom Noise

UBC researcher Murray Hodgson has designed a software program that will put a major damper on noise in the classroom.

The software, called ClassTalk, is the first of its kind in the world. It helps architects, engineers and acoustical consultants to build classrooms that help students learn and protect teachers from unnecessary voice strain.

Hodgson, an acoustics expert at UBC's Centre for Health and Environment Research who created the program, said that very little attention is being paid to the acoustics of classroom design, and that "designing the noise out of classrooms benefits both students and teachers."

The program takes into account the physical characteristics of a classroom, such as building materials, the number of windows, the texture of surfaces, lighting fixtures and fittings, all of which influence how a teacher's voice carries through the room and is heard by students.

### Gut Reaction

That feeling in one's bones, according to UBC psychologist Ronald Rensink, can be mapped.

An associate professor in psychology and computer science at UBC, Rensink calls visual sensing without seeing

"mindsight." He discovered the phenomenon when he was testing how quickly people can detect a visual change.

It is not some sort of supernatural sensory perception, Rensink is quick to point out. "It is completely natural."

And do personal experiences and prejudices play into our hunches? Yes and no, Rensink says. Personal experience plays a role. But we also receive cues "that we would not consciously see."

### Oxygen Detected In Distant Solar System

Scientists using the Hubble Space Telescope have for the first time detected oxygen and carbon in the atmosphere of a planet outside our solar system.

The Hubble scientists cautioned that the elements are not signs of life, as the planet is a hot, gassy orb with surface temperatures of about 1,000C.

UBC astronomy professor Jaymie Matthews told *The National Post* that the detection of oxygen is not particularly surprising, but is important as another step in learning about far-off solar systems.

"The physical conditions of this planet are unlike any planet we've ever studied," he said. Known as HD 209458b, the planet is similar in mass to Jupiter, but orbits its parent star every four days at a distance of only seven million kilometres. Earth is about 150 million kilometres from the sun. □

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# UBC Now Ranks 35th among World's Universities

12th among North America's public universities. BY HILARY THOMSON



PHOTO: MARTIN DEE

The University of British Columbia is now ranked 35th among the world's 500 top universities, according to a study cited in the Jan. 24 issue of the *Economist*.

Published by the European Commission, the executive body of the European Union, and compiled by researchers at the Shanghai Jiao Tong University Institute of Higher Education, the 2003 academic ranking guide placed Harvard at number one spot with Massachusetts Institute of Technology, Oxford University and University of Cambridge in the top 10.

UBC and the University of Toronto (23rd place) are the only Canadian universities in the top 75. The next Canadian university in the list is

McGill University, ranked 79th.

"Strong research-intensive universities, able to compete and collaborate with the very best internationally, help Canada take its place in a world where global scholarship must fuel global citizenship," said UBC President Martha Piper.

"Internationalization is a pillar of UBC's strategic plan, and this survey confirms that we are making great strides in this area."

The survey, published for the first time this year, is described in the *Economist* article as a "painstaking ranking of the world's best universities." It scores universities on five evenly weighted indicators of academic and research performance. They include the

number of Nobel laureates produced between 1911 and 2002, the number of highly cited researchers and number of articles published in science and social science journals. Universities are scored out of a possible maximum of 100 points.

UBC's highest individual score is in the category that tallied articles cited in the Science Citation Index-expanded and the Social Science Citation Index. Some of UBC's most-cited faculty members include economist Erwin Diewert, geneticist Phil Hieter, and neuroscientists Edith and Patrick McGeer.

For more information on the survey, visit <http://ed.sjtu.edu.cn/ranking.htm> □

## The Pathological Pursuit

*continued from page 1*

None of this was going unnoticed by the citizenry. This was also the moment when the anti-globalization movement really gained momentum. The first major demonstration in North America was on this campus in response to the APEC meeting.

And people in the business world were responding, both to the new powers and freedoms of corporations and to the dissent in the streets. This is the time business people really started to embrace corporate social responsibility. "Well, we have all this power, and people are getting mad at us," they seemed to be saying. "So we better be more socially responsible, or at least appear that way."

So a lot was going on. It made sense to start a project aimed at understanding the corporation's institutional nature and impact.

*Q. You make the analogy that the corporation is a psychopath. Can you explain?*

A. A psychopath is defined as a person who is pathologically self-interested, lacks the capacity to be concerned about others, lacks the capacity to feel guilt or remorse when others are harmed, and lacks the capacity to feel any moral obligation to comply with legal or social norms.

A corporation is a legal person that is programmed to only be able to serve

its own self-interests and that lacks the capacity to be concerned about others as an end in itself. And I thought, well, that's interesting – you have this legal person created that has been given the personality of a psychopath.

This is particularly noteworthy at a moment in history when corporations are becoming so powerful. Here we, as a society, have created our dominant economic institution in the image of a psychopath. And now we are giving it the power to control our societies.

*Q. A lot of people hear about corporate social responsibility and think – this is great, they're making great strides. But it's not really quite that simple, is it?*

I think it's better that corporations try to be socially responsible than not. It's better that we as consumers and investors try to be ethical and socially responsible than not. And I think there are some very sincere and committed people within the business world who want to push the envelope as far as it can be pushed in terms of trying to do good.

But there is still an envelope there. Ultimately corporate directors and managers are legally incapacitated from pursuing social and environmental goods unless they can make the case that such actions will lead to more profit, corporate social responsibility must always be a means to the self-interested ends of the corporation. And that imposes profound limits on how far it can be taken.

Ultimately we need democratic legal regulation of corporations. We can't simply put our faith in markets or benevolent CEOs to stop the spiral

towards ecological disaster, and corporate assaults on human welfare and rights.

*Q. Mark Achbar told The Globe and Mail "we have to force corporations to be sustainable."*

I can't come up with a five-year plan as to what we need to do. But I think there are certain principles and one of them is that we need to have structures in place where citizens actually participate in shaping the world that they live in, democracy, in other words.

Whether that means that we have to abolish corporations or we have to impose greater constraints on corporations or we have to re-engineer the corporation so that it's designed to serve public interests rather than only private interests, or some combination of all of that, I don't really know. What I do know is that we need to reinvigorate our sense as individuals of citizenship and do what we can do and what we have to do, to try to regain control of corporations democratically.

*Q. When you look back at the project, is there one thing that stands out as the most disturbing?*

Actually I was pleasantly surprised – pleasantly surprised by the humanity of many of the people we encountered along the way. The lesson that I learned is that it's very hard to take people's humanity away. They remain human beings even if what they're doing in institutional contexts, in particular that of the corporation, is quite inhuman. To me, that's very hopeful. □

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# Study Shows Nurses are Regular Targets of Violence

But 70 per cent of incidents go unreported. BY HILARY THOMSON

When she went on shift that day in May 1992, Dorothy Leslie thought it would just be another day at work. It turned out to be her last.

An emergency room nurse with 12 years' experience, Leslie was the victim of a violent assault – kicked hard in the back by a patient high on drugs – that severely aggravated a recent back injury and resulted in chronic disability.

"I still can't believe I'm not able to work – it all happened in the blink of an eye," she says. She charged the man with assault and he was sentenced to two years

plus probation.

This is the kind of situation UBC Nursing Assoc. Prof. Angela Henderson has explored in one of only a handful of qualitative studies ever done on nurses' experience of workplace violence. She interviewed about 50 nurses working in four different clinical departments in hospitals and clinics in western Canada and the U.K.

She found that nurses routinely encounter verbal abuse and physical violence in the workplace.

"Nursing is a physically dangerous job – that's nothing new," says Henderson, whose research

focus is women and violence.

"Nurses expect a certain amount of abuse from dealing with patients and families who are stressed. However, they were profoundly affected by the level of 'unnecessary' abuse directed at them."

Henderson says these experiences not only have implications for nurses' ability to be effective in their work but may also make it difficult to attract and retain nurses, a key issue in the face of international nursing shortages.

Linda Silas, president of the Canadian Federation of Nurses Unions, agrees.

"This is a growing problem because violence at work is not being addressed, despite zero tolerance policies," she says, noting that few incidents result in charges being laid with police. "It's hard to focus on this issue when the nursing shortage issue is so acute. But when workplaces are understaffed it just adds to the pressure for both nurses and patients and aggressiveness builds."

Henderson's findings, recently published in the *Canadian Journal of Nursing Leadership*, were that nearly all the nurses interviewed had been personally threatened at work and several had been assaulted and disabled from work because of injuries.

One emergency room (ER) nurse was admitted on a stretcher to her own ER following an attack by a man angry at being kept waiting to have his sore throat examined. In addition to physical assaults, violent acts reported in the study included emotional abuse, sexual harassment and sexual assault.

Vickie Fowler, (not interviewed in the study) is an emergency room nurse with 25 years' experience. She was bitten by a violent patient who was being restrained by six people. The patient had hepatitis C and Fowler spent a year having blood tests to find out if she had contracted the disease.

"I was furious – I was trying to save her life," says Fowler, who says she was pretty disappointed in the support she received from management. She charged the individual with assault and the woman was sentenced to six months' house arrest. "We have to stand up for our own rights. I tell my co-workers that. It's just not right to put up with the abuse."

Inadequate response by administrators was a common theme in the nurses' accounts. Supervisors often were unsupportive and

some nurses who had been assaulted or threatened were discouraged from reporting the violation to supervisors, administrators or the police. An ER nurse who had been attacked was told to delay her police interview and go back to work.

In addition, some nurses' stories described a double standard where violence against nurses was accepted but violence against doctors was not.

"Interestingly, it's the situations where nurses felt they were held in contempt that bothered them the most – not the lethal or dangerous ones," says Henderson.

"When administrators tolerate verbal or physical violence against nurses, they send a message to the public and to nurses that they are not valued."

Despite descriptions of high levels of abuse, most nurses feel that no one other than nurses takes the threats seriously, says Henderson. As many as 70 per cent of incidents are unreported according to a 2001 study of nurses' experience of violence in Alberta and B.C. hospitals, reported in the *Canadian Journal of Nursing Research*. That study also reported that nearly half of the almost 9,000 nurses surveyed had experienced one or more types of violence in the last five shifts worked.

Henderson would like to see more reporting to bring the issue out into the open and allow for interventions. Most important, she says, is that health-care workplaces must exemplify safety.

"If nurses are to support others, they must feel supported and safe themselves. In particular, if we want nurses to work with female victims of violence, we need to demonstrate that nurses' safety is important and that they will be protected when they intervene in difficult situations."

To read the study, visit <http://www.nursingleadership.net/NL164/NL164Henderson.html> □



PHOTO: GETTY IMAGES

## Shell Shock in the Emergency Room

Not the patients . . . the staff. BY ERICA SMISHEK

Every day, nurses, doctors and other emergency department personnel face these and other upsetting events. It's part of the job – and for some, it's leading to post-traumatic stress disorder (PTSD).

"When nurses talk about the things they see, you wonder, 'how does anyone do this work without emotional damage,'" says UBC psychology professor Lynn Alden. "Their descriptions about events are horrible – treating children that have been charred, children that have been injured, routinely watching people die. It's very hard emotionally."

PTSD is an anxiety condition that can develop subsequent to traumatic events. Symptoms include intrusive memories and images of the trauma, and behavioural avoidance of cues that remind the person of the incident. PTSD is known to create significant life impairment, including occupational dysfunction.

PTSD was first recognized in people who had directly experienced trauma, such as war veterans and assault victims. But more recently, researchers have demonstrated that PTSD can develop in individuals who witness upsetting events in the workplace, such as ambulance attendants and firefighters.

In the first study of its kind, Alden and doctoral student Judith Laposa are examining the relationship between work-related stress and the development of PTSD in emergency department personnel.

Preliminary findings suggest that as many as 20 per cent of emergency department workers surveyed report clinically significant levels of PTSD symptoms and 12 per cent meet the full criteria for the disorder – more than double the rate found in the general population.

"There is almost a macho attitude. Health care professionals think they should be tough enough to deal with it," says Alden. "It comes as a shock to learn that they're human, that to be subjected to traumas that others do

*A child the same age as your own bleeds profusely from a wound; her leg has been dismembered. A severely burned patient stares into your eyes before dying. An irate member of a patient's family physically accosts you in a moment of rage and despair.*

not normally encounter can have a significant impact on their work and their lives."

In the first of two studies supported by the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council and the B.C. Medical Services Foundation, 51 emergency department workers at a major hospital in a large urban B.C. centre completed a questionnaire that measured sources of stress (organizational characteristics, patient care and interpersonal conflict) as well as reactions to traumatic work events, including how they interpreted the cause of events as well as their state when the events happened.

At least half of the participants reported dissociation – some degree of going on automatic pilot and feeling unreal at the time of the traumatic incident.

"They can feel like they're in a dream when these bad things happen," says Alden. "They process information about the event differently because of the anxiety."

The majority of participants reported feeling emotionally upset when reminded of the event, trying not to think, talk or have feelings about the event and having upsetting thoughts or images about the event that came into their heads when they didn't want them to.

Some participants reported a more negative belief system about the world ("the world is a more dangerous place") and themselves following a traumatic event.

In a second study, the researchers examined factors that would increase the likelihood of PTSD. They found an association between interpersonal conflict and PTSD symptoms.

"After a very difficult incident, you often need to share the experience. You all go for dinner or a drink and try to laugh, maybe using black humour to help cope with what you've just been through," Alden explains. "But if you can't do that, if you don't feel that sense of support from your colleagues and hospital administration, traumatic events can be harder to process."

With funding from the Workers' Compensation Board of B.C., the pair has embarked on a third, more comprehensive study in partnership with several B.C. hospitals. It will include questionnaires and interviews with full-time nurses and will examine what impact factors like the density of traumatic experiences and the down time away from traumatic events have on the development of PTSD.

Ultimately, they hope their findings will help hospital administrations not only be aware of the extent of workplace stress and PTSD symptoms in their employees but help them improve the workplace climate to support employees following traumatic events.

"According to the literature, we haven't hit upon a way to prevent PTSD," says Alden, "but there are ways to treat it once it develops."

They would also like to work with educators to develop programs that prepare nursing students for what they will inevitably experience in the workplace.

"I've always been fascinated by the resiliency of the human spirit," says Laposa, who has studied clinical psychology for four and a half years. "Ultimately, I am interested in developing strategies that medical personnel can use to minimize and deal with any negative emotional impact of assisting patients through medical crises." □

# Innovation, Ideas Crossing Boundaries

Theme of Research Awareness Week.

BY HILARY THOMSON

If ideas carried passports, we'd see that they cross many borders before having an impact on our lives.

That concept is the theme of this year's Research Awareness Week (RAW) to be held March 6-13 at UBC's main campus, UBC Robson Square and at UBC's affiliated hospitals.

Titled "Innovation: Ideas Crossing Boundaries," the week comprises workshops, seminars, panels, research

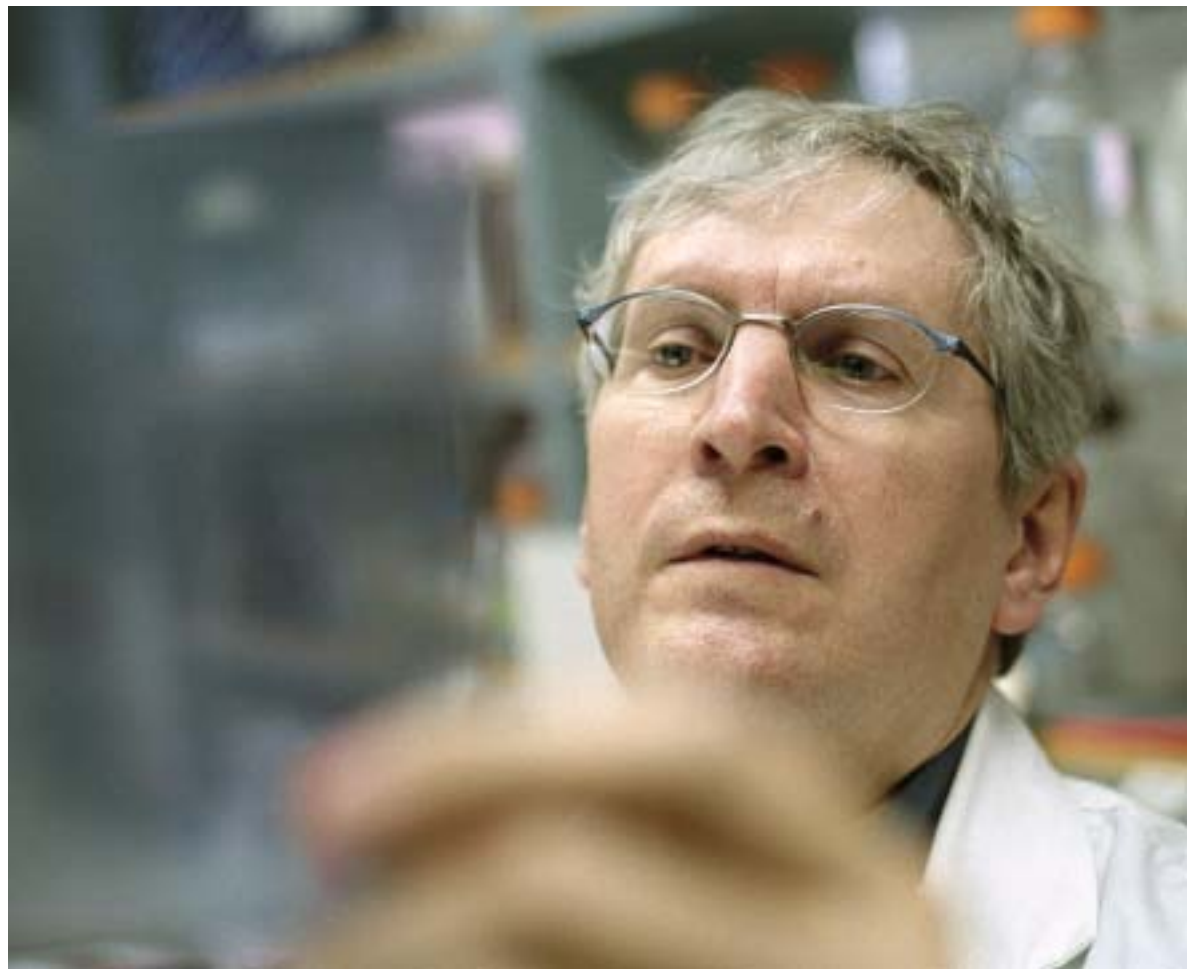
days and open houses.

"We want to celebrate the new ideas developed at the university which have a direct and positive impact on society," says Sid Katz, executive director, UBC Community Affairs and RAW organizer.

"Innovation is all about crossing boundaries – from knowledge to solutions, from university to community, from discipline to discipline and from research to teaching."



PHOTOS: MARTIN DEE



Cardiovascular researcher Dr. Bruce McManus (above) is one of eight Royal Society Fellows at UBC. Psychology prof. Sheila Woody (left) is one of 10 UBC Killam Research Prize winners.

Highlights of the week include a presentation on the institution of marriage in light of the current issue of same-sex marriage as well as a noon-hour panel discussion on how pharmaceutical drugs are developed. In addition, there will be a public debate on the compatibility of teaching and research, a presentation on managing fairness in the workplace and an undergraduate multidisciplinary research conference.

"Every day, UBC's research enterprise is being strengthened by new discovery, by the addition of new and talented researchers and by the translation of ideas into practical solutions and successful businesses," says Indira Samarasekera, UBC vice-president, Research. "And through interaction with researchers in the classroom and the lab, students receive this new knowledge and, in turn, generate new ideas of their own."

Other highlights include a lecture about how governments and scientists are dealing with SARS and a presentation by Vancouver Coastal Health Research Institute on the promises and risks of gene therapy. Also, a panel of health researchers will discuss issues such as schizophrenia treatment, ovulation and the ethics of patents.

Samarasekera and UBC President Martha Piper will celebrate the accomplishments of more than 200 researchers at the Celebrate Research

Awards gala to be held on the evening of Thursday, March 11.

The event features video vignettes describing the work of selected honourees as well as performances by the UBC School of Music. Individuals to be recognized include Royal Society of Canada Fellows as well as the winner of the Jacob Biely Faculty Research Prize.

For more information on RAW, visit [www.research.ubc.ca](http://www.research.ubc.ca) and click on events. For complimentary tickets to the gala, call 604.822.6010. □

## kudos

**Music Prof. Stephen Chatman** is this year's recipient of the Dorothy Somerset Award for Excellence in Performance and Development in the Visual and Creative Arts.

As a professor of composition, co-ordinator of the School of Music's composition division, and director of UBC Contemporary Players new music ensemble, Chatman has mentored a generation of prominent Canadian composers.

His career as a composer spans nearly three decades. He has published more than 40 choral works and his orchestral compositions have

been performed by symphonies around the world, including Berlin, San Francisco, Sydney and Vancouver. His music is regarded as eminently "accessible" with a complete musical expression, encompassing a broad range of musical traditions, eclecticism and post-modern aesthetics.

Chatman was recently invited by the National Library of Canada, Manuscript Section, Music Division to deposit his complete archives.

**Education prof. Rita Irwin**

**Education Prof. Rita Irwin** has been awarded the Sam Black Award for Excellence in Education and Development in the Visual and Performing Arts.

Irwin, a professor of art education and head of the department of curriculum studies, is



Composition prof. Stephen Chatman has earned the Dorothy Somerset Award for Performance and Development in Arts.

recognized as a superb teacher and mentor to learners from a variety of cultural backgrounds. She has been honoured internationally, nationally and locally for her consistent and exemplary service and for her commitment to re-imagine and enrich the study and practices of teaching and learning through the arts.

Her research has focused in the areas of First Nations' art, culture and pedagogy, and art teacher education and educational change. Irwin has published extensively in the areas of art education, curriculum theory, qualitative research and teacher education.

An accomplished visual artist, she presented a solo exhibition of her paintings at a Richmond, B.C. gallery in 2003. □

## CELEBRATE RESEARCH



### RESEARCH AWARENESS WEEK | MARCH 6 – 13, 2004 INNOVATION: *ideas crossing boundaries*

#### March 8-12 – 12-1:30pm NOON HOUR PANEL DISCUSSIONS

Topics include: *The Science Behind The Technology Unveiled, Drug Discovery Working For You, Marriage in the 21st Century and Cities and Governance.*

**UBC – Robson Square** 800 Robson Street – Theatre 604.822.1700  
[www.research.ubc.ca](http://www.research.ubc.ca)

#### March 8 – 7pm NEW HEALTH RESEARCH AND ITS IMPLICATIONS

Join Professors Dr. William Honer (Psychiatry) and Dr. Jerilynn Prior (Endocrinology) for this free evening discussion on wide ranging research from schizophrenia to the ethics of patents. Moderated by Dr. Sid Katz, Professor, Pharmaceutical Sciences & Executive Director, UBC Community Affairs.

**UBC – Robson Square** 800 Robson Street – Theatre 604.822.1700  
[www.research.ubc.ca](http://www.research.ubc.ca)

#### March 9 – 7pm CELL AND GENE THERAPY: THE PROMISE AND THE RISKS

What are the ethical sources and uses of stem cells and other human tissues? Is the time and money involved in these highly personalized therapies really worth it? Join us for this free public forum where we will take a closer look at cell and gene therapy with four internationally recognized scientists. Moderated by former CBC radio host Hal Wake.

**Children & Women's Hospital Campus** – Chan Auditorium for Family Health Education 950 W 28th Avenue 604.875.2446 [reseduc@cw.bc.ca](mailto:reseduc@cw.bc.ca)  
[www.research.ubc.ca](http://www.research.ubc.ca)

#### March 10 – 5pm OUR COMPANY IS CHANGING AGAIN? MANAGING FAIRNESS IN THE WORKPLACE

Join us for a free interactive seminar on how to manage justice in the workplace with Dr. Daniel Skarlicki. Participants will first learn what the payoff of fairness is, and what happens when we lose track of fairness in terms of individual's morale, commitment and productivity. Dr. Skarlicki will then provide specific strategies for managers to increase fairness in their organization.


Register online at [www.sauder.ubc.ca/alumni/raw/index.cfm](http://www.sauder.ubc.ca/alumni/raw/index.cfm) or call 604.822.6027.  
**UBC – Robson Square** 800 Robson Street – Room C100

#### March 12 – 12:00pm HUMAN CARGO

It has been called "shocking," "riveting,," "The Globe and Mail heralds it as "a rich layered drama packed with excellent performances that will take most of us into a world we've never known." A screening of the CBC miniseries, with a talk by co-writer, co-producer, UBC Associate Professor Linda Svendsen. Free admission.

**Frederic Wood Theatre** 6354 Cresecent Rd 604.822.1700

The above events are just a few of many public forums, research days and exhibits that comprise Research Awareness Week. For a comprehensive and up to date listing please go to [www.research.ubc.ca](http://www.research.ubc.ca).

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## UBC ALUMNI

## The First Cyberpunk

The first thing to know about William F. Gibson is that he is not a Luddite. Popular journalism has him clacking out his nine novels on cyberspace, ultra modernity and the advent of hyperlife on a manual typewriter. In fact, he wrote his first novel, *Neuromancer* in 1983 on a manual typewriter because that's what he had at the time. He finally booted up in 1985, and hasn't looked back. He claims to have resisted the Internet initially, but when he discovered that it was such a magnificent way to waste time, he couldn't resist. To prove the point, just visit his Blog at [www.williamgibsonbooks.com/blog/blog.asp](http://www.williamgibsonbooks.com/blog/blog.asp).

The second thing to know about him is that he graduated from UBC in 1977 with "a desultory degree in English."

Born in South Carolina in 1948, he spent most of his teen years in Virginia and Arizona, and drifted to Canada in the sixties to avoid the draft. As he says, the draft avoided him: he was never called up. But Canada and the Canadian woman he married kept him here. He and wife Deborah have lived in Vancouver since the early 1970s. His novels have had a huge influence on modern science fiction, and some critics cite *Neuromancer* as the most influential novel of the genre written in the late 20th century.

Gibson remains one of the brightest stars currently writing science fiction. He invented the word "cyberspace," and takes full responsibility for cyberpunk. While only one of his stories has been made into a movie (*Johnny Mnemonic*, 1995), many of the ideas he presents in his novels have shown up in movies because, as he says, it's easy to use the ideas without having to buy the film rights from him.

His current book, *Pattern Recognition*, is science fiction set in current time, about a woman who can sense cultural trends before they emerge. □



## Eleven to Receive Honorary Degrees

Two Nobel prizewinners, a former federal Cabinet minister, an Olympic rower and a renowned pianist are among the 11 individuals who will receive honorary degrees from the University of British Columbia this year.

Recipients are recognized for their distinguished career achievements and for their contributions to UBC and to Canada. Honorary degrees will be awarded during Spring and Fall Congregation ceremonies.

Daniel Kahneman, a former UBC professor of psychology, earned the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, 2002. He was honoured for integrating psychological research into economics, particularly concerning human judgement and decision-making under uncertainty. Kahneman currently works at Princeton University.

Sydney Brenner earned the 2002 Nobel Prize in Physiology or Medicine for his contribution to understanding the genetic regulation of organ development and differentiation. His work has had enormous influence on genomics and biology and he has been extensively involved with UBC students and faculty at Vancouver's Centre for Molecular Medicine and Therapeutics.

The Hon. John Fraser is a UBC Faculty of Law alumnus and has served Canada as an elected official since 1972 until he left political life in 1994. His service includes being a member of Parliament, federal cabinet minister and Speaker of the House of Commons. In 1994, Fraser was selected to head the Fraser River Sockeye Public Review Board investigating the salmon fishery. He subsequently represented Canada as Ambassador for the Environment, Foreign Affairs and International

Trade. Fraser is active in the environmental movement and is chair of Pacific Fisheries Resource Conservation Council.

UBC alumna and rowing champion Kathleen Heddle won nine world championships and Olympic medals while a member of the Canadian national rowing team from 1987 to 1996. She and rowing partner Marnie McBean are two of the most successful athletes in Canadian Olympic history. Heddle is a member of the Canadian Sports Hall of Fame.

Prof. Emeritus Robert Silverman served for 30 years as a UBC professor of piano and was a former director of the School of Music. An internationally recognized pianist and teacher, Silverman has performed with more than 50 symphony orchestras. He earned a Juno Award nomination for his recording of all 32 of Beethoven's piano sonatas.

Other distinguished recipients are: (in alphabetical order)

Artist and professor of fine arts Iain Baxter; alumnus Larry Bell, former UBC Board of Governors chair and business executive; Dana Brynelsen, an alumna, innovator and advocate for services for young children with disabilities; alumnus,

librarian and former UBC senior administrator Samuel Rothstein; aboriginal health expert and advocate Madeleine Dion Stout; internationally influential psychologist and former UBC faculty member Anne Treisman of Princeton University.

All recipients will receive their honorary degrees at Spring Congregation, May 26 to June 2, with the exception of Brenner and Heddle, who will receive their degrees at Fall Congregation.

UBC's Spring Congregation will be web cast from the Chan Centre for the Performing Arts. For details, visit [www.graduation.ubc.ca](http://www.graduation.ubc.ca). □



Former federal cabinet minister John Fraser will receive an honorary degree in May.

**UBC Faculty of Education - Research Participants Needed!**  
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**Principal investigator:** Dr. Marion Porath  
**Co-investigator:** Ms. Yuriko Riesen

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The total time required in this project: 4-5 hours.  
 The number of interview sessions: two or three.  
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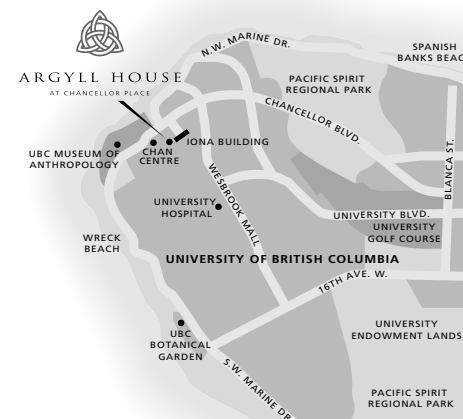
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# Study Reveals Canadians Willing to Pay More for "Healthy" Houses

New opportunities for Canadian wood product companies. BY MICHELLE COOK

Many Canadian homeowners are keenly interested in having "healthy" houses and they are willing to pay more for building materials to improve the indoor air quality, lighting and acoustics in their homes.

The findings, part of a nationwide survey conducted by graduate student Wellington Spetic, in UBC's Faculty of Forestry, suggest there is a significant niche market for value-added building products such as cabinetry, paneling, windows, doors, flooring and structural systems that many Canadian wood producers may be overlooking.

"The idea was to find out what, if any, impressions Canadian householders had regarding indoor environmental quality and their level of knowledge about healthy housing," says Spetic.

"What we found was that almost 60 per cent of the people interviewed were familiar with the term 'healthy housing' and there's a group of people who would at least be willing to look at builders who offered these features in a house."

Canadians spend up to 90 per cent of their time indoors and the majority of that time is spent at home.

Eight hundred homeowners across Canada participated in the study, the first of its kind to look at Canadians' attitudes about their home's 'health.'

They responded to questions about what they value and desire in the indoor environment of their homes, specifically the indoor air quality, lighting and acoustics, their level of knowledge about 'healthy' housing, and their willingness to pay for better indoor environmental quality.

Of those who participated, 56 per cent said they were familiar with the term 'healthy house' through sources such as broadcast and print media.

The 'healthy house' concept gained momentum after the energy crisis of the 1970s when the need to conserve energy led to the construction of 'tighter' houses. While these were more energy efficient, they produced increased amounts of moisture and mould in homes which, in recent years, have been linked to respiratory-related illnesses such as asthma.

A third of those surveyed think they can get allergies, asthma and skin irritations from materials in their homes - carpets, paints, glues, off gassing from building materials and other toxic substances.

"We don't know if this is reflected in reality or not but, what's important is that this is what homeowners think," Spetic says.

Among the study's other findings were that 56 per cent of respondents would be prepared to pay up to nine per cent more for improved air quality; 44 per cent would be willing to pay up to eight per cent more for improved lighting; and 40 per cent would be willing to fork over up to seven per cent more for better acoustics in their homes.

The study also indicated that women are more knowledgeable than men on the topic of healthy housing, but are not necessarily willing to pay extra for it. Older homeowners appear to be less concerned with house-related environmental issues and are less willing to pay more for healthy house features.

While the survey didn't reveal any significant differences by region, what emerged from the data was a consumer profile of the homeowner who would be most likely to consider 'healthier' building materials.

They are those least satisfied with their indoor air quality and environmental quality, and who place a high importance on indoor air quality. They are most likely women, middle-aged or younger, and they have experienced health problems they thought were caused by something in their homes.

The results suggest that a significant

proportion of the homeowner population could be reached with targeted promotion if a company were interested in manufacturing healthy houses and building materials says Rob Kozak, a professor in the Wood Science department and Spetic's advisor on the project.

"There seems to be a fairly evolved understanding of healthful living concepts and at the same time, a clear disconnect between producers and the marketplace. There may be an opportunity there that's being missed," Kozak says.

He adds that Canadian wood products companies should be looking at how they can venture into this niche market, because wood from sustainably managed forests is the most conducive material for constructing a healthy house.

Those who responded to the healthy home survey seem to agree. Spetic says many indicated they would prefer wood products, but they feel it is less available

and more costly than other materials and they are concerned about sustainability issues.

It's an attitude that calls for more consumer education says Kozak, who is part of a team that will be conducting similar healthy home surveys with Japanese and European homeowners.

"Wood is the ecologically responsible material to be used in applications like houses," Kozak says. "It's renewable, it's recyclable and it's long-lasting when homes are properly designed."

In addition to this work, Kozak and his team are currently exploring the positive psychological impacts that wood has when used in interior applications.

The Healthy House Survey of Canadian Households was funded by Akira Yamaguchi, a Japanese philanthropist and owner of the KST-Hokkaido, a homebuilding company with a distinct philosophy of healthy housing and healthful living. □

## Mysteries of Spider Silk

continued from page 1

Dragline silk is made up of long polymers. When dry, the polymers are solid and stationary. UBC researchers found that when the silk absorbed water, it underwent a large-scale, rapid molecular transition with some regions remaining solid and other others collapsing into a rubbery state.

Picture strands of dry spaghetti that, when tossed into boiling water, collapse and become pliable but don't fall apart completely. Silk molecules react in much the same way - only in room temperature water.

"What we saw was molecules transforming from completely stationary and static to liquid-like and rapidly tumbling," says Michal. "There was no in-between, no slow motions at all, and that had not been recognized before."

Michal says the UBC findings support earlier studies, providing the clearest evidence to date of how supercontraction occurs at the molecular level.

He hopes the research, funded by

the Natural Sciences and Engineering Research Council of Canada, will guide industry in its ongoing quest for better synthetic silk.

"For a lot of the applications for silk-inspired fibres, you really wouldn't want supercontraction," Michal says. "Silk's combination of strength and stretchiness make it fabulous for something like a seatbelt, but you don't want a seatbelt to shrink in the rain or when you spill coffee on it."

But will artificial silk be as strong as the real thing if its ability to supercontract is removed?

Michal thinks so, but that's for industry to figure out.

"The fibres that people are developing aren't as good as what the spider makes yet. They're making progress and I'm sure there will be trial and error as to how you remove some properties without affecting others, but in some sense that's an engineering problem that industry has experience in solving." □

## TIMEPIECE 1951



There was a time when UBC coeds could aspire to royalty. Being a campus queen could get you a very large photo in the UBC yearbook *Totem*. In 1951, there were six campus queens, the Homecoming Princess, the Phrateres Sweetheart, the Freshette Queen, the Totem Queen, the Mardi Gras Queen and the one pictured above, Joan McLean, the Sweetheart of Sigma Chi. *Totem '51* reports that each reigned supreme at various functions and were picked by students as an important part of campus life. □

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If you're like most faculty and staff, your day starts in traffic. Fortunately, there are other options. UBC is creating residential neighbourhoods around the academic core that offer urban living, recreational and cultural amenities in a spectacular physical setting.

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or call 604.731.3103 to register.

# Dr Chu's Micro Gadgets

Mini sensors provide maximum data. BY CELINE HORNER

Just as James Bond was always armed with amazing gadgets that Q secreted in his pens, watches, and Aston Martin cars, researchers at UBC's new Centre for Health and Environment Research (CHER) can now equip themselves with high-tech micro gadgets provided by the centre's micro sensor specialist, Winnie Chu.

CHER researchers rely on accurate measures of human exposure to air pollutants, noise, water pollutants, and workplace hazards among others to predict health outcomes and identify control strategies.

"One of the challenges in measuring personal exposure to environmental threats is taking measurements as unobtrusively as possible. Sensors must be discreet and lightweight so as to allow the wearer to continue their normal activity," according to Prof. Paul Demers, CHER's acting director.

In other words, there's no point in giving an ice hockey player a heavy briefcase-sized sensor to assess his exposure to gas from a Zamboni machine during a match.

Designing micro sensors to help researchers overcome these types of sampling obstacles is all in a day's work for Chu, who is CHER's fabrication specialist.

Top of her list at the moment is the development of a sensor that Prof. Kay Teschke can use to assess the impact of whole body vibration on truck drivers and other workers in heavy industry. Such a sensor would have to be worn comfortably by the driver and measure forces acting on the back muscles without changing the driver's posture or position. The sensor must also measure the vibration that the driver is exposed to from the jostling and jolting of the truck cab.

Chu explains that she will build two accelerometer sensors: one is worn on a belt that positions the sensor next to the muscle and measures its mechanomyographic frequency changes, and one that will be placed in the driver's seat to measure the forces due to vibration of the vehicle.

Mechanomyography measures the vibration frequency of individual muscle fibre contractions as the muscle moves. Each movement registers at a different frequency, but the higher the frequency the more likely that the muscle won't return to its original size or shape, much like a spring that has been pulled beyond its elastic limit.

"Accelerometers have been perfected and fine tuned in industry for use in crash impact air bags. They open at forces indicating a collision – not if you slap the dash at the sight of yet another traffic jam. The back injury sensor, which will be smaller than the size of an aspirin, will yield data about muscle movement and the effects of external forces that will allow us to predict muscle strain and therefore avoid back injury," explains Chu.

Chu, who has a PhD in chemistry from Simon Fraser University, is likely to be in high demand by CHER's 31 researchers over this first year of the centre's operation.



PHOTO: MARTIN DEE

Winnie Chu determines the impact of vibrating equipment with the help of a tiny sensor.

She is already working with Prof. Susan Kennedy on analytical lab methods to detect indications of inflammation in the exhaled breath of workers exposed to grain dust.

Asst. Prof. Karen Bartlett has enlisted Chu's help in building a sensor to monitor airborne fungal spores of the deadly *Cryptococcus neoformans var. gattii*, which has been the cause of a number of deaths on Vancouver Island. Another long-term plan is to build an indoor air quality sensor that will use artificial intelligence to eliminate background contamination and produce reliable readings for contaminants such as carbon monoxide.

The Michael Smith Foundation for Health Research has provided the funds for CHER which, in addition to micro sensors and state-of-the-art sampling techniques, provides researchers with assistance in grant facilitation, knowledge transfer and biostatistics.

The hope is that CHER research will involve few high speed car chases or gun battles and that, unlike Q's spy craft devices, Chu's micro sensors will not be destroyed in the line of duty. □

# BUILD YOUR FUTURE AT UBC



The first co-development project on the UBC campus, Hawthorn Green, is now underway. 10 townhouses are being 'co-developed' by 10 enterprising faculty and staff members. The group has appointed UBC Properties as Project Manager.

Following this success, a second co-development group is now evolving. Plans are being formulated for a larger townhouse development to be situated adjacent to a new park and close to the Hawthorn Place Community Centre.

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## Have Lab, No Travelling Required

BY BRIAN LIN (with files from Krista Charbonneau)

A unique pilot project will soon allow UBC pharmacy students to access laboratories south of the border without leaving their own classroom.

A demonstration was conducted last term in a third-year pharmacy course where UBC pharmacy senior instructor Simon Albon used the Internet to access and operate instruments in a lab at Western Washington University (WWU), through its new Integrated Laboratory Network (ILN).

The in-class science experiment marked the first time a Canadian university has utilized the ILN to support teaching and learning. Students observed as Albon conducted a gas chromatography mass spectrometry experiment, a technique commonly used by pharmaceutical scientists but one UBC students rarely get to practice on because the faculty doesn't have the necessary equipment to run it in the student laboratory.

Working with a team of professors from UBC's Faculties of Pharmaceutical Sciences and Education, and WWU's Huxley College of the Environment,

Albon set up the equipment and appropriate samples at the WWU site and ran the experiment virtually from a UBC classroom while students observed through a two-way video and audio connection.

Students then used the experimental data generated to solve the pharmaceutical case developed as the focus for the in-class learning activity.

"As a teaching tool, the concept of an ILN could revolutionize what we do, and the experience is unique to Canadian Pharmacy schools," said Albon.

"It's a completely different approach," said Albon. "When students collect their own samples, they have ownership of their work from the start, which helps them see the relevance of what they're learning."

Albon's involvement with the ILN is a perfect marriage between leading-edge learning technology and collaborative teaching partnerships. As part of UBC's campus-wide eStrategy initiative, e-learning encourages professors and students to explore creative, technology-savvy ways to enhance their learning experience. □