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UBC REPORTS

Exploring the Family Trees of Trees

Making our forests stronger. BY MICHELLE COOK

In the Canadian forest, the poplar and the spruce couldn't be farther apart. One is a deciduous hardwood tree, the other a conifer. While the poplar grows very fast, maturing in as little as five to 15 years, the spruce is a bit of a late bloomer and still considered young at 100 years of age. But by mapping out a genetic blueprint for these two very different tree systems, UBC scientists hope to help strengthen Canada's forest sector.

"How is it possible that a tree survives in one location for 1,000 years with tens of thousands of potential insect or pathogen generations challenging it? What are the genes that control superior wood quality of Sitka spruce?" asks Jörg Bohlmann, an assistant professor in the Biotechnology Laboratory and in the departments of Forest Science and Botany.

"We're interested in how trees protect and defend themselves against insects and pests, and what determines wood and fibre quality, but the Treenomix project really goes beyond looking at a single chemical compound and how that works against a single insect, to how a tree works in general, and its genetic blueprint."

Bohlmann and three other UBC researchers – Carl Douglas, Brian Ellis and Kermit Ritland – are leading Canada's first large-scale forestry genomics project. The four have overlapping areas of expertise in tree and plant biology and genetics. Bohlmann says this will enable them to look at a tree from many different angles to get a complete genetic picture.

PHOTO: PAUL JOSEPH

Jörg Bohlmann is part of a team of UBC researchers mapping out a genetic blueprint for poplar and spruce.

With $10.8 million in funding from Genome Canada/Genome B.C. and the B.C. government, the team's goal is to identify and understand the genes in poplar and spruce that are responsible for forest health (how trees interact with their environment in terms of insects, pathogens and changing climate), and wood quality (what determines wood formation and fibre quality, whether a tree can be used for high-quality paper or other industrial purposes).

For their work, they're adapting strategies such as genome mapping and partial sequencing. They will also focus on expressed – or active – genes and proteins. These are the genes thought to contribute to specific characteristics of individual trees. By doing this, they hope to identify which genes are responsible for certain desirable traits, such as superior wood quality or pest resistance.

"The more we understand about the genomics of trees, the better we can harness their potential for increasing demands of Canada's forest industry," Bohlmann says. "A genomic blueprint will help us to use our forest resources in an ecological and economically

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Raising the Grade on Campus

Construction projects changing the face of UBC. BY HILARY THOMSON

Campus construction is booming with major projects carrying a total value of more than $600 million – more than any other university in Canada – now underway.

"These projects are visible evidence of the support UBC has received from both the federal and provincial governments," says UBC President Martha Piper. "We look forward to new, outstanding facilities that will accelerate and strengthen learning and research, and attract students and faculty to this campus."

Projects range from student housing to galleries and research centres with most of the construction made possible through grants from the Canada Foundation for Innovation (CFI) with matching funds from the B.C. Knowledge Development Fund.

"The construction represents years of planning and fundraising," says Joe Redmond, vice-president, UBC Properties Trust.

About 15 construction companies are currently working on campus employing crews ranging from fewer than a dozen workers to several hundred. The buildings will support innovation and learning and include some student and faculty housing projects that are distinct from the residential units proposed for UBC's University Town, a development of campus neighbourhoods comprising housing, parks and commercial outlets.

PHOTO: LEDCOR CONSTRUCTION LTD.

The Life Sciences Centre, south of UBC Hospital, is part of the medical education expansion program.

"UBC, as a single employer, is one of the largest drivers of the local design and construction industry right now," says Redmond.

Important buildings include the Irving K. Barber Learning Centre valued at $60 million. Due to be completed in May 2006, the centre has been largely funded by a $20 million donation from B.C. entrepreneur Ike Barber. Constructed around the heritage core of the Main Library, the centre will add more than 18,000 new square metres of inside floor space and more than 4,000 square metres of renovated floor space, fully equipped to support wireless technology.

The Life Sciences Centre of B.C., established through $110 million from the provincial government, is a key part of the Faculty of Medicine expansion program, and is fast-tracked to be ready for student enrolment in August 2004.

Currently one of the largest construction projects in B.C., the structure covers more than 47,000 square metres. It has five above-ground and two below-ground floors and includes three laboratory towers connected by two internal atriums.

Other key projects include the Museum of Anthropology renewal, which will feature a building extension, a digital resource network, labs and expansion of public gallery space and public education facilities.

The Institute for Computing Information and Cognitive Systems will be completed in July 2004 as part of a new Computer Science building that will be integrated with the existing Centre for Integrated Computer Systems Research. The new facility is designed to strengthen research links between disciplines that include applied science, health science, education technology and psychology.

Construction is starting on UBC's fourth faculty and staff housing project that will add 60 rental suites to the 89 units recently completed.

Tec de Monterrey-UBC House, currently under construction, will add 200 student housing spaces units to Place Vanier. In addition, plans are underway for a further 2,000 student rooms that will be completed in 2005-2006. □

IN THE NEWS

Highlights of UBC Media Coverage in May 2003. **COMPILED BY BRIAN LIN**

Blame Harry Potter

UBC Canada Research Chair in mathematical economics **Ivar Ekeland** says school children are losing interest in learning math – and Harry Potter is at least partly to blame.

Ekeland told the *National Post* that the magic and sorcery glorified by the popular books discourage children from wanting to understand the real world through science.

"It's evasion," said Dr. Ekeland. "It's telling you, 'Science can't help you, but perhaps magic will.'

"It's a symptom of a lack of faith in science, and a lack of interest in reality in society, that translates into this kind of literature."

Don't Panic

Following the discovery of a case of Mad Cow Disease in Alberta, UBC microbiologist **Bob Hancock** told *CTV National News* that the question that needs addressing is whether any other animals are affected.

"I don't think Canadians should be changing their eating patterns unless this becomes a much more widespread problem in cattle. I believe that it's okay to eat beef at this stage," Hancock said, broadcasting from UBC Public Affairs' on-campus TV studio.

Live on Farm, Avoid Allergies

UBC assoc. prof. **Helen Dimich-Ward** says growing up around farm animals may protect children from allergies and asthma.

Dimich-Ward and colleague C. M. Trask surveyed 1,158 4-H Club members, aged eight to 20 and found that allergic symptoms were lower among those who lived on farms when the survey was taken or who had lived on farms.

Dimich-Ward told *The Globe and Mail* that it is not yet absolutely clear that endotoxins are the protective mechanism. Contact with farm animals was not the only factor in her study that appeared to have a protective effect.

Shut Off Bad Breath

Studies suggest almost 50 per cent of Canadians have chronic bad breath or halitosis.

Three years ago, the Breath Testing Clinic at UBC became the first clinic in North America to use gas chromatography, a sophisticated technology that can distinguish between different types of sulphur gas and give specific measurements for each gas.

PHOTO: MARTIN DEE

Sid Katz heads a committee to resurrect the Thunderbird totem pole.

"This allows me to diagnose the type of bad breath and treat it accordingly," **Ken Yaegaki**, the clinic's director, told the *Calgary Herald*.

Once the problem has been diagnosed, most clinics will suggest a stepped-up oral hygiene program. Antibiotic mouth rinses may also be prescribed, followed by a maintenance regimen of milder mouthwash.

Ferry Fire a Close Call

UBC professor **Roger Boshier** told *BC CTV* that the Queen of Surrey ferry fire was a close call and passengers should consider themselves very lucky.

"This was a very dangerous situation," said Boshier, who specializes in accident prevention. He added that the 300 plus passengers on the Queen of Surrey would have been in danger if the fire had been any worse.

"There wasn't a ferry captain in the world who would want to have to evacuate 300 passengers into life rafts off a large ferry like that," said Boshier. "Because they know that during practices and particularly during real incidences, things go wrong."

"This was a very near miss. Unfortunately, the federal authorities have got away with it this time because there has been no loss of life, but it was very close and very serious."

Smallest Seahorse Found

Biologists have discovered the world's smallest known seahorse hiding amid the coral off Indonesia.

The pygmy seahorse averages 16 millimetres in size, smaller than most fingernails. Scientists originally mistook it for a juvenile of another seahorse species.

McGill University doctoral student **Sara Lourie** led the identification study for UBC-based **Project Seahorse.**

Lourie named the species *Hippocampus denise* after the woman who took the pictures, **Denise Tackett. Lourie** told *BBC Online* the name means "wild or frenzied", which seemed appropriate.

Thunderbird Totem to Rise Again

One of the twin symbols of native students at UBC is about to be resurrected.

The Victory Through Honour totem pole is about to be resurrected. The original totem was presented to UBC's Alma Mater Society in 1948, as was the right to use the popular Thunderbird crest.

But a half century of weathering and a vandalism incident two years ago now leaves the totem in fragments in a campus warehouse, reports the *Vancouver Courier*.

Anyone wishing to contribute to the project should contact **Sid Katz** at UBC's community affairs office.

U.S. Students Flocking North

The number of students from the United States attending school in Canada, whether high school or university, doubled to slightly more than 12,000 in 2001 from around 6,500 in 1990, according to recently released figures from Citizenship and Immigration Canada.

At the undergraduate level, **UBC** has tripled its U.S. enrolment to 241 this year from 69 students in 1998-1999.

"Canada is a safe, international, nearby location," **Donald Wehrung**, director of the International Student Initiative told *The Globe and Mail.*

Second-year student **Anne Thompson** said the agricultural science program at UBC drew her immediately. The Seattle resident acknowledged that tuition is much cheaper than in the United States. Some of the U.S. private colleges she applied to would cost around $22,000 (U.S.) a year. At UBC, her tuition is about $14,000 (Canadian) a year.

"I just really like living in Canada," said Thompson. "Especially at this time, looking back at these last two years, I'm really grateful to be in Canada." □

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Where the Girls Aren't

New interdisciplinary course aims to boost female interest in computer science

BY ERICA SMISHEK

A typical girl loves her computer – but she doesn't understand how it works and isn't dreaming of a career in information technology.

That could change if Women's Studies Programme chair Tineke Hellwig and Computer Science Prof. Anne Condon have their way.

The pioneering pair has banded together to establish *Connecting with Computer Science*, a new UBC course they believe is the only one of its kind anywhere. Cross-listed in both the Faculties of Arts and Science beginning this fall, the hands-on course introduces computer science through connections with fine arts, linguistics, music, philosophy, psychology, biology and women's studies.

By emphasizing the use of computer tools as a means of creativity and human expression and the role computer science plays in addressing basic questions about human intelligence and the mechanisms of life, Hellwig and Condon hope to widen women's interest in and access to the field.

"It is pushing the envelope a lot further than any other course of its type," says Condon. "It is very rare to find this highly interdisciplinary approach.

"This is not a course about computers in society and it's not about social issues. It is a technical course… This is designed to help get at programming, at what it means, at why it's important."

Lagging interest in technology among high school girls has translated into an alarming decline in women studying computing at university. Currently only 15-20 per cent of IT graduates at Canadian universities and fewer than 25 per cent of IT professionals in the work force are women.

The course (listed as 101 in Computer Science and 201 in Women's Studies) is designed to capture the attention of people who might not otherwise think about computers, and to do so at the beginning, rather than the end, of their university studies.

"It will show up on the radar screen of students who would otherwise lock themselves away because they think it's science and it's nothing they can do," says Hellwig.

Condon did substantial research on feminist approaches to science and feminist conceptualization when developing the course. Programming assignments are designed to allow students to explore the connection between programming and creativity and to support different styles and approaches to programming instead of requiring the "right answer."

Students, for example, can write a program to generate haiku poetry or to share their problems and intelligent conversation with a software psychotherapist.

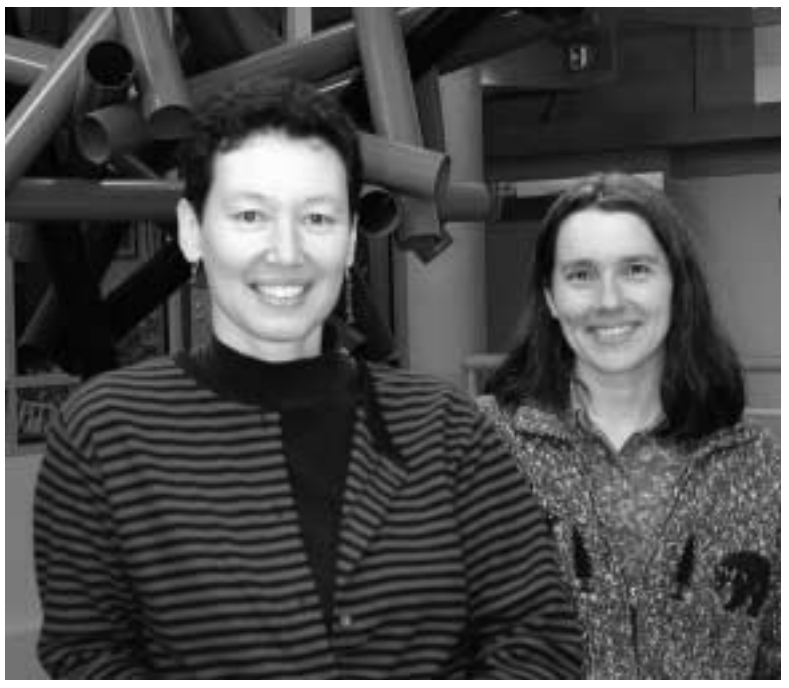

PHOTO: ERICA SMISHEK

Women's Studies Programme chair Tineke Hellwig (left) and Computer Science Prof. Anne Condon are determined to get more women involved in technology.

"Programming is quite a skill and art," says Condon, a mathematician. "It's very complicated, and it's difficult to be a great programmer. Everything has to be exactly right. There is a tendency to teach students to do everything right and to teach in a very rigid framework.

"But that's not the way it works for everyone to learn. There is no reason you can't learn programming by exploring and by leaving room for creativity. There is precision but there is also creativity."

Condon addresses the issue of gender differences in people's approach to computer use early in the course. While both girls and boys enjoy computer games, the level of intensity with which they typically pursue this is different, with boys more likely to get into programming their own games. Also, girls use computers more for other goals – to communicate over the Internet or to get information about their interests.

"Girls will manage what's provided but they don't create new things," she explains. "It rarely becomes a passion in itself. But for boys it's an end in itself. For some boys, the computer lab is their social club. Many boys will know how to program by the time they get to computer science class."

She says she has trouble admitting this contrast.

"As a woman, I want to pretend there are no differences. If we're different, it could be interpreted to mean we're not as good. Women in computer science want to fit in, to downplay any differences from the men. But differences between girls' and boys' approaches to computers are partly cultural and it's an influence all the way through their education. It's something we have to acknowledge but it's difficult for someone in the sciences to do."

Both women believe building female competence and confidence with technology is essential to our culture.

"Computers aren't used for all the things they could be," says Condon. "If more women are involved, technology will be used differently. The possibilities are endless and could be very inspiring." □

Drug Costs May Soar for Canada's Seniors

Study urges major changes to pharmacare. BY HILARY THOMSON

Pharmacare – it's a national ailment sorely in need of a cure.

So says a group of health policy researchers at UBC's Centre for Health Services and Policy Research (CHSPR)

They have recently completed a study that argues, without strong political leadership and comprehensive management of how medications are prescribed and used, government spending will escalate to the point where pharmacare for Canada's seniors will soon be seriously threatened.

Some higher income seniors are likely to find part of their benefits shifted over to help young families pay for medication costs.

"Seniors' drug benefit plans are under intense financial stress," says co-investigator Steven Morgan, a CHSPR expert in health-care economics. "Until recently, provincial governments have provided generous drug coverage to virtually all seniors but changes such as user fees and eligibility requirements are seriously eroding that coverage."

Morgan and Jonathan Agnew, postdoctoral fellows at the centre, along with CHSPR member Morris Barer, a Canadian Institutes of Health Research (CIHR) director, looked at provincial drug benefit programs for Canadian seniors, focusing on coverage, price control and how medications are prescribed and used.

The investigation found reduction of seniors' drug benefits amid a "cost crisis" in the pharmaceutical sector. In the absence of effective cost-control, provincial drug plans for seniors are fast becoming unsustainable, the researchers say.

Canada spent almost $15 billion on prescription drugs in 2002, and the cost of public drug coverage programs in Canada has almost doubled since 1995, according to the Canadian Institute of Health Information.

Causes of increased drug costs include greater use of drug therapies and the type and quantity of drugs used to meet health needs. Despite the high cost of new drugs, there is often little evidence they deliver enough therapeutic value to justify their price relative to older "tried and true" medicines, Morgan says.

Drug prices must reflect therapeutic value and patients and doctors need to have sufficient information to balance the benefits of a drug against its cost.

"Without this type of decision-making, any system of prescription drug financing will be plagued by uncontrolled costs," says Morgan, who is a CIHR fellow.

Part of the problem in containing costs is that provincial drug plans do not take full advantage of their purchasing power to negotiate discounted prices with drug manufacturers. There needs to be considerable political will, however, to confront drug manufacturers who often are major players in provincial economies, adds Morgan.

Low-income seniors remain well covered in all provinces, but it's a different story for seniors with higher incomes, says Morgan. Since the mid-1990s, they have experienced reduced coverage because of co-payments, increased premiums, deductibles and eligibility requirements.

Some higher income seniors are likely to find part of their benefits shifted over to help young families pay for medication costs. B.C.'s recently announced Fair PharmaCare program uses a means test to determine how much seniors should pay for their medications. Much of those cost savings help to finance a universal plan for families with high drug costs relative to the family income.

The provincial government has asked the research team, in collaboration with researchers from the Harvard Medical School and the University of Victoria, to evaluate the provincial government's PharmaCare program over the next three years.

For more information on the study, visit the Web site at www.chspr.ubc.ca. □

Learning Through Engagement

The arts open opportunities for enhanced achievement

BY ERICA SMISHEK

Students who participate in the arts at school perform better in math and are more wholly involved in learning, according to a recently released national study involving UBC researchers.

"There was just an infusion of joy," says Education Assoc. Prof. Kit Grauer. "There was an engagement with all learning. Kids wanted to come to school."

Grauer and Prof. Rita Irwin, head of the Dept. of Curriculum Studies in the Faculty of Education, were co-investigators on a national team studying the Royal Conservatory's Learning through the Arts (LTTA) program, a three-year initiative with more than 6,000 10-to-12-year-old students, 900 teachers and 130 principals from six Canadian sites including Vancouver.

The national study found that LTTA students scored as much as 11 percentile points higher on standardized mathematics tests of computation and estimation than their peers in control schools.

In a separate regional study of the eight schools in the Vancouver site, UBC researchers saw evidence that students are more committed in physical, emotional, intellectual and social ways when arts are part of the curriculum.

"It's really about engagement, about the kind and quality of involvement that kids have," says Irwin. "It's not about doing more math. It's about getting the child totally involved in whatever they're learning, getting them to feel the knowledge."

The LTTA program brought actors, musicians, painters and writers into more than 170 schools across Canada over a three-year period. Together with teachers, these artists created lively ways to present curriculum and bring new vitality to the classroom. Students learned math, language, history and social studies by making images, creating dances, telling stories and singing songs.

Irwin, Grauer and UBC graduate students involved in the regional study used a digital camera to record what happened in classrooms.

"We saw this incredible engagement in the kids," says Grauer. "It didn't seem to matter what art form they were working with. They were bodily involved with the storytellers, with the visual artists. There was this kind of transformation."

While many people assume that the arts somehow detract from the learning of other subjects, both the national and regional studies show this isn't the case. Researchers discovered that time for involvement in the arts does not come at the expense of achievement in languages and math.

In addition, students, teachers, parents, artists and administrators alike told researchers about how the arts motivated children and had numerous benefits.

"The arts can help children deal with self-esteem, with their sense of belonging, with their sense of connectedness in ways that you can't just talk about. When kids dance it, they understand. When kids sing it, they understand," says Grauer.

Students weren't the only ones transformed by the arts experience.

At the end of the three-year period, a significant number of LTTA teachers believed that the arts were an effective way to teach language, science and math. LTTA teachers also reported a number of changes in classroom practices that reflected their increased commitment to teaching through the arts and their growing skills and confidence in embedding the arts in their teaching practices.

Irwin is encouraged by the sense of revitalization many teachers felt and the possibilities arts could have for future professional development.

"Teaching is pretty stressful stuff. For teachers to feel that 'aliveness' in their own learning is something we can't forget," Irwin says.

Both educators believe programs like LTTA show a sustained sense of commitment to the whole child and to lifelong learning, and can counter a growing trend in the United States for more testing as a means of assessing children and the quality of their education.

"I call it the tyranny of the test – the notion that tests measure what's being achieved right now," says Irwin. "Instead, it's sustained learning through engagement that really matters. The arts provide engagement opportunities across the curriculum."

The national assessment of LTTA was prepared by Dr. Rena Upitis and Dr. Katharine Smithrim of Queen's University. Their final report is available online at www.ltta.ca □

PHOTO: KIT GRAUER

UBC researchers have discovered that Vancouver students like this young boy are more committed to learning when arts are part of the curriculum.

UBC Research Drives Canada's Fledgling Emerald Industry

Former student makes a dazzling discovery. BY MICHELLE COOK

It was late August 1998 when Bill Wengzynowski spotted something green while prospecting in a remote area of southeastern Yukon.

He was looking for copper and zinc and he thought the green patches might be malachite, but on closer inspection the UBC graduate suspected he had found something far more surprising – and significant. Emeralds.

Wengzynowski had obviously paid attention in mineralogy class and no one is happier about that than Lee Groat, an associate professor of geology in the Department of Earth and Ocean Sciences who taught Wengzynowski while he was at UBC.

"He remembered enough of his mineralogy to determine that the samples might be something rarer," Groat recalls with a smile. "He called me and said he had something he'd like me to look at."

Wengzynowski, who was conducting the exploration for Vancouver-based Expatriate Resources at the time, asked Groat to analyze the samples to determine the source of their brilliant green colour. Groat confirmed his former student's hunch. The minerals were high-quality emeralds – the first to be found in Canada.

The dazzling discovery raised a lot of scientific questions for Groat. Why were the emeralds there? Were there more to be found? And where was the best place to look?

In a quest for answers, Groat along with other UBC researchers, students and graduates have been the driving force behind the development of Canada's fledging emerald industry.

PHOTOS: MICHELLE COOK

UBC Prof. Lee Groat (left) has been collaborating with his former students Bill Wengzynowski, president of Archer, Cathro & Associates, and Bonnie Pemberton of True North Gems on the development of Canada's emerald industry. Below left: some Yukon emeralds, in their natural and cut form.

Rarer and more valuable than diamonds, emeralds have been prized for centuries. The Inca and Aztec Indians of South America worshipped them as holy stones. Cleopatra had her own emerald mines, now long exhausted, near the Red Sea, and the Roman emperor Nero was said to have watched gladiators fight through emerald lenses.

The world emerald market is currently estimated to be worth more than US$5 billion with most stones mined in Columbia, Brazil, Zambia, Afghanistan and Pakistan.

As he opens boxes of emerald samples from around the world, Groat says that, at first, the Canadian emerald find seemed to be an anomaly.

"I was pretty excited when I first saw the samples. I knew there was beryl up there, I'd seen it on previous trips. What I hadn't put together is that there could be emeralds, too" Groat says.

Emeralds are a type of beryl, a mineral made of beryllium, aluminum, silicon and oxygen – all elements common in the continental crust. While ordinary beryls are colourless, emeralds are green because at some point in their formation, some of the aluminum was replaced by the elements chromium or vanadium. Emeralds are rare because these elements belong to a completely different chemical family from beryllium and the two drifted apart billions of years ago.

Once Groat confirmed that Wengzynowski had found emeralds, he wanted to find out how the elements necessary to form them had come into contact with each other in a wind-swept corner of the Yukon.

In the summer of 1999, Groat spent 10 days collecting samples in the area, now known as Regal Ridge. Back at UBC, he pulled together a team that included fellow UBC Professor Jim Mortensen, the university's Mineral Deposit Research Unit, and international researchers with various scientific specializations to help analyze the samples.

What they found was that the area around Regal Ridge is made up of slices of oceanic rock – called accreted terraines. More than 100 million years ago, when continents were colliding in massive tectonic shifts to form mountains, slabs of ocean floor, containing chromium and vanadium, got caught between colliding continental plates. When those patches of oceanic rock were forced up against the continental shelf, they came into contact with continental rock containing beryllium.

Rarer and more valuable than diamonds, emeralds have been prized for centuries. The Inca and Aztec Indians of South America worshipped them as holy stones.

"Initially Regal Ridge seemed to be different from other emerald deposits," Groat says. "But as we learned more about it, we saw that the Yukon deposit has similarities with those in Zambia and Afghanistan.

"Now, just knowing the geology up there, I'm confident that there are more deposits. It's not going to be easy to find them, but with science we can target them much better."

UBC's initial research helped to spark a staking rush. This summer at least seven companies will be in the Regal Ridge area doing exploration work, but Groat says more analysis is necessary before researchers can be certain of the area's feasibility for emerald mining.

In terms of their colour, Groat says Canada's emeralds rank with the world's best, but it is still unknown whether the deposits will yield stones big enough for profitable commercial mining. To date, the largest stone found has been only a half carat in size. Stones of at least one carat are necessary to make mining worthwhile.

This summer, with funding support from the National Sciences and Engineering Research Council of Canada (NSERC), True North Gems Inc. (the Vancouver company which purchased the Regal Ridge property from Expatriate Resources), and the Yukon government, Groat is heading back up north with two students to do additional analytical work at Regal Ridge. They'll also visit another site, called Lened, in the western Northwest Territories where emeralds have also been found. Although paler in colour, the Lened deposits appear to resemble Colombian deposits, which produce the world's finest quality emeralds. Most of this summer will be spent working on a regional study outlining the likeliest places to look for emeralds.

Grout hopes to finish the analytical studies on Regal Ridge and Lened by early to mid-2004 and complete the regional study by 2006. In mining terms, the project is still in its infancy, but Groat expects it will soon be possible to tell whether full-fledged mining is feasible at Regal Ridge.

"I think we will know whether or not there will be a mine at Regal Ridge by next year. It basically depends on what True North Gems finds this summer when they go underground," Grout says. "What will be really exciting is if someone else, maybe us, makes another discovery."

Grout is mindful of the gap between discoveries and actual production, but points out that only a short while ago people said there were no diamonds in Canada.

"We're the second largest country in the world so we should have these gemstones," Groat says. "I certainly wouldn't be surprised to see Canada producing emeralds in the future and like our diamonds, Canadian emeralds would command a premium." □

UBC 2003 Rick Hansen Wheels in Motion

Skates, bikes, and blades will be out in force as UBC staff, faculty and students and the local community get in motion to raise awareness and funds for spinal cord care and research.

The Rick Hansen Wheels In Motion event will be held Saturday, June 14, from 9 a.m. – 2 p.m. at SUB Plaza, one of more than 150 events taking place across Canada.

Members of the campus community are encouraged to form teams to wheel – on bicycles, wheelchairs, inline skates and scooters – walk or jog around a .6km or 2.5km course. Pledges from the event will be directed toward research and to improving the quality of life for people with spinal cord injury.

Teams can register or pledge forms can be obtained by contacting Gerry Latham at latham @safety.ubc.ca.

For further information go to www.wheelsinmotion.ubc.ca □

kudos

International Space University Chooses UBC to Host Summer Program

The International Space University (ISU) in Strasbourg, France has selected UBC as the host site for its 2005 Summer Session Program.

The program, which changes location each year, draws together more than 100 graduate-level students from more than 25 countries for two months to learn about all aspects of space exploration and research. The professional network created among the young professionals and recent graduates who attend the program, along with the faculty drawn from around the world, is an important life-long career tool.

The session in Vancouver will be the second in Canada since the program was pioneered in 1988. □

UBC ALUMNI

ALUMNI SPOTLIGHT >

June Goldsmith BA'56

Classical music concerts usually conjure up images of well-heeled audiences, furrow-browed intellectuals and black-tie formality. But June Goldsmith has succeeded in airing out this stuffy image and making classical music fun and accessible. Eighteen years ago she founded *Music in the Morning*, a non-profit organization that arranges and promotes classical music concerts at various venues in Vancouver including the Chan Centre. It thrives in a cash-strapped Arts scene by offering quality performances to daytime audiences.

What singles out the performances is the communication between artist and audience, and the casual, coffee-morning atmosphere. Before performing, the artists will offer their commentary on the piece, the composer, or their experiences as a musician – giving their audience a refreshing perspective, and a new way to appreciate the music when it is performed. Another key to the program's success is variety. Chamber music, ballet, opera – all have been examined by a voracious and growing following.

Goldsmith introduces the concerts and has also presented on-stage conversations with the likes of Judith Forst and Karen Kain. This year saw the introduction of *Rush Hour* at the Vancouver Art Gallery: one-hour concerts for downtown workers to catch before heading home. Goldsmith hopes to tap a younger audience and, to this end, the organization also holds workshops at local schools.

Before founding *Music in the Morning*, Goldsmith taught music appreciation for UBC's Continuing Studies. She holds an MA in Music from Stanford and was inducted into the B.C. Entertainment Hall of fame in 2000. □

UBC Alumni Association
Annual General Meeting
June 18, 2003
5:30 pm
UBC Robson Square

Bad Gums not Bad Brushing Causes Bad Breath

Gingivitis is at the root of the problem

BY HILARY THOMSON

Think brushing, flossing and swigging mouthwash can save you from bad breath?

Think again.

"There is a common superstition – even among dentists – that oral hygiene is directly linked to bad breath," says Ken Yaegaki, director of the Faculty of Dentistry Breath Testing Clinic and a world expert on halitosis. "Our clinical experience doesn't support that theory at all."

That's why Yaegaki has teamed up with colleagues in Beijing and Tokyo to investigate the primary cause of bad breath. He is co-supervising the work of primary investigator Xuenan Liu, a doctoral student at Tokyo Medical and Dental University. With colleague and co-supervisor Yoko Kawaguchi, Yaegaki has overseen the study of approximately 2,000 adults of all ages through interviews and examinations at Beijing health clinics, schools and local offices of the Communist party.

The project is the first clinical bad breath study ever done in China, a country with strong educational links to Japan.

The findings have reversed common thinking to show that gum disease, not poor oral hygiene, is the primary and direct cause of bad breath.

Yaegaki hopes the findings will help promote regular trips to the dentist.

"Even in Canada, almost half the population does not have regular exams and cleaning," he says. "I want to change this behaviour through people's fear of bad breath. They may be more motivated to have regular check-ups to avoid getting the gum disease that leads to bad breath."

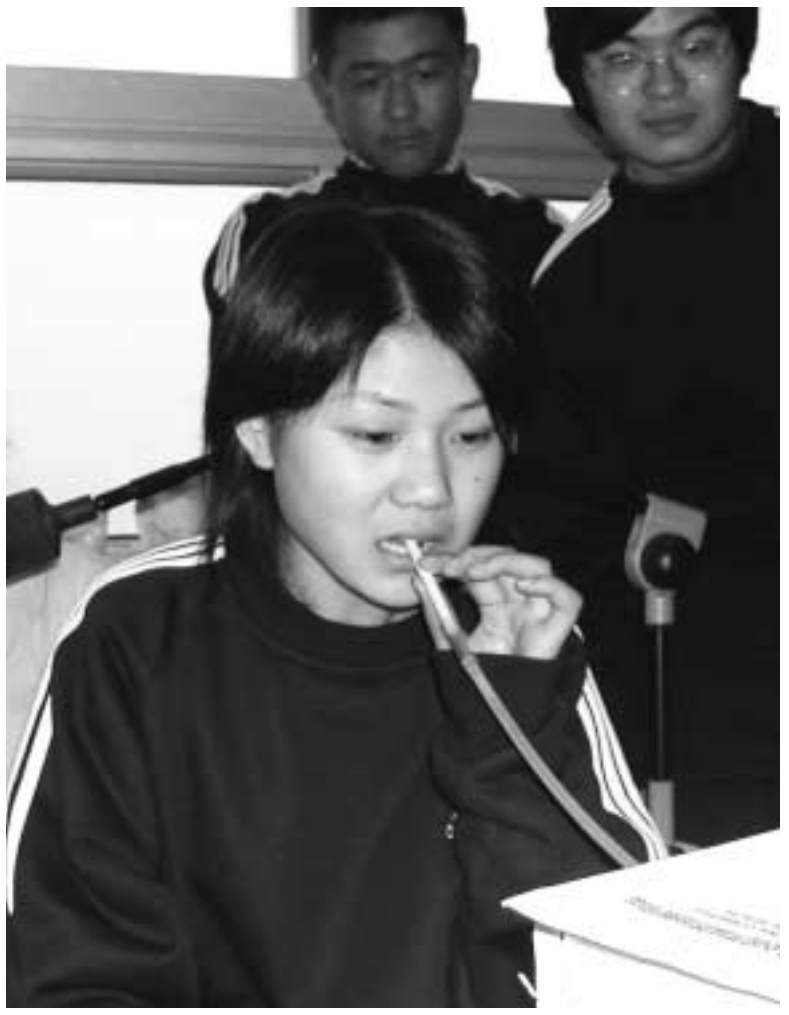

PHOTO: COURTESY OF KEN YAEGAKI

A Beijing student takes breath test in China's first halitosis study.

Researchers use a halimeter to test bad breath. The system uses gas chromatography as a measuring device and provides precise readings of sulphur compounds, high levels of which are the basis of bad breath.

Other causes of halitosis include tongue coating from various health conditions such as diabetes, or liver disease, throat inflammation or sinusitis, and some medications.

Many remedies, including most mouthwashes are "a little bit more effective than water," in combating bad breath, says Yaegaki. Some products, such as sugar-free mint-flavoured gums actually worsen halitosis by breaking down tongue coating and releasing malodorous compounds into the mouth.

Oral hygiene is improving in China as the economy improves, creating a huge market for tooth cleaning and breath freshening products, Yaegaki reports. This summer, he will supervise a post-doctoral fellow from Beijing where two dental schools have started bad breath clinics and research.

The findings from the recent study will be published at an international breath odour conference in April 2004.

For more information on UBC's Breath Testing Clinic, visit the Web site at http://www.dentistry.ubc.ca/clinic/proserv/breathtesting.stm or call 604.822.8028. □

Exploring the Family Trees

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sustainable way with reduced pressure on naturally grown forests, if we can accelerate tree breeding and selection."

By 2005, the team plans to have more than two hundred thousand gene transcripts partially or completely sequenced. These will be valuable in studying gene function and evolutionary patterns of genes. They will also be one of the largest collections of such sequences in the world.

To undertake such a massive task, Bohlmann and his colleagues have assembled 18 specialists from around the world. They have also partnered with Genome B.C. platform technology experts, and scientists at the B.C. Cancer Agency's Michael Smith Genome Sciences Centre, the Microarray Centre at Vancouver General Hospital and the University of Victoria's Proteomics Centre. Other collaborators include the B.C. Ministry of Forests, the Canadian Forest Service, B.C.-based forest biotechnology industry and other industry partners such as Canada's Pulp and Paper Research Institute. UBC's Forestry faculty has provided lab and office space for the newly recruited group of researchers.

Bohlmann says if Canada wants to have a sustainable forestry industry, cutting edge genetic knowledge about the trees is a must. For this reason, he is keen to share the project's findings with industry and the public. The tools will allow researchers and end users to work with gene expression profiling in large marker sets for a variety of applications including identifying the genes underlying wood formation, stress tolerance and disease resistance, and using this knowledge to improve and accelerate tree breeding for quality traits critical to the forest industry. □

A Lot of Hot Air

Tobacco advertising and the myth of the "light" cigarette

BY ERICA SMISHEK

There is no such thing as a safe cigarette – and tobacco companies who market "light" versions are just blowing smoke, says UBC Commerce Prof. Rick Pollay.

"Light cigarettes have been marketed as if they are safer," says Pollay, who has studied tobacco advertising for more than 15 years. "But there is no safe cigarette. It's a lie, a ruse."

Last month, a B.C. man launched a suit against Imperial Tobacco, alleging that the company engaged in "deceptive trade practices" in the marketing of its "light" and "mild" cigarette brands. The suit is the first of its kind in Canada and is expected to draw support from other current and former smokers of light brands.

Pollay has testified at numerous tobacco-related trials throughout North America. Quebec Superior Court judge Andre Denis called him "a virtual living encyclopedia on tobacco advertising and a scrupulously rigorous marketing researcher" at a trial last year in which Denis upheld the constitutionality of the Canadian Tobacco Act.

In an Oregon case, Pollay testified that tobacco companies created the low-tar or "light" cigarette to give smokers an excuse not to quit amid a growing anti-smoking atmosphere.

His research shows that marketers essentially created the illusion of a healthier cigarette, thanks in part to virtuous brand names and descriptors such as "mild" and "ultra" to reassure smokers and discourage them from quitting the habit.

"The more time you spend researching this area, the more you find they're up to their sly old tricks," says Pollay. "They're always pursuing their self-interest of profit. They're never really giving public interest or public health any concern."

Pollay grew up in New England in the 1950s and smoked Marlboros for 15 years. He joined UBC in 1970 as a specialist in marketing, consumer behavior and the social and cultural effects of advertising. He turned his research focus to tobacco in 1987 when asked by lawyers to study cigarette advertising of the 1930s to 1950s in order to testify in New Jersey's Cipollone trial.

"At that stage of my career, I liked the richness of it," Pollay explains. "The tobacco industry and its regulation is very interdisciplinary. It involves political, medical and epidemiological aspects; it also involves public health, law, psychology, commerce and ethics.

"[Tobacco companies] are always doing something wrong. If it wasn't always illegal, it was certainly immoral."

His studies of advertising reveal much about how the tactics of the tobacco industry have changed when targeting different types of audiences (men/women, started/concerned addicts), introducing new technologies (filters, "light" products) and adapting to new regulations or events (ban of TV advertising, the health scare of the 1950s).

"They know what they're doing," he says matter-of-factly.

In addition to advertisements, Pollay has also reviewed corporate documents from the tobacco industry and trade information to find evidence of the industry targeting to women and youth.

"Take the heroic independence of the Marlboro cowboy," he says. "He has no foreman, no parents, no bullies. There is no sheriff in Marlboro country. This cowboy is free to be and do his own thing. That's very appealing to adolescents."

Pollay says advertising to women initially served to legitimize the activity of smoking. It later made connections to the women's movement – remember the "you've come a long way, baby" campaign of the 1960s? – and now focuses on fashion and beauty through sponsorships of Canadian fashion designers or the use of digitally distorted images that make women appear as tall and slim as possible.

Cancer researchers say it's working. When the Canadian Cancer Society reported in April that the lung cancer death rate among women has jumped 46 per cent since 1988, they drew a direct line to years of attention paid to young women by tobacco marketers.

"There is nothing in it that is very liberating," says Pollay of this target marketing. "There is nothing liberating about smoking... It's an equal opportunity tragedy."

Pollay has collected more than 10,000 cigarette advertisements spanning the 20th century, with film copies donated to the Roswell Park Cancer Institute in Buffalo, New York. The Richard W. Pollay 20th Century Tobacco Advertisement Collection can be searched online at http://roswell.tobaccodocuments.org/. □

PHOTO: ERICA SMISHEK

Commerce Prof. Rick Pollay has been called a "virtual living enclopedia" for his knowledge of tobacco advertising and marketing. He has collected more than 10,000 cigarette advertisements spanning the 20th century.

Board of Governors approves UBC Visual Identity Policy

In May 2003, UBC's Board of Governors approved a Visual Identity policy, meant to guide UBC units in their use of the university's name, typeface, initials, specified colours and logo (at left), as well as their relationship to other visual features in printed and electronic materials.

The appropriate use of these elements enhances the University's reputation, leverages quick recognition, reduces design costs and inefficiencies, and demonstrates organizational purpose and accountability to diverse University stakeholders.

The policy applies to:

(a) campus signage;
(b) University print advertising;
(c) University Web sites and other forms of electronic promotion/ communication;
(d) livery for University vehicles;
(e) University business cards, letterhead, and other stationery; and
(f) University brochures and other publications.

An electronic version of the full Policy and Guidelines is available at:
www.universitycounsel.ubc.ca/policies/policy94.html

PHOTO: MICHELLE COOK

Dave Burke and Matthew Thorne are using computer science to help amateur artists sketch electronically.

Motion Doodles

Software makes computer animation accessible to artists of all ages

BY GAYLE MAVOR AND MICHELLE COOK

Can't draw a stick figure to save your life? New software designed by two Computer Science graduate students may give hope to all the budding artists out there blessed with more enthusiasm than skill.

Motion Doodles can quickly turn even very young children into amateur animators, say its designers Matthew Thorne and Dave Burke. If you can draw with a pencil, you can use it. That means anyone, regardless of their computer skill or artistic ability, can create rudimentary animations.

"In less than a minute, you can have a figure up on the screen and moving around doing leaps and somersaults," says Burke, who worked on developing the software's character sketching abilities.

All it takes is a simple swish of your mouse or stylus. In a two-part process, the software lets you sketch a series of basic loops representing a human head, torso, arms and legs. Once you've got those seven basic body parts, you can add hair and hands if you wish. The computer transforms your doodle into a figure capable of replicating basic (and some not-so-basic) human motions.

Then the fun really begins. Draw a forward circle with your mouse and your doodle executes a front flip of Olympian caliber. Drag your mouse in arcs and your doodle marches forward, with each arc specifying the length and height of each step. You can make the figure jump, tiptoe, stomp – whatever suits your mood. You can even add a few landscape features like trees and hills. You don't even need to worry about proportion. In the world of *Motion Doodles*, even a stubby legged animation can leap tall buildings in a single bound.

"You don't really need any art skills at all to do this," says Thorne, who developed the database of motions that provides the user with choreography choices.

Motion Doodles may seem like a high-tech Etch A Sketch® toy but in spirit it lies somewhere between the simple interfaces used in computer games that allow players to steer characters, and the more difficult-to-use "keyframing" interfaces that professional animators use to control every aspect of a character's motion. There is currently no software on the market quite like it.

Thorne has been working on developing *Motion Doodles* since October 2002 as part of his master's thesis on how to "sketch" motion. His principal reference for the project has been *The Animator's Survival Kit*, a book by *Roger Rabbit* creator Richard Williams. One of the biggest challenges has been finding a set of appropriate doodles that map to the natural motions of the human body.

Just as the musical notation system was created to write songs or "capture" music hundreds of years ago, Thorne has had to invent a notation system for motion, says his thesis supervisor Michiel van de Panne, a Canada Research Chair in Computer Graphics and Animation.

"We're designing a new language, a system of shorthand or gestural notations to create motion that is easy to understand and use," says van de Panne.

While the project is in its infancy, Van de Panne hopes it will lead to more complex sketching software in the future. The possibilities for both the 2D and 3D versions of *Motion Doodles* are open to further exploration. Aside from its potential as a fun animation tool for artists of all ages, it could be used to quickly draw storyboards for film animation or video games. It would also be useful as a choreography tool for diving, dancing or gymnastics routines.

Before that van de Panne would like to see the software's repertoire of motions enlarged and get a prototype into the hands of amateur animators for testing. After that, don't be surprised to see a doodle moonwalking soon on a screen near you. □

TIME PIECE 1926

PHOTO: COURTESY OF UBC ARCHIVAL COLLECTION

As long as there has been a UBC there have been emergency response exercises and drills. One of the earliest was in 1926 when the four-man crew of this tin lizzy fire truck stood ready in front of the library. Apparently uniforms were optional back then. Today, UBC continues to engage in training exercises. On June 19, firefighters, ambulance, police and other campus emergency personnel will take part in a full-scale emergency exercise. The staff will be challenged by multiple incidents happening on campus as the result of a naturally occurring disaster. Props and actors will add to the realism. But don't be alarmed, as the photo shows, we were prepared then and we're prepared now.