

UBC REPORTS

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Whale Has Super-sized Big Gulp



Zoology PhD candidate Jeremy Goldbogen with a minke whale jaw bone from the UBC Cowan Vertebrate Museum.

By Brian Lin

How does the largest animal on earth survive on a diet of the smallest of prey? By having a jaw that spans a quarter of its body length, an enormous mouth that goes from the head to the belly button, and by doing lots of “lunges,” according to UBC zoology PhD candidate Jeremy Goldbogen.

layer that goes from the snout to the navel. The blubber expands up to several times its resting length to allow the whales to engulf large quantities of prey-laden water, sort of like filling up a balloon with water.

“These gigantic animals – bigger than any of the dinosaurs – feed almost exclusively on krill, tiny shrimp-like crustaceans about 1-2 centimetres long,”

help answer this basic question, Goldbogen and a team of scientists from the Scripps Institution of Oceanography at the University of California, San Diego, and Cascadia Research Collective, a non-profit organization in Washington, used digital tags that, when attached to the whale’s back by suction cups, log how fast it swims and how deep it dives.

“Fin whales routinely dive to depths of more than 200 metres to feed on aggregations of krill,” says Goldbogen. “Once they get there, they execute an average of four ‘lunges,’ where they quite literally drop their jaw while swimming 11 kilometre per hour.

“The mechanics of this unique behaviour is similar to opening a parachute at high speed. The result for the whale is an

Goldbogen combined the tag data with measurements of jaw bones from museum specimens to determine how much water and prey are engulfed during lunge-feeding. “Our results demonstrate that fin whales can take in about 70 cubic metres of water in one gulp,” says Goldbogen. “That’s bigger than their own body and roughly the size of a school bus.”

“Our results demonstrate that fin whales can take in about 70 cubic metres of water in one gulp,” says Goldbogen. “That’s bigger than their own body weight and roughly the size of a school bus.”

Goldbogen is studying a family of baleen whales called rorquals that include the fin, humpback and blue whales which, at 30 metres long and weighing 150 tons, are the largest animals that have ever lived.

Rorquals are characterized by a special, accordion-like blubber

says Goldbogen. “Despite their majestic stature, we know very little about their foraging habits, which is crucial to conservation efforts.”

Up to now, no one knew just how much food a fin whale needed to eat to sustain its average 20-ton body mass. To

“For the first time, scientists have a clear picture of these whales’ feeding behaviour beyond what we see when they surface,” says Goldbogen, who has spent the last two years deciphering data from seven fin whales and nine humpbacks in the north Pacific Ocean.

increase in water pressure, which rapidly expands the mouth as huge volumes of prey-laden water rush inside.”


In collaboration with his UBC advisor Robert Shadwick and Nick Pyenson from the University of California’s Museum of Paleontology,

After the jaws close around this huge volume of water and prey, a fin whale must then expel the water while retaining the prey. To do this, the whale uses baleen – a comb-like structure composed of the same substance that makes up human hair and nails – to filter



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IN THE NEWS

Highlights of UBC Media Coverage in May 2007. COMPILED BY BASIL WAUGH



Prof. Daniel Pauly of UBC's Fisheries Centre hopes satellites will be used to help police fishing fleets.

Satellites photos show environmental destruction by trawlers

The New York Times, *San Francisco Chronicle* and *International Herald Tribune* reported on a new study that used satellite images to show the impact of ocean-bottom trawlers on the environment.

Daniel Pauly of UBC's Fisheries Centre said the "mudtails" seen behind trawlers do immense harm to ocean ecosystems. Mud can clog fish gills, set off algae blooms and, ultimately, lead to "dead zones," he said.

"Bottom trawling and dredging has been likened to clear-cutting a forest merely to hunt game," Pauly said in an interview with the *Globe and Mail*.

Pauly hopes the images will focus wider attention on trawling damage and on the possible uses of satellites to monitor fishing.

Galapagos DNA search gives hope to 'Lonesome George'

Michael Russello, a UBC Okanagan biology and ecology researcher, led an international team that has found evidence that the world's last remaining Pinta Island tortoise – Lonesome George – may have family living on another island in the Galapagos Islands.

BBC News, Australian Broadcasting Corporation,

Agence France Presse, Globe and Mail and CBC Radio

reported that the group found a "hybrid" Pinta Island/Isabela Island tortoise on Isabela Island, suggesting that a Pinta tortoise must be or was once on Isabela somewhere among the 3000 tortoises there.

Russello's team is now trying to raise money to search for the father, or other purebred tortoises of George's kind who may have drifted to Isabela Island with the ocean currents. Their research was published in the May 1 edition of *Current Biology*.

Lesbian, Gay and Bisexual Teens in B.C. Still Face Health Disparities

Lesbian, gay and bisexual teens in B.C. experience greater levels of violence and more health challenges than heterosexual teens, according to a report released by Vancouver-based McCreary Centre Society and UBC researcher Elizabeth Saewyc.

The study, covered by the *Globe and Mail*, *CBC Newsworld* and the *Halifax Chronicle Herald*, also found that sexually active gay, lesbian and bisexual teenagers in B.C. are up to three times more likely to be involved in a pregnancy than their heterosexual counterparts.

Saewyc, a professor in UBC's School of Nursing, said one possible reason young gays and lesbians may become involved in

pregnancy is negative messages they receive about their sexuality from society.

"Young people may try to avoid that stigma by reaching for an identity they can be proud of," Saewyc said. "In Canada, we have very positive things to say about motherhood and fatherhood."

Babies Discern Languages Through Visual Cues

New York Times, *Washington Post*, *Voice of America*, *Forbes*, *BBC*, *Globe and Mail* and *CTV* reported on a UBC study found that, at four months, babies can tell whether a speaker has switched to a different language from visual cues alone.

Using muted videos of bilingual speakers, UBC neuroscience doctoral student Whitney Weikum and Psychology Prof. Janet Werker found that infants can discern when a different language is spoken by watching the shapes and rhythm of the speaker's mouth and face movements.

"We already know that babies can tell languages apart using auditory cues," said Weikum. "But this is the first study to show that young babies are prepared to tell languages apart using only visual information."

The journal *Science* published the team's findings in its May 25 issue. **R**

UBC REPORTS

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Newton's Trees at UBC:

Campus apples are direct descendants of scientist's iconic inspiration

By Basil Waugh

The tale of Sir Isaac Newton and the apple tree, celebrated by historians and cartoonists alike, is one of the most enduring stories in science.

But what many people may not know is that direct descendants of the same apples that inspired Newton to compose his theory of gravity in 1661, have been growing at UBC for almost 40 years.

Just sit under them at your own risk.

"You wouldn't want one of those apples falling on you. They are pretty big," says Lorna Warren, widow of John Warren, founding director of TRIUMF, Canada's National Laboratory for Particle and Nuclear Physics, which is located on UBC's south campus.

in front of the National Physical Laboratory in London, England, which is a granddaughter of the tree that produced the iconic apple that Newton watched fall.

Photos of TRIUMF's opening ceremony on May 5, 1969 show the first of these trees being planted in the facility's traffic circle by John Warren and then federal Minister of Industry, Trade and Commerce, Jean-Luc Pepin.

Lorna Warren says six more trees of the same stock were later added, laid out with pansy flowerbeds to depict TRIUMF's logo, a cyclotron magnet.

With no plaque to mark the site, the pansies long gone and many of the TRIUMF faculty who attended the ceremony retired, the story of these seven trees may have been lost, were it not for a recent chance

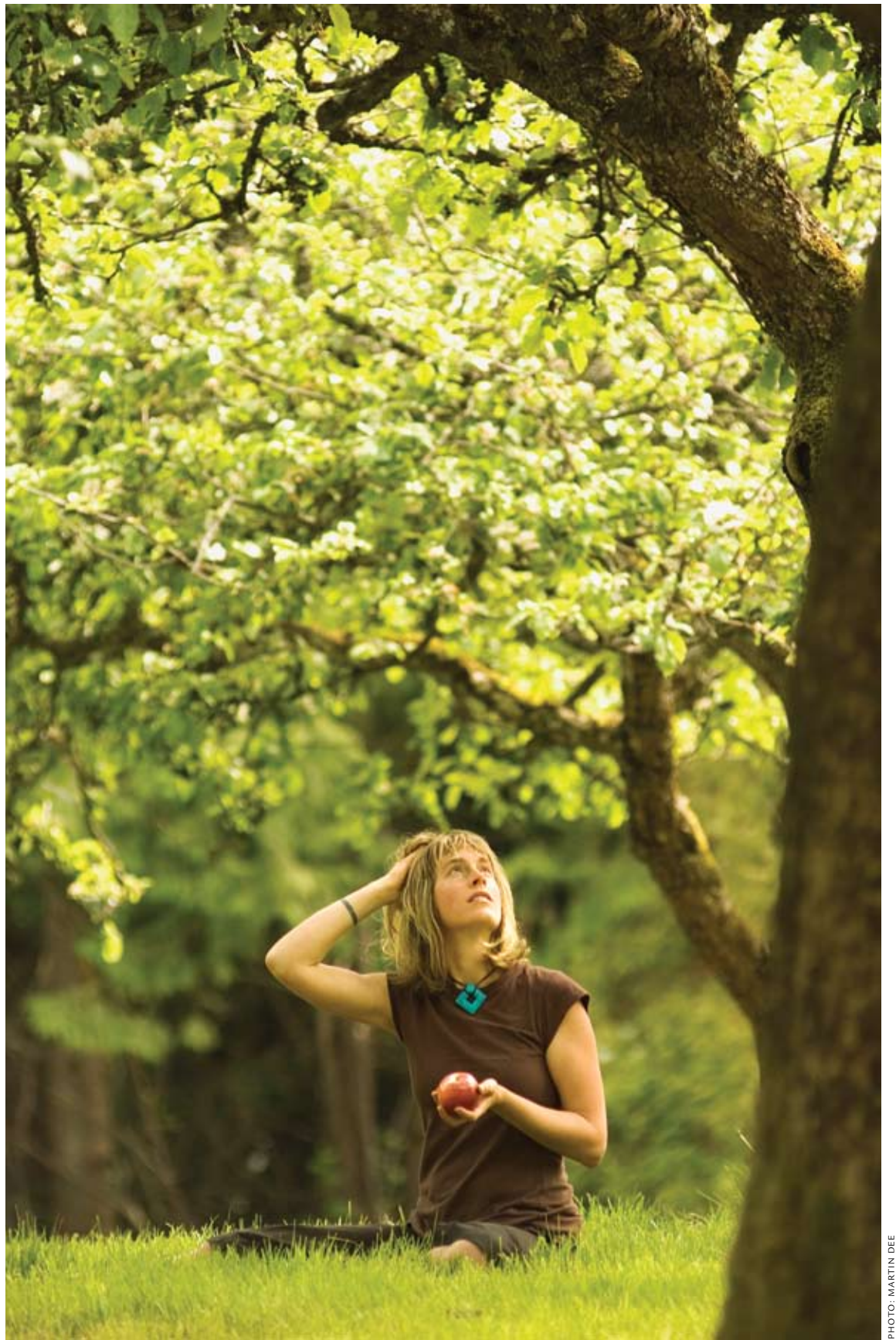
"The story of these seven trees may have been lost, were it not for a recent chance conversation between two cyclists passing the site."

"They look similar to a Granny Smith apple, but they're a little softer," she says. "They're not bad to eat and good in pies too."

According to Lorna Warren and TRIUMF archival materials, in 1968 John Warren obtained cuttings from a tree that grows

conversation between two cyclists passing by the site.

"The wife of a TRIUMF researcher told me about the trees' history while we biked by them one morning," says Art Bomke, a professor in the Faculty of Land and Food Systems, who rides his bike



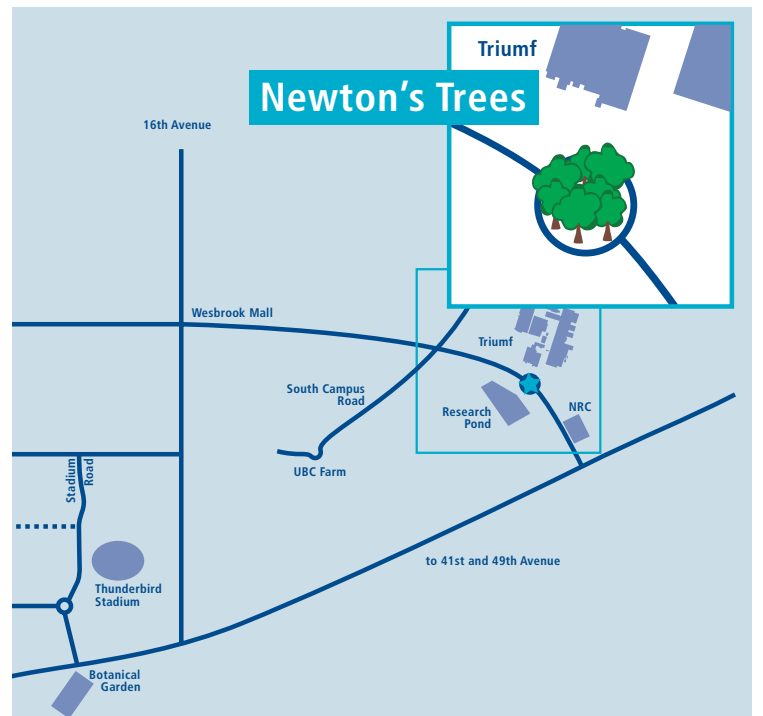
Land and Food Systems student Sarah Belanger sits under campus apple trees linked to Sir Isaac Newton.

PHOTO: MARTIN DEE

to work. "She had no idea my background was in agriculture." "It's a pretty neat story," Bomke says. "Apparently, TRIUMF Prof. Emeritus Erich Vogt always brought some of the apples to his first year course on Newtonian Mechanics."

Bomke sees the Newton trees as part of an agricultural continuum at UBC that includes the UBC Farm, Vancouver's only working farmland, and UBC's Botanical Garden and Research Centre, home of such popular community events as the Apple Festival and Perennial Plant Sale.

"The Newton trees are a fantastic link to a watershed scene in scientific history, but they are also an important part



continued on page 4



PHOTO: DARIN DUECK

Prof. Art Bomke

WHALE BIG GULP *continued from page 1*

krill from the expelled water. Based on published accounts of krill density at these whale foraging sites, Goldbogen was able to conclude that each lunge provides the fin whale with about 10 kilograms of krill.

"Now that we know how much krill is ingested per lunge, we can estimate that a fin whale

must forage for approximately three hours a day to meet its daily energetic requirements," says Goldbogen. "That's about the same amount of time humans spend cooking and eating a day. Considering their size and what they eat, lunge-feeding appears to be quite an efficient strategy for these rorquals. This makes us

wonder what role lunge-feeding has played in the evolution of their extremely large bodies."

The new knowledge will inform efforts to conserve these endangered animals. "Even though lunge-feeding enables a whale to take big gulps of prey-laden water, it does require a lot of energy. As a result,

whales rapidly deplete their oxygen stores and must return to the surface to breathe after taking only a few lunges. If prey patches aren't dense enough or are located too deep in the water, rorquals will have to spend a larger proportion of the day searching for food."


Goldbogen and colleagues are

now comparing the jawbones and skulls of all baleen whales – which range from the six-metre-long pygmy right whales to 30-metre-long blue whales – to determine the physics of these massive structures during feeding and how large whales evolved from smaller ancestors. **R**

NEWTON'S TREES *continued from page 3*

of UBC's agricultural history," Bomke says.

TRIUMF (TRI-University Meson Facility) is one of three subatomic research facilities of its kind in the world and boasts the world's biggest cyclotron particle accelerator. For more information visit www.triumf.info.

For more information on the Faculty of Land and Food Systems, visit www.landfood.ubc.ca. 

Students plant new orchard at campus farm

Most major North American cities would be without food in a week if residents had to rely on their own production, says Sarah Belanger, a fourth-year student in the Faculty of Land and Food Systems.

This daunting reality was one of the reasons Belanger planted an orchard of 150 apple and plum trees at the UBC Farm earlier this year as part of a self-directed studies project.


"With only three per cent of society involved in agriculture, we rely almost completely on food transportation and the grocery store," says Belanger. "I think more people need to be taking responsibility and learning to grow their own food."

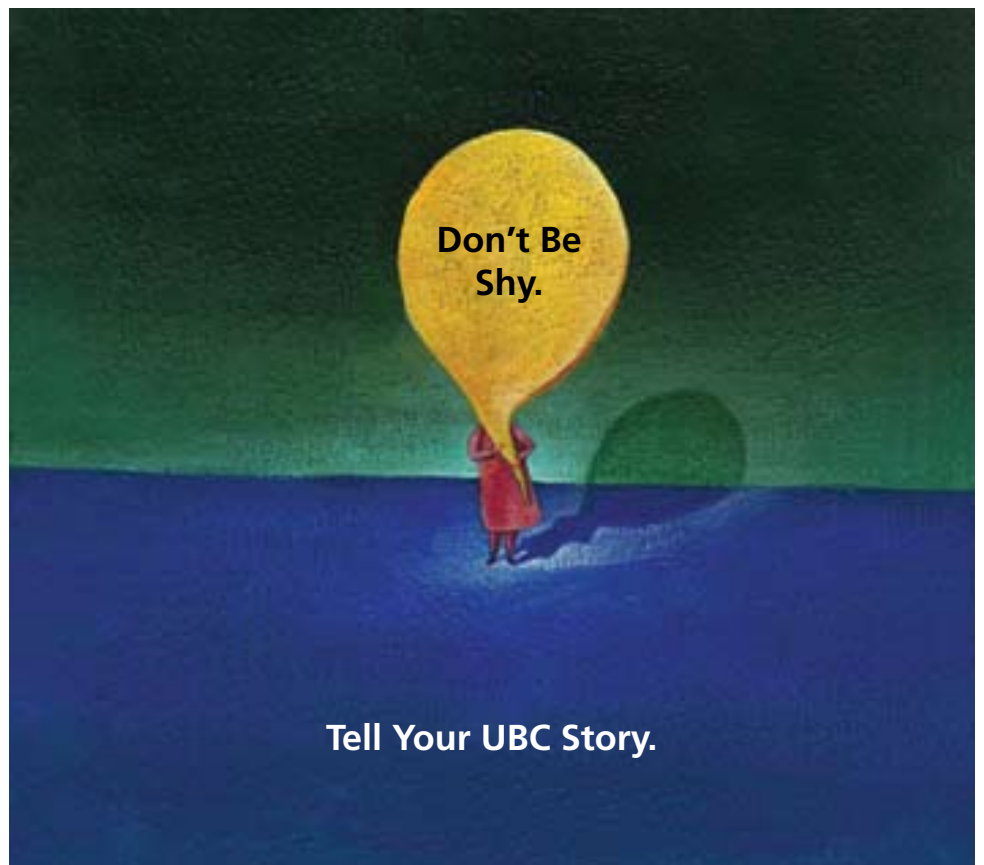
For a year and a half, Belanger has been immersed in the project, fundraising, consulting with faculty and B.C. orchardists, and leading a committed group of student volunteers who have helped her plant and care for the trees.

"I'd planted gardens before, but nothing this big," Belanger says. "It was easily the most challenging educational experience I've had, but also my most rewarding."

To increase the educational value of the orchard, Belanger planted full-size and dwarf trees of 70 apple varieties. "I wanted to show people that it is possible to grow fruit in the city. Dwarf trees just need a little space in your yard or a community garden."

Belanger says the orchard gives students a hands-on classroom to learn about all aspects of agriculture, including organic pest management, irrigation, taxonomy, pruning and pollination.

Belanger says the trees will begin bearing fruit in three years. She hopes the apples – a perennial crop – will be source of income for the UBC Farm and envisions them being sold at UBC's annual Apple Festival, the farm's summer market, and Sprouts, UBC's natural food co-operative. 



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Pride May Not Come Before a Fall, After All



This emotion can be a deadly sin or a healthy part of human expression, says psychology researcher Jessica Tracey.

PHOTO: MARTIN DEE

by Lorraine Chan

Does pride always lead to our downfall? A UBC researcher is exploring different dimensions of the emotion. And her findings suggest pride only goes before a fall when it's hubris – excessive pride that veers into self-aggrandizement and conceit.

But otherwise, this emotion is fundamental to humans and healthy self-esteem, says Psychology Asst. Prof. Jessica Tracey.

“There’s good pride and there’s bad pride,” says Tracey, whose research is among the first to explore the different facets of this emotion.

Tracey and co-investigator Prof. Richard Robins, University of California, Davis, have established that pride has two faces: hubristic and authentic. They developed their theoretical model after conducting a range of studies where participants consistently came up with two distinct categories to define and

characterize pride.

“The two different facets show us that hubristic pride reflects feelings of arrogance, grandiosity and superiority,” says Tracey.

An example she gives is of someone finishing a task and instead of focusing on their achievement, will think, “I’m a really great person.”

By contrast, authentic pride reflects achievement and mastery, a sense of: “I worked really hard and deserve that praise.”

Tracey says the latter has positive outcomes, while “hubristic pride is associated more with narcissism, which can

low self-esteem, says Tracey.

“Shame correlates with pride. If present, pride may be able to reinforce peaceful and productive behaviours,” notes Tracey. “Its absence, caused by humiliation or ego threats, could provoke aggression or other antisocial behaviours.”

She says pride has received little research attention in the past since it didn’t fit easily into the category of “primary emotions” such as fear, anger or joy. Instead, pride is categorized as a “self-conscious emotion,” which develops out of social interaction with others.

What particularly fascinates

hockey sees the pride expression when someone scores. The player raises his arms up, tilts his head back and puffs his chest out.”

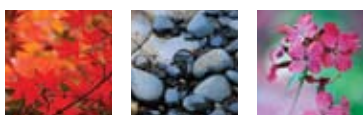
To test her theory about the universality of the pride expression, Tracey conducted research between 2003 and 2005 in Toussiana, a rural village in Burkina Faso.

The villagers spoke only their native African language, Dioula, and could not read or write. Working with a translator, Tracey asked them to describe what they saw in the photographs of male and female white Americans and West African, who displayed different emotions.

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“It’s absence (pride), caused by humiliation or ego threats, could provoke aggression or other antisocial behaviors.”

lead to inter-personal conflicts.”

There were few measures available to study the emotion’s duality, so Tracey developed an assessment tool – the first of its kind.

The measurement is a self-report scale that offers the respondent a selection of words to describe feelings and views on pride. “Arrogant,” “conceited” and “egotistical” would indicate hubristic pride while “achieving,” “accomplished,” “productive,” “confident” and “fulfilled” indicate authentic pride.

These various shades of pride are important when it comes to better understanding and treating people for such issues as

Tracy is how this emotion has evolved through time and continues to shape human social dynamics. For example, the darker side of pride may have evolved out of the age-old human desire for status.

“Authentic pride might motivate behaviours geared toward long-term status attainment,” says Tracey, “whereas hubristic pride provides a ‘short-cut’ solution, granting status that is more immediate but fleeting, and in some cases, unwarranted.”

Another area of Tracy’s work explores how pride is immediately recognizable to others when translated into body language. “Anyone watching

“We asked them whether they knew George Bush or Tom Cruise. They didn’t. So if these people recognized pride, it wouldn’t be because they had seen Westerners showing it, on TV or in the movies.”

Looking at the photos, the villagers identified pride along with the other six basic emotions – anger, disgust, fear, happiness, sadness and surprise.

“We saw that recognition of the pride expression does cut across cultures.”

Tracey has received funding from the Social Sciences and Humanities Research Council of Canada to conduct further studies in Burkina Faso on pride expression. **R**

Pump up Your Brain Power

By Hilary Thomson

Can being buff make you brainy?

That's what UBC neuroscientist Brian Christie is trying to find out. He investigates biological mechanisms that help the brain create new cells, or neurons, as a result of exercise.

He is especially interested in how exercise can help generate new cells in the adult brain. His findings offer hope of cellular repair and replacement in conditions such as Alzheimer's disease, stroke, schizophrenia, Attention Deficit Hyperactivity Disorder and Fetal Alcohol Syndrome.

Christie, an associate professor in the division of neuroscience and a member of the Brain Research Centre at UBC Hospital, was one of the first researchers to discover that exercise promotes the birth of brain cells, a process called neurogenesis, in the hippocampus – an area of the brain involved with learning and memory.

The research team believes there are several components to the effects of exercise. It increases blood flow to the brain, bringing additional oxygen and other nutrients. Also, exercise changes the metabolism in the brain, making neurons and their receptor proteins more efficient. Receptor proteins allow cells to recognize chemical messengers and are key to learning and memory. In addition, exercise



Can a regular work-out help counter the effects of aging on the brain? Neuroscientist Brian Christie is interested in how exercise helps generate new cells in the adult brain.

learning and memory.

Christie's research also uses animal models that mimic functional impairment seen in Alzheimer's disease, stroke and dementias such as Down syndrome. He has found that exercise in adults not only creates new neurons in the hippocampus, it also increases the number of synapses and the complexity of dendrites. It all adds up to increased computational power for learning and memory.

So how much exercise is needed? Only about 20-30 minutes of brisk walking a day, says Christie. But don't think running a daily marathon will make you a genius or cure a brain disease.

"Exercise can't cure disease, but we've seen that it can retard the progression of major illnesses and preserve our mental capacity. And it's never too late to start."

VCHRI is the research body of Vancouver Coastal Health and the fourth largest research institute in Canada.

In academic partnership with UBC, VCHRI brings innovation and discovery to patient care, advancing healthier lives in healthy communities across British Columbia, Canada, and beyond.

Christie's research is supported by the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council, the Human Early Learning Partnership, the Alcohol Board for Medical Research and

PHOTO: ©STECKPHOTO/ISTAY

“Rather than an unchanging circuit board, some regions of the brain are more like small, dynamic ecosystems – the better we take care of them, the better they function.”

also facilitates the production of other chemicals, called neurotrophins, that help promote neuron survival.

"I didn't believe our results at first," says Christie of his 1999 study. "I actually ended up running the entire experiment twice just to make sure that we were indeed seeing all of these benefits."

He also found that exercise promotes synaptic plasticity, the ability of the synapse – the parts of neurons where information flows from one cell to another – to allow

neurons to communicate with one another. Improved synaptic plasticity means greater efficiency and effectiveness in communication between nerve cells with resulting gains in brain function.

In 2005, Christie, who is also a member of the Vancouver Coastal Health Research Institute (VCHRI), found that exercise could also repair parts of the brain damaged by prenatal exposure to alcohol.

"The findings go against everything I was taught as a undergrad," he says. "Rather


than an unchanging circuit board, some regions of the brain are more like small, dynamic ecosystems – the better we take care of them, the better they function."

Now he is investigating effects of exercise on the aging hippocampus, in animal models.

Normal aging means loss of brain cells and branches of cells called dendrites that allow communication between cells. In humans, these losses start around age 60-65.

Christie is focused on the continual introduction of new

neurons into the adult brain via exercise and how they integrate into the existing neural architecture to promote better

the Scottish Rites Charitable Foundation. 



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Teenage Toll:

Girls Stressed by Bodies They Can't Have

By Lorraine Chan

No wonder girls get weird about their bodies.

For the past 10 years, Prof. Peter Crocker has studied how adolescents experience and view their bodies. More than ever, says Crocker, girls face pressure from within and without to look a certain way.

"One 13-year-old girl told us that a boy in her class was text messaging her that she was fat and should lose some weight," says Crocker, who teaches at the UBC School of Human Kinetics.

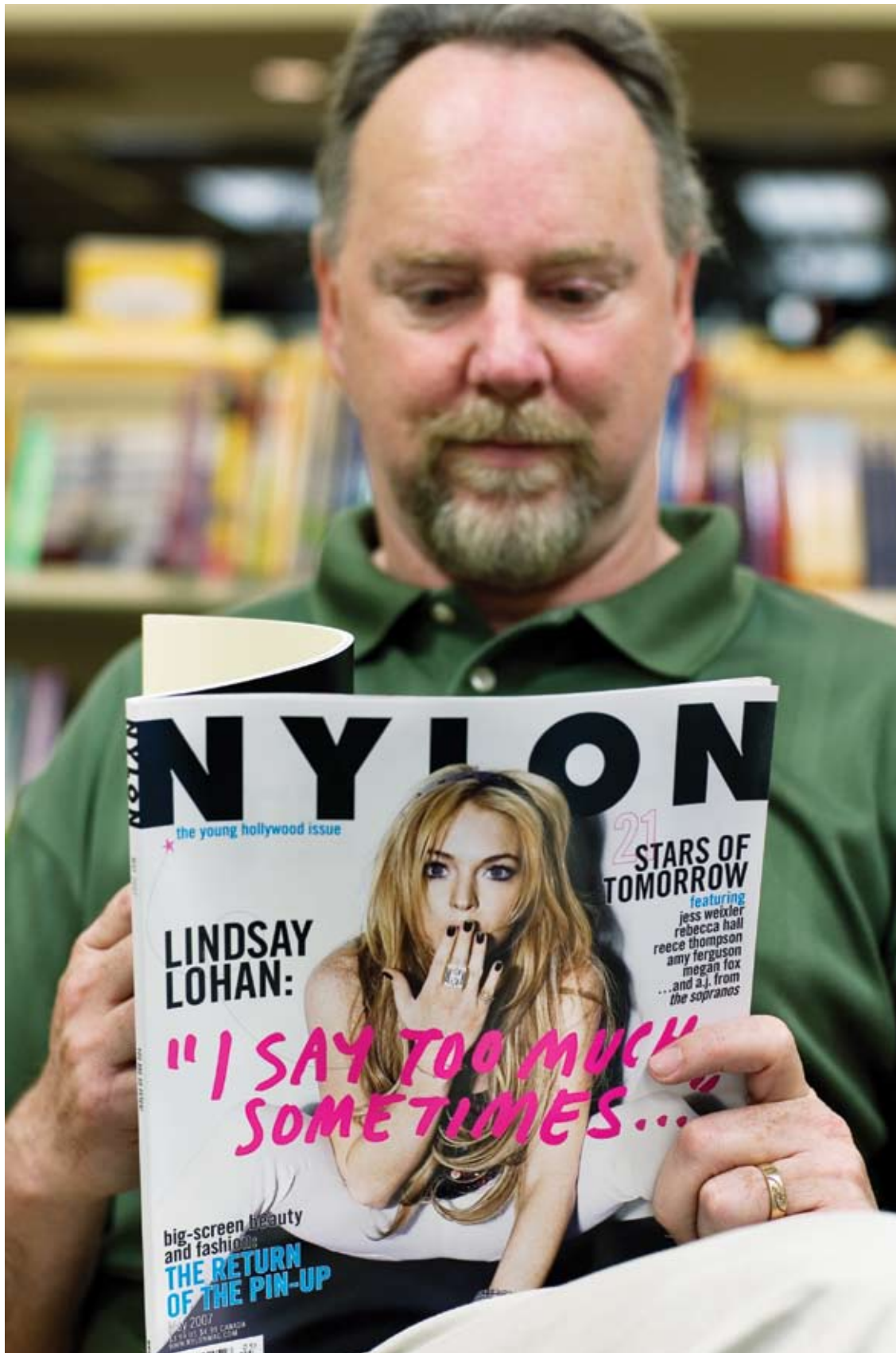
Crocker adds that although adolescent girls realize on an intellectual level that few people resemble the women on TV, or in the magazines, movies and ads, they still want to achieve that idealized image.

"There's a disconnect between knowing they can't have that body, but still desiring it," observes Crocker.

He says this disconnect can lead to "social physique anxiety" (SPA), a psychological term in use since the 1980s. SPA describes the anxiety and distress that ensues when individuals aren't able to achieve their desired appearance.

Whether teenage girls are resorting to healthy or harmful ways to cope with SPA is the focus of Crocker's latest study, *Coping with Social Physique Anxiety in Adolescence*.

Recently published in the *Journal of Adolescent Research*, the study's co-authors are Kent Kowalski, University of Saskatchewan; Diane Mack, Brock University; Catherine Sabiston, McGill University, and



Human Kinetics Prof. Peter Crocker looks at how adolescents are affected by idealized images.

PHOTO: MARTIN DEE

program."

More difficult to measure was the use of dieting since most girls mentioned some form of dietary restraint. "There's a whole range of ways that girls limit food intake. They'll skip a meal, or only eat certain foods."

Between 2003 and 2006, Crocker carried out a longitudinal study with 500 adolescent girls, between the ages 14-17. By Grade 9 or 14-years old, 30-40 per cent of the study participants experienced moderate to high SPA and stayed at that level during the three-year study.

At least 20 per cent experienced high SPA, usually triggered by situations where they feared people would be evaluating and criticizing their physical appearance.

The study showed that even if a young woman has a "normative" body, she may berate herself for the way her calves or breasts look. "It's potentially problematic the way some young women focus on flaws that no one else sees," says Crocker.

As the father of a 17-year-old daughter, Crocker says he empathizes with parents who seek ways to offset the barrage of media images. "One step would be to ensure girls are media savvy so they can look critically at the messages they're receiving."

Another precaution would be to emphasize success in various domains, "not just being pretty and attractive."

Lastly, Crocker urges parents to be aware of the types of behaviour and attitudes they

"One step would be to ensure girls are media savvy so they can look critically at the messages they're receiving."

Whitney Sedgwick, a registered psychologist at UBC Counseling Services.

The researchers interviewed 31 females between ages 13-18 on their experiences of and

ways of coping with SPA. For the most part, the participants relied on non-harmful ways to manage their stress. Few study participants reported harmful measures such as bulimia or laxatives or supplements to increase metabolism.

"The primary strategy for SPA tends to be appearance management," says Crocker. "The girls talk about using makeup, pushup bras or clothes they consider sexy to accentuate desirable features. Or they would use clothing to hide undesirable features."

An equally common approach would be to avoid potentially embarrassing situations. "They'd stay away from places like the beach or gym, anywhere they feel their body would be on display."

When it came to using exercise to change their appearance, it was mostly short term and excessive, says Crocker.

"A girl would look in the mirror and didn't like the way her stomach looked and do 200 sit ups, or run five to 10 km. It's not a sustained physical activity

themselves model: for example, mothers who urge their daughters to diet.

"Parents think they're operating in their children's best interest, but may be generating more anxiety."

Crocker's research has received funding from the Social Sciences and Humanities Research Council of Canada and the Canadian Heart and Stroke Foundation. **R**

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Pucks, Prose and Probabilities:

From the post-lockout NHL to the texts of Alfred the Great, stats professor finds the stories lurking deep in the data

by Bud Mortenson

“He shoots, he scores,” rang out more often in the National Hockey League over the past two seasons. So, too, did the referee’s whistle.

More goals, more excitement. That was the vision when the NHL overhauled its rulebook two years ago, in part to rekindle fan interest following a 2004-2005 season lost to a player lockout. The game changed as expected, with teams averaging 1.92 goals in a home game before the new rules, and 2.12 goals after. But the game also changed in some unexpected ways, says Paramjit Gill, an associate professor of statistics at UBC Okanagan.

“The league promised zero tolerance for hooking, holding, tripping, slashing, cross-checking and interference,” says Gill. “This resulted in more penalties being awarded – more than 14,000 in the 2005-2006 season, in comparison to about 10,000 in previous seasons.”

Gill and student Stephen Welsh have applied statistical modeling tools to NHL regular seasons 2003-2004 and 2005-2006 (before and after the lockout year), examining even-



PHOTO: ©iStockphoto/walk

him to look a thousand years into the past. Collaborating with Michael Treschow, Assoc. Professor of English at UBC Okanagan, last year Gill applied stylometry – statistically measuring word usage – to 9th-century religious texts believed translated from Latin to Old English by King Alfred.

“Each writer has his or her own wordprint – just like a fingerprint,” Gill explains. “Non-contextual or ‘function’ words – and, or, it, whether – have nothing to do with what you’re writing about, but by counting those, you can distinguish between authors.”

Three translations that had long been attributed to Alfred did, indeed, cluster together on the frequency of function words. However, says Gill, one other translation attributed to Alfred, The First Fifty Prose Psalms, was found not to be an Alfredian text – a conclusion that challenges some authoritative scholars of Medieval languages.

Gill’s application of statistical tools to ancient texts – and to the NHL – represents a new depth of analysis that takes advantage of today’s readily accessible data, he says. A decade ago, he painstakingly collected hockey

“There’s no doubt the subject – statistics – is hard. The advantage of using sports is that it’s much easier to get across to students.”

strength goals, power play goals and power play opportunities.

“The home team’s ability to score during an even-strength play increased during 2005-2006 as compared to the game under old rules,” Gill says, “but there wasn’t any change in the home-ice advantage during the

power play.”

Power play scoring ability became more important under the new rules. On the other hand, penalty killing ability appeared to have less impact on a team’s standings.

This summer, they’re analyzing the NHL’s 2006-2007 regular

season. Already, they’ve found that while the number of penalties assessed this season fell from 14,000 to about 12,000, the chances of scoring during a power play are the same as the previous year.

“The rule changes introduced by the NHL were designed to open up the game, increase scoring and present a more entertaining product,” Welsh observes. “No lead is supposed to be safe anymore. However, preliminary analysis shows that the winning percentage of teams trailing entering the third period has actually decreased in the post-lockout years – teams are actually finding it more difficult to come from behind and win.”

Looking at sports is a great teaching tool, says Gill. “There’s no doubt the subject – statistics – is hard,” he says. “The advantage of using sports is that it’s much easier to get across to students.”

Gill’s primary research is a long way from the sports field, though. Projects include studying air quality and asthma in populations, and the analysis of rare-event phenomena. Over the years he has examined accident rates, teenage pregnancies, drug prescriptions by region, and the codling moth in Okanagan orchards – always looking for patterns emerging from the data.

“To me, that makes the work very exciting,” says Gill. “I see the similarities in these things. It’s very fulfilling to see through the lens of statistical modeling.”

That lens has even allowed

stats from the daily newspapers. Today, an entire season’s data can be obtained almost instantly from the Internet. ■



PHOTO: BUD MORTENSON

Paramjit Gill applied statistical analysis to the NHL’s hockey numbers before and after rule changes were introduced.



Applications for Directorship, Centre for Korean Research

The Institute of Asian Research is seeking applications from within the University for the post of Director of the Centre for Korean Research. Applicants should hold academic appointments at UBC and have a demonstrated record of research activities and achievements concentrated on Korea. The successful applicant will be expected to take up the appointment on September 1, 2007.

The successful candidate will be expected to develop research programs focusing on Korea, seek funding from external donors for the programs of the Centre for Korean Research, organize conferences and seminars on the Centre’s research interests and projects, administer the budget of the Centre, and chair the Centre’s management committee. The Centre Director will be expected to collaborate with the Director of the Institute of Asian Research in developing inter-Centre and interdisciplinary teaching and research initiatives. The Centre Director will also serve on the Council of the Institute.

UBC hires on the basis of merit and is committed to employment equity. We encourage all qualified persons to apply.

The appointment will be for a fixed term of three to five years. The deadline for applications is June 30, 2007. Applicants should send a letter describing their interest in the position, a curriculum vitae, and the names and postal and e-mail addresses of three references to:

Tim Cheek, Acting Director
Institute of Asian Research
C.K. Choi Building, Room 251
1855 West Mall, UBC, V6T 1Z2
Tel: (604) 822-4688 Fax: (604) 822-5207
e-mail: tcheek@interchange.ubc.ca

Unplugging the Pop Machines:

Prof. examines school efforts to reduce obesity

By Hilary Thomson

Regularly labeled an epidemic, the rapid rise in Canada of childhood obesity has grabbed the attention of government, school administrators, parents – and researchers like Louise Mâsse.

An associate professor of pediatrics, Mâsse is an expert in obesity prevention and physical activity for children. Recently returned to Canada from the U.S., she will soon launch a study to examine how school policies related to nutrition and physical education are implemented and to what extent the policies influence children's behaviours. She will also look at barriers to instituting school-based healthy eating and physical activity programs.

"There is no silver bullet in obesity prevention," says Mâsse, who is a member of the Child & Family Research Institute (CFRI). "We really need to look at the whole picture, the influence of the school environment, community and home."

A March 2007 House of Commons Report of the Standing Committee on Health, called *Healthy Weights for Healthy Kids*, stated that Canada has one of the highest rates of childhood obesity in the developed world, ranking fifth out of 34 Organisation for Economic Co-operation and Development countries.

The report also notes that 26 per cent of Canadians between the ages of two and 17 are overweight or obese. In 1978 the combined rate was 15 per cent. In B.C., rates for childhood obesity match the Canadian average.

Overweight measurements



Assoc. Prof. of Pediatrics Louise Mâsse is launching a study to examine how school efforts to advance nutrition and physical education are implemented and to what extent the policies influence children's behaviours.

and obesity are calculated using the body mass index

(BMI), a formula based on the relationship of weight to height. In children, the index is adjusted for the age and gender of each child to account for different growth patterns.

In a two-year study, Mâsse plans to interview 25-30 school principals, teachers and parents from a sampling of B.C. schools.

School policies that affect child health can be complex, says Mâsse. Policy-makers must consider matters ranging from insurance liability for after-school exercise programs to contract obligations for vending machines and costs of hiring a specially trained PE teacher or school nutritionist.

whose viewing was an hour or less, according to a 2004 Canadian Community Health survey.

And though schools take a lot of criticism for contributing to obesity, for many kids it is summer vacation that packs on the pounds via an increase in screen time and freedom to "graze" all day on snack foods, according to a Ohio State University study published in the April 2007 issue of the *American Journal of Public Health*. Data from a survey of more than 5,300 children from around the U.S. showed BMI scores increased on average more than twice as much over the summer compared with the school year.

"During the school year, the hours from 3 to 6:30 p.m. are critical," says Mâsse. "Some children are at home without parental guidance and may be discouraged or disallowed to go outside because of perceptions of danger. For many, this is a time to engage in sedentary activities and snack on unhealthy food. These patterns can intensify in the summer months."

Although current interest in childhood obesity helps raise awareness, it can result in too much emphasis on obesity and too little on overall child health, she says.

"We want kids to be concerned with health and to know that healthy eating and exercise is beneficial regardless of weight. Skinny doesn't necessarily mean healthy and dieting is hard on growing bodies. Well-balanced living that includes nutritious food, sweet treats in moderation, exercise and some down time is the goal."

Mâsse's research is supported by the Michael Smith Foundation for Health Research (MSFHR) and CFRI.

MSFHR leads, partners and serves as a catalyst to build British Columbia's capacity for excellence in clinical, biomedical, health services and population health research.

CFRI works in close

"...though schools take a lot of criticism for contributing to obesity, for many kids it is summer vacation that packs on the pounds."

Topics will include physical education curriculum, school-provided lunches, vending machines, as well as nutrition and exercise policies currently implemented or proposed.

She will also canvass 400-600 students (age range not yet determined) to find out about their eating and exercise behaviours and to disentangle influences of school, community and home in shaping physical activity and eating behaviours.

Influences such as bringing lunch and eating dinner at home with family were associated with a decreased likelihood of obesity, according to a study published in 2005 that surveyed 5,200 Grade 5 students in Nova Scotia. Also, routines that include more than two hours a day watching TV, playing video games or using the computer – activities collectively known as screen time – doubled the likelihood of obesity or being overweight, compared to those

partnership with UBC; BC Children's Hospital and Sunny Hill Health Centre for Children; BC Women's Hospital & Health Centre, agencies of the Provincial Health Services Authority and the BC Children's Hospital Foundation. It is the largest research institute of its kind in Western Canada and conducts discovery research to benefit the health of children and families. **R**



Applications for Directorship, Centre for Southeast Asia Research

The Institute of Asian Research is seeking applications from within the University for the post of Director of the Centre for Southeast Asia Research. Applicants should hold academic appointments at UBC and have a demonstrated record of research activities and achievements concentrated on one or more countries or regions of Southeast Asia. The successful applicant will be expected to take up the appointment on September 1, 2007.

The successful candidate will be expected to develop research programs focusing on Southeast Asia, seek funding from external donors for the programs of the Centre, organize conferences and seminars on the Centre's research interests and projects, administer the budget of the Centre, and chair the Centre's management committee. The Centre Director will be expected to collaborate with the Director of the Institute of Asian Research in developing inter-Centre and interdisciplinary teaching and research initiatives. The Centre Director will also serve on the Council of the Institute.

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e-mail: tcheek@interchange.ubc.ca

POLICY #15 CALL FOR COMMENTS

The University communities comment is sought on the draft **Policy #15 (Tobacco and Smoking Product Promotion and Use)**.

The full text of the policy and relevant maps can be seen at <http://www.universitycounsel.ubc.ca/news/index.html>.

BACKGROUND

The Board of Governors have directed public consultation on a complete revision of the existing Smoking Policy #15 originally passed in July 1991. The revision is to respond to the increased awareness of the health affects of smoking and second hand smoke as well as a decrease in the acceptance of smoking, promotion of smoking, and sale of smoking products. It is clear that the current policy no longer conforms to the expectations of students and staff or the principle of the university to promote a healthy and safe university environment.

A comprehensive review of Policy #15 was commenced in 2006. A study was conducted on the Vancouver and Okanagan campuses of smoking behaviour and locations by Melissa Feddersen, Health and Wellness Centre UBCO. The results showed a low but still significant level of smoking out-of-doors and different smoking behaviours on the 2 campuses primarily associated with the provision of smoking gazebos at UBCO as designated smoking areas.

At almost the same time on March 29, 2007 the BC Government passed several tobacco related laws – that will shortly allow for the renaming and expanding of the *Tobacco Sales Act*, R.S.B.C. 1996, c. 451. That Act will become the *Tobacco Control Act*, R.S.B.C. 1996, c. 451 with regulations directly affecting the use and sale of tobacco at health and education facilities – specifically including universities.

A proposal for a completely rewritten policy to replace the existing Policy #15 arose from the internal review and the statutory revisions and anticipated regulations. The proposal is more stringent than the current state of the law but permits modifications in the procedures to avoid conflict if any forthcoming regulations use different formulae or are more rigorous.

SUMMARY

This policy is intended to diminish the exposure to smoke and promote health and safety by: reducing or eliminating on campus sale and promotion of tobacco and *Smoking Products*; and reducing exposure of others to second hand and side stream smoke.

UBC promotes a healthy and safe university environment. Contrary to this principle tobacco use and smoking causes harm to the user and poses danger and discomfort to others. This policy will allow for exercise of personal choice subject to the primacy of protection of others from risk of harm or discomfort.

The methods to achieving success in these stated goals are to:

- prohibit promotion and commercial dealings with tobacco and *Smoking Products* as defined from time to time in the procedure such as tobacco through to trinkets with cigarette logos, or non-kid safe lighters;
- designate permitted *Smoking* areas to encourage people who smoke to do so in locations that reduce the exposure to others; and
- prohibit *Smoking* (defined as includes holding a lighted *Smoking Product*) in places controlled and occupied by UBC where second hand and side

stream smoke is unavoidable or difficult to avoid without imposition upon non-smokers – specifically:

- substantially enclosed UBC spaces
- UBC vehicles
- bus shelters on campus
- non-smoking buffer zones on campus from doors, windows, bus shelters, air intakes, and hazardous materials areas (even if outside).

The draft nominally sets the smoking buffer zones at 5 metres but comment is expressly solicited on the distances in any location, and whether to include vertical distances. At <http://www.universitycounsel.ubc.ca/news/index.html> maps show the impact of having a 5 or 10 metre distance from buildings and building clusters creating or excluding intersecting buffer zones. For vertical distance comment is requested on whether to include vertical distances (e.g. to 2nd storey windows), or whether to set them at the same or different distances than ground level buffer zones.

The policy only applies to UBC controlled and occupied places and excludes places leased to other parties unless otherwise induced under some other provision in the policy or procedures, which automatically includes the *Tobacco Control Act*, R.S.B.C. 1996, c. 451.

The draft procedures will apply to all new leases signed from a specific date (nominally September 1, 2007 – and a date for which comment is expressly solicited) unless added to an exclusion list in the procedures. These steps all prevent UBC from violating its lease agreements, provide an ability to adjust to changes in regulation, and provide transparency on future exceptions made to leases regarding sale of products.

The Okanagan campus currently has no leaseholders that sell cigarettes. Some leaseholders on the Vancouver campus under existing leases are permitted to sell cigarettes, and at least one does so. UBC does not control the Students' Union Building leases which are administered by the AMS.

The policy also allows for permits to be obtained for smoking on campus where permitted by law, in connection with culturally significant celebrations. The *UBC Director, Ceremonies and Events Office* is responsible for issuing such permits. Legislation may require provincial permits to be obtained as well.

The Vice-President, Administration and Finance is responsible for implementation of the policy, is empowered to designate smoking and no smoking areas, and may designate those responsible for day-to-day implementation and enforcement.

CONSULTATION

We are now seeking advice and comments from the University community. For the full text of the proposed **Policy #15 (Tobacco and Smoking Product Promotion and Use)** follow the link at <http://www.universitycounsel.ubc.ca/news/index.html>. Please submit feedback to the Office of the University Counsel at university.counsel@ubc.ca. All feedback should be submitted by **4:30 pm on Friday, July 13, 2007**.

It is expected that, subject to feedback from this public consultation process, the proposed new policy will be submitted to the Board of Governors with a request for final approval at its regularly scheduled meeting in September of 2007.

New Vault a Hit with School Groups



The Pacific Museum of the Earth, popular with school groups for its 22-foot-long dinosaur skeleton (above), now features a precious minerals vault (below).

PHOTO: MARTIN DEE

By Brian Lin

Rare gemstones are on display at UBC for the first time thanks to a new vault at the Pacific Museum of the Earth (PME) in the Dept. of Earth and Ocean Sciences.

Originally established at UBC as the M.Y. Williams Geological Museum in the 1970s, the PME inherited collections from the

Pacific Mineral Museum in downtown Vancouver in June 2003 and was renamed to reflect its diverse exhibits, which cover everything from the earth's core to the stratosphere.

The PME attracts more than 1,500 visitors a year to peruse its collection of several thousand minerals, fossils, a 22-foot-long dinosaur skeleton and a tornado machine.

Diamonds, emeralds, gold, silver, and meteorites – including a piece of Mars – are among the 18 precious mineral exhibits in the high-security vault. The valuable specimens, some on display for the first time on campus, are presented on dark pedestals and spotlighted with fibre optics to create a ‘floating’ effect.

One exhibit showcases several pieces of ammolite, the iridescent shell material of ammonites, a marine organism which went extinct 65 million years ago. Only occurring in the Bearpaw formation that extends between Alberta, Saskatchewan and Montana, gem quality ammolite is the rarest gemstone in the world.

Categories for evaluating

commercial gems – color, clarity, cut and size – aren't the only considerations when selecting for a mineral exhibit, explains museum Curator Mackenzie Parker.

“What really stands out for us are samples that show how the minerals are formed or how they interact with their surroundings,” says Parker.

One of the diamond specimens in the exhibit is especially of interest because it is still set in its original host rock. “Since opportunities to collect diamonds before they have been separated from their host rock are rare, this is more valuable as a specimen to geologists and students than one that's set in a ring.”

Since the vault opened this spring, along with the museum's new Teachers Resource Centre, requests for organized tours have spiked.

“The majority of our visitors are school groups where teachers utilize our collections to supplement their curriculum,” says Parker. “The most popular activities are the two new hands-on workshops at the Teachers Resource Centre – the Mineral Properties exercise and the Rock ID exercise – that give students an opportunity to perform some of the basic identification and sorting exercises that geologists do on a regular basis.”

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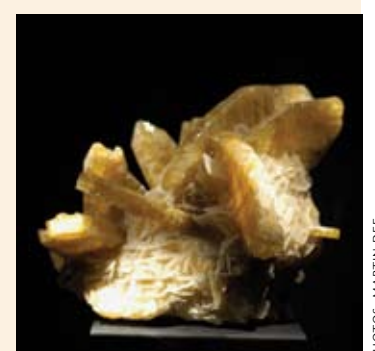
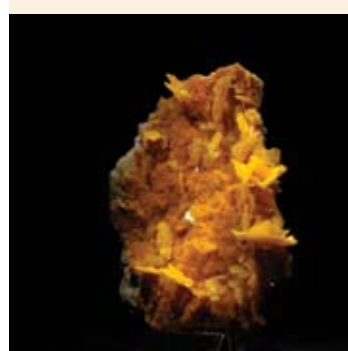
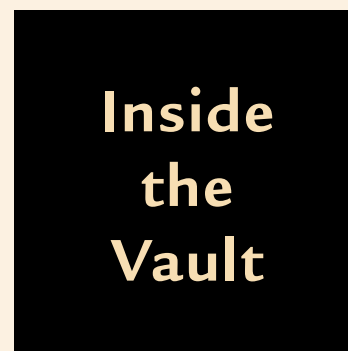
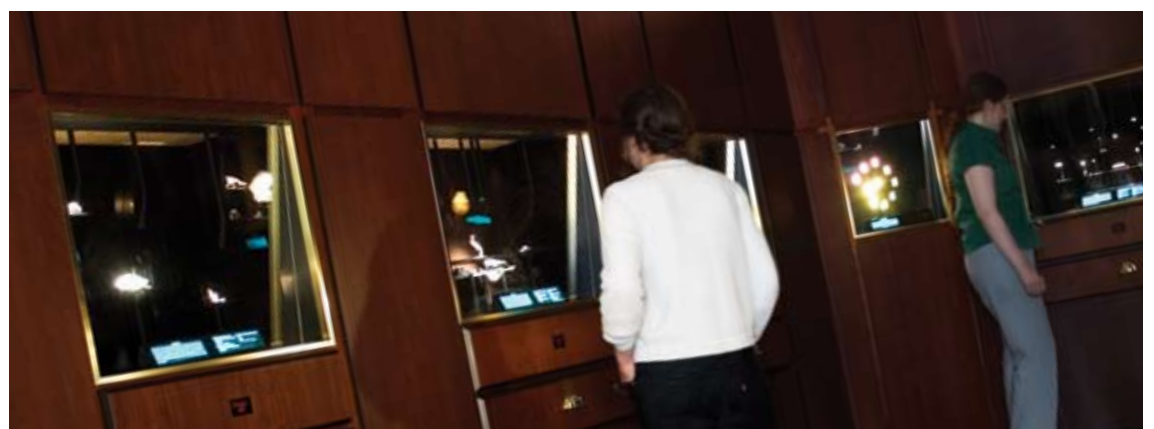
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