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The University of Guelph launches a new initiative to improve Canada’s criminal justice system. The Royal Society of Canada recognizes insect ecologist Peter Kevan. Historian Catharine Wilson receives three prestigious awards for her research on rural Ontario. And a Toronto art gallery invites fine art students to produce exhibitions and art events.

STOP THE OUTBREAK
For help in preparing for the H1N1 pandemic, Ontario’s public health officials turned to a Guelph math professor.

STUDENT OF THE STAGE
Theatre scholar Ric Knowles searches — and finds — tales created by artists from diverse cultural, ethnic and racial backgrounds.

PARADISE REGAINED
Nutrition grad Brenda Davis shows how a healthy diet can reverse the symptoms of Type II diabetes.

COACH4FOOD
International coach Tom Hedican taps into Canada’s hockey obsession to benefit his hometown.

DNA BARCODING EVOLVES
U of G’s biodiversity institute outgrows its space as the barcode database expands and scientists around the world use its resources.

GUELFH GRADUATE
Bob Davis prepares for the Vancouver Olympics, while future graduates staff the U of G call centre and ready the campus for College Royal. The University of Guelph Alumni Association invites nominees for its annual awards program and asks new parents to share their “baby news.”

on the cover
Don’t let the false eyes fool you. DNA barcoding reveals a butterfly inside this disguise.
PHOTO BY JAY COSSEY
The Portico magazine is published three times a year by Communications and Public Affairs at the University of Guelph. Its mission is to enhance the relationship between the University and its alumni and friends and promote pride and commitment within the University community. All material is copyright 2010. Ideas and opinions expressed in the articles do not necessarily reflect the ideas or opinions of the University or the editors.

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In the last fiscal year, University of Guelph researchers were awarded almost $162 million in research grants and contracts. This funding comes from a variety of sources, including the Canadian Institutes of Health Research (CIHR), a federal agency that funds research aimed at improving the health of Canadians.

As you would expect, universities with medical schools receive the lion’s share of CIHR funding, but Guelph’s $4.3-million allocation is the largest among universities that don’t train medical doctors. That surprises some people, but not those who recognize the depth of U of G expertise in the life sciences and our ability to form connections among disciplines and major areas of academic research.

The University of Guelph takes an integrated approach to health-related issues, from cultural to scientific, individual to community, theoretical to applied and animal to ecosystem. We are well-positioned to make significant contributions to the improvement of human health, flowing from our strengths in animal and environmental health. This is consistent with the needs of Canadians who are concerned about the health effects of environmental degradation, diseases emerging from animals and the impact of forgetting that everything on planet Earth is connected to everything else.

Many public health advocates are seeking a more integrated approach to health research. And the University of Guelph is delivering.

Health is one of six research themes identified by U of G’s strategic research plan. The others are environment, agriculture, physical and biological structures, and cultural and social change. Guelph research promoting human health is second only to agriculture in the number of current projects that have received infrastructure funding from the Canada Foundation for Innovation, an agency whose mandate is to strengthen the capacity of Canadian research institutions to carry out world-class research.

Among the areas we pursue at U of G are genetics, neuroscience, human metabolism and microbiology, including the study of pathogens, toxins, nutrition and related environmental issues. We have well-established programs investigating the fundamental biology of multiple species on molecular, cellular, tissue and whole-animal bases. This multidisciplinary approach has a proven record in improving the health and well-being of animals, but it can also improve our understanding of the pathogenesis and treatment of human diseases.

U of G expertise in nutrition, epidemiology and population medicine form a base from which Guelph activity in public health continues to grow. Research programs in human nutrition, lifestyle, sexuality, mental health, addiction, child development, gerontology and community-based health services have a major impact on the health and well-being of individuals and families.

The federal government’s Canada Research Chairs (CRC) program also supports health-related research at U of G. CRC funding recognizes Canadian researchers who are — or have the potential to become — international leaders in their fields. Ten of Guelph’s 36 CRCs are directly positioned to carry out research that promotes health and prevents disease.

The University of Guelph’s largest research partner is the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) — more than $51 million annually — and here, too, human health plays a prominent role. When the U of G/OMAFRA partnership was renewed in 2008, minister Leona Dombrowsky said: “This renewed partnership gets to the heart of what the future of our agri-food sector is all about — research and innovation to better protect our health, economy and environment.”

The minister’s comment suggests what many health professionals espouse: we need to understand how the natural world affects human health. This is where Guelph’s life science expertise comes to the forefront and why a university that doesn’t train doctors has so much to contribute to the health of people around the world.

Alastair Summerlee, President
The University of Guelph has launched a special justice studies initiative to commemorate and honour the struggles of Guelph resident Steven Truscott and his family.

Truscott is known across Canada for his decades-long battle to prove his innocence after the 1959 murder of his schoolmate Lynne Harper. He was wrongly convicted of the crime at age 14 and spent years in prison before he was released on parole in 1969. He was acquitted by the Ontario Court of Appeal in 2007.

“The Truscott Initiative is symbolic of our commitment to programming and research that engage with fundamental questions in the field of justice studies,” says Prof. Alun Joseph, dean of the College of Social and Applied Human Sciences, which houses U of G’s criminal justice and public policy degree program.

The Truscott Initiative will be an ongoing fundraising effort to support public lectures, scholarships and, ultimately, a new Knowledge Exchange Chair that will be held by a succession of academic and legal experts. They will each spend four to six months at the University and will lead a research project on a current or emerging issue in justice studies.

“This will transform the learning experience for thousands of students,” says Ryan Truscott, Steven Truscott’s son. “It will also ensure that Guelph’s research initiatives in law, justice and public policy make the greatest possible contribution to community well-being by focusing on our criminal justice system — where it succeeds and where it fails — so that new ideas can lead to new improvements.”

The Truscott Initiative was formally launched Nov. 6 with a public panel discussion on the ramifications of wrongful convictions. Steven and Marlene Truscott and their family participated, along with Irwin Cotler, former minister of justice and attorney general of Canada; Hersh Wolch, a member of the Truscott legal team; and Mac Steinberg, a former prison chaplain. The panel was moderated by David Akin, BA ’89, national affairs correspondent for Canwest News. For information on how to support the Truscott Initiative, visit www.csahs.uoguelph.ca/justice.

The Portico
Kevan gets Royal Society honours, heads national research network

PROF. PETER KEVAN, who recently retired from the School of Environmental Sciences, was elected a Fellow of the Royal Society of Canada in mid-September. Fellowship in the Royal Society is the highest academic accolade available to scientists and scholars in Canada.

A respected insect ecologist, Kevan was recognized for his “extensive pioneering ecological, zoological and botanical contributions” and for being a world leader in pollinator conservation. His research has resulted in more than 150 peer-reviewed articles, confirmed that human activities disrupt pollinator populations and led to changes in public policy and practice.

Previously, he received a lifetime achievement award from the Entomological Society of Canada and served on the U.S. National Research Council expert panel on the status of pollinators.

Two days after Kevan’s election to the Royal Society, Gary Goodyear, federal minister of state (science and technology), announced that the environmental scientist will head a new national research network designed to address the global pollinator shortage.

The Canadian Pollination Initiative (CANPOLIN) will involve 44 researchers from 26 institutions. They will examine all aspects of pollination, including pollinator health and conservation, plant gene flow, the impact of climate change, economics, and future management needs.

The diversity and abundance of insect pollinators are in decline globally due to such factors as disease, pesticide exposure, malnutrition, habitat loss and climate change. This represents a serious threat to natural ecosystems and crop production, researchers say. In Canada alone, the value of insect pollination to agriculture is estimated to be about $1 billion.

CANPOLIN will receive federal support of some $5 million over five years from the Natural Sciences and Engineering Research Council.
Olympic rider Ian Millar, H.D.La. ’05, was one of 20 equestrians who “changed reins” during a unique fundraising event held to benefit the Ontario Veterinary College’s new Equine Sports Medicine and Reproduction Centre. Millar competed in barrel racing at the inaugural Equi-Challenge competition, which was held at the Caledon farm of Greg and Irene Aziz. Thoroughbred racing legend Sandy Hawley also competed, as did Queen’s Plate winner Emma Jayne Wilson, a 2001 graduate of Kemptville Campus’s equine diploma program.

“What a fantastic event,” said Millar. “It should become an annual event, and I’d love to be part of it for a long time.”

University professor emeritus Bruce Wilkie, Pathobiology, is trying to develop a preventive treatment for human food allergies that could be administered to newborns.

In North America, four per cent of adults and six per cent of children have food allergies.

“Allergies are increasing at an epidemic rate that cannot be due to genetic change,” says Wilkie. “It’s probably because today’s newborns and young children are no longer exposed to the bacterial, fungal and viral infectious diseases needed for the development of a balanced immune system. Some environmental exposure is necessary to allow us to have an immune system that works.”

In a study involving pigs, he and his colleagues were able to build resistance to food allergies by exposing the animals to bacteria when they were just days old.

To determine whether exposure to bacteria influenced the newborn pig’s immune response to allergens, Wilkie and researchers Prithy Rupa, Julie Schmied, Melissa Cirinna, Koriine Hamilton and Serene Lai had to first develop a way to make pigs allergic to human foods. Using injections of ovomucoid, a major allergen of eggs, they were able to induce an allergic reaction to egg whites — the second most common food allergy among young children (the first is milk).

For the study, the researchers injected piglets with dead *Escherichia coli* bacteria during the first week of their life. When they were two and three weeks old, the animals were then injected with the purified ovomucoid, the protein that induced hypersensitivity reactions to egg whites.

Once the pigs were just over a month old, they were fed egg whites and monitored to see if they became allergic. Within an hour, a majority of the piglets that were not exposed to the *E. coli* began to show signs of an allergic reaction similar to a human food allergy, including skin rash, vomiting and diarrhea.

This research is the first to show that exposure to bacteria reduces the likelihood of allergies in pigs. The next step is to investigate for similar anti-allergic effects with probiotic bacteria that can be ingested rather than injected.

“If we can develop a way the bacteria can be ingested and have the same effect, we will be closer to creating an anti-allergic treatment for humans and animals,” says Wilkie.
NOTEWORTHY

- Lincoln Alexander, U of G’s chancellor emeritus, was honoured at the inaugural Canadian Black Film Festival in September. More than 30 films were shown at the festival, including A Linc in Time, which was featured at the closing-night gala. The documentary, directed by Nicole Brooks, has aired on OMNI TV. It details how Alexander’s defining early years led him to his groundbreaking career in Canadian politics and beyond.

- English professor Dionne Brand is serving as Toronto’s third poet laureate. The three-year position honours a Toronto poet whose work displays excellence and addresses themes relevant to Torontonians. A Governor General’s Award winner, Brand has published nine volumes of poetry.

- The University’s Multi-Faith Resource Team was honoured by the Guelph YMCA-YWCA with its 2009 Peace Medal. With representatives from many faiths and religions, including various Christian denominations, Islam, Judaism and Hinduism, the team serves the U of G community in developing the spiritual dimensions of people’s lives and through programs that focus on peace and social justice issues.

- In annual university rankings, U of G was named Canada’s top comprehensive research institution in the annual “Top 50 Research Universities” list published by Research Infosource in the Globe and Mail. When compared with all universities in Canada, U of G is 14th — the highest ranking for a university without a medical school. Maclean’s magazine ranked Guelph fourth for overall quality among comprehensive universities, and the University received straight As from students interviewed for the Globe and Mail’s annual University Report Card.

Can a tomato be any healthier?

Steven Loewen, a researcher at U of G’s Ridgetown Campus, is working to boost the amount of lycopene in new tomato varieties. He says enhanced levels of this antioxidant will make tomato products such as ketchup and sauce even healthier.

“Dietary lycopene availability is increased by processing tomatoes into paste or sauce, so processed is actually more nutritious than fresh,” he says. “Boosting the nutritional value is the focus now for the tomato-processing industry, and consumers will be reaping the benefits.”

Loewen has been working with the tomato’s crimson and high-pigment genes, which are capable of increasing a tomato’s lycopene levels. He’s also trying to increase durability, so the tomatoes will be able to weather the many processing stages. And he’s looking for ways to develop earlier maturity and increase rot resistance, which will mean a longer harvesting season and improved yields.

Others involved in this research are Richard Wright and Jennifer Newport of Ridgetown Campus and Rong Cao of Agriculture and Agri-Food Canada.

Prof Flexes Intellectual Muscle

Guelph historian Matthew Hayday is featured in a series of lectures by prominent and up-and-coming Canadian intellectuals speaking on topics related to the Vancouver 2010 Winter Games.

He discusses Canada’s evolving national identity in “They Like Us, They Really Like Us! Defining Canada Through International Accomplishments. Taped on campus Nov. 24, the podcast is part of the Intellectual Muscle program developed by the Vancouver Olympic Committee and the University of British Columbia.

The online program provides an opportunity for Canadians to participate in a series of national dialogues on topics ranging from the Games’ contribution to society and gender stereotypes in sport. Podcasts will be available until the end of the Games in March 2010.

Fretting about who we are is akin to a national sport in Canada, said Hayday. His talk explores Canada’s struggle since the Second World War to define itself as something other than “not American.” He explains how governments have increasingly attempted to shift the discussion from navel-gazing to rallying around excellence, linking nationalism to the internationally-recognized accomplishments of Canadian citizens. In particular, the accomplishments of Olympic athletes are playing a key role in this reconfigured national identity, he said.
Scientists at U of G’s biodiversity institute are building a library of life, but they’re also applying its resources to benefit the environment, human health, agriculture, commerce and more.

DNA SEQUENCES AND SECONDARY PHOTOS COURTESY BIODIVERSITY INSTITUTE OF ONTARIO
Read an organism’s DNA and save a life? Ask Bronwyn Dalziel. For this graduate of Toronto’s Northern Secondary School, ensuring correct labelling of seafood sold in stores and restaurants is no trifling matter.

“My father is allergic to all types of seafood except Atlantic shellfish,” says Dalziel, now a first-year biology student at the University of Toronto and a wannabe ornithologist. “But after the time he was served Pacific rock lobster standing in for Atlantic lobster and had to go to the hospital, he simply avoids all seafood.”

Small wonder she was keen to take part in a new DNA barcoding outreach project involving U of G last year. High school students at Northern Secondary and other Canadian schools became food sleuths, collecting seafood samples at markets and restaurants for genetic testing at Guelph’s Biodiversity Institute of Ontario (BIO).

That’s the home of DNA barcoding, a method developed at U of G to distinguish between species of living things using a tell-tale bit of their genetic material. Dedicated equipment housed in the BIO labs can process those genetic segments, reading DNA from tissue specimens — an insect leg, a wing, a bit of leaf, a lump of amorphous tissue — to capture each species’ signature like supermarket scanners telling one item from the next at the checkout counter. Since 2003, when integrative biology professor Paul Hebert was lead author on a paper about the technique, the idea has grown into a global enterprise with researchers worldwide using barcoding to build an electronic database of species around the planet.

In November, more than 400 experts from 50 countries, including 30 Guelph researchers, met in Mexico for the third International Barcode of Life Conference. This year — designated by the United Nations as the International Year of Biodiversity — will mark the launch of the International Barcode of Life (iBOL) Project, intended to catalogue five million specimens representing half a million species of living things within five years. That effort will bring together numerous centres from around the world — led by U of G’s BIO with its own ambitious expansion plans for campus — in a project affecting not just biodiversity but also human health, food
DNA barcoding uses a short stretch of DNA from the genomes of mitochondria — the cell’s energy factory — to identify species. That segment comes from the CO1 gene and contains only 648 base pairs of nucleic acids (cytosine, adenine, thymine and guanine). Its size makes it easy to read in the lab, but the segment differs enough to tell most species apart. Variation within species requires experts to analyze at least 10 individuals per species for the barcoding database. Writing in a 2008 Scientific American article, Prof. Paul Hebert, Integrative Biology, explained that barcodes distinguish about 98 per cent of species identified by conventional taxonomy.

Other scientists, notably Carl Woese at the University of Illinois, proposed using DNA sequences to distinguish among living things more than 30 years ago. But it was a paper published in 2003 by Hebert and colleagues in Proceedings of the Royal Society B that called for using a single gene segment to identify species of organisms. The paper is available at http://journals.royalsociety.org.

Hebert’s plan to systematically record DNA sequences — which he called barcodes — included the establishment of an identification system for all animal and plant life. In 2005, 150 institutions in 45 countries formed a consortium to support the development of DNA barcoding as a global standard for the identification of species. The task of assembling those records has been undertaken by the International Barcode of Life iBOL Project.

iBOL by the numbers

- 100 million — the estimated number of species of living things on Earth
- 1.7 million — the number of species classified by Linnaean-style taxonomic description
- 500,000 — the number of species to be catalogued by the iBOL Project by 2015
- 65,000 — the number of species (700,000 specimens) stored to date in the iBOL database
- 25 — the number of countries involved with iBOL.

Above: Prof. Paul Hebert and part of the DNA sequence for Homo sapiens.
creatures — mayflies, caddis flies — can tell scientists about the health of a lake or river.

He is working with federal scientists to integrate barcoding into the Canadian Aquatic Biomonitoring Network, a program run by Environment Canada to assess freshwater bodies across the country. “I think this is going to revolutionize ecological studies,” says Hajibabaei. The same idea applies to soil samples typically containing a menagerie of invertebrates, fungi and other organisms. Besides government agencies, likely clients for environmental barcoding include consulting firms and pulp and paper or mining companies assessing environmental impacts.

These studies also connect researchers in the College of Biological Sciences with counterparts in the College of Physical and Engineering Science.

“Analyzing the data and making sense of the sequences are the next challenge,” says Hajibabaei, who holds a doctorate in molecular evolution and bioinformatics.

This past fall, Guelph introduced new graduate bioinformatics studies, including two master’s programs. These will address a growing need for experts in computing, math and statistics to analyze reams of data from scientists studying genetics, proteins and other information-dense topics.

“So much is changing the way biology is being done,” says Prof. Stefan Kremer, Computing and Information Science. “The rate at which data can be captured and analyzed is phenomenal.”

Kremer should know. He’s worked with Sujeevan Ratnasingham, director of the BIO informatics group, on a machine-learning project, basically helping to devise software to proofread DNA, one chemical base at a time. Having a computer program to check sequence data automatically and predictably “would free up a considerable amount of technicians’ time and allow them to focus on real research questions,” says Ratnasingham.

That information is pouring in mostly from zoologists, here and further afield. Varied campaigns since 2003 have involved scientists in Canada and other countries in cataloguing species, including a number of projects whose progress is regularly updated in a permanent glassed-in display on the ground floor of the BIO building.

Fish–BOL, for instance, aims to ID the estimated 30,000 species of marine and freshwater fish in the world. The All-Birds Barcoding Initiative hopes to track down all of the roughly 10,000 known species. Particularly close to Hebert’s collecting heart is All Leps, a campaign to barcode some 180,000 known species of moths and butterflies (lepidopterans are the second most diverse group of insects in the world after beetles). Other campaigns include marine life (Mar–BOL), Arctic and Antarctic life (Polar–BOL), Barcoding Canadian Animals — even Ants of the World.

Involved in various campaigns are two faculty members who, along with Hajibabaei, were appointed to the Department of Integrative Biology last year. Prof. Sarah Adamowicz completed her master’s degree with Hebert and returned to U of G as a post-doc in 2009; she’s co-leader of the polar barcode working group. Prof. Alex Smith also worked here as a post-doc before his faculty appointment. He and colleagues

What would you do if you met a black widow spider? If you’re U of G’s Jay Cossey, you catch it. That’s what he did last spring during a two-month collecting trip to the Midwest and southern states aboard the BIObus. Moths, wasps, earthworms, spiders: any bug-sized creeping, crawling or flying thing was fair game for the field photographer with U of G’s Biodiversity Institute of Ontario (BIO).

Cossey, an award-winning photographer and nature lover who joined the BIO in 2008, was doing more than snapping wildlife shots. He and his team members aboard the BIObus — a 30-foot RV acquired by the BIO in 2008 — were collecting creatures for the growing DNA barcode database of living things being amassed back at Guelph. With plenty of samples already sealed into ethanol-filled vials and packed into collecting boxes on board, they’d arrived at Mississippi State University to photograph and “borrow” tissue from its extensive insect collection for genetic analysis at U of G. But it was outdoors that Cossey spotted the spider with its signature red flash. How do you catch a black widow? Safely back in the BIO building on the west side of campus, he grins. “You grab it with forceps and put it into ethanol as fast as you can.”

He was back from that trip for only 10 days before boarding the BIObus for another foray. This time, the team spent two months collecting in national parks in three Atlantic provinces. No black widows, but he nabbed his first-ever short-tailed swallowtail butterfly in Newfoundland.

“They’re not found anywhere but on the east coast, and I hadn’t seen one before,” says Cossey, who routinely went bug hunting with his dad as a youngster in London, Ont. (he eventually inherited his father’s collection of 1,000-plus specimens).

New Brunswick’s highlight was also its low point. “The mosquitoes are awful,” he says. In Nova Scotia, he found bottles, which are mammalian parasites. “Only an entomologist would find that really exciting.”

Back in Guelph’s BIO imaging lab this fall, he photographed those creatures under the microscope to be entered with their barcode information into that growing genetic database of life. They’ll join a mounting online collection of organisms, including ones that Cossey amassed during a 2008 BIObus road trip to seven of Canada’s national parks.

Inside the BIO lab

A lobster leg, a feather, a bone or some other bit of tissue may be all that arrives at the Biodiversity Institute of Ontario (BIO), but that’s enough to provide the DNA needed to add each creature to the growing online collection of living things in the Barcode of Life Data Systems (BOLD).

Specimens arrive from all over the world in the BIO’s ground-floor receiving room, where they are placed in finger joint-sized vials in clear plastic plates that hold up to 96 vials at a time. Guelph taxonomists identify the species of each specimen based on conventional methods. BIO lab manager Constantine Christopoulos says most specimens arriving here are already known but need to be officially barcoded for formal entry into that growing database.

In the receiving room, the plastic plates also receive a barcode — not a genetic one but a conventional machine-read label like a supermarket tag — to enable BIO staff to track the numerous plates and specimens moving through the system.

There are the occasional surprises, of course, such as three species of parasitic flies collected by a Guelph biologist that turned out to be 15 distinct species. And, as with a recent fish market survey, “mystery” tissue samples may arrive here to be ID’d against the database. Christopoulos says more of those kinds of samples will arrive in future, particularly as scientists further develop barcoding as an environmental and quality-assurance tool.

Specimens more or less intact in their vials or pinned in a collection box head down the hall to the BIO imaging lab. Here they’re photographed and entered into the reference database. That database will eventually contain details about each creature, including its species name and full taxonomy — phylum, class, order and so on — its photo, its barcode sequence, its collection location and other information allowing anyone, anywhere, to match future specimens with the records in that public online library.

Upstairs in the DNA extraction lab, harsh chemicals are used to break open the tissue cells and isolate the genetic material from each specimen. Technicians make numerous copies of the CO1 gene fragment in preparation for sequencing, or reading of the segment. Much of the grunt work to prepare the samples is done by specialized robots, whimsically named Darwin, Lamarck, Linnaeus and Aristotle. Sequencing involves more chemicals and alternate heating and cooling.

In the final step, the plates undergo automated capillary electrophoresis, in which a machine separates the four nucleic acids that make up the rungs of the DNA ladder. Fluorescent tags attached to each of those nucleic acids are read by a laser. Seen on a computer screen, each DNA fragment shows up as a multicoloured necklace whose “beads” correspond to all 648 bases in the original DNA strand. That sequence is then added to the BOLD database.

View a tutorial on the Barcode of Life Data Systems online at www.biodiversity.uoguelph.ca.

Above: The Pacific rock lobster — also called a spiny lobster (Panulirus interruptus) — doesn’t have the Atlantic lobster’s large claws, but they look the same when cooked and served out of the shell.
Guelph researchers were Prof. Steve Newmster and Brian Husband, botanists in the Department of Integrative Biology.

Among other things, the new barcoding method will be used in global projects such as Tree-BOL, which is building a database for the world's 100,000 tree species, including many of economic and ecological importance. Experts endorsed an agreement on plant DNA barcodes during that Mexico City gathering in the fall.

“It’s those kinds of applications that are now driving barcoding plans at Guelph and worldwide, says Hebert. Whether it’s helping to counter environmental threats posed by invasive species or aiding farmers in battling pests, “this is a big science project that will have real returns,” he says.

Hebert is busy seeking funding and strengthening connections with other institutions for parallel ventures. One project alone will require $150 million worth of operating funds. That’s the ambitious iBOL network, in which scientists from 25 countries will work to build that barcode reference library of five million specimens representing 500,000 species by 2015. It’s a critical project, he says, particularly because some experts predict that perhaps one-third of the planet’s species — including many still unknown — face the threat of extinction by the end of this century.

Hebert says the situation calls for a new biodiversity change panel akin to the UN’s Intergovernmental Panel on Climate Change. (Canada is one of almost 200 signatories to the Convention on Biological Diversity, a UN agreement signed in 1992 to stem and reverse the loss of biodiversity.)

Closer to home, he and others are planning big changes to the BIO itself. The two-storey, 20,000-square-foot building opened in 2006 and houses administrative offices and labs in what is the largest barcoding factory in the world. But the fast-growing project is already running out of room, even before that five million/500K effort. Now plans call for a biodiversity genomics centre twice as large as the BIO to be built adjacent to the existing building, starting this year.

Staff and researchers have been boosting lab production while finding ways to make collection and cataloguing faster and more efficient. Typically, the BIO has produced about 100,000 barcode records a year; this year, it will produce 250,000 to 300,000 records (every species barcoded has multiple specimens). In 2009, the database passed a milestone of 700,000 records in total.

“Logistically, we have to start thinking almost like a factory,” says Greg Singer, a bioinformatics expert who joined the BIO in early 2009 as iBOL project manager. Seems it’s almost as much about operations management inside the building as it is about biodiversity in the wider world outside.

But it’s a factory with field connections, perhaps ultimately for anyone, anywhere.

Scientists using DNA barcoding to ID organisms rely on a telltale stretch of genetic material only 648 base pairs long. Compare that with the human genome containing a total of three billion base pairs (paired nucleic acids called adenine, cytosine, guanine and thymine).

Six years ago, scientists working on the Human Genome Project sequenced that entire genome. Call it Vol. 1 of a potential library containing all the books of life. Since then, we’ve read the genetic books of domestic species — cow, dog, cat, pig — and various organisms common in research labs.

Just over a year ago, an international team of researchers that includes U of G integrative biology professors Robert Hanner and Paul Hebert proposed an ambitious multi-million-dollar plan to add thousands of volumes to that growing library, including genome sequences for species already being identified with DNA barcoding technology at Guelph’s Biodiversity Institute of Ontario. The proposal, published in the Journal of Heredity, involves 68 scientists around the world.

The Genome 10K researchers hope to ultimately use ever-cheaper sequencing technology to record whole genomes for 10,000 species of vertebrate animals.

Hanner says this comparative genomics project may help scientists track threats to certain species and predict animals’ responses to climate change, pollution, emerging diseases and invasive competitors.

Proponents also expect to learn more about evolution of the roughly 60,000 living species of mammals, fish, birds, reptiles and amphibians. Many of those vertebrates are represented in U of G’s wildlife teaching collection, which includes skulls, bones and stuffed specimens used by generations of students in undergraduate lab courses.

One of those former students is Leslie Rye, a three-time biology graduate who is now lab co-ordinator and curator of the collection. Referring to the possibility that the G10K project might help scientists tease out connections between genes and, say, a horse’s grazing teeth and a giraffe’s leaf-browsing tools, she says: “I would love to see where the genetic differences are.”

Hebert yearns for the day when a handheld barcoding machine allows backyard biologists to ID creatures cheaply and easily from a bit of tissue. Maybe one day Dalziel will pull out such a device to verify a bird’s identity using nothing more than its feather. Or she’ll be able to check that suspect seafood right there on the restaurant plate.

“If the technology gets good enough, the identity of what you’re eating could be a click away,” she says. “If we all had portable DNA analyzers like tricorders in Star Trek, people like my dad wouldn’t have to worry.”
On every corner of every neighbourhood, there are stories to be told. The storytellers may be young or old, Canadian-born or immigrant, and they may be white, Hispanic, black, Asian or native. Regardless of their exteriors, each has a unique story to tell, and each is part of an ecological web that binds human experience.

When you take these storytellers from the street to the stage, their value becomes exponential, says Prof. Ric Knowles, Theatre and English Studies. His own story is that of an aspiring young hockey player from Toronto who made a breakaway from Canada’s national sport to become a leading scorer in a much different theatrical arena. For him, theatre is not just an artistic pursuit — it’s also a science.

“You identify a healthy ecosystem not by individual successes but by the diversity of its species,” says Knowles, who chaired Guelph’s drama department from 1989 to 1998 and continues to teach in the theatre studies program. “Any change in one part of the ecosystem changes the rest of the ecosystem, so it’s important to understand the interdependence within it.”

That’s just as true for Canadian theatre as it is for the Carolinian forest that cradles his hometown.

Walking through Toronto’s theatre district, Knowles thirsts for tales created by artists from diverse cultural, ethnic and racial backgrounds. In this bustling city, he doesn’t have to look far. Companies such as fuGEN, Carlos Bulosan, Modern Times Stage Company, the Red Snow Collective and the Chocolate Woman Collective bring intercultural richness to a landscape that has historically been produced and enjoyed by whites.

Knowles knows each of these companies well. For the past 30 years, he has been involved in script development and has worked with writers, directors and companies to bring those scripts to the stage.

“In terms of fostering intercultural theatre, Toronto’s theatre industry is ahead of most cities,” he says. “Real progress is being made.”

Progress is being noted at U of G, too, with an increase in minority students enrolling in theatre at both the undergraduate and graduate levels. In recent years, Knowles has also worked to bring diversity to Guelph’s theatre offerings.

In 2003, he directed Angelique by Lorena Gale, believed to be the first play performed at U of G that was written by a Canadian of African descent. Two years later, he directed Leanna Brodie’s The Vic, a play that examines race. He scored a hat trick of sorts in 2007 when he directed The Indian Medicine Shows by Daniel David.

Theatre scholar Ric Knowles says what’s happening on Canadian stages is healthy for the ecosystem that inspires and improves his life.

By Rebecca Kendall
Moses. This show marked two firsts for Guelph. It was the first time a First Nations play was performed on campus, and it featured Nick Nahwegahbow, the first native student to star in a show at the George Luscombe Theatre.

Theatre companies that are advancing multiculturalism in the performing arts are giving audiences an opportunity to learn about the experiences of those around them and to think critically about issues of race, says Knowles. It’s also vital for artists to take ownership of how their stories are told and their works performed, he says.

“Learning about and promoting intercultural theatre is important for social justice. It’s also important that people within a culture — and citizens within a country — see themselves on stage and in the arts, and that they can control their own representation.”

For years, the only time a native Canadian was cast in a play was when it was written by a white person, says Knowles, remembering a time in the mid-1980s when Native Earth Performing Arts and Tomson Highway broke through that ceiling.

“Native people took control of their own representation and started writing and directing their own plays and having their own theatre companies. That was and is crucial.”

Despite advances on stage, the absence of diversity is still the norm in academic circles, he says.

“The reality is that most theatre professors and lecturers in this country are white males. That’s the irony of the kind of work I do. I’m essentially working to get rid of myself.”

Knowles’s interest and expertise in the ecology of theatre have opened up a number of opportunities for him to travel and speak.

“I’ve been invited all over the place in the last few years because people outside of Canada who are in cities where multicultural populations are very significant think of Toronto as someplace they can learn from.”

Although other cosmopolitan cities are gaining momentum by offering shows produced by people from a variety of cultures, Toronto is gaining a reputation for blending those cultures to create extraordinary cross-cultural theatre, he says.

“Other cities have mono-racial companies that don’t blend, but Toronto is excelling by connecting a whole host of people who are telling unique stories in unique ways.”

Knowles, a third-generation Canadian of Scottish and English descent, notes that “some of the most exciting work going on is coming from native communities, immigrant communities and explicitly intercultural companies. The hegemony of whiteness on the stage has been frustrating. There are other groups doing really exciting work, and they’re often kept off the big stages.”

Theatre in Canada has traditionally been produced by and for middle- to upper-middle-class people of European descent, he says. This has been changing “from below” in recent years as a growing number of artists of colour have entered the theatre profession.

“The first generation of immigrants coming to Canada in the wake of multiculturalism policy weren’t much interested in theatre. They were trying to get their grounding in other ways. They were interested in bringing their kids up in money-making occupations, and theatre has never been that.”

This second generation is the first to come up as theatre artists and practitioners, he says.

“It’s a younger audience and a different demographic. Toronto is now 50-per-cent non-white, and people are starting to ask: ‘Where are those audiences we should be seeing in theatres?’”

It’s an exciting time for Canadian theatre, says Knowles, who sees no end in sight for people to promote and engage audiences in the work of Toronto’s storytellers.

Growing up in Toronto in the ’60s, he had absolutely no interest in theatre. Instead, he followed the same path many young boys his age followed.

“I wanted to play pro hockey.”

By high school, he was thinking about pursuing a hockey scholarship available in the United States, but he opted to stay in Ontario after being drafted by the Oshawa Generals.

But hockey wasn’t his only passion. Knowles was also interested in engineering, architecture and English, a subject he studied at the University of Toronto, where he earned a BA, MA and PhD.

Theatre didn’t surface until late in the game. “I was midway through my doctorate when I realized it was pretty silly to be working so heavily with the works of Shakespeare when I knew nothing about theatre.”

So he took to the stage and, in his first show, began to experience the highs and lows of the industry.

“I had a terrible time working on Macbeth and went home saying: ‘I’m never going to do this again.’ The day after the production wrapped, I was asked to be in another show, and I said yes. And it was a wonderful experience.”

Knowles continued acting and eventually started directing theatre at Mount Allison University, where he spent a decade as a theatre professor. During this time, he also apprenticed with Robin Phillips at the Stratford Shakespeare Festival and slowly started making connections with theatre professionals in Toronto. In addition, he worked for the Mulgrave Road Co-op Theatre in Nova Scotia as a director and playwright.

It was also during his time at Mount Allison that Knowles paid a visit to the University of Guelph Library to explore its theatre archives. While on campus, he began to explore his career options as well.

Invited to lunch by then drama chair Leonard Conolly (Guelph’s theatre archives are named in his honour), he learned that Conolly was being promoted to associate vice-president (academic). Conolly asked Knowles to apply for the chair position.

“I let my name stand,” says Knowles. “I wanted to be at Guelph because it had the best theatre program in the country from my
perspective and for my interests. At the time, Guelph was starting up the only graduate program that specialized in Canadian theatre. It also had outstanding Canadian theatre archives. The department embodied a curricular philosophy that I still believe in — a cross between the theoretical and the practical. I really believe that if you become an actor, you’re going to become a better actor because you’ve studied theatre history and hung lights, and that if you become a theatre historian or theoretician, you’ll be a better one for having studied acting, directing and design.”

One of Knowles’s accomplishments as chair was to recruit well-known Canadian playwright Judith Thompson as a faculty member. “She is a fabulous writer and line by line the best ear in the country,” he says. “She pushes the boundaries in all kinds of productive ways. She’s one of a handful of playwrights in Canada who are internationally known and who have been producing work for nearly 30 years.”

His enthusiasm for Thompson’s work led him to edit a series of books about her and other producers of Canadian theatre. Called Critical Perspectives on Canadian Theatre in English, it aims to make the best critical and scholarly work in the field readily available. He also edited the books Judith Thompson and The Masks of Judith Thompson.

Since Thompson’s arrival at Guelph, a number of talented actors, playwrights and set designers have joined the theatre studies program, advancing its ecology, says Knowles. Among them are Prof. Sky Gilbert, Jerrard Smith and Pat Flood.

Gilbert, who joined U of G in 1997, is co-founder and former artistic director of Buddies in Bad Times Theatre and founder of Hammertheatre, a theatre company in Hamilton. He holds a University Research Chair in Drama and Creative Writing and has published numerous plays, two collections of poetry, five novels and a theatre memoir.

Smith is an award-winning designer who has represented Canada at the prestigious Prague Quadrennial. Since 1981, he has been a designer for Patria, a cycle of environmental music dramas created by celebrated composer R. Murray Shafer.

Flood joined U of G in 2005. Before that, she was set designer on Jim Henson’s Fraggle Rock series, art director for the last season of La Femme Nikita and art director for the last two seasons of Kids in the Hall. In addition, she designed many of the sets for the films Ararat and Where the Truth Lies, both directed by Atom Egoyan.

The department also includes Prof. Ann Wilson, who specializes in contemporary American, British and Canadian theatre; Prof. Alan Filewod, an expert in political and post-colonial theatre; and Prof. Paul Mulholland, whose specialty is Elizabethan and Jacobean theatre. The newest faculty arrival is Prof. Dongshin Chang, who joined U of G in 2007. His work explores the fusion of Asian performance and western-style theatre. Adding to the team are undergraduate co-ordinator and film instructor Prof. Paul Salmon, costume designer Denis Huneault-Joffre and technical director Paul Ord. Michael Boterman is the department secretary.

“Each has contributed greatly to the success of the Guelph program and in building its strong reputation,” says Knowles.

His own reputation has also grown over the years. Last fall, he was elected to the Royal Society of Canada as “the foremost scholar of Canadian theatre of his generation.” Last summer, he was honoured by the American Alliance for Theatre and Education (AATE), which gave him the Award for Excellence in Editing: Sustained Achievement.

Knowles is editor of Canadian Theatre Review; vice-president of the American Society for Theatre Research, past editor of Modern Drama and former AATE vice-president for research and publications. He has edited or co-edited 15 books and authored or co-authored several others, including Reading the Material Theatre and Theatre & Interculturalism.
A country made up of tropical islands in the middle of the Pacific Ocean sounds like paradise, but for many people native to the Marshall Islands, life is far from idyllic. Yes, there are palm trees and sunlit sandy beaches, but in the streets of the inhabited islands, the devastating effects of poor nutrition are obvious.

Middle-aged men use makeshift wheelchairs because they’ve had a leg amputated below the knee. A pilot is told he must retire at age 38 because diabetes is affecting his eyesight. A woman is bedridden for a year after a diabetes-related stroke. Young children are often malnourished, but they are picking up poor eating habits that will eventually lead them down the same path as their parents.

The epidemic of obesity and Type II diabetes is often thought of as something affecting primarily North Americans. But it’s hit hard in this rather obscure group of Pacific islands and atolls, roughly halfway between New Zealand and Hawaii, where more than half of those over age 35 have Type II diabetes. Most adults are obese, and the most common surgeries performed are amputations due to complications of diabetes.

Obesity and related diseases are, it seems, unexpectedly contagious. Until World War II, the Islanders lived primarily on the foods they could grow and the fish they caught from the ocean, but during the war the islands became a strategic location for the U.S. Navy. The once fit and healthy people gradually came to depend on imported, processed foods — with tragic results.

When Brenda Davis was asked to help reverse this trend, she found that the most popular breakfasts for Marshall Islands kids were popsicles and soft drinks, or packaged ramen noodles sprinkled with sugary Kool-Aid powder.

Davis is a dietitian, a diabetes expert and a 1982 Guelph graduate in applied human nutrition. She started her career working in public health in her home province of Ontario, but turned to teaching and nutrition consulting when she moved to British Columbia with her husband, Paul, a 1981 B.Sc. graduate in biological science. He works for the Worker’s Compensation Board in occupational health; they have two children.

Davis found that the Marshall Islanders had little education about nutrition, so they focused on simply filling their stomachs with the foods most readily available to them. That meant the main sources of calories in their diets were white rice, white bread, donuts and other baked goods, Spam and other canned meat, chicken, ramen noodles, soft drinks and salty snacks like potato chips. As Davis says: “It would be difficult to design a diet that would more efficiently induce diabetes than the diet that has been adopted by the Marshallese people.”
For many in the Marshall Islands, the situation seemed hopeless. Then Canvasback Missions — a non-profit organization serving remote Pacific islands — in partnership with the Marshall Islands Ministry of Health and Loma Linda University in southern California, was given a grant by the U.S. Department of Defense to attempt to change these entrenched eating patterns and reverse the trend towards illness and disability. The medical director hired for the project had, at the time, just attended a conference where the main speaker was the author of a book called *Defeating Diabetes*. The director immediately approached that author — who was, of course, Brenda Davis — and asked her to join them on the project.

“I was very excited about the opportunity to put my advice into practice with this population because they were facing so many challenges,” says Davis.

The diet she recommends is not the traditionally prescribed one, which focuses primarily on lowering blood sugar levels. For Davis, that’s not good enough.

“Diabetes is not just about controlling blood sugar,” she says. “If there is a chance of reversing the disease or dramatically altering its course, we must reduce insulin resistance. People with Type II diabetes produce plenty of insulin, but it isn’t doing its job. While the dietary components in processed foods and fatty animal products tend to increase insulin resistance, the components in plants — and exercise — tend to reduce it.

“When you have a disease like diabetes, it’s like having a house on fire. If you pour gasoline on it, by eating unhealthy foods, it will get worse. What you need to do is remove the gasoline and pour water on it. Every calorie you eat should be healing.”

That’s the message Davis took to the Marshall Islands when she traveled there with Canvasback Missions in 2006. She and the others on her team began an intensive diabetes wellness program with a group of Islanders that involved meeting four times a week at first, then less often as the months went by. They held educational sessions, cooking classes, gardening lessons and exercise classes. The participants were taught to eat a completely plant-based diet, with minimal refined carbohydrates, minimal ground grains (for example, oat groats rather than oatmeal), plenty of vegetables and fruit, high fibre (40 to 50 grams and up per day), high viscous fibre (from flax, oats, barley, beans, guar gum and psyllium), moderate fat levels from healthful sources, low saturated fat, zero trans-fat, sufficient omega-3 fatty acids and moderate sodium (salt).

Exercise was an essential component of the program. Marshall Island women traditionally wear dresses — never pants — so activities had to be planned where they’d feel comfortable participating. Twice-daily walks were a basic requirement.
Brenda Davis took this message to the Marshall Islands in 2006: “When you have a disease like diabetes, it’s like having a house on fire. If you pour gasoline on it, by eating unhealthy foods, it will get worse. What you need to do is remove the gasoline and pour water on it. Every calorie you eat should be healing.”

“Many program participants were not just able to control their blood sugar, they were able to restore their health,” says Davis. Those who stayed with the program over the two years of follow-up saw their weight, blood sugars, cholesterol levels and blood pressures drop, and reported reduced pain and higher energy levels. Davis will be back in the Marshall Islands early in 2010 to run another intervention, and work on the public school health curriculum and hospital food services.

Seeing the results these changes made in the health of the Marshall Islanders gives her hope for North Americans, who are also facing a diabetes epidemic. As she points out, the Marshall Islands have few gyms and no hiking trails, and fresh produce is expensive and hard to get. Yet the people were able to learn to make low-cost, healthy meals and find ways to increase their exercise levels.

“If they can overcome those challenges with the barriers they face, we can certainly do this here. Many doctors don’t believe that their patients would be willing to make these kinds of dramatic diet and lifestyle changes,” says Davis. “I ask: ‘How do you know? Have you asked them? Tell them about the range of treatment options, and let them decide what they will or will not do.’ You might be surprised by how many people would choose to exercise and eat a healthy plant-based diet rather than taking insulin for the rest of their lives, or having open heart surgery.”

Defeating Diabetes is Davis’s fourth of seven books. She’s also written Becoming Vegetarian, Becoming Vegan and the about-to-be-published Becoming Raw. Passionate about the ways vegan eating can help people heal, Davis says she’s also excited about the ways it can heal the Earth.

“People are interested in ‘eating local’ as a way to reduce greenhouse gas emissions,” she says, “but a 2007 study by two professors at Carnegie Mellon University found that while sticking to a completely local diet was helpful, becoming vegan was more than seven times better. Eating vegan even just one or two days a week put less strain on the environment than eating local all the time.”

For Davis, her work in the Marshall Islands and her books and talks are immensely satisfying. “I went into this field because I thought it was where I could make a difference,” she says. The difference she makes is captured by this quote from Marshall Islands resident Fred Heine:

“I suffered a stroke because of my diabetes and was in a wheelchair. I could not walk. After joining the diabetes wellness program for six months, I got rid of my wheelchair and am walking on my own again. I am healthier than I have been in many years. This program has given me more than I ever thought possible. It provides the people of the Marshall Islands with the greatest hope we have had.”
Professor Chris Bauch has become a go-to person for all things related to pandemic preparedness and H1N1 — a bit of an unusual role for a mathematician.

But then again, Bauch isn’t your run-of-the-mill math professor. He studies things such as infectious diseases, ecology, mathematical biology, health economics and vaccination policy.

“My research is centred on applying mathematics to real-world problems, especially infectious disease dynamics,” he says.

Bauch regularly collaborates with epidemiologists and public health researchers to better understand the patterns people tend to fall into during disease outbreaks. This way he can incorporate human behaviour into epidemic mathematical models, something he calls “challenging but ultimately necessary. Changing human behaviour patterns can have a big influence on transmission dynamics.”

He is also big into game theory and uses this branch of mathematics to develop models that can analyze — even predict — human behaviour. Game theory helps us to mathematically describe strategic reasoning — how individuals make decisions in groups when the impact of their decision depends on the decisions reached by others in the group.

Developed in the 1940s as a tool for economists, game theory is now widely used in fields as varied as international relations, philosophy and computer games, as well as a growing number of biological applications. Take public health, for example. The medical profession has long advocated childhood immunization, but parents are faced with the ultimate decision of whether or not to vaccinate their child against a disease. Their choice is indirectly influenced by the decisions of all other parents because the risk of infection depends on the proportion of the population that is vaccinated.

“But they’ll also be influenced by the perception of risk, whether accurate or inflated,” says Bauch. So in this scenario, game theory can be used to show whether the perceived risk of vaccines influences vaccination rates and disease outbreaks.
Unconventional as his field specialties are, he never imagined becoming the go-to person for friends, colleagues and even government officials on how to deal with a flu pandemic. But a lot of things have changed for a lot of people since a mutated virus that became known as H1N1 found its way into the world, and Bauch is one of them.

He was among a handful of experts that the Ontario government turned to for help in planning for the fall H1N1 outbreak. Facing endless unknowns, the province was looking for answers to the multitude of “what ifs” that could be encountered in a flu pandemic.

What would happen if the province chose to vaccinate the entire population versus just high-risk individuals?

What if it opted for more drastic measures such as closing schools and day-care centres from the get-go?

What if it chose to vaccinate everyone but kept schools open? What if it closed schools and skipped vaccinations altogether?

Sorting out the seemingly limitless combinations of options would probably be an overwhelming task for mere mortals, but not for Bauch and some mathematicians/statisticians at the University of Toronto and the Research Institute of the Hospital for Sick Children. For them, it was simply a matter of developing the right mathematical model and then plugging in numerical representations of various possible flu-related scenarios.

Bauch and his colleagues were already working with the Ontario Agency for Health Protection and Promotion when H1N1 hit the world stage.

“During the aftermath of SARS, they approached us about doing some models that could help them with pandemic preparedness,” he says. “It turned out to be fortuitous because a few months later H1N1 emerged.”

The group members then changed the direction of their collaborative effort. Instead of focusing on generic pandemic planning, they were to create a model to predict the H1N1 attack rate and guide public health strategies — and do it fast.

“We’ve seen in the past that a relatively mild wave of infection can emerge in the spring, then in the fall we get hammered with a more virulent strain of the disease,” says Bauch. “We wanted to be prepared in case this scenario played out in fall 2009.”

So during the spring, summer and fall of 2009, he spent much of his days, evenings and weekends immersed in a model world ruled by H1N1. It proved to be a near all-consuming task for the busy professor, husband and father of two young children. He says he even pulled some “all-nighters” to get the work prepared before the anticipated fall 2009 wave.

“There were times I found myself wondering if we’d bitten off more than we could chew,” Bauch says with a slight smile. “But it was very exciting, too.”

The model they created simulates a pandemic outbreak in London, Ont., and projects how many people will be infected under different disease-control strategies and various circumstances. London was chosen because it’s a mid-sized city with readily available demographic and epidemiologic influenza pandemic data.

A broad range of scenarios — 630 different combinations in all — were introduced into the model. They involved vaccination timing, school closures and antiviral drug treatment strategies, as well as the effect of pre-existing immunity. The model then provided mathematical predictions for how and when things would happen.

What did they discover? Well, no matter the scenario, acting early and aggressively was the fastest, most efficient way to reduce the infection rate. For example, the model determined that vaccinating 60 per cent of the population before the “fall wave” of H1N1 would virtually prevent an epidemic.

If people were vaccinated in the first 30 days of the outbreak, it would reduce the
The model predicted that the pandemic would peak sometime in November. As it turned out, surveillance data indicate that the pandemic peak in Canada was indeed passed sometime in mid-November. “So the model got it right,” says Bauch.

After the researchers handed their findings over to the province, they submitted their study to the Canadian Medical Association Journal, which published the results in a paper in mid-October.

After that, the team could do little more than watch as decisions were made both in Canada and the United States about how to deal with the ever-changing H1N1 situation — decisions that sometimes ran counter to what the model suggested.

In Canada, the outbreak was already well underway by the time the researchers’ paper was published. At the time, Bauch said it would still be beneficial to start vaccinations. He planned to get the shot himself and for three-year-old Jaya and one-year-old Kiran, his children with spouse Madhur Anand, an environmental sciences professor at U of G.

As it turned out, there were only a few opportunities for the general population to get the vaccine in October. When the first public clinics opened, people rushed to them in droves, resulting in long lines and lots of frustration. Soon afterwards, the province’s chief medical officer of health declared a potential vaccine shortage, and clinics were limited to “high-risk” people.

In the United States, most people didn’t start to receive the vaccine until December. “I think the effectiveness of their program will be quite compromised,” Bauch said at the time.

He adds that it’s not uncommon for decisions to be made that don’t mirror a model’s suggestions. Models are based on a “snapshot” of things at the point in time when the model is created. “But in an outbreak, knowledge is constantly changing,” he says. As time passes, “it may become obvious that certain things are not even remotely possible.”

Still, he says, models play an important role in deciding which mitigation strategies to adopt and which ones not to. And having a pre-existing H1N1 model will help in future pandemics by saving months of preliminary work and preparation.

“You won’t have to start from scratch. The hope is that next time around, the model can be taken off the shelf, and you just plug in new data. It will really reduce the time required to get useful projections out of the model.”

Bauch has long been studying vaccination policies as part of his work on infectious disease dynamics, an interest he developed while studying mathematics first at the University of Cambridge’s Trinity College and later at the University of Warwick, where he earned a PhD. He also has a diploma in theology and religious studies from Trinity and a bachelor of science degree in physics from the University of Texas at Austin.

But his interest in game theory didn’t begin until he was a post-doctoral researcher at McMaster University.

“I was asked to teach a course in game theory. I didn’t know anything about it before then, although I was curious about it. I had to teach myself game theory to be able to teach the course.”

Bauch quickly realized the theory could be applied to human behaviour under voluntary vaccination policies.

“What I found so appealing about it was the way it could describe some of the types of behaviours we see in real populations. It provided a means of linking the way people sometimes avoid vaccination to behavioural phenomena in other (apparently unrelated) areas.”

In previous research, he has used game theory to predict whether voluntary vaccination policies will contain the spread of infectious diseases such as smallpox and to explain why preventable diseases such as measles and whooping cough seem to be making a highly contagious comeback.

In the latter study, Bauch showed how vaccine scares influence the perceived risk of vaccines, which in turn affects vaccination rates and disease outbreaks. During a “vaccine scare,” people are influenced by numerous factors such as media coverage and the activities of anti-vaccination groups, he says.

There was no “scare” with the H1N1 vaccine. In fact, media reports of the disease itself created just the opposite reaction, says Bauch.

“I think people saw a few instances of deaths being reported and they panicked, afraid it might happen to them or their loved ones.”
Move your feet

European hockey coach inspires young players both on and off the ice

BY REBECCA KENDALL

Tom Hedican, BA ’82, says coaching hockey brings excitement into his life, whether he’s working with professional athletes like Chicago Blackhawks goalie Cristobel Huet or the North Bay TCM Produce Peewees. Hedican recently put the boys through a series of NHL and European professional skill drills in return for cans of beans and soup and jars of peanut butter — all donated to the North Bay Food Bank.
It was the fifth year for his Coach4Food fundraising drive — his way of encouraging minor hockey players and helping those who are facing hard times in his hometown. He’s run the program since 2005, each year coaching about 20 local hockey teams during two weeks in December.

“I offer coaching sessions for kids based on some of the pro drills we use in Europe,” says Hedican, a professional goaltending consultant. “They’re high-skills technical drills that the players and coaches have never seen. The kids are excited because they’re practising like pros for the day.”

It’s been nearly 30 years since Hedican played between the pipes as a goaltender with the Guelph Gryphons. He was used to taking frequent road trips to games, but his involvement in hockey today has him sticking to handling what is probably the longest regular commute to work of any U of G grad — North Bay to Hamburg, Germany.

Appropriately, Hedican earned his 1982 degree in geography. After graduating from Guelph, he spent a year playing in the National Hockey League minor league for Buffalo and Philadelphia before returning to school to study journalism at Canadore College. That led to a 10-year stint as a reporter and editor at the London Free Press in London, Ont.

A notable hockey town, London gave Hedican more than headlines. It offered him an opportunity to get his head back in the game.

“It was at some point during that time that I realized my passion was hockey and not journalism.”

Hedican left the OHL in 2000 and has been working in Europe ever since. From October to April, he flies back and forth from Canada to Germany and Switzerland.

“It’s a pretty demanding schedule, but I love what I do,” he says. “I’m lucky. I work with good teams and big budgets, so they make the travelling easier.”

Over the past decade, he’s worked with teams in Lugano, Zug and Bern. The S.C. Bern Bears are the highest-drawing team in Europe, attracting some 17,000 fans per game. Huet is one of his former players from Lugano and the first goalie from France to play in the NHL. Hedican coached him for four years before Huet joined the Blackhawks in 2008. Hedican also coached Ottawa Senators goaltender Alex Auld, who has played for NHL teams in Vancouver, Florida, Phoenix and Boston.

“It’s fun being in pro hockey,” says Hedican. “You’re working in a game where there are lots of highs and lows, but it’s not a mundane job. It changes every day, so there’s that element of excitement.”

He brings that excitement with him to Coach4Food. What started out with 1,000 pounds of food in 2005 has become a phenomenon in his hometown.

“North Bay isn’t a wealthy city, but it’s a caring city,” he says, “and helping now is probably more crucial than it has been in decades.”

The 2009 event was still underway when this issue of The Portico went to press, but Hedican said it was on track to match the 2008 total of 60,482 pounds of food. That was a memorable year for Hedican, who dedicated his effort to the memory of his late mother, Shirley, a strong supporter of the local food bank. The 2008 event also benefited from an unexpected meeting with rocker Bruce Springsteen, a New Jersey native who also does charitable work for food banks.

Hedican was asked by New Jersey Devils owner Jeff Vanderbeek to start the program in the United States. The NHL team partnered with the New Jersey Rockets and the New Jersey Titans to run their first Coach4Food event in November 2008. It was the biggest sports-related fundraiser in the history of the Community Food Bank of New Jersey and raised 17,000 pounds of food.

“While I was in New Jersey,” says Hedican, “I got a call from Bruce Springsteen’s assistant asking my wife, Nancy Ann, and me to come to his opening-night concert in Newark.”

With 30 minutes to showtime, the couple were invited backstage to meet Springsteen, who said he appreciated all the great work Hedican was doing.

Coach4Food has also spread to hockey rinks in the Maritimes, and Hedican has been approached by people wanting to run similar programs with other sports.

“The truth is, you can do it with any sport,” he says. “You just have to have a hook for the kids and someone to teach them something. I always tell the kids that you don’t have to change the world — you just have to change where your feet are. Whether it’s in your classroom, your home or your city, you can make a difference. You just have to start moving.”
When Canada last hosted the Olympic and Paralympic Games, Bob Davis, B.Sc. ’88, was watching the events on television and finishing the last semester of his biology program at Guelph.

This time around, he’s right in the middle of the action.

Davis is one of 80 pre-Games facilitators who’ve spent more than a year training and preparing the 25,000 volunteers who will host 5,500 athletes and officials, 10,000 media representatives and 1.6 million ticket holders during the Vancouver 2010 Winter Games.

“This was one of the largest volunteer recruitments in Canadian history,” says Davis, a business instructor at the Vancouver campus of International Language Schools of Canada.

Volunteers are integral to every facet of the Games and will be found handling everything from accommodations, ticketing, accreditation, community relations and technology support to translation services, transportation and, of course, the sporting venues and events, he says.

“The Olympics couldn’t exist if it weren’t for these amazing and selfless individuals.”

For the past year, Davis’s role has been to introduce the volunteers to the mission and mandate of the Games and prepare them for what he says will be one of the most exciting and memorable experiences of their lives.

“The mission of the 2010 Winter Games is to touch the soul of the nation and inspire the world,” he says.

Although Davis is an avid hockey player himself, his Olympic dream isn’t about winning a medal. He’ll be at the University of British Columbia Thunderbird Arena, the site of women’s hockey and ice sledge hockey matches, to ensure that spectators and athletes have an extraordinary Olympic experience.

“This is a once-in-a-lifetime experience,” he says. “I’m proud to show off our great nation, and I’m proud of all the firsts Vancouver 2010 is introducing to the Games, including the first time Aboriginal Peoples have been recognized as official partners in hosting the Olympic and Paralympic Games. And I’m proud to be part of an event that promotes shared themes such as developing values through sports, promoting peace through sports, equality and fairness, culture and sustainability.”

Meeting in the east

The Maritime grads of OVC ’52 got together in August at the Halifax home of Ross Ainslie, DVM ’52. They celebrated the publication of Albert “Bud” Ing’s autobiography, Mud, Sweat and Tears, and a recent biography of deceased classmate Earle Kirby of St. Vincent in the Caribbean.

Kirby, who died in 2005, was also an expert in tropical agriculture and St. Vincent archeology. In 1975, he was inducted into the Order of the British Empire.

His biography, Pigmented Spectacles, was written by David Chesterton and is available from the author at d.chesterton@sympatico.ca.

Mud, Sweat and Tears tells the story of Ing’s adventures as a rural veterinarian in the 1950s. The book is available from Chapters and Amazon.
Networking

Heading west

U of G alumni from the Calgary area gathered for a reception at the Ranchmen’s Club Oct. 20. Some grads also attended a Calgary Flames game at the Saddledome. A networking event was held the next day in Vancouver, where several alumni attended a reception at the Coast Plaza Hotel. These regional events are part of an overall initiative by the University of Guelph to ensure a presence in areas with many alumni, donors and friends. If you’re interested in attending future regional events in Canada, send a note to alumni@uoguelph.ca.

It’s never too late to be a champ

Thirty-three years after his team won the OUAA hockey championship, Gryphon captain Kim Miles, B.Sc.(H.K.) ’76, finally got to hoist the Queen’s Cup. He did it Nov. 14 during Guelph’s second annual Hockey Day in Gryphonville, which attracted more than 100 people.

The OUAA trophy wasn’t presented to the Gryphons in 1976 because the previous winners had neglected to bring it to the championship game.

The Department of Athletics arranged the surprise presentation to the 1975/76 Gryphon team by borrowing the trophy from the current OUAA champions at the University of Western Ontario.

The impact of giving

Each day I encounter alumni, donors and friends of the University of Guelph who are steadfast in their desire to see this great institution flourish. Their passion is fuelled by the impact they have on students and the University’s ability to fulfill its mission — to change lives and improve life.

The compelling stories of individual and corporate donors, alumni, friends and students have been gathered in the Impact of Giving Report, available online at www.alumni.uoguelph.ca/donor_report. This new publication is unprecedented in its powerful message and lasting impact. I encourage you to visit the site and experience these inspiring stories first-hand. They tell about people who believe that Guelph’s time is now.

With the help of our increasing number of donors and alumni, the University will continue to nurture and achieve meaningful advances in world issues related to food, water, animal and human health, communities and the environment. Those success stories are unfolding, even as I write this message — stories about the University of Guelph making a difference in the world and focusing on the issues that matter now. I look forward to sharing the achievements of the next chapter with alumni and friends in the years to come.

Joanne Shoveller
Vice-President
Alumni Affairs and Development
Please answer the call

“Good evening! My name is Amanda, and I’m calling from the University of Guelph to touch base with you about developments at the University and in your college. Is this a good time for you to talk?”

Amanda Taylor is one of about 40 Guelph students who staff the U of G call centre in Alumni House. Each year, they make more than 50,000 calls to alumni, parents and friends of the University. These students are a vital link between Guelph and its alumni. Indeed, for many alumni, the call may be the only “live” contact they have with their alma mater.

Student callers also make an important contribution to the University of Guelph Alumni Association (UGAA). They demonstrate to alumni that we’re interested in them as individuals and care about the exciting developments in their careers and personal lives. The calls also provide an opportunity to update alumni contact information and enhance the alumni connection to U of G.

You can be assured that the Guelph student who calls you has been carefully trained and is prepared to talk about recent and planned developments at the University and in your college. And sharing fond memories of your student days on campus is a meaningful way to connect with them. One of the biggest benefits of the call program, which speaks directly to the UGAA mission, is helping to build bridges between past and future Guelph graduates.

The student callers are also helping to raise funds for priority projects in your college and at the University as a whole. We’re proud that so many alumni respond positively. Phone calls made in 2008 generated almost $500,000 in donations to U of G.

Periodically, Amanda and the other student callers become part of the University’s “Thank You” campaign. Last summer, they called and personally thanked close to 10,000 donors for their financial support.

The student call centre is certainly one of the University’s fundraising success stories. Engaged, enthusiastic and knowledgeable students reach out to those of us who preceded them to tell the University’s current story. I hope you as alumni feel a greater degree of engagement as important members of the University family.

The ongoing dedication of students and alumni are among the reasons our alma mater is one of Canada’s best universities. We salute Guelph’s student callers and thank those alumni who answer their calls.

Linda Hruska
B.Sc.(Agr.) ’85, M.Agr. ’88
President, UGAA

Keeping parents In the know

Students who work in the U of G call centre make connections not only with Guelph alumni but also with the parents of other students. It’s an effort to keep parents up-to-date with what’s happening on campus and to solicit their support for the Parents’ Fund. Over the past 14 years, student callers have raised more than $3 million to support the U of G Library and Learning Commons.

The Learning Commons brings together services that support students in studying, writing, research, numeracy skills and use of technology. Annual contributions from the Parents’ Fund have enabled the Learning Commons to offer more supported learning groups and to make electronic acquisitions that enhance off-site research.

To keep parents better informed about what’s happening at U of G and how to help their children access student resources, Alumni Affairs and Development issues an annual newsletter called In the Know.
College Royal for Alumni

Just because you’ve graduated doesn’t mean you can’t participate in College Royal. The annual open house runs March 20 from 9 a.m. to 5 p.m. and March 21 from 10 a.m. to 4 p.m. Check out these “alumni-friendly” College Royal events:

Super Thursday — Alumni teams of six people are welcome to participate in this annual spectacle.

Cat show — Enter both your cat and your cat photography in two competitions open to the whole community.

Square dancing — Get your student set back together and compete in Sunday’s open competition.

Curtain Call — The 2010 production of Reefer Madness is a musical version of a 1936 political satire (recommended for mature audiences). The show runs March 17 to 20 in War Memorial Hall.

Lecture series — Free public lectures held Saturday and Sunday afternoon are light-hearted and entertaining, but they’ll also make you think.

Much more — Bring your kids for a milkshake or the chemistry magic show, visit the campus barn and show off your alma mater.

For a complete College Royal schedule, visit www.collegeroyal.uoguelph.ca.

Print show and sale — Fill your walls with student prints that are sure to increase in value. Your purchase will support a fine arts awards program for emerging artists.

Teddy bear surgery — Kids can make a take-home craft in the waiting room, courtesy of the U of G and OVC alumni associations.

Square dancing — Get your student set back together and compete in Sunday’s open competition.

Curtain Call — The 2010 production of Reefer Madness is a musical version of a 1936 political satire (recommended for mature audiences). The show runs March 17 to 20 in War Memorial Hall.

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For a complete College Royal schedule, visit www.collegeroyal.uoguelph.ca.

TAKE NOTE

AWARDS OF EXCELLENCE • The University of Guelph Alumni Association’s (UGAA) annual awards program is undergoing some exciting changes, including a new venue for the ceremony, an improved nomination form and a new April 30 closing date for nominations. For more information, visit www.alumni.uoguelph.ca.

UGAA NOMINATIONS • UGAA is looking for alumni with great ideas, talent and skills to serve as board directors. If you would like to represent our alumni or know another graduate who would be a great candidate, visit www.alumni.uoguelph.ca to access a nomination form. The nomination deadline is March 31.

BABY NEWS • Just had a baby? UGAA would like to send you a special gift. Send your baby news to ugaa@uoguelph.ca.

College Royal • Visit UGAA’s College Royal booth in the University Centre to pick up your alumni card and share your memories for a chance to win U of G memorabilia.

ALUMNI WEEKEND • Return to campus to celebrate with friends and classmates June 18 and 19. If your class is planning a reunion, contact Helen McCairley at hmcairl@uoguelph.ca. For more information about Alumni Weekend events, visit www.alumni.uoguelph.ca.

COMING EVENTS

Winter 2010 • Career nights at U of G. For information on volunteering to talk with students go to www.alumni.uoguelph.ca.

Feb. 5 • Alumni tour of Echo Global Farm in North Fort Myers, Fla. The tour is $5, lunch $9. To reserve your place, email wilea@comcast.net.

March 5 • Alumni reunion at Maple Leaf Golf and Country Club, Port Charlotte, Fla., 10 a.m. to 2 p.m., $20 per person for buffet lunch. Register with Lyle Rea at wilea@comcast.net.

March 5 to 7 • 2010 Kin Games. The Human Kinetics Student Association will host 400 kinesiology students from across Canada. Spectators welcome. To volunteer, email guelph2010@kingames.ca.

March 9 • Café Philosophique with history professor Susan Nance on “Can Rodeo Sports Survive the 21st Century?” The lecture is free, 7 p.m. at the Bookshelf in downtown Guelph.

March 10 • Shenkman Lecture with Iwona Blazwick of the Whitechapel Art Gallery in London, England, free, 5 p.m., War Memorial Hall.

March 26 and 27 • Annual OAC Curling Bonspiel. Register in February with Katie (Gillespie) Cooper at kgillej01@uoguelph.ca.

April 13 • Café Philosophique with literature professor Stephanie Nutting on “Sleuthing for the Truth: The Detective Genre and Quebec Identity.” The lecture is free, 7 p.m. at the Bookshelf.

May 6 • OAC Alumni Foundation 50th anniversary celebration. For details, contact Katie (Gillespie) Cooper at kgillej01@uoguelph.ca.

May 15 • Gourmet Reunion for the Mac-FACS-FRAN Alumni Association in Stratford, Ont. For details, go to www.csahs.uoguelph.ca/alumni/associations.
Teaching today’s technology

For many of us, the smell of freshly sharpened pencils and the sight of chalk dust in the air are reminders of our school days.

For Tracy Muller’s Grade 3 class at Sir Isaac Brock Public School in Guelph, memories of their school days — or at least their third-grade year — will be filled with images of keyboards, streaming video, electronic ink and touch screens.

Muller, BA ’88, is one of only a few teachers in the Upper Grand District School Board — or any Canadian school board for that matter — who use Web 2.0 technology in the classroom almost every day.

The eight- and nine-year-olds in her class are already well-versed in using computers, navigating the Internet, blogging, photo sharing and creating slideshows. They also use an interactive SMART Board and SKYPE.

There’s no question that her students are learning in an environment their parents and grandparents could never have imagined.

“These tools are exciting and visually engaging and provide a different avenue for learning,” says Muller. “They help me to engage students who are sometimes difficult to reach and enrich those who are waiting and ready.”

As a child, she was a less-than-confident student who struggled when it came to learning. Muller says it wasn’t until Grade 6 that she could pick up a chapter book, understand the story and enjoy reading.

“If you had asked my grade-school teachers what they saw me doing in the future, they’d never have said teaching.”

She credits two teachers — an elementary school teacher who encouraged her to read and a high school teacher who chose her to write class notes on the blackboard — with helping her become more self-assured.

Muller, who was born and raised in Guelph, was introduced to the world of teaching with technology six years ago after connecting with a New Hampshire teacher in a chat room for kindergarten teachers. “That’s when I realized the incredible potential for learning, sharing and connecting with other kids all over the world.”

At Sir Isaac Brock, she is the school’s tech coach and is slowly starting to draw others into the fold. “People tend to be a bit scared by it,” she says. “It may look difficult, but it’s really not.”

Muller notes that there are lots of online resources available for teachers as well as a small vibrant community of like-minded educators. Her class connects with a class in a Connecticut school. Muller and the U.S. teacher bring the kids together through meet-ups using SKYPE and through collaborative writing projects using blogging, wikis and Google Docs.

She says teaching with technology helps bridge the gap between the curriculum and children who struggle.

“Some kids would much rather try to type a sentence on a keyboard than write it with pencil and paper, so it gives them a different motivation. There’s something about technology and kids. If you can present it in a format they like, they’ll be able to navigate it really well.”

By Rebecca Kendall
Memories

news

Telling the truth through fiction

Liberia isn’t the same place McAnthony Keah, BA ’01 and M.Sc. ’03, knew as a child. “It was peaceful and it attracted Africans from all over the continent and had strong ties with America,” he says.

Since then, the African nation has witnessed brutality that people in most countries will never know. And although the civil conflict has ended, its scars still run deep in the minds of some of Liberia’s most vulnerable inhabitants — those who served as child soldiers in a war that lasted more than a decade.

Their lives are the basis for Growing Up Naked: The Untold Stories of Children at War, a fictional account of their experiences written by Keah, who studied international development at Guelph.

“Kids were lured to rebel groups for a sense of community or the offer of food and security,” he says. “Some were bent on revenge and a need to protect themselves. Often they were told to fight to honour their loved ones who had been killed by enemy forces.”

Keah did the research for the book when he was in Liberia working on his master’s thesis. Although he hasn’t been back since then, he says: “There are still a lot of challenges, but there is change.”

Now living in Toronto, Keah has worked with the Red Cross as part of its humanitarian issues program and has made a number of presentations on the plight of child soldiers.

He has also worked in South Africa as a legislative researcher with the Canadian Young Professionals Program and volunteered with the United Nations in the Marshall Islands, where he worked on projects related to the strengthening of the island’s parliamentary process.

1950s

Albert “Bud” Ings, DVM ’52, was celebrated in 2009 for both his autobiography Mud, Sweat and Tears and his election to the Atlantic Agriculture Hall of Fame. Born and raised in Prince Edward Island, he returned to practise veterinary medicine in Souris and Montague. He was elected to the provincial legislature in 1970 and served as a cabinet minister from 1974 to 1980. He then returned to veterinary medicine and served on the committee that brought the Atlantic Veterinary College to P.E.I. Ings and his wife, Connie, raised three daughters.

1960s

Andrew Fletch, DVM ’65 and M.Sc. ’68, and Sheilah Fletch, DVM ’66 and M.Sc. ’70, don’t seem to know what the word “retired” means. She retired from veterinary clinical pathology in 1983 to enter the seminary and retired again last summer after seven years of ordained rural parish ministry. He recently retired from McMaster University, where he was a specialist in laboratory research animal medicine and animal regulatory administration. This summer, they spent time in Oyarifa, Ghana, working with orphans at the Agape Children’s Home.

Maurice Marwood, BSA ’64 and MSA ’66, of Windsor, Ont., has published a book...
She’s living and loving life

Have you ever dreamed of leaving your nine-to-five job in search of adventure? That’s exactly what Kristin (McInnes) Cowles, B.Comm. ’05, did when she left her job in the advertising industry to start her own business and see the world.

The young entrepreneur merged her love of travel and computers to create www.thecircumference.org, a website that shares the unique life experiences of travellers exploring the furthest regions of the world. She launched the business with her husband, Paul, in 2008.

“The Circumference pays homage to the many wonders this world has to offer,” says Kristin Cowles. “We try to highlight the growth and knowledge that come from immersing yourself in the unfamiliar. By focusing on the inspirational, gratifying and enriching aspects of experiential travel, we aim to remind readers of the true value that can be found in exploring the world.”

Cowles employs a roster of 50 freelancers who write travel pieces that are posted on the website. Revenue comes from affiliate advertising and sponsorship. This winter, she’ll be spending time in India, the Philippines, Laos, Vietnam and Palau. Some of her overall favourite destinations include Cambodia’s Tonle Sap, Indonesia’s Gili Islands and Alberta’s National Park.

“Meaningful travel doesn’t have to be in another country or even another province,” says the Alberta-based writer. “We have lots of great things here in our own backyard, including the celestial Rocky Mountains and the Columbia Icefield.”

called Professional Nomad that tells the story of his life as an international business executive. During his 40-year career, he worked in more than 85 countries. The book blends his memories of on-the-job experiences with recollections of personal adventures and reflections on the various cultures he visited.

**1970s**

- **Jim Fraser,** B.Comm. ’78, teaches hospitality and tourism at Innisdale Secondary School in Barrie, Ont. He’s been teaching for 15 years after spending 17 years in business. He says he hopes to pay a visit to U of G “and walk around the buildings that have so many great memories.”

- **Harold Gonyou,** B.Sc.(Agr.) ’74, is research director and research scientist in ethology at the Prairie Swine Centre in Saskatoon. Last summer, he received an award from the Canadian Society of Animal Science for technical innovation in enhancing the production of safe and affordable food, recognizing his research, teaching and leadership roles in the field of animal behaviour. He has worked at the Prairie Swine Centre for 17 years and is responsible for developments in pig feeders, group housing and handling facilities.

- **Roger Gordon,** ADA ’73A, has developed a new technology to produce green fuel from anhydrous ammonia. He says the system generated widespread interest at a recent conference on alternative fuels in Missouri. “Many people who have given up on hydrogen and biofuels or batteries are happy to see a safe, clean alternative,” he says. To learn more, visit www.GreenNH3.com.

- **Virginia (May) Hair,** BA ’74, retired in June after 22 years of teaching dramatic arts with the Hastings/Prince Edward Board of Education. She hopes to pursue a new career in promoting the arts and professional storytelling.

- **Neal Hedges,** M.Sc. ’75, retired in 2008 from the U.S. Bureau of Land Management after a 32-year career in wildlife and range management. He is now stewardship co-ordinator with a non-profit land trust in Wenatchee, Wash.

- **Vickie and Steve Lawson,** both B.Sc. ’79, live in Kaukapakapa, New Zealand. She’s a secondary school teacher at Waitakere College; he’s business manager at Grace Davison Discovery Sciences. They also breed Hanoverian horses and show in dressage. They have three children — Philip, 24; Charlotte, 21; and Genevieve, 17 — and invite old friends to get in touch at vickiemlawson@paradise.net.nz.

- **Rev. Norman Long,** B.Sc.(Agr.) ’79, was ordained by the United Church of Canada in May 2009 and serves an Ontario charge in Frankford/Batawa. He and his wife, Jane, have two children: Nicole, 16, and Jeremy, 13.

- **Susan Merrick,** BA ’72, writes that she’s finally made it to the job she’s always wanted. After teaching high school French and drama for 10 years, she is now a full-time librarian at ACS Egham International School in Surrey, England. “My heart always belonged in the library,” she says. “In fact, I started my library career as a ‘page’ at the U of G Library.”

- **Leslie Newman,** B.Sc. ’79 and M.Sc. ’82, is a nature photographer specializing in marine life and scientist in Queensland, Australia. A research associate at Southern Cross University, she says: “What goes around comes around.” After leaving academia to pursue nature photography, she’s back in academic research. She has studied zooplankton, free-living marine flatworms and now global warming. “The plankton research I did with zoology professor Susan Corey (now retired) has paid off big time. My research animals more or less prove global warming.”
To learn more about her research, search for Leslie Newman on www.pbs.org.

- **David Schmidt**, ADA ’77, recently received a PhD in Middle Eastern history from the University of the Holy Land/Hebrew University in Jerusalem. He is affiliated with Across Borders for World Evangelism — Canada.

- **Barry Sharpe**, BA ’73 and MA ’75, retired in February 2009 after nearly 35 years as a teacher and academic administrator at Niagara College of Applied Arts and Technology. He started teaching economics there in 1974 and retired as associate vice-president (academic).

- **David Truman**, B.Sc. ’72, owns and operates Brookwood Tax Services and Nerd2 Consulting Inc. in Langley, B.C. He is also president of the Langley Federal Liberal Association and president-elect of the Rotary Club of Langley.

**1980s**

- **John Anderson**, B.Comm. ’85, is lodge owner and guide at the Ottawa River Musky Factory. “Just like Michael Hay-wood told us in the first class I ever attended at Guelph, most people have at least three distinct careers in hospitality,” says Anderson. “I did 14 years of running everything in a restaurant, followed by a second education and six years in high-tech with IBM and others. Then I finally got it figured out. Now I take Americans fishing, barbecue steaks and sample scotch for a living. Life is good.” Check out his website at www.ottawariver-muskyfactory.com.

- **Karen Catt**, B.Sc.(Agr.) ’89 and DVM ’93, owns two veterinary clinics near New Liskeard, Ont., and shows Ibizan hounds under the Icy Cold Kennel name. Her dog Sailor — IcyCold Firstmate — has won multiple show championships and field championships and is the No. 1 Ibizan hound in lure coursing in Canada and the United States.

- **Vicki Dickson**, B.Sc. ’80, operates a consulting company called VelocityWorks in Aberfoyle, Ont. She has more than 20 years of management experience, with a particular focus on the pharmaceutical sector, as well as an advanced degree in human resources management. For more information, visit www.velocityworks.ca.

- **Leslie Drysdale**, BA ’85, won an Ontario-wide art competition to design a sculpture for Waterloo Regional Police Service headquarters that depicts its motto, “People Helping People.” Unveiled last summer, his sculpture *Child Found* depicts the moment of discovery when an officer responds to the cries of a child stuck on a ledge of the Grand River.

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**U of G grads are global heroes**

Three U of G graduates are among the 14 people recently recognized by the online travel magazine Verge as “global heroes.” Teresa Mellish, M.Sc. ’98; David Peck, MA ’06; and Victoria Sheppard, B.Sc. ’02, are the Guelph trio who are “doing their part to make a difference in the developing world.”

Mellish is a Prince Edward Island farmer who is also helping farmers in Kenya and Tanzania through a P.E.I.-based organization called Farmers Helping Farmers (FHF). She’s been the co-ordinator and treasurer of FHF since it began in 1979. Its 100 P.E.I. members helped launch a dairy co-op in Wakulima, Kenya, that has grown to 6,000 members. FHF provided cooling tanks for milk and training on how to keep cows healthy.

“As a result of that dairy, $10,000 a day is coming into that community from milk,” says Mellish. “We haven’t done it — they’ve done it for themselves — but we’ve been able to help them do that.”

www.farmershelpingfarmers.ca

Peck lives in Oakville, Ont., and is a teacher, a poet and the founder of a social justice organization called SoChange. Each show features performances by a comedian, a magician and a speaker from SoChange, who educates the audience about malaria.

The show works slight-of-hand with the Spread the Net campaign launched by comedian Rick Mercer and philanthropist Belinda Stronach. Peck signed on because he sees the potential for his shows to instil passion and plant seeds of change in Canadian students.

www.sochangenow.com

Sheppard is a policy analyst at Fisheries and Oceans Canada in Ottawa, but her story begins when she was completing an internship at the United Nations Environment Program in Nairobi, Kenya. She volunteered at a primary school in the nearby Mathare Valley slum. Before leaving Africa, she committed to providing scholarships so some of those students could go on to attend secondary school.

Sheppard established the Canada Mathare Education Trust, which is now paying for 37 children from Mathare to attend secondary schools outside Nairobi. The scholarships provide tuition, room and board, transportation, books, school supplies, uniforms and the potential for a future outside the Mathare slum. www.cmstrust.org
The Portico

Rosemary Fiss, B.A.Sc. ’88, is a dementia education adviser with the Alzheimer Society of Windsor and Essex County, Ont. She graduated from OISE/University of Toronto with a master’s degree in adult education in June 2009.

Becky (Robertson) Hazelton, BA ’89, is a civil aviation safety officer with Transport Canada in Toronto. In July, she and her husband welcomed their second child, David Connor, a brother for two-year-old Lauren Chloe Grace.

Zuzia “Susan” Kozera, BLA ’80, moved back to Canada in the fall after living and working in Europe for 28 years. She has opened a small landscape design office in Gravenhurst, Ont., and can be reached at z.kozera@gmx.net.

Michele (McConney) Lambertti, BA ’84, wrote to say she was thrilled to see the article about OAC ’49 in the Fall 2009 Portico. “The picture you used is the same one I carry in my wallet of my father, Allan McConney (he’s resting his foot on the car). I also recognized Andy McConvey, Bill Dies and Walter Packman. After serving in the Navy during the war, my father loved his time at U of G, as did two of my uncles, nine cousins and I. Keep up the good work.”

Mike Mooz, BA ’81, is a commander in the Canadian Navy and is currently completing the six-month senior course at the NATO Defence College in Rome, Italy.

Paul Nodwell, BLA ’86, is a Toronto-based landscape architect and owner of PD3 Planning and Design Solutions. He is also an artist and had an exhibition in October at Toronto’s Gallery 888. “From Canoe to Canvas” featured a number of landscapes and scenes “discovered from the back of a canoe.”

George Plumley, BA ’86, is a web developer and presentation coach living in Lantzville, B.C. He published a book in November that is a how-to for beginners using the blurring software WordPress. He says BraveNewNiche will teach you how to build a website using the open-source program; it includes a DVD with tutorials. For information, visit www.wrox.com.

Cindy (Trimble) and Jim Rusak, both B.Sc. ’84, recently moved to Bracebridge, Ont., after spending seven years in Wisconsin. Both worked at the University of Wisconsin-Madison: he as a research scientist and she as a biologist. Back in Canada, Jim, who holds graduate degrees from Lakehead and York universities, works for the Ministry of the Environment in Dorset. The couple has twin sons, Aaron and Matthew (a first-year student at U of G), and a daughter, Mary. The Rusaks can be reached at crusak@gmail.com.

Peter Ryan, M.Sc. ’84 and PhD ’89, joined the faculty of Mississippi State University in 1999 and is an associate professor in the College of Veterinary Medicine. He is also associate vice-president intern for academic affairs in the Office of the Provost.

Pat Tracey, ADA ’83 and BA ’87, is the only Gryphon who got to celebrate the 25th anniversary of Guelph’s 1984 Vanier Cup win by hoisting the cup a second time. The former Gryphon player and coach is now defensive co-ordinator for the Queen’s University Gaels, who beat out the University of Calgary to win the 2009 Des-
jardins Vanier Cup. The photo is from the Gaels’s 2009 Yates Cup win over Western.

Douglas Woodliffe, BA ’86, spent 17 years in the construction service industry, then went back to school to earn a certificate in land-use planning from the University of Alberta. He is now manager of development for Brazeau County. He and his wife live in the country with dogs, chickens, cats and rabbits. He would like to organize a 25-year reunion for the 1986 geography class and invites interested classmates to contact him at mmatches1@gmail.com.

1990s

Richard Brooks, B.Sc.(Env.) ’98, is the forest campaign co-ordinator for Greenpeace Canada. He directs the national forest campaign with staff in Vancouver, Toronto and Montreal. After graduating from Guelph, he received a master’s degree in forest conservation before starting to work with environmental non-profits.

Danielle Charbonneau, B.Sc.(H.K.) ’99, is a physician living in Burlington, Ont. She and Richard Sowery are the proud parents of a daughter, Sophie Irène, born Oct. 22, 2008.

Mary Jill (McClure) Culliton, B.A.Sc. ’90, earned a B.Ed. at Brock University in 1991 and an M.Ed. at the University of Western Ontario in 1998. She and her husband, Tim, started a fundraising drive in the fall to benefit the children’s hospital at London Health Sciences Centre in London, Ont. Their youngest son, Crosby, has been treated there since being diagnosed with leukemia in 2006. For more information, visit www.crosbyschallenge.ca.

William Fehrenbach, BA ’93 and MA ’95, met his future wife, Karin Worth, BA ’92, when he transferred from undergraduate science to history. He went on to law school at the University of Ottawa, and she earned a diploma in early childhood education at Conestoga College. After William was called to the bar in 2002, they moved to his hometown of Kitchener, Ont., where he set up a sole practice. Karin accepted a position as assistant director of a child-care facility in Waterloo. They now have two children: Olivia, born in June 2006; and Colman, born in September 2008. William says Guelph holds a special place in their hearts, not just because of their student days but also because he was adopted at birth and has obtained information suggesting that his biological parents were U of G students when he was born at the Guelph General Hospital April 1, 1969. “Anyone who wishes to catch up or has information about my adoption is invited to contact me at wflaw@bellnet.ca or Karin at kfehrenbach@rogers.com.”

David Gadzala, B.Comm. ’91, reports that he sold the Hillcrest and North American Motels in Toronto in February 2008 after 59 years and three generations of
operation. In its later years, the '60s-style Hillcrest Motel was used in about 100 films, commercials and TV programs.

Anna Millar, B.Sc. '97, and her husband, Marc, relocated from the United Kingdom to Hong Kong last year. She is completing an MBA program at the Hong Kong University of Science and Technology and gave birth to a daughter, Emilie, in August. She plans to return to her business career in the pharmaceutical industry later this year.

Fiona (Morrison) Murdoch, BA '92, has been teaching in Bermuda since 1996 and is head of art at Saltus Grammar School. She is married and has two children aged seven and 14, and would love to hear from old friends at fnmurdoch@transact.bm.

Connie Powers, BA '92, spent five years teaching in the Middle East but is now back in Ontario teaching ESL for the Windsor-Essex Catholic District School Board.

Steven Rowland, B.Sc. '90, is working at Novartis in the Boston area. Previously, he was with Merck in Montreal.

Andrea Stenberg, BA '92, has a blog called “The Baby Boomer Entrepreneur” that she started from her Owen Sound, Ont., home in 2007. It features a wide range of marketing strategies, expert interviews and profiles of successful entrepreneurs, as well as a new focus on the use of social networking sites such as Facebook, LinkedIn and Twitter.

To read more, visit www.TheBabyBoomerEntrepreneur.com.

Gary Stickles, B.Com. '93, and Natalie Thomson-Stickles, BA '93, met in the Brass Taps in 1991 and say they’ve been happily together ever since. They live in Fonthill, Ont., and have two children: Matthew, 11, and Gillian, 7. Gary is an accountant for White Oaks Conference Resort and Spa in Niagara-on-the-Lake, and Natalie is the art director and photographer for REV Publishing (Niagara Today Magazine) in Niagara Falls. They enjoyed “a long-awaited and well-deserved trip to the South Pacific” with family in the fall.

Judy Wearing, B.Sc. '91, recently published a popular science book that looks at the history of invention from the point of view of failure. Edison’s Concrete Piano: Flying Tanks, Six-Nipped Sheep, Walk-on-Water Shoes and 12 Other Flops From Great Inventors seeks to understand the personalities and the genius of famous inventors, as well as the forces that drive innovation in society. To find out more, visit www.edisonsconcretepiano.co.

Susan Yates, B.Sc. '97, M.Sc. '00 and PhD '05, and her husband, Matthew Davidson, welcomed twin daughters, Beatrix Callie and Mary Josephine, June 18. They live in Kingston, Ont., where Susan is taking a break from her Canadian Institutes of Health Research post-doctoral fellowship in the biochemistry department at Queen’s University.

2000s

Craig Buttar, B.Com. '03, is a sales associate for agricultural and construction equipment at Bob Mark New Holland in Lindsay, Ont.

Jayne Cardno, M.Sc. '00, received her PhD last year from the University of Brighton in England and is a researcher with the Applied Social Research in Health Informatics group in the Department of Family Medicine at the University of Alberta.

Stephanie Castel, B.Sc. '09, has been accepted into the PhD program at the Cold Spring Harbor Laboratory in New York. A student in the Watson School of Biological Sciences, she received a graduate scholarship from the Natural Sciences and Engineering Research Council of Canada.

Amanda Clement, BA '04, married Paul Ottolino Aug. 22, 2009, in Niagara Falls, Ont. She is a secondary school teacher in Hamilton.

Joanne Ferguson, B.Sc. (Eng.) '02, lives in Dubai, where she works on water and environmental projects for engineering consultancies in the Gulf region. She says: “There’s been a flurry of activity in Dubai in the last few years, and it’s been amazing to be involved.”

Hainsley Guthrie, BA '03, and Andrew Oosterhuis, B.Com. '06, appeared on the Outdoor Life Network TV show Mantracker last summer. On the show, teams of two try to evade professional tracker Terry Grant. Their episode was shot in the northern Ontario wilderness near Elliot Lake. Both men are former Gryphon football players. Oosterhuis was an Academic All-Canadian and Ontario University Athletics All-Star and is now a national account manager for Gatorade. Guthrie, a key account sales representative with Labatt, also played basketball and has taught snorkelling. To find out if they managed to escape the tracker, visit www.mantracker.ca.

Patrick Hebden, BA '08, graduated last summer from the acting program at Old Vic Theatre School in Bristol, England. The course culminated in a production of Vanity Fair, in which he played the role of Joseph Sedley. Now he’s back in Canada to pursue his career.

Janneke Jorgensen, B.Sc. '04, earned a master’s degree in public health nutrition from the London School of Hygiene and Tropical Medicine in England. She recently joined the World Bank, where she will work for the next two years as a nutrition specialist in Dar es Salaam, Tanzania. She previously worked in Zambia and Malawi and is now on sabbatical from her job as a lecturer in international nutrition issues at Metropol University College in Copenhagen, Denmark.

Alexander Kong, B.Com. '05, has been resident manager at Coyaba Beach Resort and Club in Jamaica for the past year and a half. He says he left Canada after graduation and has been living in sun ever since.

Irene Laskowski, MBA '02, is a dietician with the Department of National Defence in Ottawa, returning to Ontario after a two-year posting in Halifax.

Benjamin Lefebvre, MA '02, is a Leverhulme Visiting Fellow at the University of Worcester in England, where he is studying cultural industries for young people in Canada, the United States and Britain. He is also a visiting scholar at the L.M. Montgomery Institute at the University of Prince Edward Island. He completed a PhD in English at McMaster University and did post-doctoral research at the University of Alberta. While researching Montgomery in the U of G library archives, he discovered the original manuscript to the last book Montgomery wrote, The Blythe’s Are Quoted. It was published in 2009 with Lefebvre as editor.
Matt Minty, BA ’05, was raised and still lives in Kincardine, Ont. He is engaged to be married, works in public relations and recently published his first children’s book. A second book in what he calls his “Imagination series” is currently underway. Find out more at www.theimagination.ca.

Denae Peters, B.Comm. ’08, is an event planner at the Drake Hotel Toronto and is a new member of the Network for Executive Women in Hospitality. She has also obtained several certifications in the food and beverage industry. “I am so happy that I have found an industry I am truly passionate about,” she says.

Shawn Sosnowski, B.Sc. ’00 and BA ’03, and his wife, Amanda “Mandi,” B.Sc. ’00, were married in September 2008. “Oddly enough, we didn’t meet at Guelph,” says Shawn, who teaches vocal music in Scarborough, Ont., and has a children’s book coming out soon titled Be A Nice To Be Mean. Mandi is a science teacher.

Catherine St Amand, BA ’04, earned her teaching degree in New Zealand and teaches primary school there in Christchurch. “I just love this country and education system,” she says. “I became an aunt in 2008, so being away from home is harder now, and I expect to move back at some point.”

Matthew Steele, BA ’02, works with Avison Young Commercial Real Estate (Ontario) Inc. in Toronto.

Kim Wingrove, MA ’08, is the new CAO of Collingwood, Ont. She was previously director of regional economic development programming for the Ministry of Economic Development and Trade. She has also held senior positions with the Ministry of Agriculture, Food and Rural Affairs and the Ministry of Municipal Affairs and Housing, including serving as director of communities in transition and director of rural programs.

Julia Woodhall, BA ’07 and MA ’09, is enrolled in a PhD program in sociology at the University of Waterloo.

PASSAGES

George Atkins, BSA ’39 and H.D.La. ’89, Nov. 30, 2009
Susan Best, DVM ’79 and D.V.Sc. ’89, Sept. 18, 2009
James Bodendistel, DVM ’58, Sept. 6, 2009
Robert Boisclair, DVM ’52, Aug. 9, 2009
Noreen (Stone) Broadwell, DHE ’54, Aug. 31, 2009
Walter Brown, BSA ’40, Sept. 2, 2009
John Bryden, BSA ’50, Sept. 16, 2009
Velma (Curtis) Burd, DHE ’35, Aug. 10, 2009
Thomas Carter, BSA ’49, Aug. 4, 2009
H. Kan Chen, DVM ’47, Sept. 29, 2009
Leonard Cook, DVM ’50, Sept. 12, 2009
James Crozier, B.Sc. ’67 and M.Sc. ’70, Aug. 18, 2009
Alan Davenport, H.D.Sc. ’93, July 19, 2009
Ralph Davison, BSA ’51, May 6, 2009
Murray Dudgeon, DVM ’48, Oct. 17, 2009
Edith (Sinclair) Duggan, DHE ’36, May 30, 2009
Robert Durham, BSA ’51, Aug. 15, 2009
Jackson Gardner, B.Sc. ’76, March 25, 2009
Tanya (DiTommaso) Grah, PhD ’99, August 2009
Raymond Grindlay, ADA ’67, June 23, 2009
Joseph Habowski, MSA ’58, July 12, 2009
Charles Hardy, DVM ’51, Jan. 9, 2009
Phyllis (Dunn) Hardy, DVM ’52, June 25, 2009
Nathan Healey, ADA ’01, Nov. 7, 2009
John L. Henry, DVM ’61, Sept. 19, 2009
Elizabeth Hewson, DHE ’39, March 27, 2008
Donald Irvine, BSA ’42, Aug. 17, 2009
Trevor Lloyd Jones, DVM ’34 and Fell. ’79, Nov. 25, 2009
E.C. “Sam” Lougheed, BSA ’58 and MSA ’60, Aug. 14, 2009
Elizabeth (Bogardus) Kociuk, DHE ’38, Aug. 24, 2009
James Lott, DVM ’64, Oct. 13, 2009
Beverly (Shaver) MacKenzie, DHE ’32, April 1, 2008
Cynthia MacLennan, B.H.Sc. ’56, Sept. 24, 2009
Thomas Markham, BSA ’51, March 30, 2009
Winnifred Mason, DHE ’38, Dec. 20, 2008
Phillip McCarthy, B.Sc. ’72 and DVM ’77, Nov. 29, 2009
Osmond McCorkle, BSA ’60 and MSA ’62, Dec. 23, 2008
Marjorie (Guest) McKnight, DHE ’32, Feb. 20, 2009
Keith Mountjoy, DVM ’51, Sept. 10, 2009
Howard Nurse, DVM ’50, Sept. 25, 2009
Arnold Paulson, DVM ’49, Sept. 28, 2009
George Petro, BSA ’60, Sept. 17, 2009
Victor Prest, DVM ’42, Aug. 7, 2009
Robert Smallfield, BSA ’52, Nov. 12, 2009
Robert E. Smith, DVM ’56, Sept. 13, 2009
Stephen Stothers, BSA ’51, April 29, 2009
Matheson Tatham, B.Sc. ’80, Sept. 12, 2009
Marion (Holby) Thomson, DHE ’41, Oct. 3, 2009
Andreas Rolf von den Baumen, ADA ’51, Sept. 28, 2009
John Whitehead, DVM ’52, Aug. 26, 2009
Gordon Woodhouse, BSA ’58, Sept. 23, 2009
James Woodhouse, BSA ’56, Nov. 22, 2009

FRIENDS
Haydine Neale, Associate Alumnus, Nov. 22, 2009
Guenther Zemanek, Soccer Coach, Dec. 10, 2009
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