



of

**A NEW PRESIDENT**  
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UNIVERSITY OF TORONTO MAGAZINE

# A CLEANER FUTURE

Just how close are we?



SUMMER 2005 • VOL. 32 NO. 4  
PM40065699

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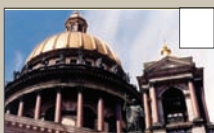


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D E T A C H



# Contents

SUMMER 2005

**18 CLEAN ENERGY**

Just how close are we?  
*by John Lorinc*

**26 SEEKING THE DIVINE**

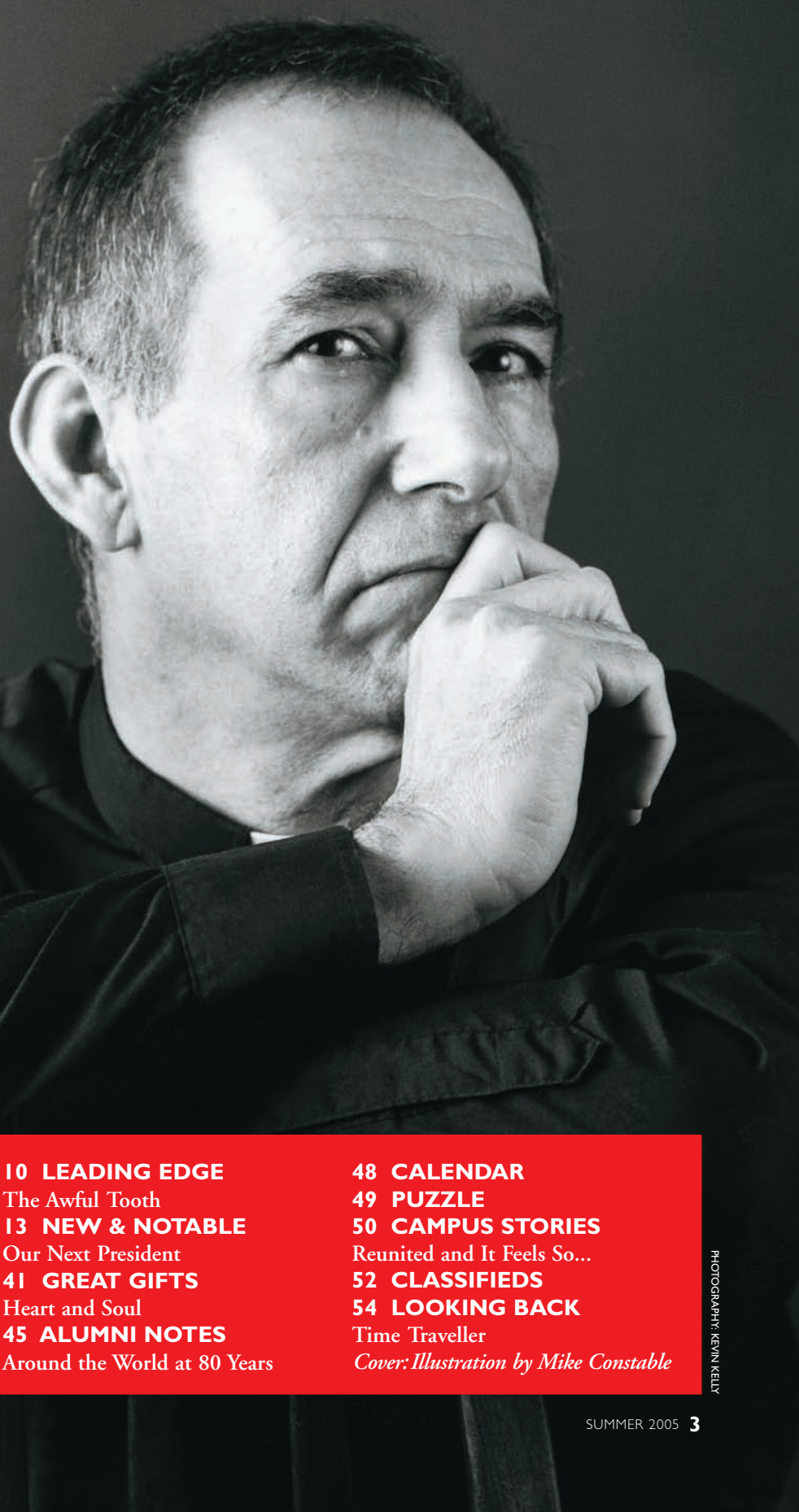
Toronto's poet laureate,  
Pier Giorgio Di Cicco, rediscovered  
prayer through poetry  
*by Stacey Gibson*

**32 MIRACLE AT SICK KIDS**

Zimbabwean twins Tinashe and  
Tinotenda Mufuka were born conjoined.  
A marvel of international co-operation  
brought them apart  
*by Krista Foss*

**38 LIVING ON VIDEO**

For visual studies professors Lisa Steele  
and Kim Tomczak, simply "making pretty  
things" doesn't cut it  
*by Kevin Temple*



## DEPARTMENTS

**4 EDITOR'S NOTE**

The Evolution of an Idea

**6 PRESIDENT'S MESSAGE**

Bright Prospects

**8 LETTERS**

Happiness Is . . .

**10 LEADING EDGE**

The Awful Tooth

**13 NEW & NOTABLE**

Our Next President

**41 GREAT GIFTS**

Heart and Soul

**45 ALUMNI NOTES**

Around the World at 80 Years

**48 CALENDAR**

**49 PUZZLE**

**50 CAMPUS STORIES**

Reunited and It Feels So...

**52 CLASSIFIEDS**

**54 LOOKING BACK**

Time Traveller

*Cover: Illustration by Mike Constable*

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**Editor's Note****The Evolution of an Idea**

## Reinventing the automobile

MANY CANADIANS ENJOY SPENDING THEIR SUMMER VACATION AT A COTTAGE, campground or in the countryside. A lot of us also spend more time than we like in traffic trying to get to and from these places. How discouraging, then, that the vehicles we use to escape into nature are potentially causing it so much damage.

Thankfully, that may not be the case for much longer.

Researchers at U of T, as well as graduates of the university working in the private sector (and many scientists around the world), are seeking to develop a commercially viable alternative to the 120-year-old internal combustion engine. Although hybrid cars that use both a regular gasoline-powered engine and an electric battery are already on the road, many believe that the hybrid is the forerunner to a new kind of non-polluting vehicle powered by hydrogen. As John Lorinc writes in this issue's cover feature, there are significant technical and cost problems that must be solved before hydrogen-powered cars can be successfully mass-produced. But many U of T researchers are confident these challenges will be met.

Zero-emissions vehicles powered by hydrogen are attractive from an environmental perspective, but are not the only alternative on the horizon. U of T chemist David Boocock has devised a way to convert waste animal fat into an energy-rich biodiesel fuel that, when burned, produces significantly less pollution than regular gasoline (see page 23). Professor Boocock took his concept to the University of Toronto Innovations Foundation, which helped him find investors and develop a commercially viable product. Biox, the company that was subsequently formed to produce the biodiesel fuel, has received more than \$35 million in financing. Its first refinery will open in Hamilton, Ont., this fall.

The office of the vice-president (research) and associate provost at U of T works with scientists at all three campuses and the affiliated hospitals to identify promising new technologies and take them to market. U of T's ultimate goal is to ensure that Canadians benefit in tangible ways from public investment in scientific research. Not every idea makes it to the marketplace, but the university boasts an excellent track record so far.

*U of T Magazine* contributors have a pretty good track record, too, winning three awards this year from the Canadian Council for the Advancement of Education (CCAE) and the U.S.-based Council for Advancement and Support of Education (CASE). Photographer Sandy Nicholson picked up gold from CCAE for his underwater photo of deep-sea explorer Dr. Joseph MacInnis in our Winter 2005 issue. Journalist and author Trevor Cole won silver for his article about business ethics ("Why Good People Do Bad Things") in the same issue. CASE awarded the silver medal for best cover to artist Anita Kunz, whose illustration of a man with a devil on one shoulder and an angel on the other graced the cover of our Winter 2005 issue. Congratulations to all, and thanks to our designers, Shelley Frayer and James Ireland at Ireland & Associates in Toronto, who guide us so well in matters of photography, illustration and design.

**SCOTT ANDERSON**



UNIVERSITY OF TORONTO

# We stand on the shoulders of those who came before us

After coming to Canada from Burundi in 2001, Natacha Nsabimana learned English, found a social network and a place to stay, and discovered her place at U of T. Having completed the Transitional Year Programme, she is entering her first year at U of T as a full-time arts student.

Thanks to the generosity of Annual Fund donors like Dr. David Ouchterlony (BPHE 1962, MD 1966), she has the resources she needs to pursue her dreams.

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# President's Message



## Bright Prospects

A new administration heralds the start of a new era for U of T

CONVOCATION MARKS A TIME BOTH OF ENDINGS AND NEW beginnings. For the thousands of students who will stride across King's College Circle into Convocation Hall this June, it is a time to take pride in recent accomplishments, reflect on one's strengths and anticipate a future full of promise.

We can reflect proudly, too, on what our university has accomplished over the past year, particularly in contributing to a very positive Rae Report and advocating its adoption by the Ontario government. The University of Toronto played a leading role in this important examination of the place of universities and colleges in our society. Credit for that must go to the many members of our community, including faculty, students, alumni, governors and donors who answered our call to make their voices heard in support of our university.

These are exciting and challenging times for universities in Ontario. As Bob Rae noted in his comprehensive report, with-

out a major reinvestment in the system, "we risk romancing mediocrity" and "from that embrace only decline will follow."

Depending largely on decisions made by the provincial government, the decade-long underfunding of Ontario's universities will either continue – further eroding our ability to be competitive within Canada and globally – or there will be a significant reinvestment that will help our universities compete with their Canadian and global peers. As I write this, we are hopeful that the provincial budget expected in May will begin this essential reinvestment.

I am particularly proud of a landmark decision made recently by the university that I know will position us well for the future. We have reached an agreement with the University of Toronto Faculty Association to end mandatory retirement for faculty and librarians. We are the first university in Ontario to take this step. Our new, flexible approach will enable professors and librarians to continue their important intellectual activities while remaining connected with the university. The agreement will strengthen U of T's ability to attract and retain senior scholars and thus reinforce our leadership in teaching and research.

One of the most important priorities in Stepping Up, the university's academic plan, is to enhance the student experience. This year, we embarked on an ambitious program to improve a wide range of services and activities for students on all three campuses. One exciting aspect of this plan is the proposal for a new Varsity Stadium, which will meet the academic needs of the university and go a long way to improve our facilities. Students who graduate this year will see remarkable improvements by the time they return for their fifth reunion in 2010.

What these past several months have shown me above all else is the remarkable resilience of U of T. Its greatness as an institution has been confirmed to me by its capacity to respond to a number of significant challenges, including the Rae Review, the search for a new president, ongoing financial pressures and a call to articulate the role of the university in society.

I end my time in this office with mixed emotions: sad, of course, to be leaving this extraordinary institution, but with a sense of excitement and confidence in our university's future. Before us are the prospects of a new deal for Ontario's universities and the start of a new era in U of T's history, under the skilled leadership of Dr. David Naylor, dean of the Faculty of Medicine. My confidence in Dr. Naylor's administration is underscored by the knowledge that we can count on the support of our alumni, whose talent and commitment will ensure an even greater place for U of T among the world's best public teaching and research universities.

Thank you to all for a most rewarding year.

*Sincerely,*

**FRANK IACOBUCCI**

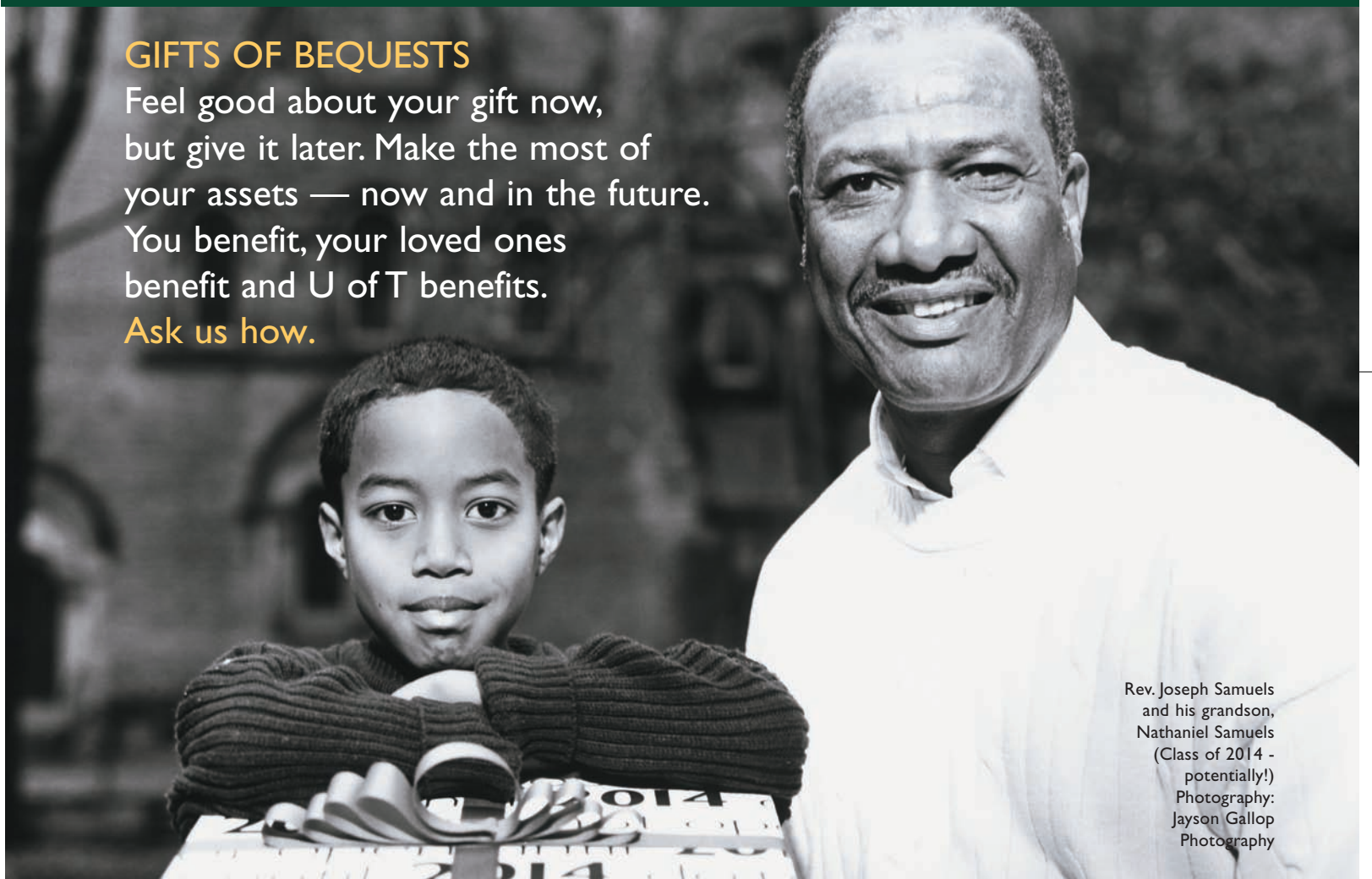
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## GIFTS OF BEQUESTS

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Rev. Joseph Samuels and his grandson, Nathaniel Samuels (Class of 2014 - potentially!)  
Photography: Jayson Gallop Photography

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# Letters

## Happiness Is ...

Feeling Good and Doing the Right Thing

### WESTERN ARROGANCE

I know that it is your responsibility to market U of T research, but the article "What Makes Us Happy?" (Spring 2005) went too far. Dr. Anderson's "surprising new answers" regarding the use of meditation as a path toward happiness would be no surprise to the millions of Buddhists who have been practising these techniques for the last 2,500 years. This is just another demonstration of the arrogance of Western scientists who believe that if they do not know about it, it is of no value or does not exist.

*Dr. Robert Lencki  
(BASc 1980)  
Guelph, Ont.*

I was shocked to see that you included a Cosmo-style "Rate Your Happiness" questionnaire at the end of Megan Easton's article "What Makes Us Happy?" Depression affects a growing number of people every year, and tests like this only exacerbate the problem.

*Anjali Mohan  
(BA 2004 UTSC)  
Hirosaki, Japan*



**Ed. note:** *It was not our intention to suggest that Dr. Anderson or other U of T researchers had "discovered" that meditation can make people happier, but to report on why meditation works. The questionnaire cited has been used by academic researchers around the world as a starting point for testing an individual's sense of their own happiness.*

In "Feeling Good vs. Doing Good", Megan Easton states that Aristotle believed happiness "could be achieved only through virtuous conduct and rigorous thought." Ms Easton seems to have interpreted this to mean that Aristotle advocated "doing good" rather

than "feeling good." This, however, does an injustice to one of the great ethical systems. Aristotle explicitly rejected the notion that one could be happy by being merely virtuous, citing the example of a person who is tortured for his whole life despite never having committed a crime. No one would reasonably call this person happy, despite his or her virtuousness. We do not have to wait until Locke to

discover a commonsensical and philosophically defensible notion of the best life, one that actually includes some of life's pleasures.

*Gregory Scott  
(PhD 1992)  
New York*

### ASKING FOR TROUBLE?

Regarding Trevor Cole's article "Why Good People Do Bad Things" (Winter 2005), as long as capitalism allows small numbers of wealthy, powerful people to control the main institutions of our economy, corporate greed and financial scandals are inevitable.

Socialist democracy, where working

### IS FOREIGN INVESTMENT ALWAYS GOOD?

Your report about the work of professors Walid Hejazi and A. E. Safarian in *Leading Edge* (Spring 2005) caused me some concern.

Professors Hejazi and Safarian appear to assume that foreign direct investment (FDI) is a homogeneous thing and that it is always good for Canada. While some studies point up the virtues of FDI, I have yet to see a serious effort by scholars to distinguish between foreign investment in new businesses in Canada and the foreign acquisition of existing Canadian businesses. The latter represent over 90 per cent of all foreign direct investment since the arrival of free trade. Why do economists assume that this is a benefit to Canada? Ever since we signed the first free trade agreement, Canada has lost head offices and all the economic activity that surrounds them. This was not the result of tariff reductions;

tariffs were already quite low before "free trade." We are losing head offices because we changed laws that required multinationals to locate here in order to do business here. Not only does the NAFTA guarantee U.S. companies the right to repatriate all of their profits, it commits Canada to give up the tools it previously used to make sure that foreign direct investment was a benefit to us. For example, requiring the foreign investor to hire staff locally is illegal under the NAFTA.

Simply assuming that foreign direct investment is good and should be encouraged leaves many pertinent questions unanswered. If economists are going to be helpful to policy makers, they must re-examine these anecdotal assumptions and confront the real issues.

*Paul Bigioni  
Markham, Ont.*



people and citizens democratically own, control and manage large sectors of an economy on a not-for-profit basis, would do far more to create good financial governance than any state regulation or “corporate responsibility” clauses written by management school professors.

When our economy is driven primarily by the profit motives of private corporations, we’re just asking for trouble.

*Sean Cain  
(BA 1998 UTM)  
Oakville, Ont.*

Trevor Cole asks whether we are living in an unethical era.

Dean Roger Martin could make the Joseph L. Rotman School of Management the best business school in the world by putting this question at the centre of the school’s mandate.

In November 2003 the Ontario Secu-

rities Commission launched an investigation into allegations of “market timing” irregularities in Canada’s mutual funds industry. Perhaps Professor Martin should invite Michael Lee-Chin, the CEO of AIC Ltd., a major mutual fund company, to join the Rotman faculty. They could jointly offer a course on the ethics of our era. Mr. Lee-Chin could discuss the real world of mutual fund investing and why his company, while acting legally, could nevertheless agree with an

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Ontario Securities Commission requirement to make restitution of \$59 million to clients of his firm.

Difficult issues, real people, real debate: really good business school.

*Walter Ross  
(BA 1964 TRIN)  
Toronto*

## STUDENT RELIEF

I realized, with a pleasant shock, that I recognized student Sujany Krishnalingam in the photo accompanying the item “Tsunami Relief Efforts” (New & Notable, Spring 2005). She was a student of mine at Danforth Collegiate and Technical Institute and I was pleased to see her doing a good deed without expectation of reward.

*Geoff Rytell  
(BEEd 1974)  
Toronto*

## REQUEST FOR MILITARY ARTIFACTS

**M**ilitary artifacts are requested for the Soldiers’ Tower Memorial Room Museum. Items of a non-weapons nature belonging to, associated with, or collected by UofT veteran men and women which would honour their memory can be donated. Canada Revenue Agency and university policy regarding gifts of this nature apply, and valuable items would be subject to professional evaluation in consideration of an income tax receipt.

Display space is very limited, and conformity with the existing collection will be a consideration. The Soldiers’ Tower artifact committee requests your understanding of the limitations of acceptance.

Please send a photo, no matter how amateur, and/or a description of your artifact and its significance to the memory of the university’s veterans. Note that collections already exist of service medals and some regimental pictures. Specific decorations and honours are especially of interest.

### Please reply to:

The Soldiers’ Tower Committee  
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UNIVERSITY of TORONTO



# Leading Edge



## Songs of Love and Haiti

**I**N 1936, renowned folk-music collector Alan Lomax (1915-2002) travelled to Haiti to record some of the country's diverse musical forms. He captured more than 1,500 performances, ranging from Boy Scout choirs to Vodou (voodoo) ceremonies. Now, this music – some of which is no longer performed in Haiti – will be made available through a 15-CD project headed by Professor Gage Averill, dean of the Faculty of Music and an ethnomusicologist.

Directors at the Alan Lomax Archives in New York have engaged Averill to select the music, oversee the digitizing process and write the academic liner notes. Rounder Records of Cambridge, Mass., will distribute the recordings. The project is expected to be completed in 2008.

"Lomax spent five months in Haiti," says Averill. "In one case, he asked a woman to sing into his microphone and she sang hundreds of songs. As well, he recorded Catholic liturgies, jazz performances, French troubadour songs, carnival bands and religious festivals."

ILLUSTRATIONS: PETER FERGUSON/THREE IN A BOX

## The Awful Tooth

**T**eenagers aren't known for being a smiley bunch, but they may have good reason for hiding their pearly whites. Nearly one in five Grade 8 students in Ontario shows evidence of damage to his or her front teeth, according to a new University of Toronto study.

The study is the first of dental injury in Ontario, says David Locker, a professor with the U of T Faculty of Dentistry. Similar studies have been done in other countries because tooth trauma has such a long-lasting effect on an individual's dental health. "Although a broken tooth can be treated, there's a likelihood you'll need to repeat that treatment every 10 years," says Locker. The cost of initial treatment can be quite high, depending on the injury, and the lifetime cost is estimated to be as much as \$250,000 for four teeth.

Locker and his research team examined a random sample of 14-year-olds in schools served by six Ontario public health departments. Almost one in five teens showed evidence of tooth damage; six per cent exhibited severe damage with teeth broken or knocked out. They also found that youths who had problems with cavities also tended to have tooth injuries.

The team's next task will be to determine the causes of the teen tooth trauma, including such potential culprits as hockey injuries and family violence, and where the injuries take place. "We want to determine how many of these injuries are preventable and how we can prevent them," says Locker.

## Rehabilitation for Stroke Victims

Stroke victims suffering from paralysis are regaining movement in their arms and hands thanks to an innovative treatment developed at U of T and the Toronto Rehabilitation Institute.

Researchers created an advanced neuroprosthesis that stimulates muscles with electrical pulses, mimicking the intricate movements along the hand and arm. While the neuroprosthesis is being used, the patient concentrates on the movement itself, which helps improve the voluntary reaching and grasping function that was impaired due to stroke. “Most therapies do not actively encourage the patient to think about what they’re doing, so there is no connection to the brain to do it,” says Professor Milos Popovic of U of T’s Institute of Biomaterials and Biomedical Engineering and the Toronto Rehabilitation Institute, and lead author of the study outlined in *Neuromodulation*.

Popovic and his colleagues performed a clinical trial on stroke patients who had lost hand and arm movement. The control group received standard physiotherapy and occupational therapy, while the treatment group used the neuroprosthesis in addition to the standard therapy. “In the treatment group, we showed that after 16 weeks, we can restore some of their reaching and grasping functions,” says Popovic.



**Professor Milos Popovic helps a patient regain arm movement**

## Emotional Welfare

Ontario’s income assistance program is deliberately designed to deny eligibility to welfare, not to provide access, say University of Toronto researchers.

“If you make the system complicated enough, you just drive people away,” says Ernie Lightman, a professor in U of T’s Faculty of Social Work and co-author of a paper published in *Social Policy & Administration*.

“Dehumanizing” changes came about during the Harris years, with a workfare program emphasizing compulsion to work rather than voluntarism, and sanctions rather than incentives, according to authors Lightman, Dean Herd, a post-doctoral fellow, and Andrew Mitchell, a research associate, at the Faculty of Social Work.

The researchers outlined the administrative practices that became barriers to establishing welfare eligibility, including a two-step application process that demanded a large amount of documentation. A standardized first interview that took place by phone further depersonalized the process, removed the opportunity for judgments based on individual circum-

stances and proved disadvantageous for those who do not speak English well, says Lightman.

Documenting this shift in approach is an important first step in encouraging the current government, which has begun to revise the system, says Lightman. “The state has the right to ensure that people seeking benefits are entitled to get them, but there are ways to ensure eligibility while respecting people’s humanity.”

PHOTOGRAPHY: MARK RIDOUT/TORONTO/REHAB

## Learning Lessons from 9/11

When it comes to learning lessons from the Sept. 11 terrorist attacks and the war on terror, Canada still has a long way to go, says a University of Toronto security intelligence expert.

In his paper, “Learning Lessons (and How) in the War on Terror,” Professor Wesley Wark of U of T’s Munk Centre for International Studies argues that – despite the federal government’s effort to safeguard Canada from terrorist threats by implementing legal measures such as Bill C-36 and beefing up military spending –

the government still has not convinced the public that their safety is at risk. “At the end of the day, you can have all the government initiatives you like, but if you don’t have public support, you’re going to have a failed policy with possibly serious consequences,” says Wark, whose paper was published in the *International Journal*.

Wark says the government’s response to the 9/11 attacks was appropriate but now it needs to have a long-term strategy to combat terrorism. He also calls for more transparency and accountability within security agencies.

# LeadingEdge

## Tommy, Can You Hear Me?

**E**arplugs should be given out at rock concerts and sound levels reduced to minimize the risk of hearing loss for concert attendees, a new U of T study recommends.

The study, published in *Canadian Journal of Public Health*, looked at whether concertgoers perceive a risk of hearing damage from the loud music at concerts and whether they use hearing protection at these venues. The study revealed that although 74 per cent of attendees thought it was likely or very likely that noise levels at music concerts could damage their hearing, 80 per cent said they never wore hearing protection at such events.

“Over 40 per cent of respondents said they would be willing to use hearing protection if it was provided at the concerts,” says U of T medical student Isaac Bogoch, who initiated the research with Dr. Ron House, a professor of public health sciences and medicine at U of T.

To identify attendees’ views, the research team distributed questionnaires at four rock concerts in Toronto; the 204 questionnaires that were completed represented a 75 per cent response rate. Bogoch, who is now in his final year of medical studies, notes the study’s recommendations allow concert attendees to have a great time while protecting their hearing.



## Give Us a Tax Break

**A** U of T professor is urging Ottawa to change Canadian tax law to encourage greater business productivity.

A working paper released in late March by Ontario's Institute for Competitiveness and Prosperity proposes, among other measures, eliminating corporate income tax altogether as a way of spurring Canadian businesses to invest more in machinery, equipment and software. "Corporations don't pay taxes, people do," explains Roger Martin, dean of the Joseph L. Rotman School of Management and chairman of the institute. "Corporate income taxes

are paid by workers through lower wages, by customers through higher prices and by shareholders through lower returns. If governments want to tax the wealthy, they should tax them directly, rather than taxing corporations." To replace revenue lost through lower corporate taxes, the institute recommends that governments convert the provincial sales tax to a GST and apply it to the same goods and services as the federal tax.

The institute also encourages governments to investigate the benefits of shifting the basis of taxation away from annual incomes to lifetime earnings.

Instead of giving taxpayers an annual exemption of around \$10,000, as is currently the case, this approach would exempt from taxation the first \$250,000 of lifetime earnings. Income taxes would be imposed only after an individual has passed this mark, and the tax rate would rise as accumulated lifetime earnings passed other income levels. According to the institute, people with lower incomes might not pay taxes for years, and those with higher incomes would face lower marginal tax rates than currently.

"Taxation is a complex issue," says Martin. "We're proposing ideas that could lead to higher prosperity for all."



# New & Notable

RECENT DEVELOPMENTS ON CAMPUS

## Our Next President

**Dr.** David Naylor, dean of the Faculty of Medicine and president-designate of the University of Toronto, has called on the provincial and federal governments to invest in higher education to give students at Ontario universities “the experience they deserve.” Naylor, who in April was appointed the 15<sup>th</sup> president of U of T, says his top priorities will be to improve the student experience at the university and to urge governments to close “the resource gap” that is holding back post-secondary institutions in Ontario. “If that happens, there’s no limit to what we can do here,” Naylor says.

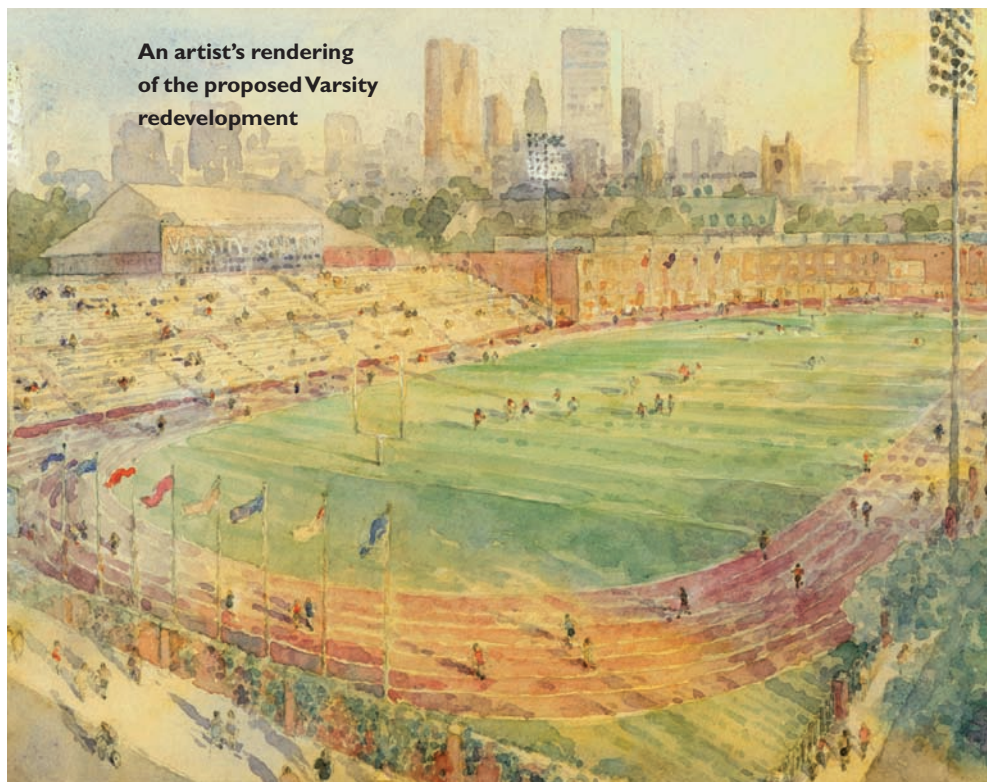
Known as a skilled administrator with a warm demeanour, Naylor has been dean of the Faculty of Medicine and vice-provost (relations with health-care institutions) since 1999 and a U of T faculty member since 1988. He holds an MD from U of T and a PhD from Oxford, where he was a Rhodes Scholar. A fellow of the Royal Society of Canada, he is the co-author of approximately 300 scholarly articles, spanning such subjects as social history, public policy, epidemiology and clinical services. He has been appointed president for a five-year term.

“Dean Naylor brings an extraordinary breadth of talent to our university,” says Rose Patten, chair of Governing Council and chair of the presidential search committee. “We are very fortunate to have him right here in our midst to lead our university at this important time.”

*A feature story on Dr. Naylor will appear in the fall issue of U of T Magazine.*

PHOTOGRAPHY: LAURA ARSIE

# New & Notable



An artist's rendering of the proposed Varsity redevelopment

## Athletic Centre North

A new proposal to redevelop U of T's Varsity Stadium site would double the capacity of the downtown athletic centre and provide much-needed new resources for Canada's largest intramural and varsity athletics programs, university officials say.

U of T plans to commit \$16 million toward the first stage of the \$65-million proposal – enough to get construction started early next year, pending approval by the university's Governing Council and municipal authorities. Stage One involves a playing field, an eight-lane track and stadium seating for 5,000. Later phases may include the installation of a bubble-type structure over the field to allow year-round use, the construction of a three- or four-storey building at the south end of the site for athletic programs and the Faculty of Physical Education and Health, and renovations to Varsity Arena.

U of T Provost Vivek Goel presented the plan at a public meeting in March, where he addressed neighbours' concerns about noise, lighting and traffic. Sue Dexter, representing both the Harbord Village Residents' Association and the Annex Ratepayers' Association, praised the plan. "The university should be applauded for rationality," she said.

Athletics is the most popular form of co-curricular involvement at U of T, with 50 per cent of students participating in a sport or exercise. Still, Bruce Kidd, dean of the Faculty of Physical Education and Health, wants to encourage more students to be active. "Our goal is to give every student a chance to learn and participate in some physical activity while they're here. That's something that will stay with them for the rest of their lives."

– Margaret Webb, with files from Mary Alice Thring

PHOTOGRAPHY: LISA BORNSTEIN

## Can a Bank Change (the World)?

A banker may not be the kind of person you'd expect to herald a revolution. But New York journalist David Bornstein, who in March delivered this year's Hart House lecture, says "social entrepreneurs" such as Bangladeshi professor-turned-financier Muhammad Yunus are helping to usher in important social and economic reforms around the globe.

Yunus is the founder of Grameen Bank in Bangladesh, a financial institution that lends very small amounts of money to people who want to start their own business. Recipients use the funds – "micro-loans" – to invest in



Bornstein

everything from mortgages to rickshaws to cows. Now with more than four million borrowers, the bank has helped many Bangladeshi families improve their economic and social situation.

Bornstein, the author of *How to Change the World: Social Entrepreneurs and the Power of New Ideas* (Oxford University Press, 2003), says social entrepreneurs such as Yunus are addressing issues from homelessness to education with the single-mindedness and innovation normally associated with successful business leaders. What motivates them is a personal commitment to fight injustice, he adds. Yunus started Grameen Bank after meeting a woman who said she was being exploited by a moneylender.

Social entrepreneurs often approach problems by identifying opportunities and resources that others overlook, and by working with people in creative new ways. Grameen Bank does not require collateral to approve loans because its innovative peer-lending approach is highly reliable. In Hungary, Erzsébet Szekeres hires staff for her "living centres" for the disabled based on their empathy – not institutional experience. J.B. Schramm's college prep program in the U.S. was inspired by four inner-city students in need, and is largely run by volunteers and former students of the program.

– Julie Traves

## U of T Rallies to Help Blind Student

**I**t could happen to anyone. While making dinner one evening in February, Woodsworth College student Neena Saloiya brushed a hot electric element with an oven mitt and touched off a major kitchen fire. With her apartment in flames, Saloiya called 911, and relied on her guide dog, Ziggy, to find the exit and lead her down 20 flights of stairs. “He pushed me with his head as if to say, Go this way,” says Saloiya, who has been blind since birth.

Although Toronto firefighters responded quickly, the blaze gutted the apartment, leaving Saloiya with just a cellphone and the clothes on her back. Counsellors from U of T’s student crisis response team and Accessibility Services moved quickly to assist. Within 24 hours, they had found Saloiya a residence suite, which she shared with three other students.

With her immediate comfort and safety assured, the focus shifted to Saloiya’s academic concerns. Woodsworth registrar Cheryl Shook met with her to assess her needs, and to ensure she could successfully complete her courses. “What we have been able to do for Neena we would do for any student in crisis,” says Shook.

Saloiya is one of more than 1,100 students on the St.



Ziggy the guide dog directed Neena Saloiya to safety after her apartment caught fire

George campus registered with Accessibility Services, an office within Student Affairs that provides accommodations to students with learning disabilities, hearing and vision impairments, mobility challenges and mental health issues. “We are thrilled that the university community has rallied around Neena to provide her with what she needs to continue her studies, virtually without interruption,” says Janice Martin, manager of Accessibility Services, noting that the Adaptive Technology Resource Centre has provided the computer equipment and specialized software she requires.

“I would like to say thank you to people,” says Saloiya, who moved back into her apartment in April, following renovations.

– Mary Alice Thriving

## Sunday School

**P**lato, the ancient Greek philosopher, believed that only by leading a truly reflective life could humans rise above their beastly urges. Professor Paul Gooch, a philosopher and the president of Victoria University, was explaining this one Sunday morning in March at the School of Continuing Studies’ “Philosophy Café” when a giant can of Guinness suddenly floated by the school’s two-storey glass front. The beer, a central prop in a festive St. Patrick’s Day parade, was followed by a rainbow and a pot of gold the size of a small car.

Anant Bhan, a 25-year-old master’s student in bioethics, has been attending Philosophy Café’s monthly sessions since

October. Each lecture has addressed an aspect of the question, “What is a person?” and Bhan finds the presentation and Q & A as intellectually rigorous as it is engaging. When does personhood begin? Is our increasing dependence on technology making us more humanoid than human? “You pick up all these threads and you understand that personhood is a rapidly changing concept,” says Bhan. “What a person is, from a legal perspective, from a religious perspective, changes depending on where you are.”

Joanna Beyersbergen (BA 1987 TRIN, MA 1995), the organizer of Philosophy Café, says she wanted to create a public space where people could study and

debate important contemporary issues. It was a challenge picking just one focus, she says. But the exploration of a single subject from a variety of angles is what makes the café so appealing; she’s had to turn people away every time.

Beginning next fall, Philosophy Café will be offered as an official course through the School of Continuing Studies. Three different streams will focus on the questions “Can science and religion agree?” “Whose body is it anyway?” and “What is intelligence?”

– Lisa Rundle

Register for next fall’s Philosophy Café at [www.learn.utoronto.ca](http://www.learn.utoronto.ca) or call (416) 978-2400. For information, call (416) 978-5527.

PHOTOGRAPHY: PASCAL PLOUETTE

# New & Notable



U of T doctoral  
candidate  
Dwayne Shirley

## Accolades

PHOTOGRAPHY: RICHARD LAUTEN/TORONTO STAR

University Professor Linda Hutcheon of English and comparative literature is one of five winners of the 2005 Killam Prizes. The \$100,000 prizes, administered by the Canada Council for the Arts, are the country's highest recognition for outstanding academic-career achievement in engineering, natural sciences, health sciences, social sciences and the humanities. Also announced were the Killam research fellowships. Professor Virginia Brown of the Centre for Medieval Studies is one of seven Canadian scholars to win the two-year prize for 2005. Professors Barbara Sherwood Lollar of geology and Lynne Viola of history had their fellowships renewed for a second year.

are among the six winners of this year's prestigious Steacie fellowships, awarded each year by the Natural Sciences and Engineering Research Council to Canada's leading university scientists or engineers. Abraham studies the universe's first galaxies. Zandstra, the Mary Gertrude l'Anson Professor of Tissue Engineering and a Canada Research Chair in Stem Cell Bioengineering, conducts research into mouse embryonic stem cells.

Edona Besnik Çaku, a student in medical radiation sciences, is the winner of the 2005 New Pioneers Youth Award, which recognizes contributions made by immigrants and refugees in the Greater Toronto Area. Çaku, 19, founded the Friends of Albania Student Association to undertake humanitarian projects in her home country.

## You Say Tomato...

**C**hesterfields have gone missing in Canada. Curiously, couches are everywhere. Though the piece of furniture is identical, the word Canadians use to describe it has changed. "*Chesterfield* was so distinctive that it was used by, I think, 100 per cent of Canadians in the 1950s," says Jack Chambers, a longtime linguistics professor at U of T known to his colleagues as

"Mister Canadian English." In January, as a tribute to Chambers, the university hosted the first academic conference on Canadian English ever held. "It was pretty spectacular," says the professor, who officially retired last year after 35 years in the lecture hall.

Chambers, who still teaches at U of T, is best known for describing how Canadians pronounce "ou" in words such as *out* and *about*. He identified the

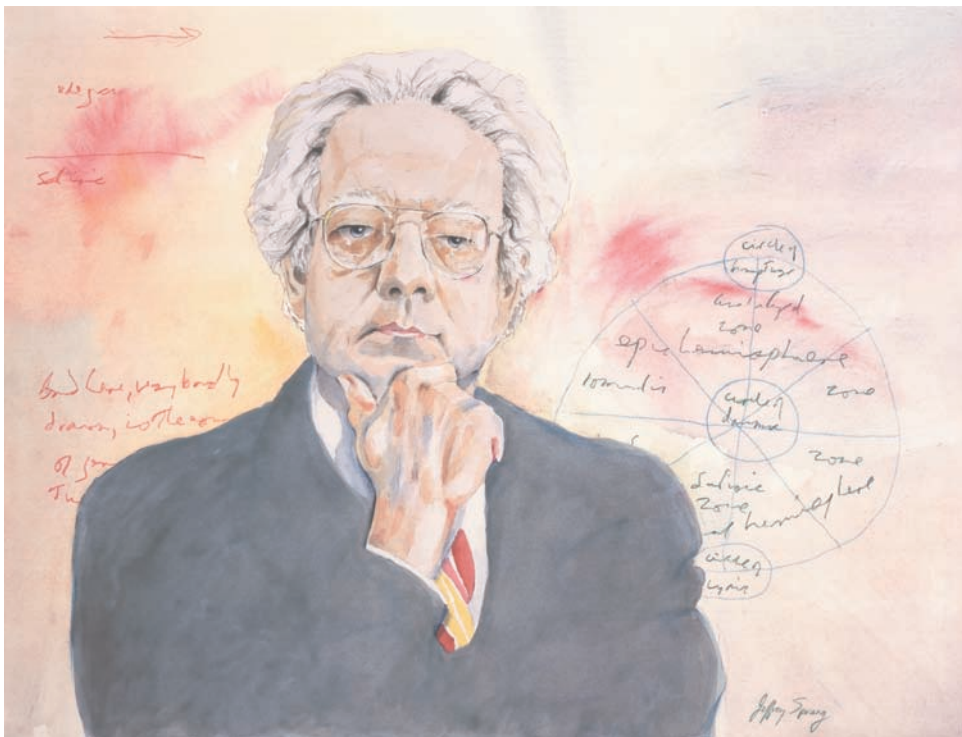
phenomenon in 1973 as "*Canadian Raising*," because Canadians raise the height of the onset vowel in the diphthong, allowing them to say the word more quickly. *Out* ends up sounding more like *oat*, *about* more like *aboot*. "It is the most characteristic feature of our speech," says Chambers.

Canadian speech is unique in other ways. The establishment of the railroad early in our history has



## Portrait of a Master

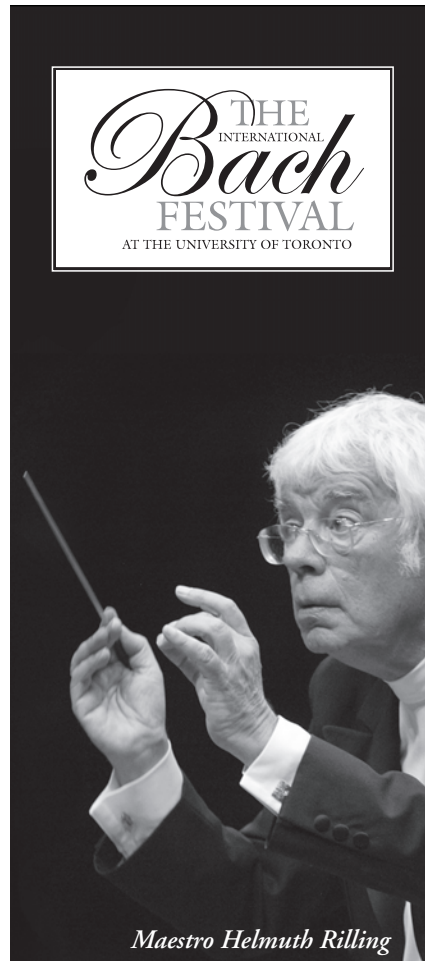
**R**enowned literary theorist Northrop Frye (BA 1933 VIC, DLitt Sac. Hon. 1977), a professor at Victoria College from 1939 until his death in 1991, was known among his students for the long pauses in his lectures as he awaited questions from the class. Portraitist Jeff Sprang (BA 1976 VIC) was one of Frye's students who, during those periods of silence, sat in awe of a professor he considered "not just brilliant but kind." Working from photo references and memory, Sprang painted an ever-thinking Frye in front of a blackboard as both a tribute to the man and a donation to their shared alma mater. The portrait was unveiled at Victoria University in April. Signed limited-edition prints are available for sale through the Victoria alumni office. — Lisa Rundle



kept regional differences to a minimum. "We sound more like one another from coast to coast than any other nation in the world," says Chambers. While some people worry Canada's English is being Americanized, Chambers says that isn't the case. "There are big changes going on, but they're going on in both directions," he says.

Chambers expects differences

in how English is spoken around the world to diminish over time, as globalization continues. "The more mobile people become, the more mixing there will be of language forms," he says. Chambers believes the least mobile people in Canada, farmers and blue-collar workers, will retain distinct Canadian varieties. "That's where the idiosyncrasies of Canadian English will last the longest." — Michelle Magnan



Maestro Helmuth Rilling

### *J.S. Bach in the World Today*

THE POETRY AND POLITICS  
OF BACH'S EARLY CANTATAS

**HELMUTH RILLING**

FESTIVAL CONDUCTOR AND LECTURER  
THE NICHOLAS GOLDSCHMIDT  
VISITING CONDUCTOR-IN-RESIDENCE

**DOREEN RAO**

ARTISTIC DIRECTOR

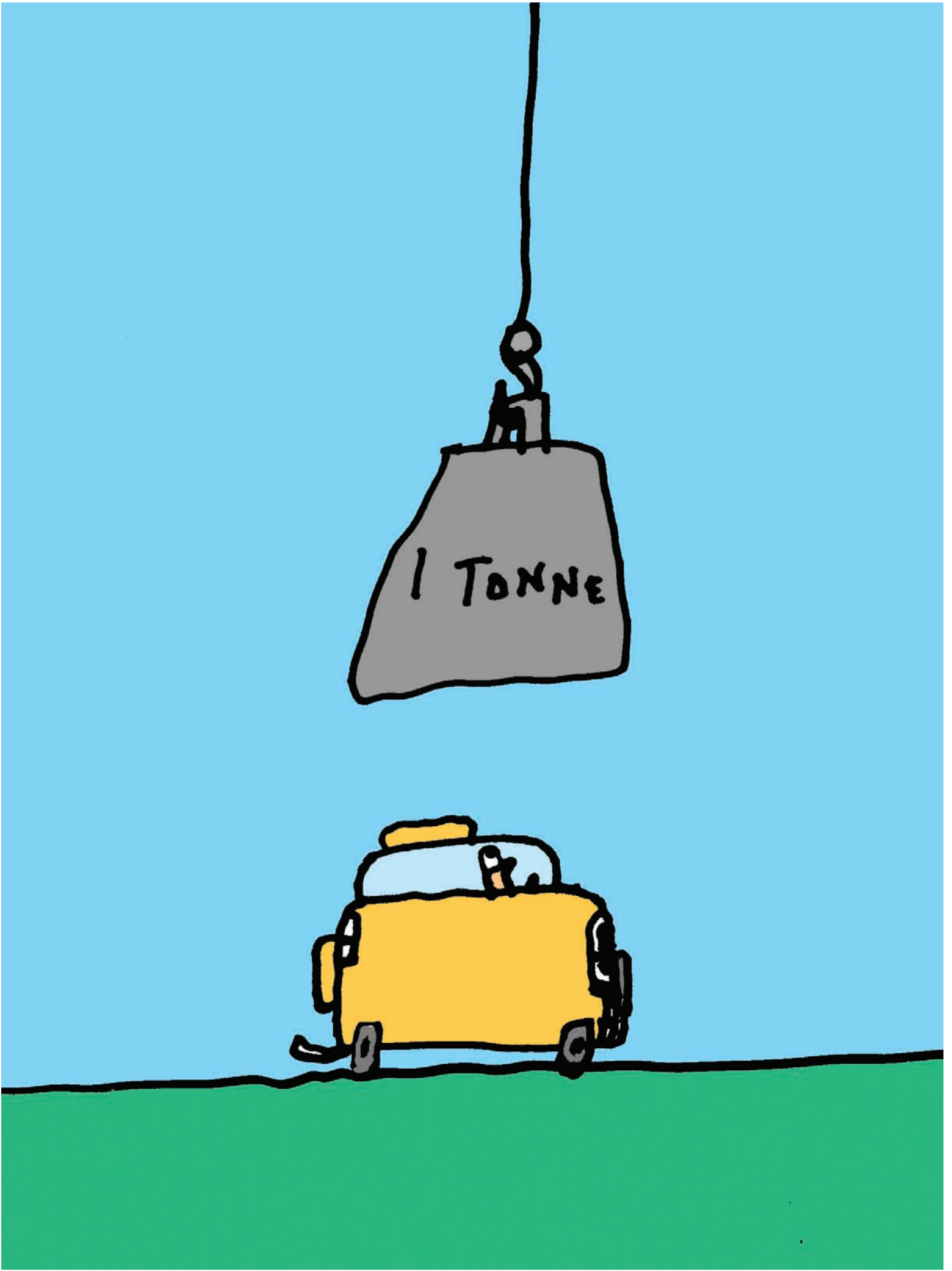
Exploring the artistic, educational and social benefits of Bach's *universal voice*, the 2005 Festival will celebrate the important poetry and politics in Bach's early cantatas with a special focus on the ancient and modern politics of the Old Testament, the poetry of the Psalms and related theological perspectives for the 21<sup>st</sup> century.

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# Clean Energy. Just How Close Are We?

Canadians could be forgiven if they view Ottawa's decision to hire comedian Rick Mercer to promote the **One-Tonne Challenge** as something of a bad joke. At one level, Mercer's exhortations to homeowners – turn down the thermostat, replace drafty windows, cycle to work – sound like worthy ways to live light on the land.

ILLUSTRATIONS: MIKE CONSTABLE

BY JOHN LORINC

But the unavoidable daily reality is that many Canadians live in sprawling suburbs with virtually no transit, meaning they rely on their vehicles to get to work, school and play. In Canada, new homes are built with the latest in energy-efficient furnaces, appliances, windows and insulation. Yet we do little to support the development of renewable energy sources. We choose to buy gas-guzzling SUVs and products encased in wasteful plastic, and we elect politicians who give Canadian packagers, oil companies, utilities and automakers an easy ride in the name of economic growth and low taxes.

Mercer's One-Tonne Challenge may encourage us to conserve energy and alter some of our most wasteful habits, but a long-term solution to climate change – and the diminishing supply of oil – will require a radical shift in thinking about the *kind* of energy we use. Indeed, the development of alternative fuels and renewable energy sources represents one of humanity's greatest challenges in the 21<sup>st</sup> century.

Though the proven oil reserves in the Middle East, Russia and Canada will probably last for several more decades, world oil production is expected to peak by 2010. The implications are profound, both economically and environmentally. David J. O'Reilly, chairman and CEO of ChevronTexaco, warned of an approaching energy crisis in a speech earlier this year in Houston. "The era of easy access to energy is over," he declared. At the same time, the buildup of atmospheric greenhouse gases over the next decades (they will continue to build even as oil production declines) is expected to trigger more extreme weather and further melting of the polar ice caps and glaciers.

Most countries have responded to the environmental threat by signing the Kyoto Protocol, which came into effect in February after more than a dozen years of geopolitical wrangling. On paper, Canada has pledged to cut its greenhouse gas emissions to six per cent below 1990 levels by 2012. The reality

is that Canada's total emissions are now more than 20 per cent above the 1990 level – and still growing.

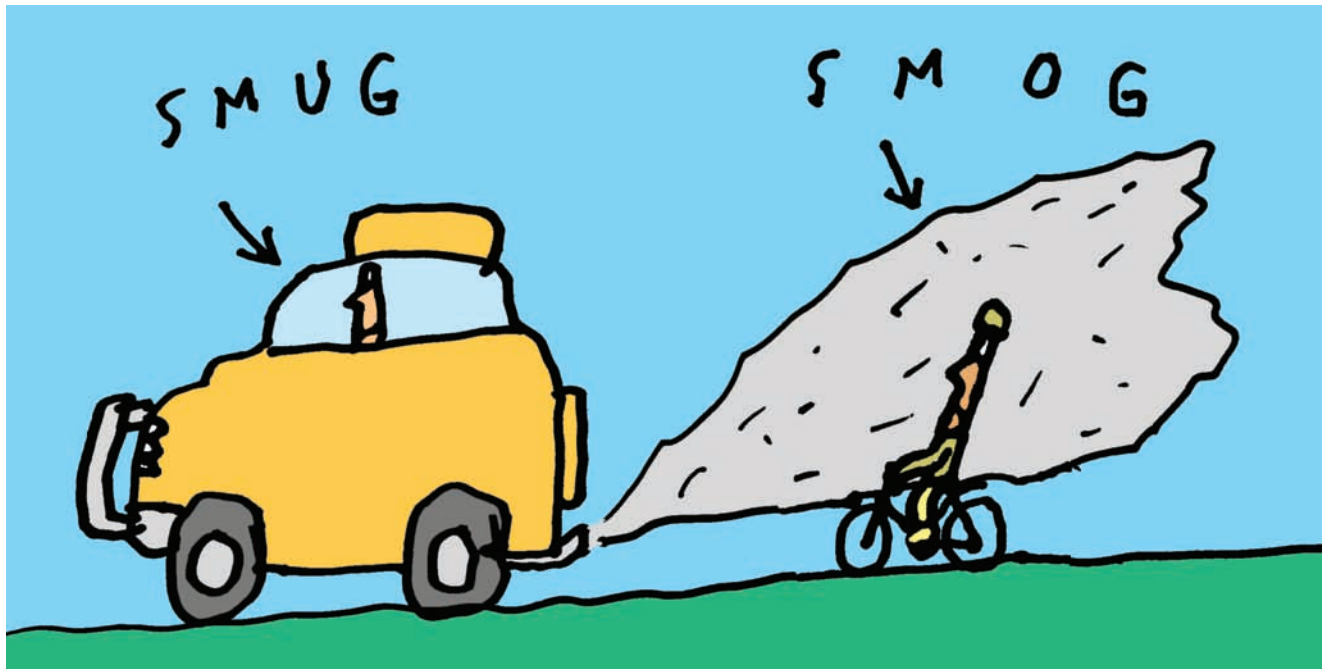
Many economists and climate change experts believe the most effective way to cut emissions is to impose an additional tax on fossil fuels. Price hikes, such as those felt during the 1970s oil crisis, encourage consumers to conserve and increase the appeal of energy-efficient vehicles. Everyone agrees that the best policy instrument, a tax that makes fossil fuels more expensive, isn't being addressed, says Douglas Macdonald, director of environmental studies at Innis College.

The political reality is that a "carbon tax" would harm Alberta's powerful export-oriented oil and gas industry, which is investing tens of billions of dollars into developing Alberta's oil sands. "What's required to implement Kyoto seriously is too expensive," says Peter Dungan, a professor at the Joseph L. Rotman School of Management and an associate of U of T's Institute for

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For scientists and entrepreneurs developing alternative fuels to compete with oil, the challenge has always been twofold: to produce an environmentally **cleaner technology** and deliver it to consumers at a competitive price

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Policy Analysis. Instead, the government is pumping money into research. In the last budget, the Liberals earmarked almost \$2 billion for sustainable energy technologies, including solar power, wind and hydrogen. As well, the federal government recently announced a deal with auto manufacturers in which the manufacturers agreed to voluntarily boost vehicle energy efficiency by four per cent – an improvement, but a good deal less than the 25 per cent Ottawa initially wanted, especially given that the transportation sector is responsible for a quarter of all greenhouse gas emissions. Macdonald and Dungan, among others, seriously doubt the effectiveness of Ottawa's strategy. "In Canada, we've relied on voluntary action [in the past] and it hasn't really worked," says Macdonald.

While consumer and investor interest in clean energy is building, experts disagree over whether renewable energy sources will ever be able to supply more than a tiny fraction of Canada's electricity needs. Currently less than one per cent of Canadian energy is produced from renewable sources (other than hydroelectric). In contrast, 40 per cent of Ontario's electricity comes from fossil fuel-fired power stations that emit greenhouse gases.

Organizations that favour renewable energy, such as the David Suzuki Foundation, argue that wind power, hydroelectric projects and solar panels have the potential to slash Canada's greenhouse gas emissions by as much as 50 per cent. "The worldwide growth rate of many renewable-energy technologies today is similar to the explosive growth of cell-phones and computers in the 1980s and 1990s," according to research cited in a 2004 Suzuki Foundation report on renewable energy in Ontario.

The studies that Chris Green and H. Douglas Lighthouse conducted for McGill University's Centre for Climate and Global Change Research throw cold water on the predictions of environmental activists. Green, an economist, and Lighthouse, a retired mechanical engineer, publicly question the accuracy of official Kyoto estimates on the role of

## U of T Aims to Meet Kyoto Targets

New sustainability office will spearhead reduction plan

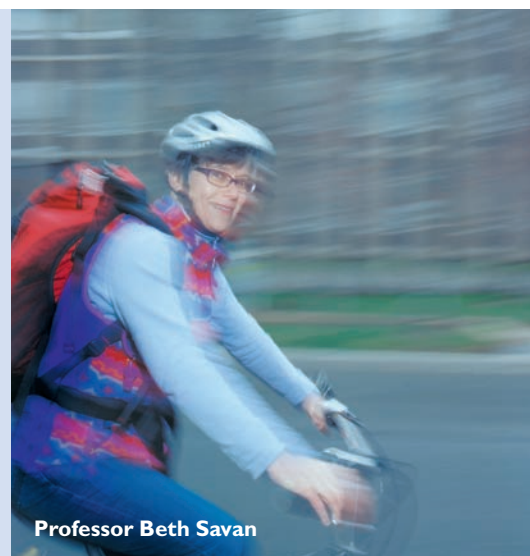
Ideally, U of T would like to comply with the Kyoto Protocol, says Beth Savan, the head of the university's new sustainability office. However, she acknowledges that her task will be "extremely challenging."

Toronto's second-largest non-profit landowner after the city, U of T produced 130,000 tonnes of carbon dioxide emissions in the 2002-03 academic year, equivalent to about 250 times the volume of the Robarts Library. Scaling back emissions to the magic figure of six per cent below 1990 levels, as specified by Kyoto, will be especially difficult in light of recent enrolment increases. "It's tough when you're growing," says Savan, who teaches environmental studies at Innis College.

A fixture for years with the city's environmental movement, Savan is spearheading an ambitious plan to turn U of T into a highly energy-efficient operation, where green technologies and conservation are hard-wired into the way the campus manages its growth.

Energy consciousness at U of T's St. George campus goes back to 1912, when administrators chose to outfit the rapidly expanding campus with a district heating and electrical system, linking the buildings with networks of steam pipes and electrical connections. Since the mid-1970s, the university has undertaken waves of energy improvements, says Bruce Dodds, director of utilities and building operations. It has upgraded its heating system, installed more energy-efficient lighting and, most recently, invested \$5.4 million to maximize energy efficiency at its natural gas-fired co-generation plant. Rising electricity rates, coupled with the university's tight fiscal environment, have spurred innovative thinking. "We have to be clever in how we deal with [energy costs]," says Dodds.

Staff at the sustainability office have hit the ground running. Established last year with a \$225,000 grant from the Toronto Atmospheric Fund, and working with a team of a hundred students, the group is drawing



Professor Beth Savan

up an inventory of energy use in each of U of T's 250 buildings. It has also launched a campaign against cars and trucks idling on campus and is providing information for students on how to reduce energy use in residence rooms, among many other initiatives.

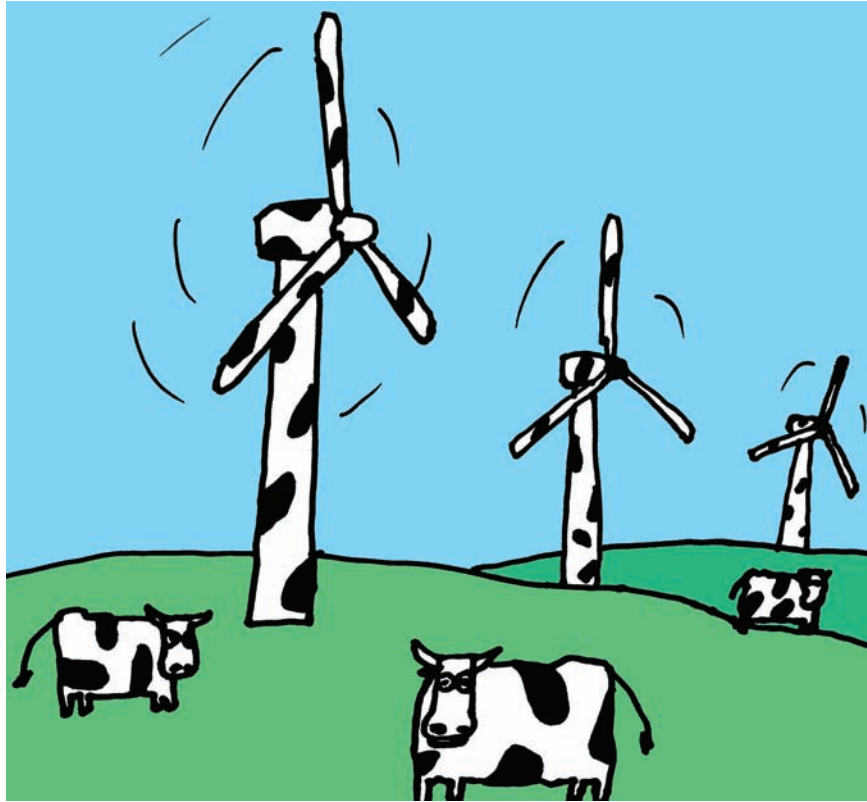
The group's longer-term goal is to develop design and construction guidelines so that all new capital projects comply with emerging international standards for green buildings. Successful green initiatives include the new Student Centre at the University of Toronto at Scarborough and the Bahen Centre for Information Technology (which was designed with energy-efficient chilling capacity that is being linked to several nearby buildings). The University of Toronto at Mississauga has launched a number of environmentally friendly projects under the slogan "Grow Smart, Grow Green." These include an advanced waste reduction plan, fuel-cell powered town homes and a car-pooling program.

A key element of U of T's sustainability initiative involves the education of students and staff. Savan observes that the university is so vast that certain types of green policies, such as centralized purchasing, are difficult to implement. "There aren't guidelines to tell you to buy energy-efficient equipment," she says. Nor are individual departments or colleges financially rewarded for identifying cost-savings through smarter energy use.

To focus the university's efforts, the campaign is setting specific goals for environmental improvements. Savan points out that the sustainability office first must collect and disseminate data to paint a picture of the university's current emissions, waste streams and energy use. "I hope we'll be in a position to set some ambitious targets, but we're not at that point yet," she says.

—J.L.

PHOTOGRAPHY: DENIK SHAPTON



**Wind energy** is the best example of how to generate significant amounts of power without building huge plants or releasing greenhouse gases

renewable energies. They conclude that even by the end of the 21<sup>st</sup> century such technologies will be able to supply no more than 30 per cent of the world's energy demand.

FOR SCIENTISTS AND ENTREPRENEURS developing alternative fuels to compete with oil, the challenge has always been twofold: to produce an environmentally cleaner technology *and* deliver it to consumers at a competitive price.

It's a stubborn problem, especially in a cold country with vast potential oil reserves (and therefore little incentive to investigate other energy sources), as well as a mobile population who think nothing of commuting an hour to work. Nor does it help that, after years of low fuel prices, North American consumers have fallen in love with SUVs – among the least fuel-efficient vehicles on the road.

The development of hybrid cars such as the Toyota Prius and Honda Insight represent the auto industry's most visible attempt to counter this trend. Typically, hybrid cars go about twice as far as traditional vehicles on the same amount of gas.

Equipped with a conventional engine as well as a battery-powered motor, a hybrid car uses fuel combustion for acceleration and when travelling faster than 60 kilometres/hour. The battery is used at slower speeds and to keep the car going when it's stopped (at a red light, for example). That's why the Prius gets a better fuel economy rating (60 miles per gallon) for city driving than highway driving (51 miles per gallon) – the opposite of a gasoline-fuelled car.

Consumers can currently choose from only a few hybrid models, but automakers recently began selling SUV hybrids

with considerably improved fuel economy. By 2011, it's expected that 38 hybrid models will be on the market. However, research firm J.D. Power and Associates predicts U.S. sales of these vehicles – estimated to be 200,000 this year, or one per cent of total units sold – will reach just three per cent of the American market by the end of the decade.

Environmentalists would prefer cars that do away with the gasoline engine altogether and rely exclusively on hydrogen-powered fuel cells. For almost two decades, scientists, the major automakers, and Canadian companies such as Ballard Power Systems and Hydrogenics Corporation, have been working to develop hydrogen-fuel systems for a wide range of commercial energy applications, including cars, buses and portable generators. U.S. President George W. Bush has dubbed hydrogen "freedom fuel."

Hydrogen fuel cells use hydrogen and oxygen from the air to create electricity, and in the process emit only heat and water vapour. Electrical motors powered this way are three times more energy efficient than traditional combustion engines (meaning they get three times the power out of a unit of fuel), according to the National Hydrogen Association. And unlike conventional electro-chemical batteries, fuel cells don't need to be recharged, so they last much longer.

Significant technical and cost problems must be overcome before hydrogen-fuelled cars can be mass-produced. Physically storing the hydrogen is the Achilles heel of fuel-cell technology, says Steve Thorpe, a professor in U of T's department of materials science and engineering. Researchers have devised a variety of ways to contain this light, volatile fuel, including compressing the gas in high-pressure containers, bonding the hydrogen to substances known as metal hydrides and storing it in liquid form in specialized tanks. Most prototype hydrogen-powered vehicles use high-pressure gas tanks, although BMW is developing models that use liquid hydrogen. The tanks for the prototypes tend to be bulky and are stored provi-

sionally in the trunk while the vehicle manufacturers work out the kinks. Most can hold about 250 to 800 kilometres worth of fuel, which is slightly less than the capacity of conventional gas tanks. "The big issue," says Thorpe, "is one of packaging, efficiency and cost. None of these solutions are cheap." The hydrogen tanks being developed now cost between \$1,000 and \$4,000, compared to \$150 for a typical gasoline tank.

At present, the most daunting impediment to commercially available hydrogen-powered vehicles is the high cost of making them. Firms such as Hydrogenics can manufacture fuel cells by the hundreds, according to Thorpe. "But no one's tooled up to make enough for a million Corollas. No one has the infrastructure to do it at the moment. But it will come," he says.

Thorpe's confidence is derived from the fact that automakers such as Ford, General Motors and Toyota are spending millions to develop hydrogen-powered cars, while energy giants including ChevronTexaco and Petro-Canada are backing hydrogen-fuel research. GM vows to be the first to sell a million hydrogen-powered vehicles. But fuel-cell proponents remain thwarted by a critical roadblock associated with hydrogen and other alternative fuels. Vehicles powered by hydrogen won't sell unless there's a fuel supply, yet no one is going to invest in a fuel-distribution infrastructure unless there's demand for hydrogen-powered cars. "It's the chicken and the egg problem," says Jim Wallace, chair of the department of mechanical and industrial engineering. Heather MacLean, an assistant professor in U of T's civil engineering department, comments that gasoline prices in North America are still too low compared to other regions, such as Europe, to prompt a large-scale switch to other fuels. "Recent advances in gasoline vehicles, the low petroleum price and the extensive gasoline infrastructure make it difficult for any alternative fuel to become commercially viable," she says.

Researchers and hydrogen companies are therefore looking closely at niche

## Fields of Gold

U of T chemist David Boocock has developed a clean-burning fuel from organic waste

**ON** Hamilton's Pier 12, just west of the Stelco plant, construction crews are hustling to complete a \$25-million curiosity: a refinery that turns grease into, well, gold. The refinery, owned by Biox Corp., is a warren of tanks and pipes that will begin producing biodiesel fuel this fall. The fuel will be sold to refineries that will blend it with conventional diesel. Environmentally friendly, biodiesel is typically made from soybean oil. But Biox's state-of-the-art refinery can produce a cheaper, cleaner-burning and more energy-efficient version of this commodity using rendered fat from, of all things, animal offal.

The Biox story begins with a University of Toronto chemist named David Boocock, who, in a flash of brilliance, combined the insights gleaned from academic inquiry with the consequences of an agricultural disaster. Fifteen years ago, Professor Boocock was investigating ways of unlocking the energy in organic substances such as wood and waste sludge. Along the way, he discovered a method for producing a souped-up version of biodiesel using waste animal fat that's twice as energy-rich as the conventional biodiesel fuel. An added advantage: when burned, Boocock's biodiesel releases significantly less pollution than petroleum-based fuels.

Unfortunately, the biodiesel producers weren't interested because Boocock's process was too expensive. Fast-forward a dozen years to the outbreak of a handful of cases of mad cow disease in Alberta. The two events seem unrelated, but the discovery of the sick cows precipitated the collapse of the export market for rendered waste fat, a refined animal grease used in pet food and

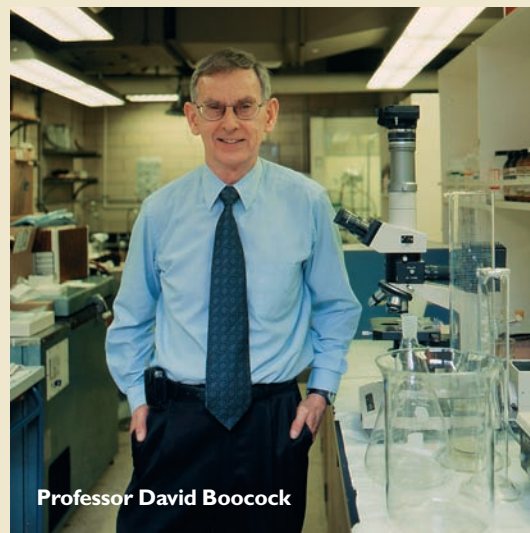
livestock feed. Huge holding tanks of the stuff were accumulating across the country. Boocock realized that his refining process could now be used to produce biodiesel at a competitive price. Through the university's Innovations Foundation, Boocock found investors to commercialize his patent, and the venture began to take shape, with the professor on board as a consulting scientist.

Biox's plant, which will eventually pump out 60 million litres of biodiesel fuel a year, will boost North America's modest biodiesel production by 60 per cent. And even though the environmentally friendly fuel accounts for only a small fraction of the blend used by diesel vehicles such as buses and trucks, many experts believe the industry is on the cusp of explosive growth. Last fall, the Bush Administration introduced a biodiesel tax incentive that is spurring a rush of investment. And Biox's backers have their eyes on what's happening across the Atlantic: the European Union has ruled that by the end of this year all diesel fuel sold on the continent should contain at least two per cent biodiesel. Europe currently produces almost two billion litres of biodiesel annually, and production is expected to increase significantly in coming years.

How's that for a fat chance?

—J.L.

PHOTOGRAPHY: DEREK SHAPTON



Professor David Boocock

markets — fleets of buses or forklifts — that don't rely on retail gasoline. One model is the taxi industry. It has adopted propane- and natural-gas-powered vehicles, which can be refuelled at a handful of specialized retail outlets. "We need to identify potential markets," says Wallace.

Dozens of North American firms are trying to solve the technical and systemic riddles associated with hydrogen. Among these companies is Hydrogenics Corporation, a hydrogen-fuel firm based in Mississauga, Ont., which a pair of U of T engineering grads established in 1995

## Hydrogen Village

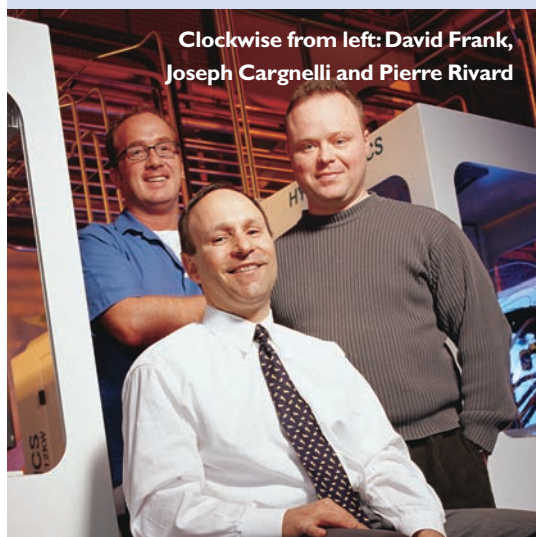
Pierre Rivard imagines an “Internet of energy” on Toronto’s Port Lands

**W**hen Toronto embarked on its waterfront revitalization campaign in 1999, Pierre Rivard (MEng 1994) dreamt of a revolutionary way to transform the derelict Port Lands: a “hydrogen village,” which could serve as an urban lab for renewable energy systems.

Last September, Hydrogenics Corporation, which Rivard co-founded in 1995 with Joseph Cargnelli (BASc 1992, MASc 1995), signed an agreement with the Toronto Waterfront Revitalization Corporation to develop demonstration projects to implement practical, cost-effective applications for hydrogen-fuel technology.

Part of the initiative: to build hydrogen fuel stations so vehicles with fuel cells will have ready access to hydrogen. Rivard

PHOTOGRAPHY: STEVE FROST



Clockwise from left: David Frank, Joseph Cargnelli and Pierre Rivard

(see “Hydrogen Village,” above). The company, which trades on NASDAQ and maintains strong ties to U of T, recently signed deals with GM, Chevron-Texaco and a German transportation authority to develop hydrogen-powered buses and forklifts. It is also working with Purolator to convert a fleet of delivery vehicles based in downtown Toronto.

Taking its strategy one step further, Hydrogenics recently acquired Mississauga-based Stuart Energy, a leading manufacturer of electrolysis-based hydrogen-fuelling equipment. Stuart

and his team counted eight large vehicle fleets based in the Port Lands – city trucks, Canada Post, courier firms and bus companies. “These fleets come back every night to refill,” he says. Rivard wants to install fuel stations in the parking depots and then work with the fleet owners to fit their vehicles with fuel cell-powered engines.

Hydrogenics, in fact, recently struck a deal with a German state to develop a demonstration fuel-cell bus. This spring, it’s preparing to unveil a similar test project with Purolator Courier Ltd., which owns a fleet based in the Port Lands. “We’re intrigued with the idea of converting these vehicles [to hydrogen fuel] to eliminate idling emissions,” says Rivard.

Rivard is also looking ahead to the day when the Port Lands’ industrial spaces are supplanted by mixed-used developments. He’s eager to set up a windmill and tap its electricity to produce hydrogen, which is now being done at the base of the windmill on the Canadian National Exhibition site. Looking further out, he envisions waterfront residential districts fitted with vehicle-to-grid systems. Residents with fuel-cell vehicles would leave their cars idling overnight, and the cars would be tethered to a connection that pumps hydrogen derived from clean electricity into the engines. The fuel-cell batteries generate current that could be fed back into the local power grid. Rivard estimates that just four per cent of all passenger vehicles, if converted to fuel cells, could produce as much electricity as the output of all of Ontario’s nuclear, coal and hydro plants combined – but in a highly decentralized way. As Rivard says, “It’s like the Internet of energy.” —J.L.

has acquired the rights to patents held by U of T scientists Steve Thorpe and Don Kirk, who developed new materials that reduce the cost of producing hydrogen through electrolysis. In 2000, Stuart hired Thorpe for two years as vice-president of technology. Thorpe joined a team that raised \$150 million through an initial public stock offering to commercialize the firm’s hydrogen-fuel systems (which include generators, compressors, storage tanks and specialized fuel pumps).

Such market interest is a healthy

signal. Yet for all the research and development and venture-capital financing, huge questions about the commercial viability of hydrogen fuel remain unanswered. In 2003, the Canadian hydrogen-fuel industry recorded revenues of \$190 million, a tiny fraction of the overall energy market and a negligible figure compared to the \$110 billion being invested in the oil sands in Alberta. California, home to 37 million residents and a leader in the development of hydrogen fuel, has just 15 hydrogen “gas stations” serving all of 65 fuel-cell vehicles.

From the perspective of climate change, there’s one more wrinkle in the hydrogen story. Hydrogen is rarely found in nature unattached from other elements, and energy is required to free it. If the energy that is used to produce the hydrogen in the first place comes from fossil-fuel powered generators rather than wind- or solar-powered ones, greenhouse gases are still being released. “If you haven’t captured the carbon dioxide when making the hydrogen, you haven’t helped the situation,” says Wallace.

OUTSIDE PROFESSOR THORPE’S OFFICE in U of T’s cavernous mining building, there’s a large schematic diagram of a hydrogen-fuelling station powered by a wind turbine. A team of undergraduate students developed the concept, which involves a “gas station” – serving only hydrogen – at the base of the new wind turbine on the grounds of the Canadian National Exhibition. Electrical power from the turbine runs electrolyzers to produce hydrogen fuel, which can be stored and sold from the pumps. Does such a system point to a future where turbine-equipped gas stations make and sell their own fuel? If the auto sector could produce hydrogen-powered cars, you could build the infrastructure and make money doing it, says Thorpe.

Wind energy is the best example of how to generate significant amounts of power without building huge plants or releasing greenhouse gases. The iconic turbines, arrayed on wind farms in California, Britain, Germany and Alberta, have become a potent symbol of green



power, says Keith Stewart of the Toronto Environmental Alliance and an adjunct professor at Innis College.

Germany is ground zero in the wind revolution. German regulators have provided community-based green energy co-ops with long-term, guaranteed rates to give them a financial advantage over private-sector suppliers of power derived from coal- or gas-powered plants. That one move spawned investment by hundreds of small organizations. They purchase their equipment from Germany's wind-turbine manufacturing industry, which now employs 45,000 people. Since 1991, Germany has installed an astonishing 14,000 megawatts of wind power, equivalent to nearly two-thirds of Ontario Power Generation's entire capacity, including nuclear reactors, coal plants and Niagara Falls. What's more, 300,000 Germans now own shares in renewable energy co-ops. "There's definitely a dominance of small clusters of projects, compared to the large wind farms in California," says Melinda Zytaruk, general manager of the Ontario Sustainable Energy Association. The regulatory tilt in favour of small suppliers has added wind-power capacity faster, she says, because large wind farms require more complex and time-consuming land-use approvals.

In the past, large electrical utilities have ignored green power because they'd sunk billions into megaprojects such as nuclear plants. Yet there's no doubt the surging popularity of wind energy has attracted the attention of investors – and politicians. During last year's federal election, Paul Martin (BA 1961 St. Michael's, JD 1965) spoke often about wind power; now Ottawa plans to invest \$200 million in wind projects over the next five years. Last November, the Ontario government – which has promised to phase out the province's coal-fired power plants by 2007 – announced plans to purchase about 350 megawatts of wind power from five small producers. This purchase is part of Ontario's push to expand the production of renewable energy to 2,500 megawatts – roughly 10 per cent of the province's generating capacity – by 2010.

These projects represent just a drop in the bucket, according to the Canadian Wind Energy Association. It maintains that it's possible to harness 10,000 megawatts of wind energy in Canada by the end of the decade – enough to replace the energy produced in Ontario's coal-powered generators.

GIVEN THAT CANADA'S APPROACH TO Kyoto continues to be more about R&D carrots than regulatory sticks, it's fair for taxpayers to ask if they will see a return on the deluge of funding being directed to the development of sustainable energy. Since there's no real penalty if Canada doesn't reach its Kyoto targets, Dungan predicts that the country's Kyoto spending will simply "bubble on and on and on."

Scientists such as Thorpe stress the importance of using such funding sources to develop marketable technologies, as well as the need to build public support for green-energy pilot projects, many of which have evolved from university-private sector research partnerships.

"Getting these kinds of demonstration projects out in the public is very, very important," he says.

Dungan adds that when governments become early adopters of green energy, their purchasing power creates economies of scale that make it easier for corporations to follow suit. "You'll get a bigger bang if you have all the police cars go to hybrid or all provincial buildings retrofitted with energy-efficient heating systems."

Still, new technologies won't be a cure-all. "The idea that we can solve everything with technology is nice," comments Wallace, "but it's the consumer that has a huge role to play." In effect, the real one-tonne challenge for policy-makers is to ensure that consumers have genuine energy choices and pay prices that reflect the real cost of the power they consume. That's the *true* alternative. ■

*John Lorinc (BSc 1987) is a Toronto journalist. He is working on a book about the new deal for cities, to be published by Penguin Canada in March 2006.*



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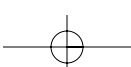
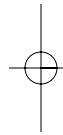
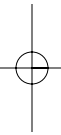
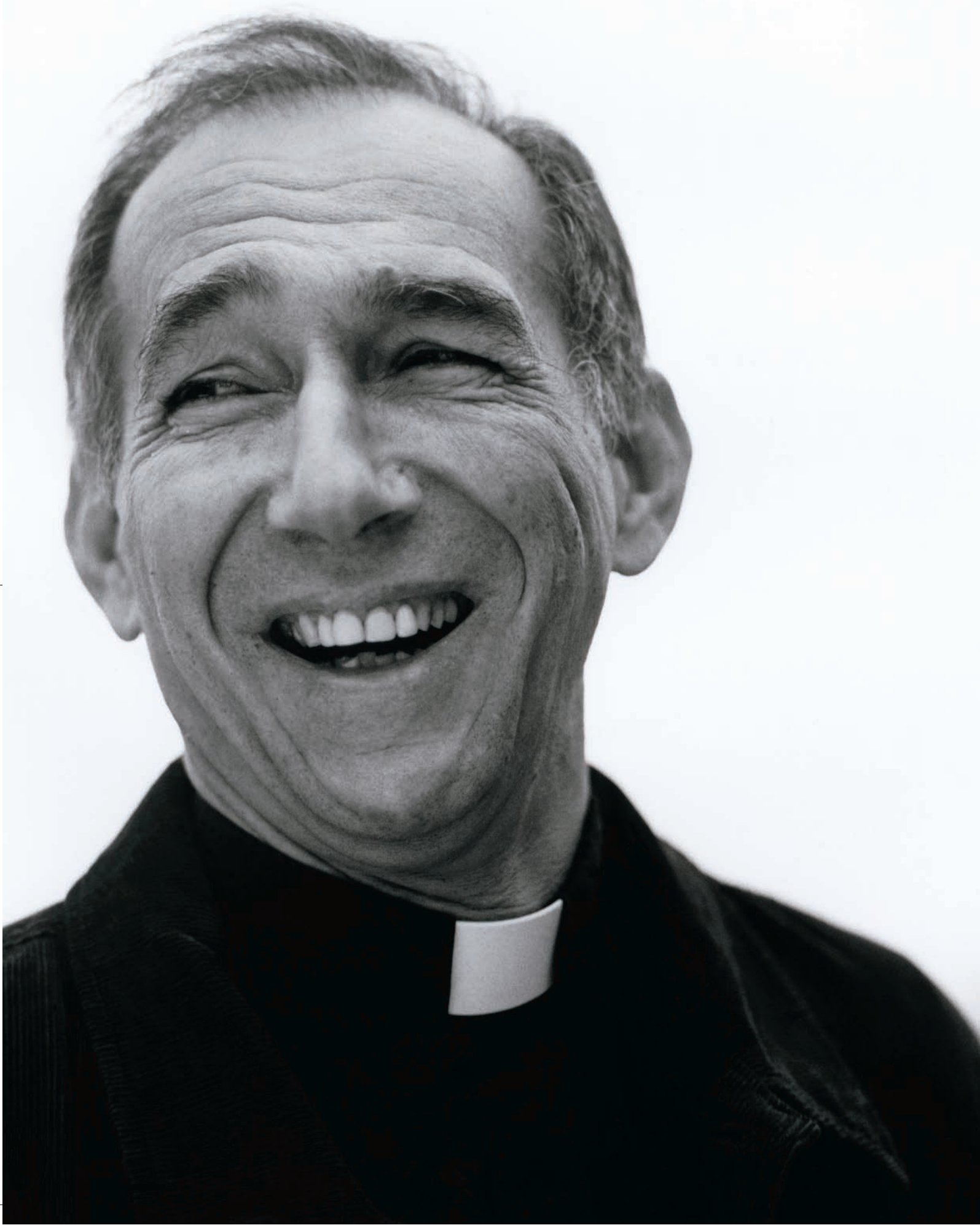
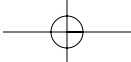
# Seeking the Divine

TORONTO'S POET  
LAUREATE REDISCOVERED  
PRAYER THROUGH POETRY  
BY STACEY GIBSON

The hallway of U of T's department of Italian studies, like most academic corridors, contains an oppressive stillness. Behind closed office doors, professors may be deciphering the allegories of Dante's heaven and hell or ruminating on the writings of Boccaccio, but the main hallway is damp with silence.

That quietude is dissolved – if only for a moment – by Pier Giorgio Di Cicco, Toronto's newest poet laureate and a visiting professor of Italian-Canadian studies at U of T. He is slipping away from his office for a break, and has brought his digital recorder for his walk. He hits play, and a recording of 1950s crooner Jerry Vale's "This is the Night" strains through the miniature speaker. "*This is the night, it's a beautiful night and we call it bella notte...*" He hums happily. An assistant peers guardedly out

PHOTOGRAPHY: KEVIN KELLY



of her office. “This song reminds me of an Italian restaurant on Mulberry Street in New York that I’ve never been to,” he says. “An Italian restaurant with heaping plates of spaghetti, and a pergola overhead with plastic grapes attached to it.”

Outside the building, Di Cicco lights a *Matinée* king size. He is down from the two-pack-a-day habit of his youth to one pack. (“You can quote me,” says his friend Rector Robert Nusca. “Tell him he’s got to stop having five cigarettes for every espresso.”) Students scurry past, heads down, intent on getting to class. From beneath his moss-green, brimmed hat, Di Cicco watches them curiously. He notes – in an almost injured tone – “Everybody is always hurrying. Always going somewhere.”

It doesn’t take much time with Di Cicco (BA 1973 University College, BEd 1976 OISE, MDiv 1990) to realize it’s not the “going somewhere” he objects to, but the manner of the journey. He believes people need to “see their daily lives as a poem” – and this requires incorporating art and poetry into the business of living. Back in his office, he speaks in the same slightly wounded tone as when looking at the students walking by. “Art is not out *there*. People think it’s out *there*. The creative product is not outside of them. How can they see it, if they don’t know it is in *here*?” he asks, pointing to his heart. “If they don’t see themselves as writing the poem of their life, their daily life, why should they read a poem?”

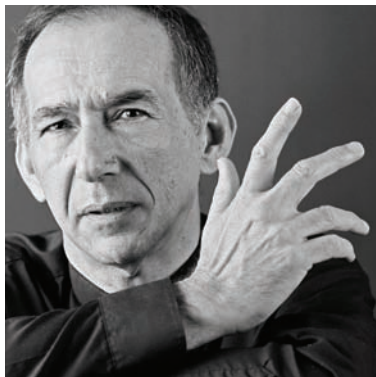
It’s a mindset he brings to the role of poet laureate of Toronto. In December, during his inaugural speech at Toronto City Hall, he urged a change of attitude – a new way of seeing ourselves and the city – that incorporates the notion of artistry and citizenry into one ethos. “A vibrant urban art teaches the art of life; but if the daily life is not artistic, inspired by intimacy, zest and sociality, the passion is missing, and a city without passion is just a series of artistic events,” he said. “Toronto has succeeded at just about everything, except looking glamorous to itself; and by glamour I mean a city’s attraction to its own uniqueness, moved by the conviction that there is a style of creativity that can only be done here.”

Di Cicco was appointed poet laureate of Toronto – a position of cultural ambassadorship – in September and will hold the post until 2007. He takes over from Dennis Lee (BA 1962 Victoria, MA 1965), Toronto’s first poet laureate and the author of such poetry collections as *Un* and *Nightwatch* and the children’s classic *Alligator Pie*. At the age of 56, Di Cicco has produced 17 books of poetry, each one radically divergent in scope and voice. From the powerful neo-surrealist images

that first emerge in *A Burning Patience* (1978) to philosophic meditations incorporating science and art in *Virgin Science: Hunting Holistic Paradigms* (1986) to the exploration of spirituality and faith in *The Honeymoon Wilderness* (2002), his work constantly shifts its shape. His latest collection, *Dead Men of the Fifties*, reveals another departure in voice. With the mirthful energy of a swing dancer and the comic timing of Jack Parr, Di Cicco jitterbugs his way through the landscape of the ’50s, casting an eye on Hollywood stars, musicians and the everyday people of the post-war decade.

Like his poetry, Di Cicco’s journey is filled with a series of

“It was discipline. And it was in the spirit of service, not in the spirit of ‘my rights are being infringed upon.’ The smaller you made yourself, the closer you felt to God”



radical turns. He was born in 1949 in Arezzo, Italy, south of Florence, where he lived until the age of three. He has three memories of that time: A palm tree outside the room in which he was born. The billowing waves of the Atlantic. His grandmother’s bouffant hairdo. “All the others are textured memories of the synesthetic kind,” he says. “Because when I was a kid, before they taught me Aristotelian senses, I could smell colour, feel music.” His father was a barber who played the accordion in dance bands. His mother, a homemaker, sang him arias and love songs.

Before his birth, during the Second World War, his brother was killed during an Allied bombardment in the area between Naples and Cassino. His mellifluous voice turns low and staccato when he speaks of it. “My brother – died – from a shell – I had a brother who – I had a brother who I never saw. I think he was 13, maybe 12, when he was caught in the bombing.” He takes a

deep, cavernous breath and shifts to another subject. His father’s barbershop was also levelled during the bombings.

The family, which includes an older sister, moved to Canada to rebuild. They lived in Italian communities in Montreal, then Toronto, where, Di Cicco says “the culture remained encased in amber.” But that refined Italian ambience was swapped for a steel-town existence when the family moved to Baltimore when he was eight. The city certainly had its graces in the 1960s, but they were of the salty, rugged Eastern seaboard flavour. Athletics trumped literature. Blue-collar workaday concerns left little room for arias and poetry. Di Cicco adhered to the social climate, excelling at baseball and lifting weights.

At 15, he found the book *The Art of Thinking* on a paperback carrel in a grocery store. Written by Voltairian freethinker Ernest Dimnet, it championed the idea of independent thought. “The idea fascinated me,” says Di Cicco. “I had no idea you could have things in your head that would take the

place of activities. It started Socratic kinds of dialogue in my head, and got me questioning and getting philosophical.” Shortly after, he stocked up on the poetry of John Keats, Percy Bysshe Shelley and William Wordsworth. He would take his books to the cemetery, sit on the tombstones and read “forever.” In the quiet space, he found solace in his readings, in his philosophical musings, and in his inceptive attempts at writing rhymed verse and sonnets.

The immigrant experience may have amplified his talent for precise nuance and rhythm, says Rita Davies, executive director of the culture division at Toronto City Hall and Di Cicco’s friend since the 1970s. “I share that immigrant experience. And when you’re an immigrant, you learn to – without even noticing it – become extraordinarily sensitive to the signals around you, because you need that for basic survival. Not survival like food and water, but social survival. It’s actually an enormously interesting tool later in life, but Giorgio takes it from being a tool to being an art... he understands the powerful effect of language used with precision and care, and the fine attention to the nuance of the word.”

At 18, Di Cicco left the city of Baltimore behind and moved in with his sister in Toronto. He soon enrolled at Erindale College, immersing himself in the theatre scene. As part of the university’s Pocoli Ludique Societas, a group of touring medieval and Renaissance players, Di Cicco performed in plays on campuses across North America. He took on roles in other U of T productions, including Thomas Beckett in T.S. Eliot’s *Murder in the Cathedral*. “I did so much theatre that I failed,” he says. “I didn’t pay any attention to zoology and botany and whatever else.” After enrolling in University College the following year, he stitched together a curriculum composed entirely of poetry courses. He found particular inspiration in Latin American neo-surrealists such as Pablo Neruda, Rafael Alberti and Cesar Vallejo, admiring them for their ability to “practise a brand of neo-surrealism that wasn’t off-the-wall surrealism, but was grounded in good imagism – imagism that was netted to the subconscious.”

After graduating, Di Cicco continued with his job as a bartender at the Graduate Students’ Union pub. After closing up the bar, he would return to his apartment near Spadina and Bloor, and write poetry until the early morning hours. “On Walmer Road in midtown Toronto, it’s the least noisy time of the day. Three in the morning is just perfect. It’s just nighthawks. Just you and the nighthawks and the typewriter.” A two-finger typist, he would pound out poems on his Olympia typewriter, emptying bottles of eraser fluid. (“Today’s generation can’t comprehend the aggravation of having typewriters and eraser fluid,” he grumbles. “It was a physical, manual labour of love.”)

His poetic output was enormous. After a stint at *Books in Canada*, where he worked his way up from subscription manager to editor, he soon became one of the few people in Canada making a living from poetry-related activities. Within

### IN THE CONFESSIONAL

do you want to know?  
dark, how dark it is?  
it is the lightest place I know. there is no light,  
no darkness;

a lot of mumbling, foreign accents, weeping;  
you hear the heart; the words drone, halt, put on hats,  
it is the heart you want.  
it is always the same human heart.  
that is why personality bores me. it is the same heart  
over and over, it is not sexy or stupid or bright.  
it is the same song. love me, love me, tell  
me i am loved. it is the same sin over and over.  
and it goes like this; i am the worst sinner in the world,  
what I am can never be forgiven. it is worn like skin,  
to be raked off again and again with a hand in the dark  
making the sign of the cross. it is my hand, raised wearily,  
tired of the human creature worthless to itself.

i know God is not tired. i am just there,  
i do not know what goes on between them, the grace that  
shoots through me, what He does with them before and after.  
i am just there to hear the heart, and say words that make  
it beat. it is the same heart in the dark that is not  
dark, i make a field for us to run in. i listen and take them  
out of their skin, these bodies,  
i take the skin from around the heart, the skin so tight around them,  
i see nothing, i know nothing but the same old heart,  
the young in it; and i grow old, child after child and the  
shucked bodies taken down the river like pelts,  
with the sound of children behind me,  
the nakedness of God and the deserving.

Pier Giorgio Di Cicco, *Living In Paradise: New and Selected Poems*  
(The Mansfield Press, 2001)

a few years, he had been published in 200 magazines internationally. *Critical Quarterly*. *Descant*. *Poetry Australia*. *Quarry*. He wrote his first collection, *We Are the Light Turning* (1975), in two weeks. He produced enough material for 13 collections of poems in less than a decade. He edited *Roman Candles*, the first anthology of Italian-Canadian poetry. And then, at the age of 33, he stopped cold. And he wouldn’t publish another poem for 15 years.

*“First days. I remember continual tears. Tunnels of lightless light.  
The invigorating blessed air. The clear and prolonged vistas.”*  
– from “First Days,” *Living in Paradise*

**W**ho can ever truly know what propels a spiritual quest, far from the world one has always inhabited? All that can ever be glimpsed are shadows, perhaps a line or two of poetry, into a private journey. In 1983, Di Cicco arrived at the door of Marylake, an Augustinian monastery outside of

Toronto. A prior named Father Cyril opened the door. Di Cicco asked, Have you got any use for a middle-aged literate like me? The father said, Sure, come on in. Put our library in order and do some dishes and pick up some garbage.

As “the low man on the totem pole,” Di Cicco washed and dried hundreds of dishes daily and served the 30 residents at every meal. He kept the library tidy. He attended community prayers. He acted as a translator for the largely Italian-speaking groups that made pilgrimages to the grounds on Sundays. His room was a brick cell with only a sink, a bed, a desk. From its window, he admired the “lovely view of a little lake behind the monastery, and a lovely little fountain that hardly ever ran, with our Blessed Mother presiding over the blue waters.”

The duties and servitude incumbent on the lowest member in the hierarchy was welcomed by Di Cicco. “It was discipline. And it was in the spirit of service, not in the spirit of ‘my rights are being infringed upon.’ The smaller you made yourself, the closer you felt to God. So the question of rights and dignity was academic or foolish. Spiritual progress often doesn’t rely on rights and questions of autonomy,” he says. “You don’t ask yourself every three minutes whether your sacrifice was worth it.”

Di Cicco’s shift away from a temporal existence allowed him to embrace and explore his fascination with prayer. “It was through language that I discovered prayer. It was through poetry that I rediscovered prayer. I didn’t stop writing poems. I didn’t stop creating. I didn’t stop singing. I just sang in a different direction.”

There was a need for priests within the Augustinian order, so after a year at Marylake, Di Cicco began theological studies at the University of Toronto. He drove down from the monastery every day to attend classes at St. Michael’s and St. Basil’s colleges. In his fourth year of studies, young directors at Marylake began replacing some of the orthodox religious traditions that he loved with more liberal and contemporary practices, so he transferred to the Archdiocese of Toronto. He was ordained to the priesthood in 1993, and began ministering to largely Italian-speaking parishes in nearby Woodbridge and Mississauga.

Today, Di Cicco balances his liturgical duties with professional and poet laureate obligations. He delivers Sunday sermons at parishes throughout Etobicoke although, when needed, he performs other sacraments: confessions, baptisms, marriages. “Part of why I became a priest was to help people finish the poem of their lives and to help write it with them or they write mine,” he says. “Because the poem on the page wasn’t enough. I wanted the poem on the page and the poem of life to be interconnected.”

30 UNIVERSITY OF TORONTO MAGAZINE

**AT** the age of 50, Di Cicco ran into Denis De Klerck, the publisher of Mansfield Press, who persuaded him there was a generation who wanted his poetry back in circulation. Di Cicco produced *Living In Paradise* (2001), a series of new and collected poems. The collection captures the contours of his poetic journey – and life journey. Throughout his books, there is often a continuous struggle to bridge chasms – whether it is between art and science, the Italian culture of his childhood and the culture of North America, or the intellect and emotion. Indeed, the idea of being caught between two worlds is often a topic that governs their conversations, says his friend Robert Nusca. “You find that idea in biblical writings. Certainly it’s behind St. Augustine’s *City of God* – the two cities: the city of the world and the city of God, and how people feel themselves caught between these two realities.”

“I didn’t stop writing poems. I didn’t stop creating. I didn’t stop singing. I just sang in a different direction.”



Just as Di Cicco struggles for the incorporation of artistry and citizenry into daily life, he struggles for fusion within his poetry. “Poetry seeks a completion or homecoming.... I’m always getting at something – I think it’s metaphysical. And metaphysical does not mean nonphysical, it means something like heaven and earth coming together, something about disparities merging, something about how the divine is in the earthly, and how the earthly reflects the divine. Something about marrying things. I have this zeal and zest for things to be married.”

**B**ack outside the Italian studies department, Di Cicco is on another break. He lights another *Matinée*, and reminisces about a time a few years earlier when he travelled to Arizona along Highway 60, using a *National Geographic* map that a friend had given him. The map was drawn in 1942. Di Cicco got lost. (“Who would have thought the roads in a desert would have changed?” he charges.) With a little help from a gas-station attendant and a new map, Di Cicco found his way through the desert’s silence.

He speaks about how much he loves to travel through deserts: the meditative nature inherent in their landscape; the solitude; the chance for reflection. But then he mentions how much he likes the bright neon cities that often surround them. And yet: the contrast between the garish, corporeal cities of Reno and Vegas and the spiritual, almost godly, desert landscape is so glaring. But yes, of course: This would be the marriage of two worlds. This would be the marriage of heaven and earth. ■

*Stacey Gibson is managing editor of U of T Magazine.*

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# MIRACLE at



**Doctors separated seven-month-old twins Tinashe and Tintenda Mufuka at The Hospital for Sick Children in March. The twins were born conjoined at the abdomen.**



# SICK KIDS

Two hospitals could not seem further apart.

The Hospital for Sick Children in downtown Toronto is a prominent pediatric teaching hospital. Its \$320-million annual budget supports a maze of wings that beep and gleam with the ministrings of high-tech health care.

Halfway around the planet in Zimbabwe, at the juncture of two rivers, sits the Salvation Army Howard Hospital, a modest cluster of buildings – some with grass thatched roofs – on grounds made verdant with baobab trees and cheered by the cartoon-bright colours of bougainvillea. With its two physicians and paltry \$40,000 annual budget, the Howard serves a population of 250,000 who eke out nourishment and a livelihood from the exhausted soils of the surrounding *Chiweshe* communal lands that date back to Zimbabwe's white rule and the segregation of the region's Shona-speaking people.

Still, the *chipatara* – Shona for hospital – is a symbol of hope and relief to a people pummelled by hunger, troubled politics and a devastatingly high incidence of HIV infection (one in four Zimbabwean adults have AIDS or are HIV-positive).

It is here that Elizabeth Mufuka, a single mother and subsistence farmer, arrived last June with her belly distended from seven months of pregnancy.

And it is here that Dr. Paul Thistle, who was born in

**Zimbabwean twins Tinashe and Tinotenda Mufuka were born conjoined. A marvel of international co-operation has brought them apart**

By Krista Foss



Toronto and educated at the University of Toronto, is the chief medical officer. Alerted by a midwife who suspected the quiet, humble woman was carrying more than one child, Dr. Thistle pulled out the hospital's most high-tech piece of equipment – an ultrasound – and discovered something troubling. Mufuka was carrying conjoined twins.

Thus began an extraordinary adventure of separateness and togetherness – an effort in which University of Toronto doctors working from opposite sides of the globe pooled resources, resolve and rare surgical expertise so two Zimbabwean babies born with bodies fused together could have a shot at leading separate, healthy lives.

“AT Howard Hospital, we no longer believe in miracles – we rely upon them,” writes Thistle in Howard Hospital's 2003 annual report. “It is only

by the Grace of God that the hospital remains operational.”

Dr. Thistle, a spectacled, youthful 42-year-old, is a revered *chiremba* – doctor. Since arriving in 1995, the obstetrician and gynecologist is at times the only physician at Howard; on average he sees 150 patients daily. What keeps him in this small village, 80 kilometres and a few bumpy dirt roads north of the capital city of Harare, is an old-fashioned missionary-like dedication. It is also his home. His wife, Pedrinah, is Zimbabwean, and both of their young sons were born at the Howard.

PHOTOGRAPHY: DIOGENES BANA/THE HOSPITAL FOR SICK CHILDREN

*Science has yet to  
divine why they occur,  
and nature has  
largely not been on the  
side of their survival*

Before Mufuka, Dr. Thistle had seen only one other case of conjoined twins. Attached at the heart and chest wall and born prematurely to an HIV-positive mother, the babies died shortly after birth. So although he is fluent in the language, the tireless doctor chose not to tell Mufuka that her unborn babies were unique and uniquely fragile. He opted for a few honest details – saying simply that she was carrying *mapatya* (twins), they would be delivered by Caesarean section, and may not survive. A man of faith, Dr. Thistle then banked on *chishamiso* – a miracle.

Two weeks after Mufuka's first ultrasound, Dr. Rachel Spitzer, an obstetrics and gynecology resident at the University of Toronto, arrived at Howard Hospital. In 2003, Dr. Spitzer had done several days of clinical work at the Howard, and now she was back for a three-month clinical and research residency involving HIV transmission from expectant mothers to their babies. She was also keen to assist Dr. Thistle with his patients. The two doctors had an easy connection. And it wasn't long before their simpatico working style would be tested by a once-in-a-lifetime birth.

On July 20, a few hours before one of the region's blazing sunsets, Mufuka showed up for her weekly appointment appearing uncomfortable yet typically stoic. "We examined her and she was without question in labour," recalls Dr. Spitzer.

Dr. Thistle gathered his staff in the operating room and informed them the twins were set to arrive. He would assist Dr. Spitzer with the C-section. "There was the nervous expectation that these kids were going to survive," says Dr. Thistle, adding that there was also the unspoken question of "What next?" Ten minutes later, the twin boys were lifted from their mother's womb without incident, much to the relief of the doctors who were amazed at what they had done. "They came out screaming," says Dr. Spitzer. "It was an easy delivery."

Tinashe and Tinotenda were swaddled and then fell asleep contentedly in the maternity ward. Meanwhile, the question of "What next?" weighed heavily on the two Canadians who had brought the boys into the world. It wasn't long before Drs. Thistle and Spitzer began looking homeward to Toronto for an answer.

Conjoined twins are a kind of miracle of incomplete separation. As with identical twins, they form when an ovum splits into equal halves during early embryonic development. The difference is they fail to completely cleave from each other during the crucial first two weeks. The resulting fusion of two bodies has its own unique variations. Conjoined twins often share a major organ such as a brain, heart, liver or bowels. They always share skin and only sometimes bones, genitalia and entire limbs. And they are rare – as few as one in every 50,000 to 200,000 pregnancies. Science has yet to divine why they occur, and nature has largely not been on the side of their survival. Half of conjoined twins are stillborn; one in three live for only a few days.

Surgical attempts to remedy nature's unfinished work in creating two individuals began as early as the 1600s. But it wasn't until the 1950s that a few leading pediatric hospitals around the world began devoting resources to helping these unique children. A conflux of medical advances made separation surgeries more viable – particularly the huge leap in diagnostics that occurred with the development of MRIs and CAT scans, which allow doctors to see exactly how and where conjoined twins are fused. But separation surgeries are still the province of the largest, best hospitals in the world – institutions with a critical mass of money, equipment, multidisciplinary expertise

and, typically, a university affiliation.

"The teaching hospitals are our university and the university is the hospitals," says Dr. Richard Reznick, chair of U of T's surgery department in the Faculty of Medicine. "As a research-intensive university our business is high-end surgery and the complex cases that others aren't positioned to do."

In 1966, the first surgical separation of conjoined twins in Canada was attempted at The Hospital for Sick Children, a U of T teaching hospital. But it wasn't until two decades later that the institution gained international prestige for its expertise in the surgery. That's when Lin and Win Htut, Burmese twins joined laterally at the pelvis who had been languishing in a Rangoon hospital because doctors there didn't know what to do with them, came to the attention of Dr. Robert Filler, then surgeon-in-chief and chief of general surgery at Sick Kids.

There is nothing routine about surgically separating con-



**Elizabeth Mufuka visits  
with her newly separated sons,  
Tinashe and Tinotenda**

*Cases are so rare that a doctor must bring to the surgery a career's worth of understanding. Clinical experience is paramount*

joined twins. "It's not like you get a 1,000 of these done this way and 1,000 done that way and then you compare the outcomes and make a decision," says Dr. Filler. "The numbers are too small." The cases are so rare that a doctor must bring to the surgery a full career's worth of understanding – an advanced knowledge of physiology, anatomy and surgical principles and experience with complex surgeries such as organ transplants. Clinical experience is paramount.

Dr. Filler had helped surgically separate twins in the United States, and he convinced the hospital's Herbie Fund, an international charitable organization that provides children with treatments not available in their home country, to help finance the Htut twins' surgery and care. In 1984, amidst a flurry of media attention, the Htuts were successfully separated at Sick Kids. More cases would follow. Today, a total of 10 separation surgeries have been performed at the Toronto institution.

"[At the time], there was very little written in the medical literature about conjoined twins," says Dr. Filler. "I thought it was wisest to have experts in each of the specialties involved, so I put together very large teams."

One of those early team members was Dr. Ron Zuker, a plastic surgeon and now also a professor at U of T. He had collaborated with Dr. Filler on how to cover the large wounds left by separation surgeries using tissue expanders, a technique already employed in other plastic surgery. In this procedure, silicone balloons are inserted under the skin near the future wound area and then gradually filled with salt water so the skin stretches and grows around them. In 1985, Drs. Filler and Zuker were the first surgeons to adapt tissue expanders to separation surgery when they flew to Trinidad and inserted expanders in the abdominal cavity of conjoined twins Heera and Shiva Ramkhalawan, several months before they were scheduled for separation at Sick Kids.

Dr. Filler's collaborations and "big-team" approach allowed knowledge of these rare cases to radiate to all who participated. As a young pediatric surgeon, Dr. Jacob Langer assisted in two separation surgeries with Dr. Filler. (As head of general surgery, he later participated in a third separation.) Then in 1999, Dr. Langer followed in Dr. Filler's footsteps by being appointed Sick Kid's chief of general surgery.

"There is no specific collaboration between the university and the hospital that makes complex surgery more possible," says Dr. Langer who is also a U of T surgery professor. "However, it is the relationship between the university and the hospital that creates the environment of academic excellence and attracts the most creative and talented minds to come here, both to train and to work. It is because we can build multi-disciplinary teams out of those kinds of people that we can take care of such complex surgical patients, who are referred to us from our own community and from around the world."



**Top: Dr. Rachel Spitzer and Elizabeth Mufuka;  
Dr. Jacob Langer**

**DR.** Langer's name was being whispered in hopeful breaths within 24 hours of Tinashé's and Tinotenda's noisy, remarkable debut at Howard Hospital.

Other international hospitals responded to Drs. Thistle's and Spitzer's inquiries but they lacked charitable support. When Dr. Langer replied he was interested in the case and copied his response to the director of the international patient office at Sick Kids that oversees the Herbie Fund, Drs. Spitzer and Thistle hoped they were closing in on the "great Canadian effort" for which they'd secretly been rooting.

But Dr. Langer needed more information to make his case to the Herbie Fund. "You can imagine how complex the whole process of human development is," he says. Well, that's how complex the process of separating twins is."

At Howard Hospital, phones are unreliable and sending and receiving e-mail means a 60-minute drive to Harare. Even there, the technology is archaic by Western standards. "There is no high-speed internet in Zimbabwe. Period," says Dr. Spitzer.

Three weeks after the twins were born, she taped an X-ray of the babies to a well-lit Howard Hospital window and snapped a picture of it with her digital camera. Using a slow Internet connection in Harare, it took her several hours to e-mail the image and a few other digital photos to Dr. Langer. But it paid off.

The images confirmed that Tinashé and Tinotenda were omphalopagus conjoined twins – attached abdominally at the liver. And it was also evident that each baby had all the organs a person needs to survive. But without the surgery they would likely meet a premature death.

Within two months of the twins' birth, there were solid plans

to bring the babies to The Hospital for Sick Children where they would be evaluated for a \$200,000 separation surgery.

“Blest be the ties that bind,” says Dr. Thistle. “I’ve worked as a medical student and resident at Sick Kids. It was like a homecoming.”

**BY** the end of September, Dr. Spitzer’s three-month rotation in Zimbabwe was over. The twins, then two months old, were not growing well, their feeding inhibited by their cleft lips and palates and the Howard’s limited resources. “I was sad to be leaving them,” she says. “But I also knew the best way to get them over here was to come back and start working on it more.”

So when Dr. Spitzer hit the ground in Toronto she became a fundraising fanatic – firming up already-committed donations and finding others for expenses the Herbie Fund could not cover. Ve’ahavta, a Canadian Jewish humanitarian organization, offered social support and accommodation. The Salvation Army of Canada covered the \$5,000 plane tickets. And many individuals – from those at Dr. Spitzer’s synagogue to the engineering firm where her father works – made personal donations.

Dr. Spitzer did not have to wait long before seeing the twins again. On Dec. 2, she drove to Pearson International Airport to pick up Mufuka, the twins and a nurse midwife named Grace who would act as a translator. On landing from their 18-hour flight from Harare, the Zimbabweans looked

out the plane window and saw snow for the first time in their lives – the beginning of many strange new *zvishamiso* (miracles) Toronto would offer.

**TO** orchestrate a separation surgery you need a physician with specialist training and also a generalist’s knack for understanding all the variables at play – a lead violinist who is an adept conductor. Dr. Langer had experience on his side, and he enlisted the help of Dr. Zuker, himself a veteran of seven separation surgeries. Other specialists eagerly offered their services for free. Soon, the team had expanded to include two general surgeons, two plastic surgeons, two anesthesiologists and an assortment of medical residents and eight nurses – 25 professionals in total.

Tinashe and Tinotenda were malnourished when they arrived in Toronto. But by March 2005, with more specialized medical care, they were robust and ready for surgery. There was a glitch in the plans, though. The tissue expander that Dr. Zuker had inserted over the shared part of the twins’ abdomen and lower chest, the area they were most worried about having enough skin to cover, had become infected. All the new skin was lost – a big blow, given wound coverage is one of this surgery’s biggest challenges. New techniques were required.

Dr. Langer has written 175 papers for peer-reviewed journals and 34 book chapters, and among his areas of expertise is repairing abdominal defects in children. In these cases, he often



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uses surgical mesh to strengthen and close the abdomen. But older materials, such as Gore-Tex, don't dissolve in the body and neither do they grow with a developing child. Recently, Dr. Langer had tried a new support material called Surgisis, bioengineered from pig cells, that's strong and can be absorbed by the body. "The patient's own cells grow into this patch so the patch ends up dissolving and is replaced by the patient's scar tissue," explains Dr. Langer. He decided to use Surgisis for Tinotenda, the smaller twin, who would have the larger wound and need support for his abdomen and chest walls.

The other tricky variable was the amount of anesthetic to give each child. The twins shared a blood vessel in the liver, which shunted more blood and nutrients to Tinashe. There was no way to know how much each twin weighed separately and how much of one baby's anesthetic would end up in the blood supply of the other. "We risked giving an overdose to one and an inadequate amount to the other," says Dr. Cengiz Karsli, the lead anesthetist for the surgery. In the end, they treated the twins as if they were of equal weight. Dividing the boys' livers was less of a worry, says Dr. Langer. Although the livers joined over a large area, they were actually separate organs, each with its own bile drainage and blood supply.

At 9:33 a.m. on Mar. 7, Dr. Langer and his team began the painstaking work of separating the twins. A little more than five hours later, Tinashe and Tinotenda were recovering in the critical care unit – in separate beds for the first time in their lives.

**DR.** Thistle often encourages his patients with the saying *Kugarika tange nhamo, rugare rugotever*, or "What is sown with tears will be reaped in laughter."

On a promising afternoon in early April – just shy of a month after their surgery – a beaming Elizabeth Mufuka displayed her two separate sons, Tinashe and Tinotenda, newly released from the hospital, to an ogling klatch of media.

The twins will stay in Toronto for another few months to have their cleft lips and palates repaired. In June, Paul Thistle plans to bring his family to Toronto for a vacation. If all works out as hoped, he will visit the newly separated twins in the bosom of Canadian health care before they return home to Zimbabwe and its sparser health-care realities.

The Canadians whose lives have intersected with the twins – from Drs. Thistle and Spitzer, to University of Toronto senior surgeons Drs. Langer and Zuker, to the many in the community who supported them – use words like "surreal," "extraordinary" and "fascinating" to describe the medical challenges and humbling human encounters that, for a short time, joined their lives with a very distant place. "You realize what you can achieve ... as an individual and as a community," says Dr. Spitzer. "The world's not such a big place sometimes."

In Shona, they might say *Zvishamiso zvakawanda zvauya* – "Miracles many came." ■

*Krista Foss is a freelance writer in Hamilton, Ont.*

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For visual  
studies professors

**Lisa Steele and  
Kim Tomczak,**

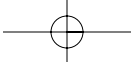
simply “making  
pretty things”

doesn't cut it

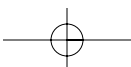
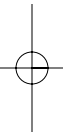
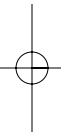
By Kevin Temple

# LIVING ON VIDEO

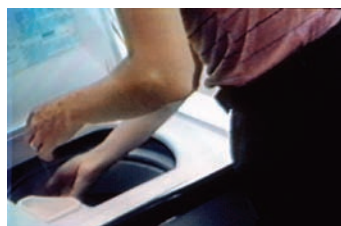
Lisa Steele still remembers the first time she held a video camera. A self-trained photographer, she had signed up for a weekend workshop in Toronto to learn how to use the new technology, and found something gratifying in the ability to instantly play back a moving image. “Whether this was art or not, I wasn't sure at the very beginning,”



PHOTOGRAPHY: JIM PANO



“I HAVE A PROBLEM WITH ANY KIND OF QUASI-GOVERNMENTAL BODY SAYING ‘THIS IS ACCEPTABLE TO SEE,’ OR ‘THIS IS NOT ACCEPTABLE TO SEE. THAT FUNDAMENTALLY SHOULDN’T EXIST.’”



she says. “But it was very intriguing to me.”

That single workshop more than 30 years ago marked the beginning of a long artistic journey for Steele who, with partner and artistic collaborator Kim Tomczak, was named a 2005 winner of the Governor General’s Award in Visual and Media Arts. The jurors of the award praised the two University of Toronto professors for their career achievements in video art, and for questioning accepted ideas and advocating free expression.

Steele and Tomczak like to tackle issues forcefully. For their first collaboration, in 1983, the couple made a videotape of themselves having sex. A visual treatise against censorship, *In the Dark* was to be shown over four nights as part of a performance art series at Toronto’s Harbourfront Centre, but it was cancelled after the first screening.

The artists decried the decision. “I have a problem with any kind of quasi-governmental body saying ‘this is acceptable to see,’ or ‘this is not acceptable to see,’” says Tomczak. “That fundamentally shouldn’t exist.”

For Steele, testing boundaries has always been an essential part of the artistic process. “As visual media artists you don’t really get anywhere unless you push something,” she says. “Whether it’s the medium itself, the choice of imagery or material, or the way you manipulate it. Just making pretty things doesn’t cut it.”

The couple’s 1984 video, *Working the Double Shift*, examined the politics of domestic labour. At the time, female artists were pushing for equal recognition, and the short piece served as a call to action for gender equality in the home. “We’ve tried to conceive our projects as part of the political system,” explains Tomczak.

Video artists have infused politics into their medium ever

**1984’s *Working the Double Shift* examined the politics of domestic labour**

since portable video cameras became available in North America in the 1960s. But the art never really entered the mainstream. Relatively few people produced it, galleries rarely showed it and almost no one collected it.

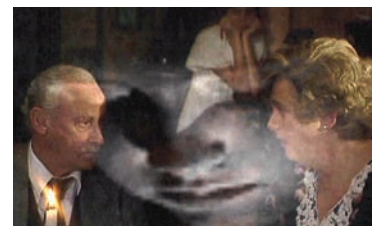
The popularity of video grew through the 1980s with the rise of installation art, but the medium itself changed in the 1990s with the arrival of new digital technologies. Video artists (now commonly called media artists) exert considerable influence within the artistic community, having helped to change

and expand the definition of art. Their work is exhibited more frequently. Leading museums such as the National Gallery of Canada in Ottawa, the Museum of Modern Art (MoMA) in New York and the Centre Pompidou in Paris have acquired extensive video collections, including pieces by Steele and Tomczak. (The couple’s 1996 video, *The Blood Records: Written and Annotated*, received its world premiere at New York’s MoMA.) Still, producing a stunning and original video work, like making any art, is extremely challenging. “You never stop obsessing over it,” says Tomczak. “It’s so complicated to make a non-terrible work.”

The difficulty of being an artist – of creating truly “non-terrible” work – is a message Steele and Tomczak try to convey to their students in U of T’s visual studies program. “It’s



**In *Blood Records*, a young girl is treated in a sanatorium in 1940s Saskatchewan**



something we talk about almost daily with our colleagues,” comments Tomczak. “We do it through an immersive program, through going to galleries and introducing the students to the art world. It is a complicated part of our culture and we tell them that it’s a lot of work, a lot of information, a lot of study and it’s going to take a few years.”

The payoff? “Our ultimate hope is that we are encouraging our students to become artists,” says Tomczak. “And giving them a better appreciation for and understanding of contemporary culture.” ■

*Kevin Temple (BA 2003 Woodsworth) is a contributor to NOW magazine in Toronto. He writes about art and culture.*



# Great Gifts



Peter Godsoe

## Heart and Soul

When Peter Godsoe (BSc 1961 VIC) retired from Scotiabank after nearly four decades of service, the bank honoured the former chairman and CEO with a \$1-million donation to the University of Toronto.

For Godsoe, directing the gift toward his alma mater was a natural choice. “The university has been significant in both my – and my wife’s – career,” says Godsoe. “It is where I was introduced to applied mathematics, which laid the foundation for my career in finance and international banking. U of T is also where my wife, Shelagh (BA 1962 UC, BLS 1963), worked as a librarian for more than 25 years.”

The gift has been matched through the province’s Ontario Student Opportunity Trust Fund, creating a \$2-million endowment to establish the Peter Godsoe/Scotiabank Scholarship in International Finance and the Peter Godsoe/Scotiabank Scholarship in Financial Engineering. Both scholarships are for MBA students at U of T’s Joseph L. Rotman School of Management.

*“I hope that these scholarships help to attract the type of people who are interested in making an impact globally.”*

“I am very impressed with Rotman and its strength in international finance and financial engineering,” says Godsoe. “These subjects are what I call the heart and soul of banking and they are areas of banking that interest me most.”

In 10 years, under Godsoe’s leadership, Scotiabank grew to become Canada’s second-largest bank and expanded its international reach significantly. Godsoe says training business leaders who understand the global market is vital to the national economy. “I believe Canadians are capable of competing at anything, anywhere in the world,” he says. “I hope that these scholarships help to attract the type of people who are interested in making an impact globally.”

Roger Martin, dean of the Rotman School, agrees. “This generous gift from Scotiabank will have a lasting impact on Canadian business,” he says. “It will help Rotman produce world-class leaders and is a fitting tribute to Mr. Godsoe’s legacy and impact on Canadian and international banking and finance.”

– Anjali Baichwal

PHOTOGRAPHY: DICK LOER/TORONTO STAR

# Great Gifts

## Beating Kidney Disease

Chances are you don't give much thought to the health of your kidneys – yet they're essential for life. Kidneys are responsible for filtering waste from the blood and regulating the body's fluid level. When a person's kidneys fail, they often have to go on dialysis permanently or until they receive a kidney transplant. Medical advances over the past 25 years have allowed people with kidney disease to continue an active life, even though some require daily medication or dialysis.

At U of T, researchers are pushing the boundaries of medical investigation when it comes to the prevention, diagnosis and treatment of kidney disease. With the support of two new endowed chairs in nephrology – the Gabor Zellerman Chair in Nephrology Research and the Baxter Oreopoulos Chair in Nephrology Research – the aim is to improve the lives of the nearly two million Canadians and countless people around the world affected by kidney disease. Both chairs will be held in U of T's Division of Nephrology at the Faculty of Medicine.

Elisabeth Hofmann donated \$3 million to create an endowed chair in honour of her late husband, Gabor Zellerman, an engineer and inventor who held more than 50 patents in everything from hair colouring to medical instruments. A search is underway for a researcher to fill the chair.

In a separate donation, Baxter Corporation of Canada, a leading manufacturer of medical devices and pharmaceuticals, has created the Baxter Oreopoulos chair, named in honour of



**Dr. Dimitrios  
Oreopoulos and  
Gabor Zellerman**

Dr. Dimitrios Oreopoulos, a professor of medicine at U of T and director of the peritoneal dialysis program at the University Health Network. Oreopoulos helped pioneer the use of peritoneal dialysis for kidney failure and is internationally recognized for his work in kidney disease. This chair will be held by the director of U of T's nephrology division, with funds used to explore new avenues in research.

"The Zellerman and Baxter Oreopoulos chairs will strongly contribute to the body of research on kidney disease conducted at U of T," says Dr. Edward Cole, head of the university's nephrology division. "The Zellerman chair also provides a major benefit by allowing the nephrology division to attract a scientist of world-class calibre."  
– Janet Wong

## Journey of a Lifetime

A couple who found refuge in Canada from the horrors of the Second World War and developed successful careers here as psychiatric researchers have left a \$250,000 bequest to the University of Toronto.

The gift from the estate of Andrzej and Karolina Jus will fund an annual lecture in their name at the Joint Centre for Bioethics and will support research by Dr. Philip Seeman and his team into the biochemical and genetic abnormalities of brain diseases such as schizophrenia.

Previous donations from the couple

have supported numerous prizes and awards, including the Juliusz, Dorota and Zofia Frist Annual Memorial Prize in Neuropsychopharmacology, established in memory of Karolina's parents and sister, who were victims of the Holocaust.

Having lived in Poland during the Nazi occupation, Karolina and Andrzej witnessed brutal discrimination on a daily basis. While many Jews were killed during the war, Karolina converted from Judaism to Catholicism and married Andrzej in the Catholic Church. While the war raged on, the couple lived in a small

Polish village where Andrzej worked quietly as the town doctor. After the war, the young couple moved to France, then England, before settling in Canada.

Andrzej and Karolina gave generously to U of T during their lifetime – often in honour of Karolina's parents and sister (the couple didn't have children). Together, they documented their Holocaust experiences in a book called *Our Journey in the Valley of Tears* (University of Toronto Press, 1991). Karolina Jus passed away in November 2002; Andrzej died in 1992.  
– Laura Rosen Cohen

## The Case of the Generous Mystery Writer

The mystery of how a writer develops a first draft into a polished novel may become clearer now that suspense author Joy Fielding (BA 1966 UC) has donated the manuscripts of 13 of her books to the Thomas Fisher Rare Book Library.

Fielding, who admits she has saved virtually every piece of paper from her celebrated career, has included publisher's notes, correspondence and fan mail with her gift. "The comments from editors and my own notes together show the evolution of a career," she says. "It made giving up all of that material, saved over so many years, a little difficult to do." But Fielding, who lives part time in Toronto, says donating the collection to U of T is not only rewarding, but gives her an excuse to come back to campus. "I can go visit the collection any time I want," she says.

The material is expected to be of interest to aspiring writers, as well as scholars of Canadian writing. "We collect Canadian literary manuscripts from about 30 authors," says Anne Dondertman, assistant director of the Fisher library. "Joy's manuscripts provide a wealth of interesting primary documentation."

Fielding's books, which include bestsellers such as *The First Time*, *Whispers and Lies* and *See Jane Run*, have been translated into more than 20 languages. Four of her novels have been made into movies. Fielding has also been an actor; she appeared in about 20 campus productions while attending U of T. After graduating, she moved to Los Angeles and landed a role in a 1968 episode of the television series *Gunsmoke*.

"I started writing when I was a child and it evolved over the years, though interestingly I didn't read a lot," she says. "In high school I read what I had to but deep down I always knew that I would be a writer. I loved telling stories."

Fielding's manuscripts are included in the exhibition "CanLit without Covers: Recent Acquisitions of Canadian Literary Manuscripts" at the Thomas Fisher Rare Book Library until Sept. 2. — *Jamie Harrison*



Joy Fielding

*“The comments from editors and my own notes together show the evolution of a career”*

## It's Never Too Late

Gerald Dunlevie (BA 1951 UC, MA 1986) is living proof that, in some ways, you can go back. This June, the 80-year-old will join his fellow students at convocation to receive his doctorate in Italian studies, more than five decades after completing his first degree at U of T. He follows in the footsteps of his wife, Lucile Wakelin (MA 1991, PhD 1998), who earned her doctorate in medieval studies while in her 70s. "She is smarter than I am and definitely quicker than I am," Dunlevie joked.

In between degrees, Dunlevie enjoyed a career as a high school teacher of Greek and Latin and later as a vice-principal. Konrad Eisenbichler, a professor in Renaissance studies and Italian at Victoria College, speaks glowingly of Dunlevie's "cultural understanding," which he says is "a reflection of his age and education."

Eisenbichler served as Dunlevie's professor and thesis advisor, but the two men also became friends. One evening, Eisenbichler was visiting Dunlevie and Wakelin at their Toronto home when Dunlevie remarked that, as a retired vice-principal, he didn't need the full \$17,000 stipend granted each year to U of T doctoral students. Eisenbichler suggested giving some of the money back to the department.

Over the next two years, Dunlevie, an active member of the tight-knit Italian studies community, donated \$20,000 to the department. His gift, matched by the provincial government, became the Lucile Wakelin Dunlevie Graduate Award in Italian Studies. "Education is a contagious passion that is communicated from teacher to student," Dunlevie says. "I feel so very, very fortunate for the scholarly opportunities I've received."

— *Stephen Watt*

PHOTOGRAPH: NICOLAS SEIFLOW

# Great Gifts

## Restoring One Spadina

A landmark gift to the University of Toronto's Faculty of Arts and Science from Toronto businessman W. Bernard Herman (BA 1931) will help pave the way for the restoration of One Spadina Crescent, a heritage building that will serve as home to an integrated Department of Fine Art.

Herman's \$1-million gift will restore the three-storey building's elegant entrance and grand staircase to create the Sharon and Bernard Herman Lobby. "People give money to the poor, the sick and the aged to satisfy their conscience," says Herman. "A person gives to the Faculty of Arts and Science to satisfy his or her intellect."

Erected in 1875 on one of the city's only circular lots, One Spadina was the first site of Knox College's Presbyterian Theological School. Over the last century, the building has served as a convalescent hospital for soldiers returning from the First World War, and as headquarters for the pioneering Connaught Medical Research Laboratories, which helped develop the polio vaccine. Now artists and art students are finding inspiration in its intriguingly storied walls.

Professor Pekka Sinervo, dean of the Faculty of Arts and Science, says Herman's gift is a crucial first step toward turning a noted heritage building into a state-of-the-art academic facility. "Mr. Herman has made an important contribution toward preserving the city's architectural past and securing a dynamic future for the arts at U of T," says Sinervo. "One Spadina will be not only a prominent southwestern gateway to the university, but a bridge between the academy and the vibrant artistic, commercial and residential communities it borders."

— Diana Kuprel

The Department of Fine Art's new home

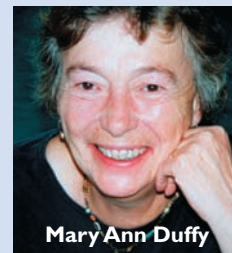


PHOTOGRAPHY: CAMELIA LINTA

## The Spirit of Sacrifice

Mary Ann Duffy (BEd 1981) was a born altruist and educator whose teaching career took her from schools as diverse as the City Adult Learning Centre to the National Ballet School. So when her husband, Dennis Duffy (MA 1962, PhD 1964), a former principal of Innis College, established a bursary at Innis to honour student volunteerism, he naturally chose to name it after his late wife.

The Mary Ann Duffy Award is granted annually to the graduating female student at Innis who contributes the most to the community through volunteer work. Dennis Duffy designed the award to recognize the qualities he found most inspiring in his wife.



Mary Ann Duffy

"Mary Ann was extremely self-sacrificing," he says. "How do you celebrate that virtue in others? You do so by creating

an award for pure volunteerism. And I restricted the bursary to women because my wife was an active feminist."

Dennis Duffy left his position as principal of Innis in 1984, but worked there until 2000. In 2001, he helped found the Vic One program for first-year students at Victoria University, where he serves as a professor emeritus of English. He continues to feel an attachment for Innis, and has met with each of the recipients of the Mary Ann Duffy Award since its inception in 2003. Through Duffy's own initiative and matching funds from the provost's office, the award's endowment will stand at \$200,000 at the end of 2005.

Tracy MacIntosh became the award's first recipient in recognition of her volunteer work with the Daily Bread Food Bank and Beat the Street Learning Centre in Toronto. MacIntosh, who is now completing her master's in public health and nutrition at Tufts University in Boston, says the bursary is important because it fosters student involvement beyond the classroom. — Stephen Watt

# AlumniNotes

PROFILES • NEWS • EVENTS • CALENDAR



## Around the World at 80 Years

Daphne Schiff isn't like most people. She has raced around the globe in a twin-engine plane. She can pilot anything from a turboprop to a 737. She flies from France to Africa almost every autumn. And, oh yes, she's 80 years old.

Schiff earned a BA in 1945 at Victoria College (because someone told her she couldn't do it), then a master's in chemistry in 1947 (take that!) at U of T. Does she feel she's done anything special, being a woman in the male-dominated world of flying and one of the oldest certified pilots in Canada? "No." Are people amazed by her? "People think I'm crazy – they're probably right."

Schiff earned her pilot's license in 1970 at the age of 46, and has flown in so many races – from the Round the World Race to the Transatlantic Air Race – that she's lost count. She's a member of the Ninety-Nines, the inter-

*Continued on page 47*

PHOTOGRAPHY: LORNE BRIDGMAN

# AlumniNotes



Mark Angelo

## They Say They Want a Revolution

**M**ark Angelo (BASc 2003) spent the summer of 2000 teaching music to children of deprived backgrounds in southern India. The 20-year-old had done volunteer work in Toronto, but he says the experience abroad allowed him to think on a global level. "I started to think about how I could use my talents on an international scale," he says.

Shortly after, Angelo became a founding member of the World Youth Centre, a virtual organization that provides social activists under the age of 30 with the education, financial resources and contacts they need to run community projects. The not-for-profit corporation, which raises funds through government, charitable foundations and donations campaigns, supports entrepreneurs throughout the world. "The things they're trying to do involve issues such as HIV/AIDS, the environment and poverty," says Angelo, 25, who now serves as chair of the centre's board of directors. "They're not easy tasks, and a lot of people would say they're too hard and they're going to fail. But they have this amazing optimism."

Fifteen entrepreneurs will take part in the centre's International Program, slated to be held this summer at U of T. Memunatu Barrie, for example, is a 20-year-old from Freetown, Sierra Leone, who hopes to heighten youth awareness about HIV/AIDS through a hip-hop campaign. Rafael Anibal Mendoz Lozano, a 28-year-old from Lima, Peru, is planning an ecotourism project to help preserve the indigenous culture of the Quechua people. Over eight weeks, they'll take workshops in project management, ethics, fundraising and marketing led by experts in industry, academe and the not-for-profit sector who volunteer their time.

"It's partly because we grew up with the Internet, but our generation has a lot more awareness of the problems facing the world," says Angelo, a consultant with Monitor Group, an international professional services firm. "We're not prepared to sit back and let things happen."

— Megan Easton

PHOTOGRAPHY: JAYSON GALLOP

## Kudos

**Y**WCA has recognized three U of T alumni with 2005 Women of Distinction Awards. Sister Ellen Leonard (BA 1967), a professor emeritus of theology at St. Michael's College, was honoured in the religion and education category. Leonard, who joined the Sisters of St. Joseph in 1951, was one of the first women to teach theology in Canada. She is a champion of women's equality in the church and academic worlds. Margaret Norrie McCain (BSc 1955), former lieutenant-governor of New Brunswick, is the recipient of the philanthropy and volunteerism award. An advocate for early childhood education, McCain co-chaired the City of Toronto's Commission for Early Learning and Child Care in 2002. An award was also granted posthumously to Dianne Martin (BA 1972 VIC), one of Canada's leading female criminal lawyers. During her almost 30-year legal career, Martin advocated for the reform of sexual assault law, the establishment of midwifery as a profession, a citizens' review of police activities and the defence of the wrongfully convicted.

Sabra Desai (BA 1983 Erindale, MSc 1985) received a New Pioneers Award for Community Service, which recognizes contributions made by immigrants and refugees in the Greater Toronto Area. Desai helped create the Interim Place for women and children facing violence, and is a founding member of the South Asian Women's Centre.

## Crossing Into Shangri-La

Graduates and friends of the University of Toronto gathered at the Shangri-La Hotel in Kuala Lumpur, Malaysia, for the first-ever Asia Alumni Congress on the weekend of April 8. The theme “Crossing Borders: Networking in the New Asian Economy” drew business leaders from China, South Korea, Sri Lanka, Indonesia and Taiwan. The weekend began with a welcome reception at the official residence of His Excellency Melvyn L. MacDonald, the Canadian High Commissioner to Malaysia, followed by alumni presentations. Patrick Fung (BASc 1971, MBA 1973), chair and chief executive of Wing Hang Bank, spoke about consolidation in Hong Kong’s financial-services industry. Dr. David S.H. Chu (LLD 1997), chairman of China’s Mission Hills Group (the world’s largest golf club), discussed preparations for the 2008 Beijing Olympics and the expanding Asian leisure industry. Attendees enjoyed a tour of the city and a closing gala dinner at the historic Carcosa Seri Negara Hotel. — M.E.



From left: Samsukri Mohamad, Evelyn Sue Wong, Anson Chan, Kwong-Mun Low, Andree Surianta, Patrick Fung

## New Alumni Governors

Three alumni governors – both new and returning members – will sit on this year’s Governing Council, which oversees the academic, business and institutional affairs at U of T. Newly elected member Elizabeth Vosburgh (BA 1968 VIC) is an entrepreneur who has served as chair of Victoria University’s Board of Regents. Timothy Reid (BA 1959 TRIN), chair of the Ontario Lottery and Gaming Corporation, and Jacqueline Orange (BA 1966 ST. MIKE’S), president and CEO of Canada Investment and Savings, have been re-elected.

Continued from page 45

national women’s flying club founded by Amelia Earhart. Schiff and a friend, Adele Fogle, make yearly trips to the west coast of Africa for Paris-based Air Solidarité, a humanitarian-aid organization. Flying a single-engine plane from France to Mali, Algeria, Senegal and other countries, the women deliver pharmaceuticals and school supplies. They also check the progress of Air Solidarité projects, including the building of schools and health clinics.

There have been brushes with danger. During the Round the World Race in 1994, Schiff and two fellow Ninety-Nines were flying over Iran when their plane was met by two Iranian military jets. The jets flanked the twin-engine plane for 10 minutes. “They couldn’t

figure out what these three women were doing flying this plane,” she says. Nervous that they’d be forced to land, the women scrounged their luggage for proper headwear. “We had no scarves. Nothing but our flight suits. The best we could come up with was three pairs of silk panties!” In the end, the men lost interest and an incident was avoided.

On another occasion, near the coast of Chile, both engines just stopped. Even this didn’t phase Schiff. “You have a checklist and you know what you have to do – you go through it item by item until you find out what’s wrong. And that’s what we did.” What’s happening as the pilots calmly go about their task? “Oh, the ocean’s getting

closer,” she says, smiling.

Schiff and Fogle are now preparing for their eighth trip with Air Solidarité this fall. Fundraising is their main task: aid, fuel and other expenses will bring the cost of the trip to \$40,000. Schiff and Fogle are so far without a corporate sponsor, as many of their regular donors have contributed to the tsunami relief effort instead.

Schiff’s piloting adventures began – like her university education – with a challenge. She spent her first flying lesson clutching the arm of her instructor who, upon landing, told Schiff’s husband, “She’ll never be a pilot.” “That’s when I decided to do it,” she says. She’s never looked back since – only down.

– Lisa Rundle



# alendar

## ALUMNI EVENTS

June 2 to June 5. Join fellow alumni for **Spring Reunion** events. All alumni are welcome, but this year's honoured classes are 1925, 1930, 1935, 1940, 1945, 1950, 1955, 1960, 1965, 1970, 1975 and 1980. Events include a 25<sup>th</sup> Anniversary Reception at the Faculty Club; jazz musician John Arpin at Walter Hall; a 50<sup>th</sup> Anniversary Luncheon at 89 Chestnut Residence; Chancellor's Circle Medal Presentations at Hart House; the President's Garden Party; "Great Books by Great Grads" book fair at Hart House; and the lecture "Why Puzzles in Human Life?" by Professor Marcel Danesi at Hart House. For a full list of events, visit [www.springreunion.utoronto.ca](http://www.springreunion.utoronto.ca). To register, call (888) 738-8876 or contact Jennifer Bennett at (416) 946-3996.

## TOURS

June through August. **Historical Walking Tours**, St. George Campus. Weekdays at 10:30 a.m., 1 p.m. and 2:30 p.m. (Holidays excluded.) All tours depart from the Nona Macdonald Visitors Centre, 25 King's College Circle. Reservations are not required for groups of less than 10. (416) 978-5000

## CAMPS

July 4 to Sept. 2. **Science Outreach summer camp** for children in grades 2 to 8. Each of the week-long camp programs bring together a mix of engineering and scientific demonstrations, hands-on activities, design projects and lab tours. Instructors are undergraduate students in science or engineering at U of T. Programs run on all three campuses. Monday to Friday. Contact (416) 978-3872 or [sciout@ecf.utoronto.ca](mailto:sciout@ecf.utoronto.ca) or visit [www.ecf.utoronto.ca/~sciout](http://www.ecf.utoronto.ca/~sciout)

## EXHIBITIONS

### Robarts Library

June 1 to Aug. 31. **Shady Characters: An Exhibition of Mysteries Recommended by U of T Library Staff**. All University of Toronto staff, students and alumni can participate in the poll to pick the university's most popular mystery novel, favourite crime fighter and most beloved villain by visiting [www.library.utoronto.ca/event/shadycharacters](http://www.library.utoronto.ca/event/shadycharacters). The online poll will continue throughout the summer. The exhibition will be held in Robarts Library, first-floor exhibition area, 130 St. George St. Monday to Thursday, 8:30 a.m.-midnight; Friday 8:30 a.m.-6 p.m.; Saturday 9 a.m.-5 p.m.; Sunday 1 p.m.-6 p.m. (416) 978-8450

utoronto.ca/event/shadycharacters. The online poll will continue throughout the summer. The exhibition will be held in Robarts Library, first-floor exhibition area, 130 St. George St. Monday to Thursday, 8:30 a.m.-midnight; Friday 8:30 a.m.-6 p.m.; Saturday 9 a.m.-5 p.m.; Sunday 1 p.m.-6 p.m. (416) 978-8450

### Thomas Fisher Rare Book Library

To Sept. 2. **CanLit without Covers: Recent Acquisitions of Canadian Literary Manuscripts** features Canadian literary papers, including those of Margaret Atwood, Joy Fielding, Alberto Manguel and Erika Ritter. The exhibit traces the development of a text from the initial idea to the various manuscript drafts, the publication process and the public reception of the work. 120 St. George St. Monday to Friday, 9 a.m.-5 p.m. (416) 978-5285

### Justina M. Barnicke Gallery, Hart House

To Aug. 18. **Isaacs Seen: Regarding Av.** "Isaacs Seen" is a four-part exhibition to be shown in four Toronto art institutions. It covers the career of the avid art collector and art dealer, and the impact of his gallery on the Canadian art scene over more than 50 years. The Justina M. Barnicke Gallery will highlight his life and collecting habits. Please see the University of Toronto Art Centre (below) for information on another part of this exhibit. 7 Hart House Circle. Monday to Friday, 11 a.m.-6 p.m., Saturday and Sunday, 1-4 p.m. (416) 978-8398 or [www.utoronto.ca/gallery](http://www.utoronto.ca/gallery)

### University of Toronto Art Centre

To Aug. 5. **Isaacs Seen: Gallery ReView**. "Isaacs Seen" is a four-part exhibition to be shown in four Toronto art institutions. Gallery ReView exhibits what the public might have seen at the Isaacs Gallery between 1955 and 1990. The show includes paintings and sculpture by 24 artists long associated with the

gallery, and demonstrates the breadth of its offerings. Please see the Justina M. Barnicke Gallery (above) for another part of this exhibit. \$5 general admission; seniors and students \$3; free for U of T students and art centre members. 15 King's College Circle. Tuesday to Friday, 12-5 p.m. Saturday, 12-4 p.m. Closed on Saturdays in July and August. (416) 978-1838, [www.utoronto.ca/artcentre](http://www.utoronto.ca/artcentre)

## THEATRE

### Hart House Theatre – Summer Outdoor Season

Wednesdays and Fridays, July 20 to Aug. 5. Tuesday, July 19 and Aug. 2. **The Tempest** by

William Shakespeare. Directed by Joel Grothe.

Thursdays and Saturdays, July 21 to Aug. 6. Tuesday, July 26. **Electra** by Sophocles. Directed by Graham Cozzubbo.

Philosopher's Stage at Philosopher's Walk. 80 Queen's Park (just south of Museum subway station). \$10 general admission; students and seniors \$8. Tuesdays, PWYC. For tickets call (416) 978-8849 or [www.uofttx.ca](http://www.uofttx.ca). For information, visit [www.canopytheatre.ca](http://www.canopytheatre.ca)



Margaret Thompson in *The Trojan Women* – Hart House's 2004 summer season

## LECTURES

### School of Continuing Studies

June 8. **The Markham Knowledge Economy** with Markham Mayor Don Cousens. Learn more about the development of an "intelligent community." 158 St. George St. 4-6 p.m. No registration necessary. (416) 978-2400 or [www.learn.utoronto.ca](http://www.learn.utoronto.ca)

June 14. **Homophobia: Culture or Tradition?** with artist Samuel Chow, lawyer Zahra Dhanani, playwright Tomson Highway, and U of T professors David Rayside and Rinaldo Walcott. 158 St. George St. 4-6 p.m. Free, but please register for course number SCS1442 at [www.learn.utoronto.ca](http://www.learn.utoronto.ca) or phone (416) 978-2400.



# Puzzle

## Mystical Magic Squares

By Marcel Danesi

**AN** arrangement of numbers in a square pattern in which the sum of each row, column and diagonal is the same is called a *magic square*.

Magic squares were discovered about 4,000 years ago in China, where they are called *lo shu*. According to Chinese legend, a flood of the Lo River prompted nearby villagers to offer a sacrifice to the river god. A turtle emerged from the river, but the water did not subside. The people viewed the turtle as a sign that the sacrifice had been rejected, but a child noticed a peculiar square on the turtle's shell containing a pattern representing the numbers one through nine arranged in three rows. The sum of each row, column and diagonal was 15. The people interpreted this to mean that 15 sacrifices would be required to appease the river god.

*Lo shu* started to spread from China to other parts of the world in the second century AD. Around 1300, the Greek scholar Manuel Moschopoulos introduced magic squares into Europe. Medieval astrologers perceived occult properties in the squares and used them to cast horoscopes. Many believed the squares contained cosmic messages. The 16<sup>th</sup>-century astrologer Cornelius Agrippa, for example, believed that a magic square of one cell containing the digit 1 represented the eternal perfection of God. He interpreted the fact that it's impossible to construct a two-by-two magic square to be proof of the imperfection of the four elements – air, earth, fire and water.

To this day, the Chinese ascribe mystical properties to *lo shu*. Magic squares are sometimes placed over the entrance to a dwelling or room to provide protection against the evil eye. Amulets and talismans are commonly inscribed with *lo shu*.

As the legend describes, each of the three rows, three columns and two diagonals of *lo shu* add up to 15. This is known as the *magic constant*. Can you arrange the numbers in other ways (than shown at right, top) to produce a magic constant of 15?

*Lo shu* is a magic square of "Order 3," indicating the number of cells in each row, column and diagonal. Try constructing an Order 3 magic square using the numbers four through 12. What is the magic constant?

A four-by-four square is called an Order 4 magic square. The magic constant is always equal to the sum of the digits within the square, divided by the order of the square. For example, the magic constant of an Order 4 magic square that uses the numbers one through 16 is 34 (the sum of 1 through 16, which equals 136, divided by 4).

One of the most famous Order 4 magic squares was constructed by the 16<sup>th</sup>-century German painter Albrecht Dürer, which he included in his 1514 engraving *Melancholia I*.

The 17<sup>th</sup>-century French mathematician Bernard Frenicle de Bessy proved that there are 880 possible arrangements of the numbers 1 through 16 in such a pattern. Interestingly, Dürer's square (above, second from top) has many "magical" properties. For example, the magic constant 34 is the sum of each

8	3	4
1	5	9
6	7	2

16	3	2	13
5	10	11	8
9	6	7	12
4	15	14	1

17	24	1	8	15
23	5	7	14	16
4	6	13	20	22
10	12	19	21	3
11	18	25	2	9

52	61	4	13	20	29	36	45
14	3	62	51	46	35	30	19
53	60	5	12	21	28	37	44
11	6	59	54	43	38	27	22
55	58	7	10	23	26	39	42
9	8	57	56	41	40	25	24
50	63	2	15	18	31	34	47
16	1	64	49	48	33	32	17

**Magic squares of orders 3, 4, 5 and 8.**  
What are their magic constants?

row, column and diagonal, but is also the sum of the numbers in the four corners; the four numbers in the centre; the two middle numbers in the bottom row and the top row; the two middle numbers in the right-hand column and the left-hand column; and the numbers in each of the smaller two-by-two squares that occupy the corners of the larger square.

A magic square of Order 5 (left) has 275,305,224 possible arrangements. What is the magic constant?

Perhaps the most extraordinary of all magic squares is an Order 8 magic square (left) devised by Benjamin Franklin, the 18<sup>th</sup>-century American public official,

writer, scientist and printer.

Constructed with the first 64 integers, Franklin's square contains a host of astonishing numerical oddities: Half of each row and column totals 130 – half the magic constant of 260. The sum of the numbers in the four corners plus the sum of the four numbers in the centre is 260. The sum of the four numbers forming any two-by-two square within the main square is 130. The sum of any four numbers equidistant from the centre is 130.

Can you arrange the following numbers – 1, 7, 13, 31, 37, 43, 61, 67, 73 (all of which are prime except 1) – into an Order 3 magic square? What is the magic constant? **Answers on p. 53.**

# Campus Stories

## Reunited and It Feels So...

U of T alumni reconnect with old school friends

### THE BOOKS THAT BIND US

In the spring of 1999, while I was recovering from breast cancer, a friend lent me copies of *The New Yorker*. I chanced upon a small ad with the headline “Great Books and Opera in Toronto.” I called the number listed and spoke to someone at St. Michael’s College about a program based on the Great Books called “Classical Pursuits.” I signed up right away for a week-long discussion of Dante’s *Inferno*.

On the second day of the course, I was chatting with a couple, Brian and Kathleen, who had completed their undergraduate degrees at U of T and had returned to the university in August 1968, the month after I left, so Brian could pursue a PhD in English literature.

We began to play, “Who do you know?” When I mentioned the name of an old friend with whom I had lost touch, Brian and Kathleen exchanged a meaningful glance. By sheer coincidence my old friend Danny was in Toronto that week with his wife – and they, along with another old classmate, Doug, were staying with my new friends!

I spent a beautiful summer night that week in a backyard in Toronto, talking with old friends and new about the things that matter most in life: books, poetry, philosophy and politics. I now come to Toronto each summer to participate in Classical Pursuits, and to spend time with a wonderful group of people.

Thomas Wolfe once wrote a book called *You Can’t Go Home Again*, but he was talking about North Carolina, not U of T.

*Kathryn Ruth Bloom  
(MA 1968)  
Boston*

### FROM AIX TO OTTAWA

While backpacking through Europe in 1979-80, I met up with a number of U of T students who were spending their third year abroad studying in Aix-en-Provence in France. One of them was Joanna Provan, whom I had never actually met at U of T. We had a great time, and got together in Toronto when the year was over. She moved out west after graduation and we lost touch until about five years later, in Ottawa. I was walking toward the West Block on Parliament Hill when Joanna suddenly appeared. She had moved to Ottawa from Calgary with her boyfriend and found a job working for a Saskatchewan MP. Joanna

and I stayed close for a few years, until she married and moved back west – but not before she’d introduced me to my future husband! Her firstborn is my godchild – and now almost ready for university herself.

*Andrea Shaver  
(BA 1982 VIC)  
Mississauga, Ont.*

### THAT SHRINKING FEELING

My second job out of university was at the Canadian Bankers Association. My colleague Timothy Gregg sat an arm’s length away from me, and every so often we would chat about the places we liked to go, the things we liked to do and the people we liked to see.

When Tim learned that I’d attended University of Toronto at Scarborough, he asked whether I knew “David,” but was quick to dismiss the possibility that our paths had crossed. “David Tait?” I asked.

Tim sat in stupefied silence as I described how David – who happened to be Tim’s childhood friend from Burlington, Ont. – had been my soccer coach for U of T intramurals. We’d hung out at the UTSC pub and the “java junction” together. After graduation, David returned to Burlington to pursue studies at McMaster University while I stayed in Toronto. David and I had lost touch until Tim and I discovered the connection.

Now, when Tim and I are married later this year, David will be a guest at our wedding. ■

*Nina Kreidler  
(BA 1998 UTSC)  
Toronto*



ILLUSTRATIONS: FRANCIS BLAKE/THREE IN A BOX

# An Alumni Success Story



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## BOOK SALES

**Trinity College** 30<sup>th</sup> Annual Book Sale, October 21 to 25. Proceeds to the Graham Library. To help with the sale or for book pickup, please call (416) 978-6750.

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**Annual week-long summer program at Knox College.** August 8-12 and/or August 15-19. Morning lectures on subjects of current interest, including Domenico Pietropaolo on Dante, followed by lunch. Be curious! Contact Eleanor at 416-978-4500 or [knox.college@utoronto.ca](mailto:knox.college@utoronto.ca) Web site: [www.utoronto.ca/knox](http://www.utoronto.ca/knox)

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ceptive and reproductive decision-making experiences between 1960 and 1980, especially at U of T, UBC and McGill. Confidentiality respected. Contact Prof. C. Sethna, University of Ottawa, Institute of Women's Studies, 143 rue Séraphin-Marion, Ottawa, ON, K1N 6N5, (613) 265-9090 or ccame083@uottawa.ca

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### THE AFFAIRS OF ANATOL

A new production of Schnitzler's very funny play, September 12-October 9 at Artword Theatre, 75 Portland Street (King and Bathurst), Toronto. Seven episodes follow mercurial playboy Anatol (John O'Callaghan) through seven affairs that speak to our own intimate conflicts. Schnitzler inspired Stoppard and Hare; Ophuls' stunning *La Ronde*; and Kubrick's *Eyes Wide Shut*. Freud called him his doppelgänger. Sue Miner will direct. Artistic Director, Carroll Bishop. A Glastonbury West Production. For more information, contact us on our Web site [www.glastonburywest.com](http://www.glastonburywest.com)

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### ANSWERS TO PUZZLE

(continued from page 49)

Two possible versions of *lo shu*:

4	9	2	8	1	6
3	5	7	3	5	7
8	1	6	4	9	2

The magic constant of an Order 3 magic square using the numbers four through 12 is 24.

7	6	11
12	8	4
5	10	9

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67	1	43
13	37	61
31	73	7

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# Looking Back

BY F. MICHAH RYNOR

## Time Traveller

I have a friend who moans that he lives in the wrong age. Devouring science fiction books describing space flights and string theory, he dreams of flying a car from Toronto to England and vacationing on Mars – but knows he will not be alive to savour this strange future.

In Hart House, this warrior's headgear *has* survived from another era. The helmet, most likely from the 14<sup>th</sup> century, was worn by a Turkish archer (quite possibly a Christian slave) who served in the Imperial Guard. The Turkish consulate donated the helmet to U of T in the 1970s to serve as a Hart House Archery Club trophy. Today, the names of the Best Instinctive Archers are engraved along the foundation of its case.

The helmet, which once stared out on ancient battlefields, now stares placidly at the undulating screen of a computer in the main office. Perhaps, unlike my friend, savouring the strange excitement of the past. ■



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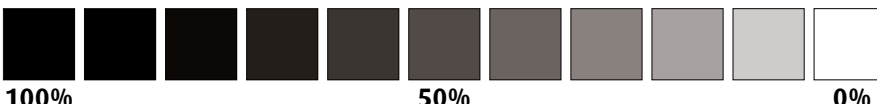


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