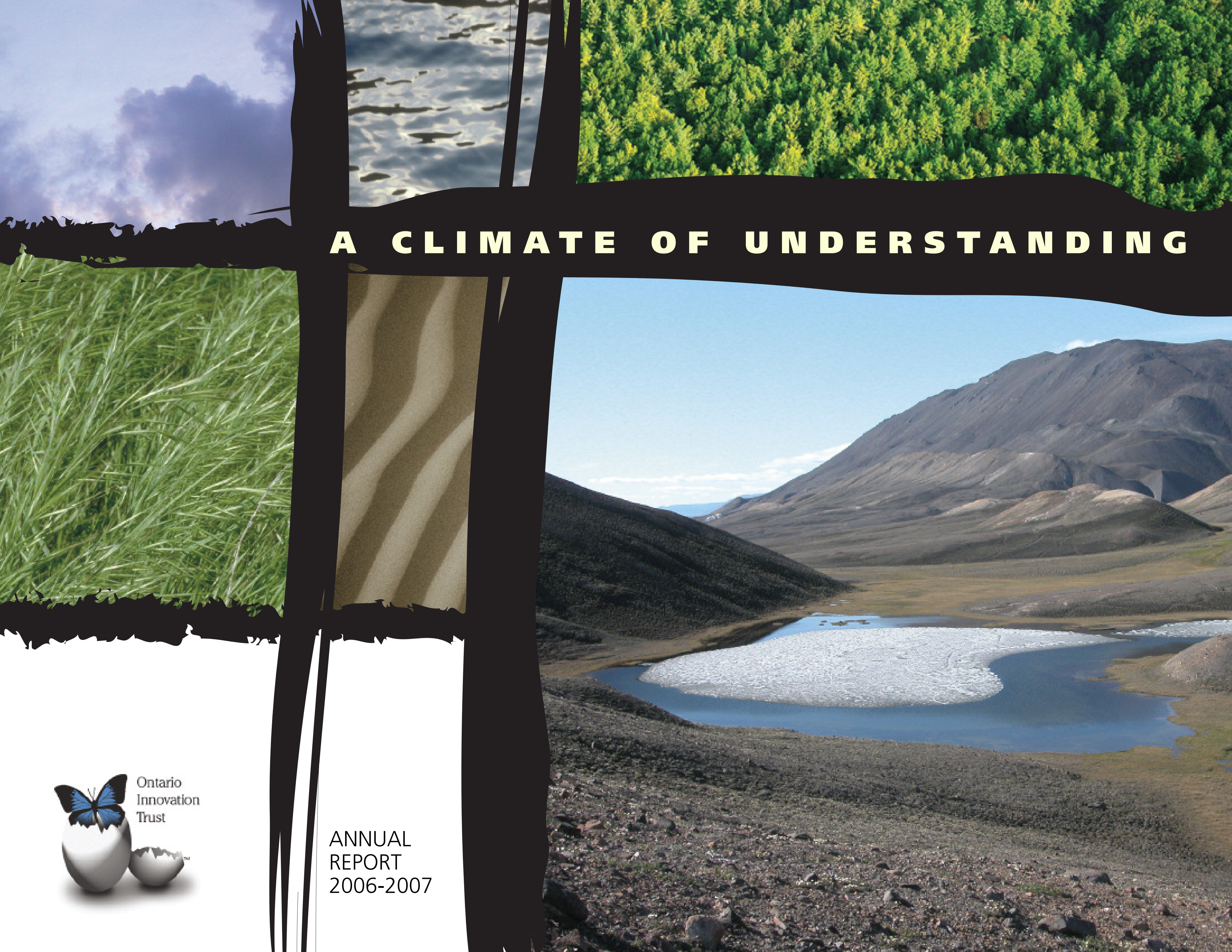
A CLIMATE OF UNDERSTANDING

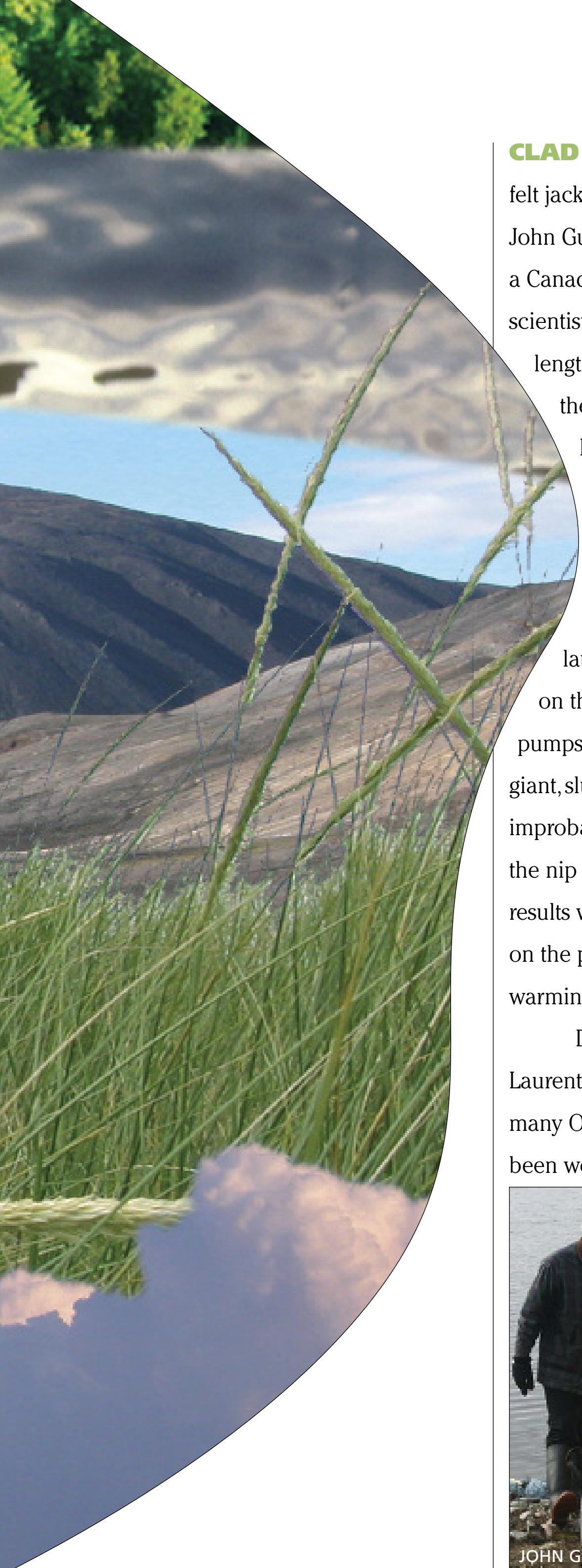


Ontario Innovation Trust

ANNUAL REPORT 2006-2007

A CLIMATE OF UNDERSTANDING

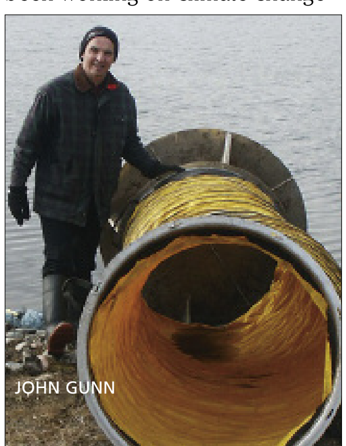
WHAT'S HAPPENING? WHY? AND HOW SHOULD WE RESPOND? ONTARIO RESEARCHERS LOOK FOR ANSWERS ON CLIMATE CHANGE, WITH A LITTLE HELP FROM THE ONTARIO INNOVATION TRUST.



CLAD IN GUM BOOTS, felt jacket and toque, biologist John Gunn—the very image of a Canadian environmental scientist—wrestles a metre-wide length of flexible tubing into the frigid waters of a small lake near Sudbury, Ontario.

The tubing belongs to an ungainly device known as a solar mixer. When assembled and launched, the mixer will float on the lake, its solar-powered pumps churning the water like a giant, sluggish blender. And as improbable as it may seem from the nip in the Sudbury air, the results will provide valuable data on the pressing issue of global warming.

Dr. Gunn—a professor at Laurentian University—is one of many Ontario scientists who have been working on climate change for much longer than the problem has been on the pop culture radar. And his mixer is one of a wide variety of tools they're using—tools provided with the help of the Ontario Innovation Trust. Other researchers hunch over keyboards in humming computer rooms, or haul radio transmitters through bug-infested watersheds, or scale steel towers into the tree tops or steer inflatable dinghies across arctic lakes. Some work with high tech machines like mass spectrometers, while others prefer a lower-tech tool that's always effective: talk. But whatever their instruments of choice, all of them are part of a massive global effort to understand our planet's changing climate, and to find ways of limiting or living with those changes.



JOHN GUNN

IRENA CREED

DR. IRENA CREED is no stranger to gum boots, felt jackets and—well, maybe not toques.

As Director of the Catchment Research Facility at The University of Western Ontario, she spends a significant amount of time slogging through the black flies and maple forests in the Algoma Highlands north of Sault Ste. Marie.

She and her colleagues have deployed a network of sensors and radio transmitters in the area to gather a complete range of readings on the weather, soil conditions and concentrations of greenhouse gases and water vapour. Sifting through a profusion of data, her team is trying to understand how the ecosystems of northern or "boreal" forests absorb, and hold greenhouse gas-related substances like carbon. This ability to either "sequester"—think of a locked-up jury—or release such substances makes forests major players in the drama of global climate change. The more carbon and nitrogen that stays captive in trees, soil and water, the less is available in the atmosphere to produce greenhouse gases like carbon-dioxide and methane.

"We're particularly interested," explains Dr. Creed, "in climate conditions that change the allocation of carbon and nitrogen that goes to the atmosphere, versus going into aquatic systems." Her research suggests that as temperatures climb, boreal forests release more carbon-dioxide into the air than into the water, potentially fueling the upward spiral of global warming.

As with many climate scientists, a key goal for Dr. Creed is to create a "model"—a mathematical simulation—of the process she is studying. (See "A Different Kind of Super Model" on page 5.) In this case, a model would not only let scientists predict the effects of different climate scenarios on northern forests, but could also help develop forest management strategies to maximize carbon sequestration. And given that boreal forests still cover a huge percentage of the northern hemisphere, that could be a big help in fighting climate change.

FROM THE TOP OF a 30-metre tower, Dr. Altaf Arain has a unique vantage point on the challenge of climate change. Much of the sensitive equipment being used by the McMaster University researcher and his team is perched atop this and three other steel structures in a conifer plantation near the north shore of Lake Erie. Dr. Arain, a professor of hydrometeorology, is looking at the potential of such deliberately planted forests—versus the natural ones being studied by Dr. Creed—for offsetting greenhouse gas emissions from human sources.

The four towers carry sensors that capture data on vertical wind speed and concentrations of CO_2 and water vapour 20 times a second. Interpreted using a technique known as eddy covariance, the data provides a direct measurement of the net exchange of carbon dioxide, water vapour and heat between the surface and the atmosphere over an area of up to a square kilometre around each tower. Those measurements are helping Dr. Arain to determine the carbon

ALTAF ARAIN

sequestration potential of a planted forest, and how that potential may be affected by extreme weather events and seasonal or annual variations in climate.

When they're not scrambling up and down their towers to service instruments or retrieve data, Dr. Arain and his colleagues are in their computer lab helping to refine something called the Canadian Land Surfaces Scheme (CLASS). "It reflects all the key soil-vegetation-atmosphere exchange processes," explains Dr. Arain, "and our field measurements are contributing to its development and testing." The CLASS is a component of the Canadian Global Climate Model, one of nearly a dozen models used by the Intergovernmental Panel on Climate Change (IPCC)—the United Nations-sponsored body that's co-ordinating the investigation of climate change on a global scale.

It's surprising how much and how far you can see from the top of a tower in Southern Ontario…

IT'S BEEN A SLICE.
QUEEN'S RESEARCHER JOHN SMOL SECTIONS A CORE SAMPLE OF SEDIMENT FROM THE BOTTOM OF AN ARCTIC LAKE INTO TELL-TALE ONE CENTIMETRE LAYERS.

JOHN SMOL

"MODELING" IS obviously a very big deal in climate change science. But how can we judge the trustworthiness of a model's predictions? One answer may come from a very unlikely source: mud.

In fact, the quest for mud is the reason two Queen's University researchers (more toques!) are crouched in a tiny dinghy on an arctic lake. They're part of a program directed by Dr. John Smol, one of the foremost practitioners of a relatively new science with a tongue-twisting name. Paleolimnology is the study of the history of lakes with a view to what they can tell us about prehistoric environments—and, indirectly, about climate in the future.

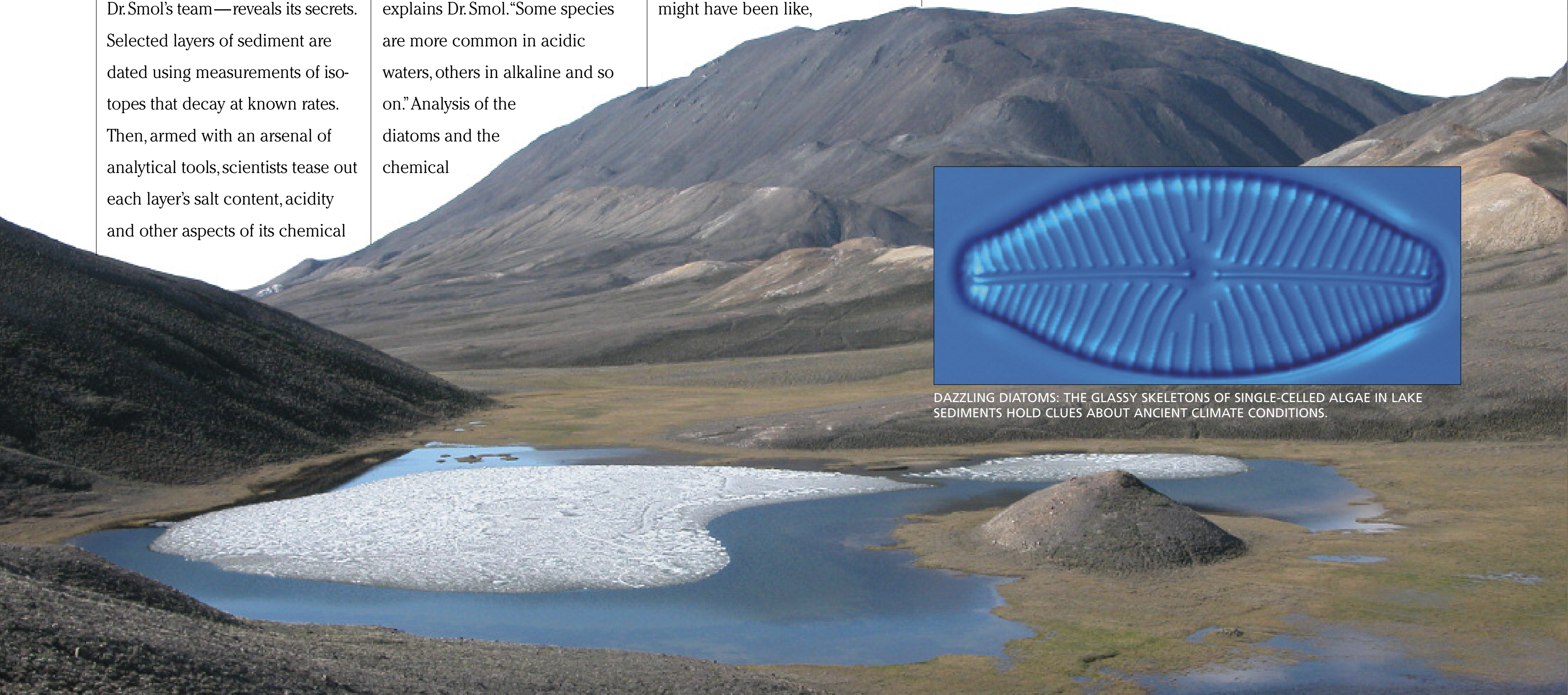
"A lake is always slowly filling up with sediment," explains Dr. Smol. "And in that mud is an incredible library of information about stuff that has happened inside and outside the lake. It's like a history book."

Back in a lab at Queen's, the core sample retrieved by the researchers from the bottom of the lake—one of hundreds studied by Dr. Smol's team—reveals its secrets. Selected layers of sediment are dated using measurements of isotopes that decay at known rates. Then, armed with an arsenal of analytical tools, scientists tease out each layer's salt content, acidity and other aspects of its chemical makeup. All these measurements provide multiple hints about the climate at the time the sediment was deposited; increased salt content, for example, points to conditions of drought.

Perhaps the most interesting information comes from each sample's dazzling store of silica skeletons from diatoms—a type of algae found in any natural body of water. "The shapes indicate different environmental conditions," explains Dr. Smol. "Some species are more common in acidic waters, others in alkaline and so on." Analysis of the diatoms and the chemical indicators, combined with dating information, can provide a pretty accurate picture of the climate when the sediment layer was laid down.

And here at last we have our method of testing models with mud. Because climate simulations are mathematical, modelers can run their numbers backwards, leading not to forecasts but to "hind-casts"—reverse predictions of what the climate in a given area might have been like, say, 2,000 years ago. Compare that prediction with the conditions suggested by data from one of Dr. Smol's cores from the same area and dated at the same period and voila! You have an empirical method for testing the reliability of the model. It's not infallible, but as Dr. Smol sums it up: "You can reasonably argue that the models that can hind-cast the best are probably the best for forecasting."

(continued on page 6)



DAZZLING DIATOMS: THE GLASSY SKELETONS OF SINGLE-CELLED ALGAE IN LAKE SEDIMENTS HOLD CLUES ABOUT ANCIENT CLIMATE CONDITIONS.

Super Models of a Different Kind

A very brief, hopelessly oversimplified introduction to climate models.

Climate change scientists spend a lot of time making models—and we're not talking about ships in a bottle. Here's a quick guide to some basic concepts.

Climate models are mathematical computer programs. It's tempting—on a whimsical day—to think of a global climate model as a big sphere in a lab, covered with whispy model clouds. Turn up the sun lamp and watch what happens! Alas, the truth isn't that pretty. Climate models are, in fact, computer programs—very long collections of mathematical equations. Like any computer program, they need to be fed variables to work with—say, a prediction of future global fossil fuel use. Once the model is loaded with such a "scenario," it crunches the numbers to produce a prediction of, say, future global temperatures based on that scenario.

Climate models are based on fundamental physical principles. Mostly. Much of the math in a climate model reflects the operation of the kinds of established scientific laws we learned in high school. But…many climate models also include other equations not based on these laws. More about this tweaking process later.

Climate models portray a variety of processes. Some models deal with the effects of increased air temperature on ocean currents, for example. Others deal with how ice reflects heat from the sun. Still other models portray more detailed processes, like how particulates behave in the atmosphere.

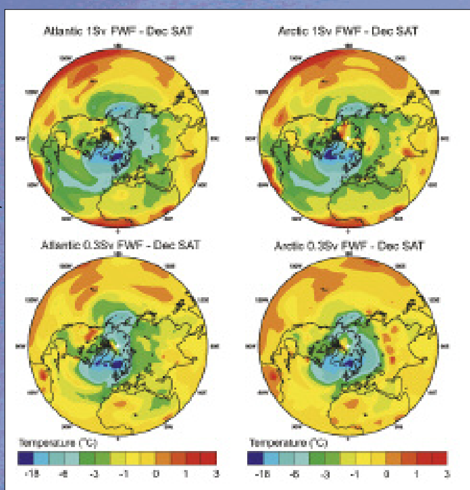
Climate models portray processes on different scales. Think maps. Large scale, low resolution maps give you the "big picture" over large areas; small scale, high resolution maps give you the details. In the same way, low resolution climate models deal with big-picture processes over very large areas; for example, how melting ice sheets affect the circulation of ocean currents. High resolution models deal with processes like how carbon cycles through a square kilometer of forest. Climate models also vary in their time scales, operating in increments from minutes (high resolution) to many years (low resolution).

Climate models often have to be "tweaked." In low-resolution, big-picture models, important climate-affecting details can get missed. The classic example is clouds. A model that covers an area a few hundred kilometres on a side can use physical laws to predict the interaction of temperature and air circulation. But clouds are too small to show up in those models, just like villages don't show up on world maps—and clouds can have a big effect on circulation. So climate scientists have to add more math—based on experimental observations, not basic physical laws—to tweak the larger-scale models.

Climate models can correct each other. Different models designed by different scientists take different approaches. One benefit: errors and defects in individual models tend to cancel each other out.

Climate models can be combined. To get a more complete picture of global climate patterns, it's possible to mathematically connect large-scale, low resolution models with small-scale, high-detail ones. Models of different processes—ocean circulation, for example, and ice sheet behaviour, can also be coupled together. The calculations of each model inform and affect the calculations of the others.

FIGURE PROVIDED COURTESY OF W.R. PELTIER, UNIVERSITY OF TORONTO.



MULTIPLE MELTDOWNS.
GLOBAL SURFACE TEMPERATURE MAPS REFLECT FOUR DIFFERENT OUTCOMES BASED ON FOUR DIFFERENT LAND-ICE MELTING SCENARIOS FED INTO THE SAME MODEL.

IF PROFESSOR SMOL'S chosen tools of climate science are microscopes and mud, Dr. Richard Peltier of the University of Toronto, uses the satellite and the super computer.

One of the early problems facing climate change scientists had to do with sea level change. Rising temperatures, they assumed, should be melting glaciers and global ice sheets, and the result should be an increase in sea levels. But while levels were rising in some locations, they were actually falling in others.

Dr. Peltier broke the back of the problem in the 1990s by suggesting that some parts of the planet that had been covered with ice during the last ice age were still "bouncing back" after being compressed for so long by a heavy glacial load. He named the phenomenon glacial isostatic adjustment (GIA). Because of this phenomenon, he posited, some coasts were actually rising, masking an overall increase in sea levels.

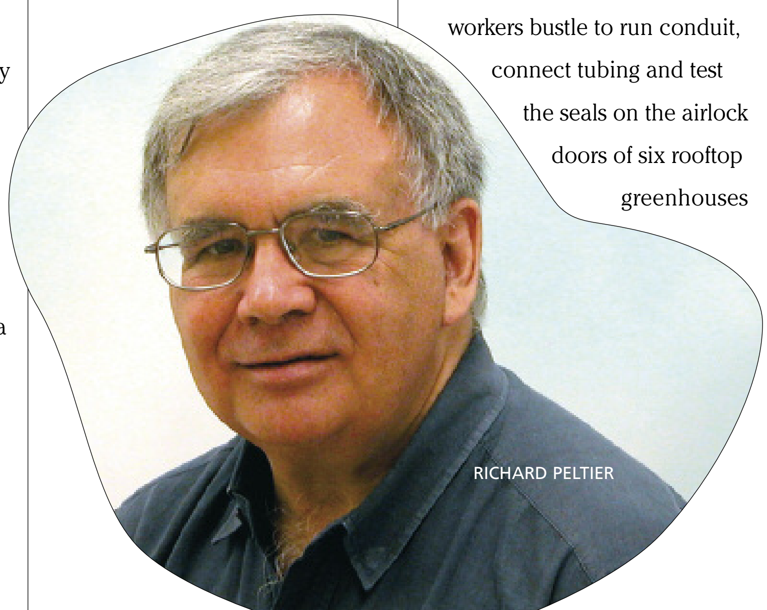
By 2002, Dr. Peltier had translated his insight into a fully-fledged mathematical model for predicting sea level change—a model that's now an integral part of the calculations that go into every report by the IPCC. Essentially, the model corrects for the "memory effect" from former ice ages, so that the real magnitude of sea level change can be detected. "It's been used in a variety of different ways," says Dr. Peltier, "to predict by how much sea level will rise—on a particular coast, for example, in response to a specific amount of land ice melting from Antarctica, or from Greenland."

Such a complex global model demands immense computer resources. Even on a super computer that can perform several trillion calculations a second—thousands of times faster than a typical laptop—it takes a month of continuous operation to run one set of variables through Dr. Peltier's model.

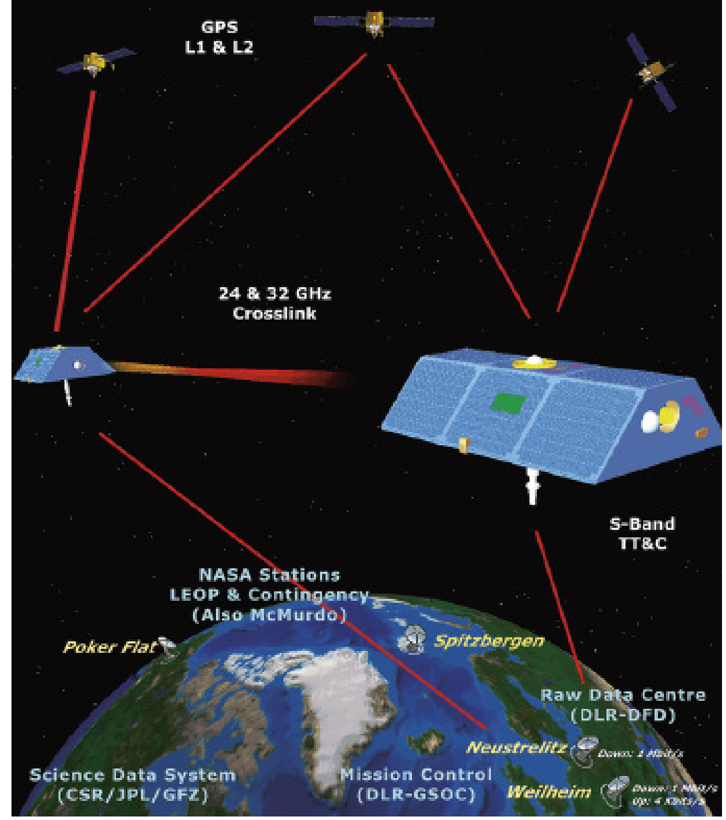
In a recent scientific coup, the model has been experimentally verified—not by a slice of mud but by a signal from space. A pair of NASA satellites launched to study subtle variations in gravitational field over the earth's surface recorded patterns that exactly conformed to the Toronto physicist's predictions about glacial isostatic adjustment.

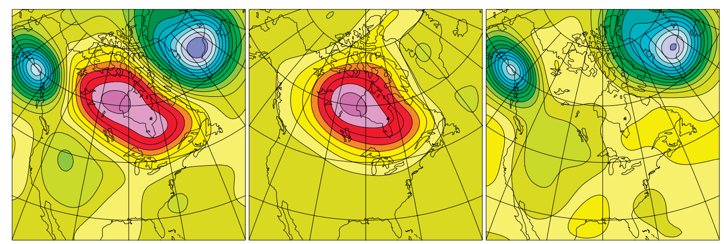
GIA… Q.E.D.

AS SUNLIGHT POURS through walls and ceilings of glass, workers bustle to run conduit, connect tubing and test the seals on the airlock doors of six rooftop greenhouses



RICHARD PELTIER



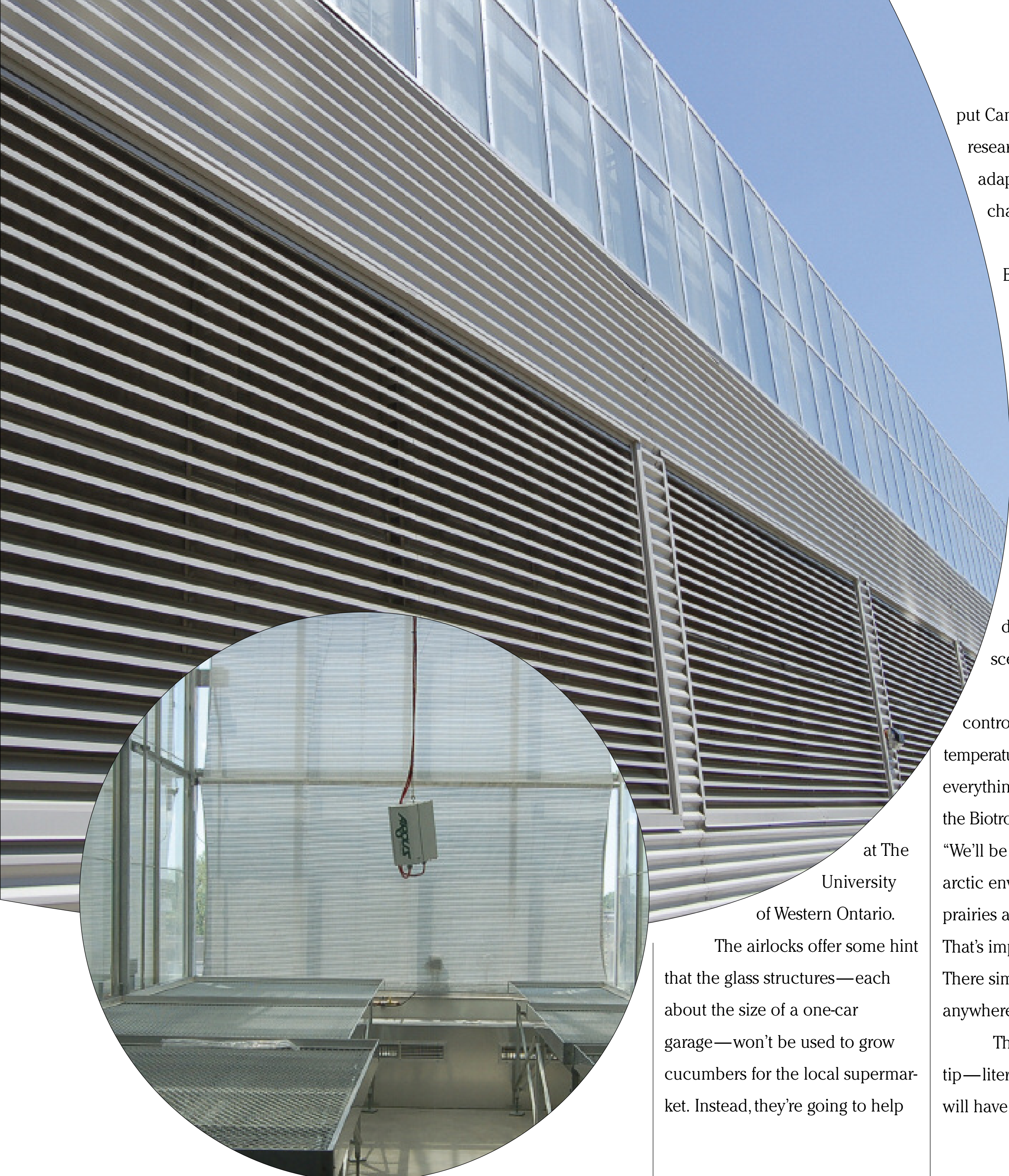


A MODEL VERIFIED. A REALITY REVEALED.

A PAIR OF NASA SATELLITES MEASURE VARIATIONS OVER TIME IN THE EARTH'S GRAVITATIONAL FIELD, INDICATING WHERE AND AT WHAT RATE THE SURFACE IS RISING OR FALLING. SATELLITE DATA FOR NORTH AMERICA (LEFT MAP IMAGE) SHOWS CHANGE IN THREE KEY AREAS.

A SIMILAR IMAGE BASED ON DR. PELTIER'S MODEL (CENTRE MAP IMAGE) PREDICTS THE RATE OF CONTINUING SURFACE REBOUND IN NORTHERN CANADA DUE TO THE DISAPPEARANCE OF VAST ICE-AGE GLACIERS. THE PREDICTION CONFORMS CLOSELY TO SATELLITE DATA FOR THE AREA, VERIFYING THE MODEL.

REMOVING DR. PELTIER'S GLACIAL "MEMORY EFFECT" GIVES A TRUER PICTURE OF WHAT'S ACTUALLY HAPPENING TODAY (RIGHT MAP IMAGE): GREENLAND AND ALASKA ARE RISING, NOT BECAUSE OF AN ANCIENT EVENT, BUT BECAUSE THE OVERBURDEN OF ICE IS CURRENTLY MELTING DUE TO GLOBAL WARMING.



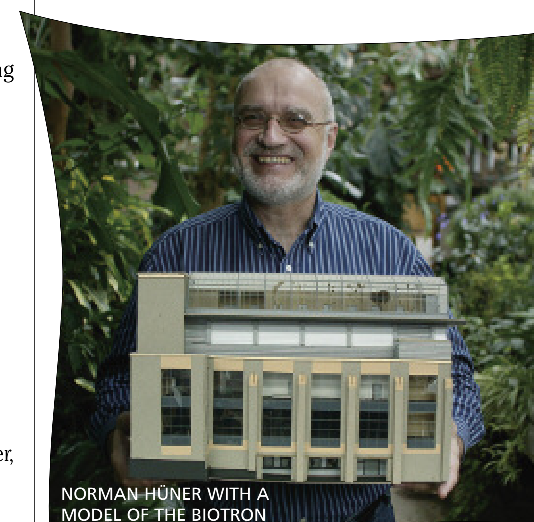
at The University of Western Ontario.

The airlocks offer some hint that the glass structures—each about the size of a one-car garage—won't be used to grow cucumbers for the local supermarket. Instead, they're going to help put Canada on the front lines of research into how humans can adapt to global climate change.

When Western's new Biotron Experimental Climate Change Research Facility is completely operational in late 2007, the six sealed "biomes" will allow scientists to recreate complex ecosystems—including microbes, plants, even insects—then vary the conditions to reflect differing climate change scenarios.

"We'll be able to control CO_2, and oxygen levels, temperature, light, wind—almost everything," says Dr. Norman Hüner, the Biotron's Scientific Director. "We'll be able to create a dark arctic environment at -40 C° or the prairies at 20 C° with full sunlight. That's impossible any other place. There simply isn't anything like it, anywhere in the world."

The biomes are just the tip—literally—of what the Biotron will have to offer. The five storeys below will contain scores of other research environments, ranging from the size of large walk-in closets to kitchen cupboards—each a completely sealed space—plus complete laboratories for doing complex biological research. "One of the unique aspects of the facility is its scaling ability," Dr. Hüner explains. Experiments can be scaled from the molecular realm

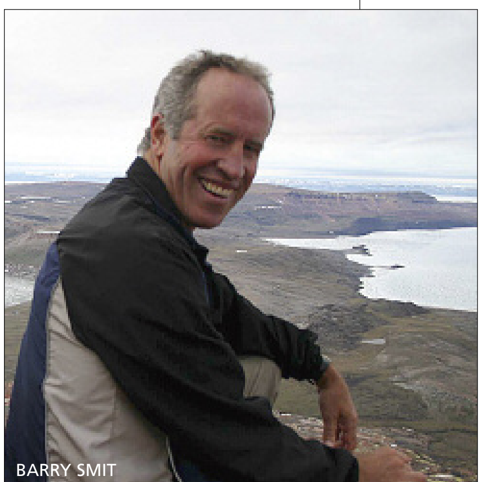

NORMAN HÜNER WITH A MODEL OF THE BIOTRON

to mini-ecosystem size under controlled environment conditions.

When drought begins to strike the Canadian prairies more often, or new pests start to invade the forests of Ontario—both likely outcomes of climate change—insights gained on a London rooftop may help farmers, foresters and all of us adapt.

DR. BARRY SMIT explores climate change adaptation using much lower-tech tools: desks, filing cabinets, tables, chairs—and a research tool as old as humanity itself: talk.

"We want to understand how societies and economies adapt to climate related conditions, and to help facilitate adaptation,"



BARRY SMIT

says Dr. Smit, a researcher at the University of Guelph. "And you can't always do that in a lab." Instead Dr. Smit and his colleagues draw on a wide range of sources—from interviews and oral history to climate and farming records and historical documents—in their exploration of climate change adaptation strategies across Canada and around the world. His research has led him into contact with people in locations as diverse as Nunavut, Chile and Bangladesh. "In a way," he says, "our 'labs' are the communities themselves."

He points to Canadian prairie farmers as an example. "They already know about planning for and dealing with recurring drought. Historically, that's always been an issue. What climate change science can tell them is that they're going to be facing more than they have been in the past."

Dr. Smit's research also often carries over into economics. Increasing prairie drought, for example, will have implications for crop insurance programs. "Those programs are subsidized by Canadian tax payers, and that means we may need to pay more to secure the food supply."

Sometimes Dr. Smit's community-based approach will even open up a new front in classic climate change research. After consulting with Inuit leaders recently, he discovered that shrinking ice cover in the arctic is creating a specific effect that's causing problems for Inuit hunters. Large chunks of ice have always broken away during the summer hunting season, but prevailing winds have tended to drive them back towards the shore. Now, changing wind patterns in the north, likely related to global warming, tend to push the breakaway floes out into the open water, potentially trapping hunters. "So we've actually gone back to the climate science community and said, 'Can you learn a little more about how wind directions may be changing with the arctic climate?'"

In the end, the aim of Dr. Smit's research is to enable decisionmakers to respond effectively to climate change, and that means trying to understand the implications from their point of view. "So," he says, rather than tell them 'this is what's going to happen, and you should adapt to it', I try to connect climate to the things that matter to them."

DR. JOHN GUNN'S solar mixer has been assembled and launched. It's time to shed the gum boots, jacket and toque, and settle back into his office at Laurentian University. In the months to come, he'll be looking closely

at the impact of the mixing device on fish stocks in the tiny lake where it's been deployed. "We're simulating what a deeper mixing zone in lakes would look like," he explains, "in order to assess the affect of fire and the resulting opening of forest."

The connection between forest fires, lake mixing and climate change is somewhat convoluted but entirely logical. Rising temperatures and less rain in the area, both due to global warming, will increase forest fires; more fires will reduce forest cover; reduced forest cover will increase average wind speeds over northern lakes; and increased wind speeds will mix warmer surface water to a greater depth. Dr. Gunn wants to understand the effect on fish stocks, and on the complex ecosystem that supports them.

Like his fellow scientists, the Sudbury researcher has little doubt that climate change is already upon us, and that worse is to come. But as he looks out his office window at the green fringe of trees on the rocky shoreline of Ramsey Lake, he feels a certain cautious optimism.

There are two reasons.

First, those shores are about to be graced by a new research facility—the Living With Lakes Centre—financed in part by the Ontario Innovation Trust. State of the art labs in the Centre will shed much more light on climate change—and even the building's design represents a cutting edge response to those changes. The facility will process all its own sewage, recycle its grey water, draw heat from geothermal sources and use wind to generate electricity—all features that will cut down on greenhouse gas emissions.

But Professor Gunn's cautious optimism comes from another source: he's seen this all before, albeit on a smaller scale.

When he first arrived in Sudbury 30 years ago, emissions from local mining operations had decimated local fish stocks and reduced the surrounding hills to a kind of barren moonscape that gave the city a dubious fame around the world. Then a coalition of scientists, journalists and politicians began to work for change. At first, the mines were reluctant to go along, but they eventually agreed to spend millions on new technologies that sharply reduced their environmental impact. "In less than 10 years," Dr. Gunn recalls with a smile, "this so-called 'investment in the environment' paid for itself in energy efficiency and worker productivity."

Could something similar happen on a global scale? Dr. Gunn is hopeful it can, although he doesn't think it will be easy. "It took 30 years to turn the corner on acid rain, and it may well take at least 30 more to turn it on the climate issue. We'll have some serious investments to make," he says.

"But I think we may be surprised at what we can do if we really get serious."

CUTTING EDGE SCIENCE—AND DESIGN. A NEW ENVIRONMENTAL RESEARCH CENTRE AT LAURENTIAN UNIVERSITY HAS BEEN DESIGNED FOR EXTRAORDINARY ENERGY EFFCIENCY.

THE AUDACITY TO DREAM

A conversation with Dr. Cal Stiller

Eight years into the ten-year mandate of the Ontario Innovation Trust, the Trust's Chair looks back at some milestones—and ahead to more challenges.

You've been a member of the Ontario Innovation Trust board since the beginning. As you look back, what do you see as the Trust's major accomplishments?
I think what's most significant for me is how the Trust has played a key role in revitalizing research in Ontario. The Trust's investments in top-quality research infrastructure have helped to attract and retain some of the world's best scientists. And the result has been research labs that are alive with a new spirit of enthusiasm and commitment.

I'm particularly proud of the Trust's foresight and willingness to take risks by making early investments in promising projects. Two examples that come to mind are the MaRS Discovery District and the Ontario Institute for Cancer Research. Today, the results of both initiatives can only be described as spectacular.

I remember in particular an emotional meeting in the TorStar board room where the Trust, under the chair of Dr. Bette Stephenson, made the decision to back the cancer initiative. Dr. Charlie Hollenberg, who was then head of Cancer Care Ontario, was there, and was dying of prostate cancer. He said, with emotion but without breaking down, "If you're going to do this, you have to do it right." Rob Prichard, a former Chair of the Trust, was also there. He was leaving the next day for a canoe trip with his son, who was recovering from cancer, and he eloquently described the terrible toll that cancer takes on a family, and the need for finding cures. When he was finished, none of us doubted what the Trust should do. I don't think any of us who were there will forget that night.

Both of those investments—MaRS and the Ontario Institute for Cancer Research—provided seed funding for initiatives that helped to shape the direction of research in the province. What are your thoughts on the role of funding agencies in helping to set the research agenda?
I don't like the idea of "setting." I'd prefer a word like "exploring." I think one of the characteristics of an effective funding program is having the flexibility to explore possibilities, the luxury of being able to cast the net widely, to investigate potentially risky options—and just as importantly, the luxury of being able to abandon those options when further investigation warrants it. But first and foremost, we need to have the audacity to dream in bold and visionary ways.

When I was a boy, I imagined that there was a man *in* the moon. John F. Kennedy, because of his knowledge of science and his belief that technology could get us there, dreamed of a man *on* the moon. Then he put him there!

How does Ontario build that capacity to dream?
First of all, we continue to need politicians and civil servants of the calibre we've been privileged to have in Ontario, people who are energized by a sense of responsibility for seeing that our province continues to be a national and global epicentre for research. The answer to our economic dilemma in this province and country lies in the discovery potential of research and the harvesting of innovative products from technology. The primary economic resource of this province is the power of our young educated minds unleashed in a great laboratory of experimentation and development. I'd like to see a familiarity and ease with science

among our leaders, and an understanding of just how critical great science and great minds are for the future of this province and this country. That also means understanding the need to take the lead in investing in research and in attracting the best minds in the world.

It's not just about government, though. As a society, we need to be fluent in science. What I'd like to see—and my hope is that the Trust can contribute somewhat to this—is an ease in talking about science in everyone from the Premier to the kindergarten student.

What key areas or issues do you think research in Ontario needs to address in the next decade of the 21st century?

Clearly, we need to identify "the next big thing" in which the province could and should be involved. If you think about the extraordinary advances that have happened in Ontario in the last ten years, it's really been in two areas. One is the convergence of science and commercialization that's typified by MaRS. The second is in the establishment of new benchmarks in cancer research through the Ontario Institute for Cancer Research, the creation of a platform for a pace of discovery and application that's never been there before.

So, in addition to seeing that research and innovation are funded in a visionary way at our colleges, hospitals and universities, we now have to ask what Ontario can do next to move the agenda forward, to leapfrog ahead in science.

Do you see any contribution the Trust can make to that process?

One contribution would be to help

demonstrate and communicate the effectiveness of research. For the province to make new commitments, there needs to be wide-spread confidence that these kinds of investments produce results. What we need is a robust instrument that enables us to measure the impact of research investments by government. The Innovation Institute of Ontario and the Trust are involved in developing an instrument that can do that, and we hope this can be part of the Trust's legacy to institutions and government in Ontario. The Trust is also considering how the province might have on-going access to some of the finest science minds in the world—people who could help Ontario identify its role in that "next big thing" in research.

You've dedicated a lot of time and personal commitment to the Trust and other agencies related to research in Ontario and Canada. What motivates you?

You do things because you enjoy them and because they reward you in some way. I enjoy this work because it's wonderfully eclectic and I get to watch research happening across a wide field of endeavour. As for the rewards, they're not monetary, of course, but they're tangible and daily. I'm rewarded when I can see young people whose research flourishes because of an investment at a critical time. And I'm rewarded when I see well-established researchers who, because of a timely investment, can begin to dream again.

About Cal Stiller

Dr. Cal Stiller is speaking from personal experience when he refers to "young people whose research flourishes," and "well-established researchers who…dream again." Advancing the cause of medical science has been central to Dr. Stiller's work since his earliest days as a physician, later as a pioneer of multi-organ transplant surgery and today as an entrepreneur and elder statesman of research in Ontario.

In addition to his duties with the Ontario Innovation Trust, Dr. Stiller is the Chair of Genome Canada, and sits on the Board of Directors of several private and public companies. Dr. Stiller has also served as the Chair of the Ontario Research and Development Challenge Fund Board and was the CEO of the Canadian Medical Discoveries Fund, a venture capital investment fund that seeks out companies in the life science sector to become industry leaders in global markets. He is a Member of the Order of Canada and the Order of Ontario.

MORE UNDERSTANDING

CLIMATE CHANGE IS AN IMPORTANT ASPECT OF ADVANCED RESEARCH IN ONTARIO, BUT FAR FROM THE ONLY ONE.

Here's a sampler of Trust-supported projects that are advancing our understanding in fields as diverse as solar cells and surgery.

PROFESSOR GERD HAUCK both is and isn't the type of researcher you'd expect to find at the University of Waterloo.

On the one hand, he peppers explanations of his work with terms like "bandwidth" and "compression/decompression," echoing the high-tech dialect spoken so widely at "Computer U." But his specialty isn't network switching or nanostructured silicon. It's theatre.

Dr. Hauck is pioneering the use of videoconferencing technology in theatrical performance. In a recent production, he and his colleagues used high-speed network connections and video projectors to link audiences and actors in three far-flung locations: Waterloo, the University of Central


GERHARD HAUCK

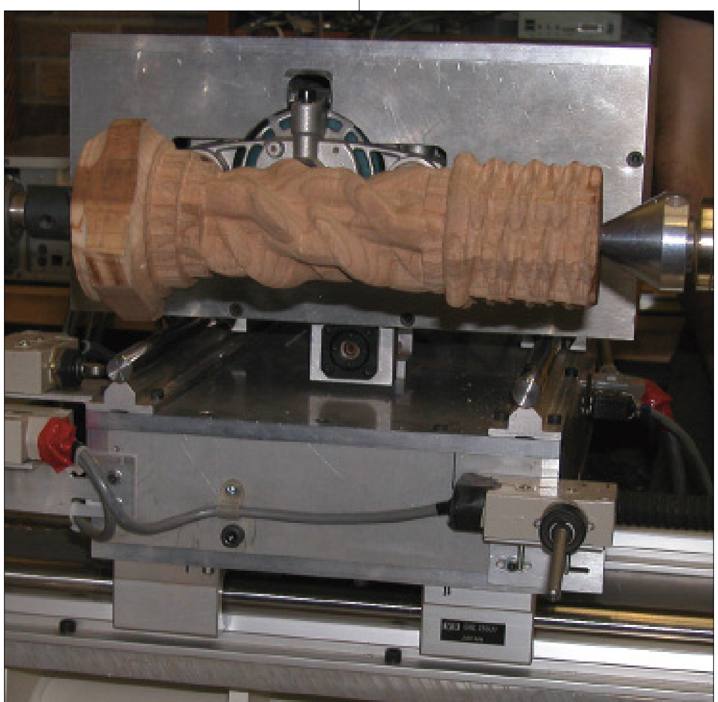
Florida, and Bradley University in Illinois. The mix of two- and three-dimensional performers, all working together in real time, introduced new opportunities to play with the idea of "reality" — and new challenges in staging.

"Theatre has always embraced the latest technologies,"

Beyond Computer U

The University of Waterloo has built a reputation on cutting edge computing and engineering. Now it's pushing that edge outwards.

says Dr. Hauck. "The Greeks used pulleys and cranes to lift gods onto the stage…New technologies create new ways to tell a story."



Dr. Hauck's work is one example of the way in which the University of Waterloo is building on its traditional core strengths to develop a remarkably diversified research program.

"Computational science has very broad application," explains Dr. John Thompson, Associate VP of University Research. "It's used in the arts, in the humanities, in medicine. It has enormous relevance right across various disciplines."

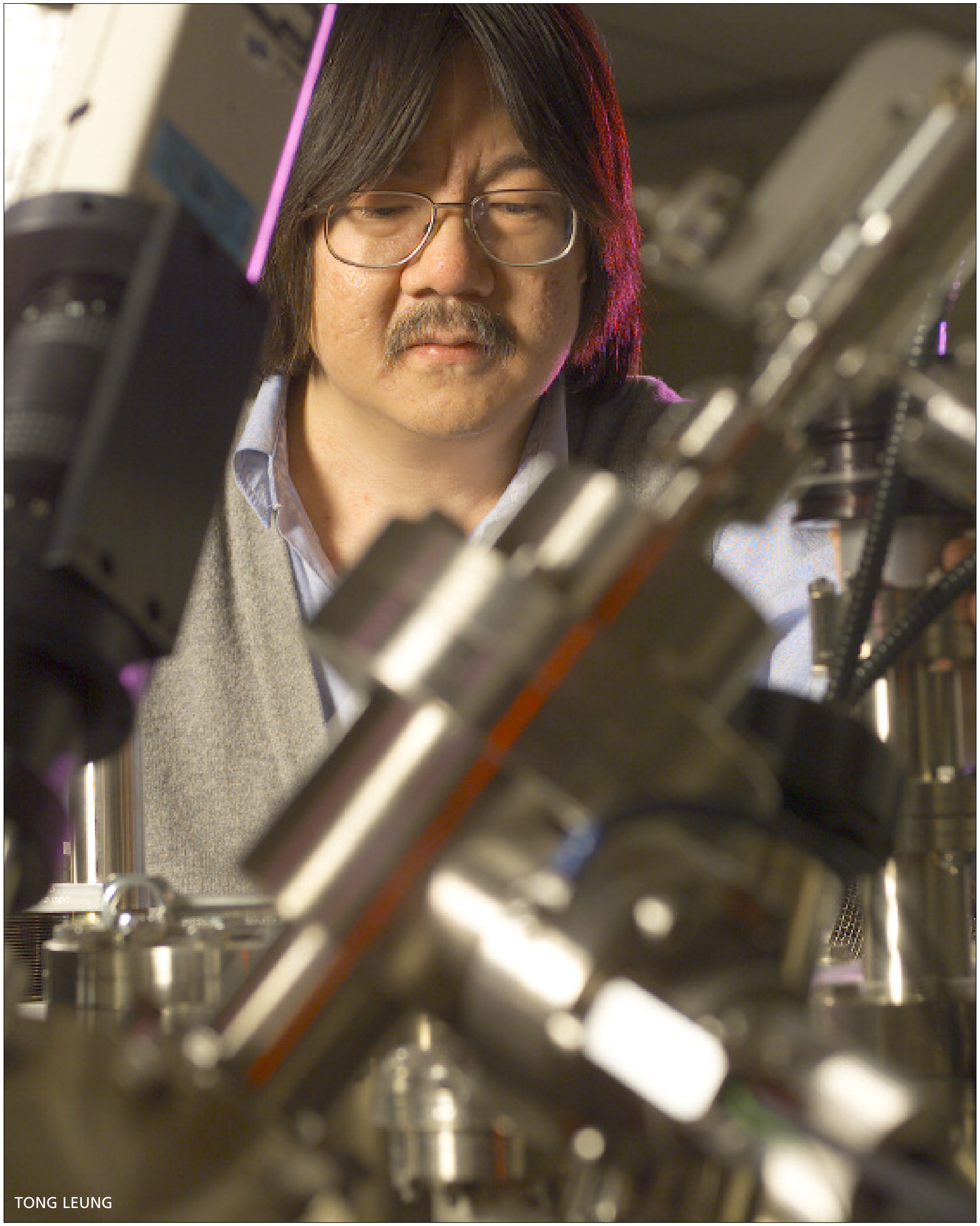
DISCIPLINES LIKE… woodworking. Dr. Sanjeev Bedi of Waterloo's Department of Mechanical and Mechatronics Engineering is developing a computer-controlled lathe that may soon find its way into home workshops around the world. Computer-controlled woodworking has been around for decades in

SANJEEV BEDI

industry, but the software is expensive and difficult to learn. Dr. Bedi's system will let hobbyists develop designs with a simple web-based application, then download a "toolpath" file to spin up the finished piece on a compatible lathe.

The Waterloo engineer has founded a start-up company to market the tool and the design service, and has lined up a local manufacturer. "The market will decide," he says, but computer-controlled lathes may soon be spinning off jobs and investment in southern Ontario.

ELSEWHERE ON THE Waterloo campus, researchers are looking at a very different kind of spin. Dr. Tong Leung is a specialist in


TONG LEUNG

“spintronics,” which—despite the fifties-era resonance—is a new field in nanotechnology offering the promise of enormously more powerful computers.

The on-off architecture of classical computing is based on the fundamental fact that electrons carry a positive electrical charge. But physicists have discovered that electrons also behave as if they’re spinning around their axes in much the same way the earth does. In quantum mechanics this spin can be quantified as an additional property that expands the basic electron repertoire, beyond “on-off”, making it possible for computers to manipulate much more data at the same time. “This could open up enormous power,” explains Dr. Leung. “We’re working on the materials side to find substances that can be used to build spintronic devices.”

Spintronic computers are many years in the future. But Dr. Leung’s research has spin-offs—that word again!—in other applications, including the development of soft, foldable display screens and ultra-thin solar cells.

COMPARED TO THE EXOTIC realm of electron spin, Dr. Susan Tighe’s research has what at first appears to be a more prosaic focus. “A lot of people just think that a road is a road is a road,” she says, echoing Gertrude Stein’s famous maxim. But Dr. Tighe understands, perhaps better

SUSAN TIGHE

than anyone, the problems and permutations of pavement.

A current focus of her research is on permeable pavements—road surfaces that allow water to pass through into a drainage layer below, rather than accumulating on the surface where it can cause structural damage and traction problems. And there's a bonus: the porous nature of the new pavements may make for quieter roads. Dr. Tighe is also looking into sustainability issues, including the use of crushed and recycled concrete in road surfaces, as well as other additives like recycled polymers and rubber from tires.

Her innovative research has wide application, and not just for roads and highways. Airport authorities across the country are also drawing on her expertise as they look to build longer-lasting runways and taxiways for a new generation of aircraft.

FROM THEATRE to thoroughfares, research at Waterloo is addressing a steadily expanding range of disciplines. John Thompson also points to new initiatives in water quality, automotive engineering, financial risk management, imaging, nanotechnology, biotechnology, neuroscience, and green energy.

"We want to move beyond being known as Computer U," he says. And it's happening.

PROJECT:
Multi-Point Interactive Performance Research Facility
RESEARCH SECTOR:
Arts and Letters
INSTITUTION:
University of Waterloo
PRINCIPAL INVESTIGATOR:
Gerhard Hauck
TRUST INVESTMENT:
$94,034
CFI INVESTMENT:
$94,034
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$240,835

PROJECT:
Integrated Centre for Visualization, Design & Manufacturing
RESEARCH SECTOR:
Engineering
INSTITUTION:
University of Waterloo
PRINCIPAL INVESTIGATOR:
Sanjeev Bedi
TRUST INVESTMENT:
$1,785,857
CFI INVESTMENT:
$1,785,857
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$5,947,510

PROJECT:
Thin Film Materials Research Laboratory: Molecular Engineering of Biotechnological, Environmental and Strategic Materials
RESEARCH SECTOR:
Engineering
INSTITUTION:
University of Waterloo
PRINCIPAL INVESTIGATOR:
Kam Tong Leung
TRUST INVESTMENT:
$2,766,608
CFI INVESTMENT:
$2,766,608
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$6,916,520

PROJECT:
Facility for Characterizing Properties of Innovative Materials for Durable Infrastructure
RESEARCH SECTOR:
Engineering
INSTITUTION:
University of Waterloo
PRINCIPAL INVESTIGATOR:
Susan Tighe
TRUST INVESTMENT:
$191,887
CFI INVESTMENT:
$191,887
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$493,254

He Processes! He Shoots! He Scores!

How does the brain turn sensory input into motor control?

York University researcher **Lauren Sergio** is looking for answers in subjects as varied as hockey players and Alzheimer's patients.

HIGH-TECH HOCKEY. THIS IS WHAT HAPPENS TO HELMETS AND STICKS IN THE MOTOR CONTROL LABS OF YORK RESEARCHER LAUREN SERGIO.

LAUREN SERGIO

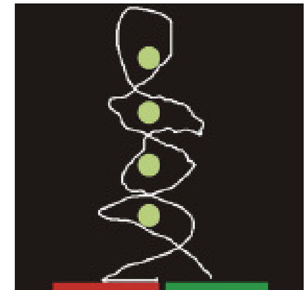
"IT JUST SORT OF happened."

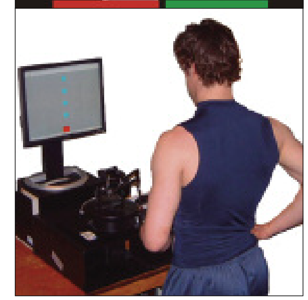
York University neuroscientist Lauren Sergio never anticipated that her motor control lab would have a regular gig testing the hand-eye co-ordination of NHL draft picks. But when league scouts heard about Dr. Sergio's research, the possibilities were obvious.

So were the benefits to her research. Dr. Sergio's work is focused on how the brain uses sensory input to control muscle movement, and hand-eye tests of elite athletes would provide her with valuable data.

In fact, Dr. Sergio is exploring a host of issues around motor control, using a suite of equipment provided in part by the Ontario Innovation Trust. She's particularly interested in how the brain manages dissociative tasks—activities where sensory input controls movements not directly associated with that input. The computer mouse is one example. "What parts of the brain are involved," wonders Dr. Sergio, "when you move your hand on a horizontal surface to displace a cursor on a different and vertical surface?"

Her research is helping to build fundamental knowledge of how the brain works. And her recent findings that dissociative ability decreases with both mild dementia and aging may soon yield earlier diagnoses of Alzheimer's disease—and better tests for aging boomers who want a license for one of the most dissociative activities of all—driving.





PROJECT:
Brain Mechanisms of Visuomotor Integration
INSTITUTION:
York University
RESEARCH SECTOR:
Health Sciences
PRINCIPAL INVESTIGATOR:
Lauren Sergio
TRUST INVESTMENT:
$159,492
CANADA FOUNDATION FOR INNOVATION INVESTMENT:
$159,492
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$404,473

Getting a New Handle on Polymers

Lambton College researcher **Kim Choo** is combining rubber and plastic to get the best of both—and a range of new products.

THE NEXT TIME you're in the bathroom, take a closer look at that new toothbrush. Chances are good that the handle will combine the smoothness of plastic with the "grippiness" of rubber.

Plastic and rubber are both composed of polymers—long chains of identical molecules—but the two substances have different structures and therefore different properties. Many plastics can be easily melted and molded in a variety of shapes, an attribute that also makes them relatively easy to recycle. Rubber, on the other hand, burns rather than melts and is hard to recycle. But it's more flexible and resilient than plastic.

Now scientists like Dr. Kim Choo, are exploring ways to combine the two in "thermoplastic elastomers." The result is a growing range of products that include more resilient auto body panels and more comfortable handles for tools, utensils—and toothbrushes. There's an environmental bonus, too: the new materials are fairly easy to recycle.

Dr. Choo pursues his work at Lambton College, in a "pilot scale" research lab funded in part by the Ontario Innovation Trust. The facility can duplicate a real manufacturing environment, so technologies developed here can easily be scaled up to the factory floor—and from there to places like the family toothbrush rack.

DR. KIM CHOO (LEFT) AND LAB TECHNOLOGIST ALEX IP EXAMINE PLASTIC PRODUCED BY AN EXTRUSION MACHINE AT THE LAMBTON COLLEGE CENTRE OF EXCELLENCE FOR PROCESS MANUFACTURING.

PROJECT:
Center of Excellence for Process Manufacturing: Production of Thermosplastic Elastomers for Thermoforming and Thermoplastic Vulcanizates

INSTITUTION:
Lambton College of Applied Arts & Technology

RESEARCH SECTOR:
Engineering

PRINCIPAL INVESTIGATOR:
Kim Choo

TRUST INVESTMENT:
$722,786

TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$1,806,964

Glide Path in the O.R.

Queen's researcher **Randy Ellis** is pioneering new ways for surgeons to see in the operating room.

"IT'S A BIT LIKE a pilot following a glide path during a night landing by instrument."

Dr. Randy Ellis of Queen's University is describing the experience of performing surgery in a new experimental suite of operating rooms at Kingston General Hospital.

One of the rooms is the first in North America to have a CT scanner. A pre-operative scan enables surgeons to build a three-dimensional computer model of the affected area, helping them plan the best strategy for the actual procedure.

In the second room, a computer-based system of video cameras keeps track of the exact positioning of surgical instruments in relation to the patient. The system provides surgeons with a view of what they're doing from any angle—not just what they can see through the incision. And by adding reference information from the CT-generated computer model, they get additional visual guidance—the "glide path" in Dr. Ellis' analogy.

The suite of operating rooms, funded in part by the Ontario Innovation Trust, will enable Dr. Ellis and his colleagues to explore the potential of computer-assisted surgery not only in orthopedics—the prime application so far—but also in the diagnosis and immediate treatment of conditions like stroke and full-body trauma.


RANDY ELLIS

BANKS OF SPECIALIZED VIDEO CAMERAS—ONE SET IS VISIBLE OVER DR. ELLIS' RIGHT SHOULDER—TRACK THE EXACT POSITION OF INSTRUMENTS IN RELATION TO THE PATIENT.

"This kind of technology," he says, "is going to give us the opportunity to deliver some truly innovative health care."

PROJECT:
O.R./2010: Laboratories and Operating Rooms for Computer-Assisted Surgery

INSTITUTION:
Queen's University

RESEARCH SECTOR:
Health Sciences

PRINCIPAL INVESTIGATOR:
Randy Ellis

TRUST INVESTMENT:
$1,891,200

CFI INVESTMENT:
$1,891,200

TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$4,728,000

A Cold for the Common Cure

McMaster researcher **Jack Gauldie** is exploring how to use genes—and a familiar, annoying virus—as therapeutic tools.

JACK GAULDIE

JACK GAULDIE WANTS to see more patients injected with the virus that causes the common cold.

But before you think badly of Dr. Gauldie, some explanations are in order. Viruses have the ability to pass through cell walls and replicate—in the case of the adenovirus—the common cold. A key aspect of Dr. Gauldie's research at McMaster University involves modifying that virus so that it can't reproduce, then using it as a vehicle to import therapeutic genes directly into affected cells. The approach has the potential to work in a wide range of illnesses, making the humble common cold a common carrier of healing.

In the case of chronic inflammatory diseases, for example, an adenovirus might be injected into affected tissue, introducing a gene that regulates the inflammatory response at the cellular level. A similar approach might be used to smuggle into the cells of a cancerous tumour a gene designed to trigger cellular behaviours that shut down further tumour growth or attract the destructive attentions of the body's immune system.

These techniques represent just some of the approaches to gene therapeutics being explored by Dr. Gauldie, using state-of-the-art facilities funded in part by the Ontario Innovation Trust. A few procedures are at the clinical trial stage, while others are years from being tested on humans.

But however near or distant the application, it's still satisfying to know that a virus responsible for so much misery is now offering so much hope.

PROJECT:
Institute for Molecular Medicine and Health
INSTITUTION:
McMaster University
RESEARCH SECTOR:
Health Sciences
PRINCIPAL INVESTIGATOR:
Jack Gauldie
TRUST INVESTMENT:
$9,600,000
CFI INVESTMENT:
$9,409,973
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$31,896,000

Tracing Lives in a Landscape

Lakehead University researcher **Scott Hamilton** uses high tech tools to reveal long-forgotten stories locked in the landscape.

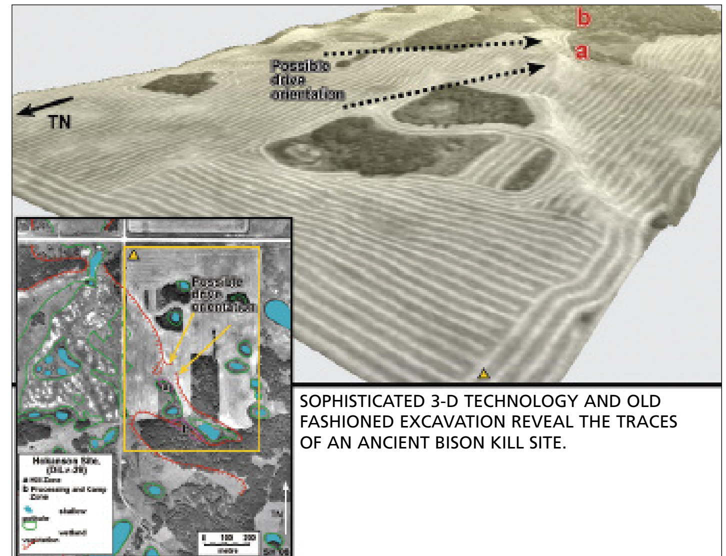
SCOTT HAMILTON

EMPTINESS. BUSH. Black flies. That's all many of us see when we look at, say, a stretch of vacant prairie or a patch of sub-arctic forest. But Dr. Scott Hamilton of Lakehead University can trace the outlines of long-forgotten human stories.

Dr. Hamilton looks at a landscape using geographical information system (GIS) technologies—tools for gathering, storing and analyzing spatial data related to the earth's surface. By combining GIS applications with satellite-based positioning systems, mapping software and more traditional sources of information like native oral tradition and excavation, he's opening fascinating windows on Canada's past. At one site in Manitoba, for example, Dr. Hamilton found the remnants of an ingenious concealed paddock for trapping bison, designed by aboriginal hunters a thousand years ago.

The Lakehead archaeologist is also applying GIS technologies to anthropological questions in northern Ontario, working closely with aboriginal people. And the equipment at Lakehead's Geospatial Analysis Research Centre—funded in part by the Ontario Innovation Trust—is being used by other researchers to look at modern-day issues as diverse as wind power and endangered species.

For Dr. Hamilton, however, the focus is on using GIS to open up a longer perspective on the history of land use in Canada, contributing historical perspective to the current debate on our place in the natural environment.



SOPHISTICATED 3-D TECHNOLOGY AND OLD FASHIONED EXCAVATION REVEAL THE TRACES OF AN ANCIENT BISON KILL SITE.

PROJECT:
The Geospatial Analysis Research Centre

INSTITUTION:
Lakehead University, Thunder Bay

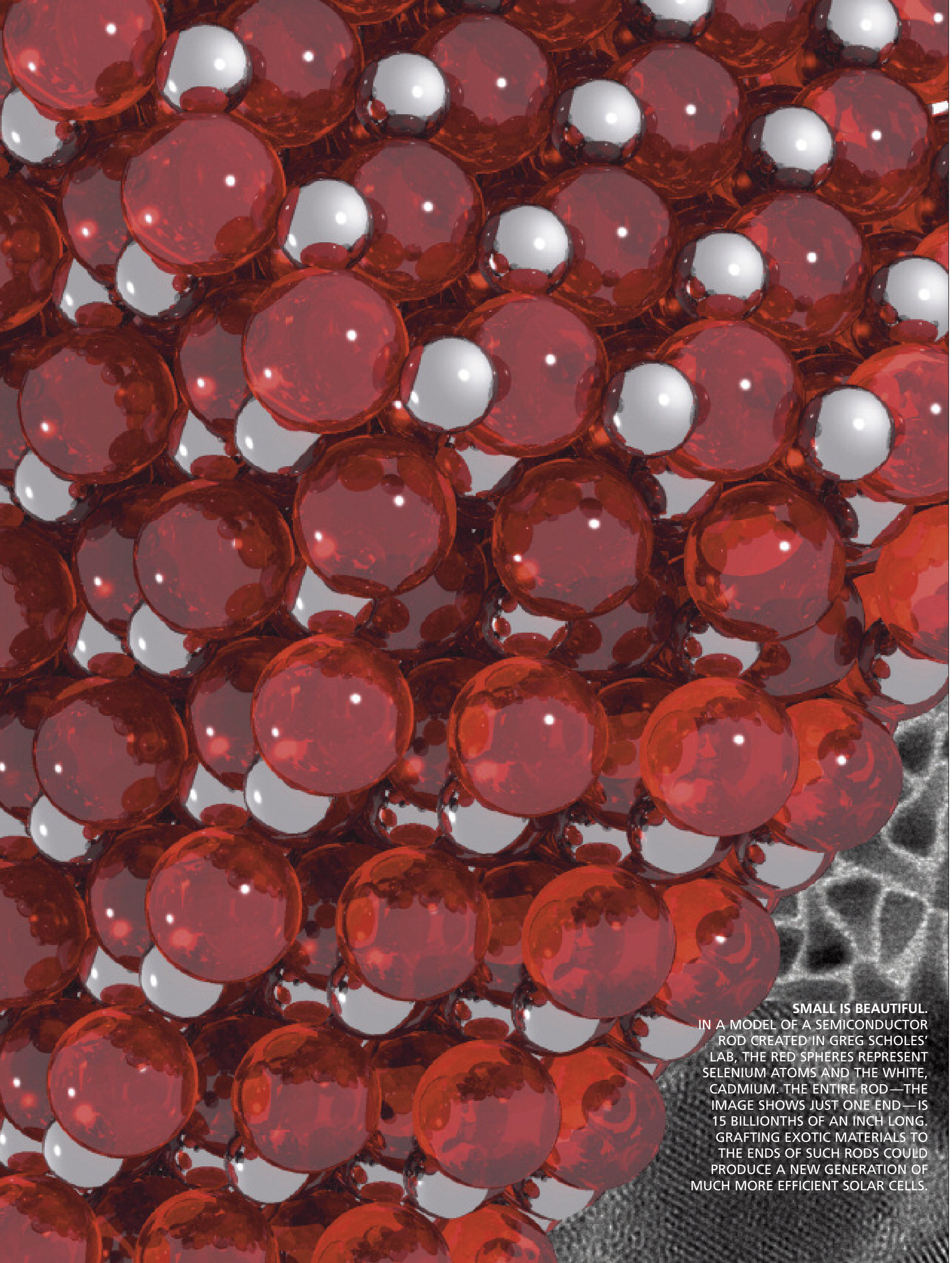
RESEARCH SECTOR:
Natural Sciences

PRINCIPAL INVESTIGATOR:
Scott Hamilton

TRUST INVESTMENT:
$198,559

CFI INVESTMENT:
$198,559

TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$599,947



A Little Light Research

Strange things happen to light in the realm of the very small. **Greg Scholes** at the University of Toronto is taking a very close look.

GREG SCHOLES HAS a small interest in light. So small, in fact, that he needs a lab full of equipment just to see what interests him.

Dr. Scholes' research at the University of Toronto concerns how light is absorbed and processed by structures at the nano scale—a nanometre being one billionth of a metre.

He's exploring, for instance, how the tiny molecular antennae on the surface of a leaf change light into energy through photosynthesis—a process that's little understood at the molecular and atomic level. He also wants to know more about how and why the shape of nano-scale objects determines what they do with light. To find out, he's fabricating

GREG SCHOLES

“nanocrystals”—assemblies of usually less than a thousand atoms—in different shapes, then flashing them with light to see how they respond.

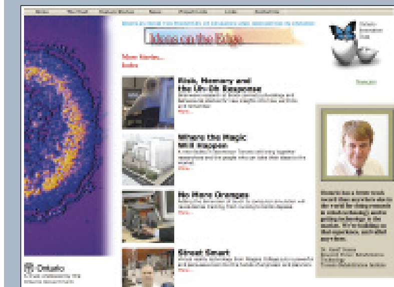
Processes involving light at these scales happen very fast. When Dr. Scholes talks about “a fraction of a second,” the number on the bottom of that fraction can often be a 10 followed by 14 zeroes. Support from the Ontario Innovation Trust has helped to provide him with the special technology—time-resolved spectroscopy—that opens a window on these very short events in these very tiny spaces.

Much of the research is fundamental. But Dr. Scholes’ experiments could eventually lead, among many other possibilities, to hybrid organic and crystal solar cells that are thin and flexible, cost less to make by a factor of 10 to 100, and mimic a plant’s ability to repair its own light-gathering surfaces.

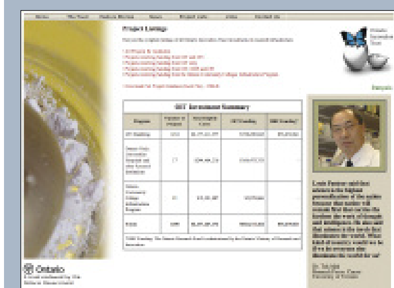
In short, this researcher’s interest in the very small promises to produce some very big results.

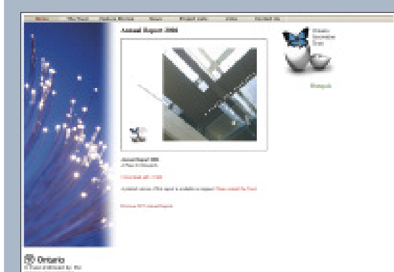
PROJECT:
Design Principles for New Optical Materials
INSTITUTION:
University of Toronto
RESEARCH SECTOR:
Natural Sciences
PRINCIPAL INVESTIGATOR:
Greg Scholes
TRUST INVESTMENT:
$200,000
CANADA FOUNDATION FOR INNOVATION INVESTMENT:
$200,000
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$871,604

More.



For more fully illustrated stories of research, check the web site of the Ontario Innovation Trust.
www.oit.on.ca



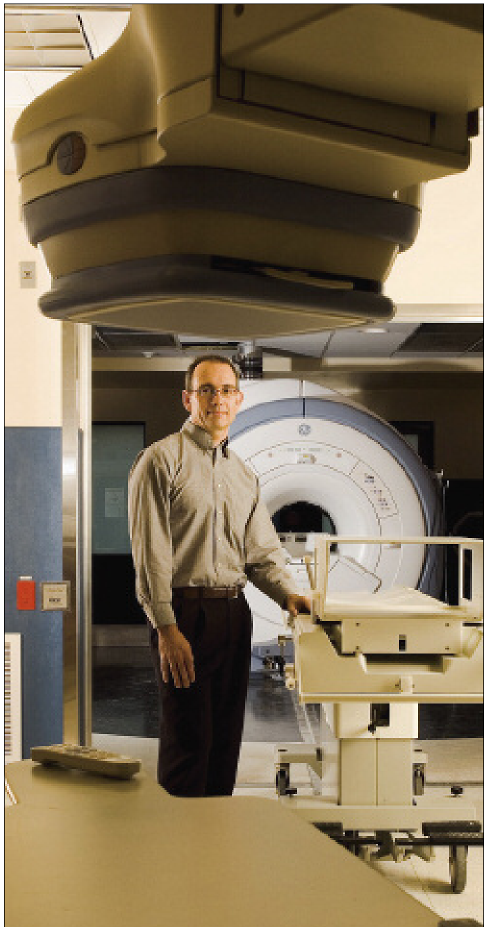


The site also includes:

- Detailed listings of all 1,200-plus Trust-supported projects, downloadable in Excel format
- All of the Trust’s Annual Reports, downloadable in PDF format
- Full financial statements for all years of the Trust’s operation, downloadable in PDF format
- Detailed background and history of the Trust

A Fast Track for Cardiac Treatment

Different medical imaging systems offer different perspectives. Sunnybrook researcher **Graham Wright** is streamlining surgery by bringing three of them into the same operating room.



FAST TRACK. FROM AN MRI SCANNER (IN THE BACKGROUND) TO AN X-RAY UNIT (FOREGROUND) IS A QUICK TRIP IN GRAHAM WRIGHT'S NEW CARDIAC TREATMENT LAB.

A NEW FACILITY at Sunnybrook Healthcare Centre puts a whole other spin on the idea of "fast-tracking" medical treatment.

The Cardiac Intervention Lab—funded in part by the Ontario Innovation Trust—offers three different imaging technologies in a single suite. Using an operating table guided by a track in the floor, clinicians can move patients from one imaging unit to another in only 30 seconds.

The proximity of technologies gives doctors immediate and flexible access to a range of imaging perspectives and capabilities, as well as radically simplifying logistics. A typical procedure might begin with a scan in the MRI (magnetic resonance imaging) unit. The scan produces a three-dimensional view of the site that shows surrounding soft tissue, and provides invaluable context for the work to come. The patient can be then rolled in seconds under an x-ray machine, where much higher resolution imagery—but only in two dimensions—provides the detail needed to guide a catheter into the heart and, for example, clear a blockage. A quick trip back to the MRI—or perhaps to the three-dimensional capabilities of the ultrasound unit—allows for a check of the results. If further catheter work is needed, it can be done immediately; the guidance capabilities of the x-ray machine are still only 30 seconds away.

Dr. Graham Wright, Senior Scientist on the project, is quick to explain that the suite isn't intended to represent the future norm in every hospital. "This is a test lab from which we'll optimize the future norm," he explains. "It's really a superset of all the technologies involved. What we're figuring out here is the right combination."

PROJECT:
Imaging Research Centre for Cardiac Intervention
INSTITUTION:
Sunnybrook Health Sciences Centre
RESEARCH SECTOR:
Health Sciences
PRINCIPAL INVESTIGATOR:
John Rowlands
TRUST INVESTMENT:
$6,109,294
CANADA FOUNDATION FOR INNOVATION INVESTMENT:
$6,109,294
TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$15,273,233

Driven and Controlling

High-powered electric motors require high-powered engineering. Ryerson University's **Bin Wu** has the drive that's needed to get the job done.

BIN WU

WHEN THEY USE the words "drive" and "control," around Dr. Bin Wu, they're not talking about personality traits; they're talking about the advanced electric motor technologies he and his team create.

Regular electric motors, like the one that spins your clothes in the dryer, work at a fixed speed and voltage. Controlling their operation is a pretty simple matter.

Industry, however, depends on much bigger motors. Take for example, the 7,000 horsepower behemoths that run the pumps in an oil pipeline, or the units that turn the huge rollers in a sheet steel mill. Often these large industrial motors must also operate at variable speeds—a difficult challenge when power levels reach 7 megawatts.

Such specialized units require sophisticated electronic control modules called "drives"—and designing them is Dr. Wu's specialty. He and his colleagues research cutting-edge drive technology at Ryerson's LEDAR—Laboratory for Electric Drive Applications and Research—a facility funded in part by the Ontario Innovation Trust.

These days the scientists at LEDAR are also looking at compact drives for the much smaller electric motors used on aircraft. It's a change of scale for Dr. Wu, but he's no less driven to make his drives the best.

PROJECT:
Laboratory for Electric Drive Applications and Research

INSTITUTION:
Ryerson University

RESEARCH SECTOR:
Engineering

PRINCIPAL INVESTIGATOR:
Bin Wu

TRUST INVESTMENT:
$395,978

CANADA FOUNDATION FOR INNOVATION INVESTMENT:
$395,978

TOTAL RESEARCH INVESTMENT FROM ALL SOURCES:
$989,946

PASSION AND PERSPECTIVE

A message from the Chair

GOOD SCIENCE UNFOLDS between the poles of passion and perspective. And few issues illustrate that continuum better than the focus of this annual report: climate change.

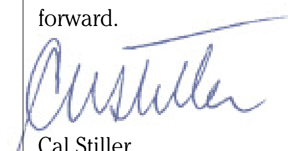
Global warming is clearly the passion of the moment, the focus of attention in both popular culture and political discourse. And that public concern is being fueled by the passion of scientists around the world. "This is the most serious problem humans face today," said one Ontario researcher profiled in this report. "So when I see parents who I'm sure love their children, I wonder why they aren't more concerned about the kind of planet those children may inherit. But I guess the fact that I still rage means I still think there's hope."

That's passion. But it's balanced and informed by perspective—in the case of this researcher, by over a decade of painstaking observations in the field and in the lab. He was doing his work—supported by the Ontario Innovation Trust—long before climate change appeared on the public radar.

It's this yin and yang of passion and perspective that the Trust has sought to foster since its establishment in 1999, investing a total of $850 million in research infrastructure. And if Ontario is to thrive in the future, this level of public funding for research must be maintained. We need to continue to retain and attract scientists—established researchers and young talent—who exemplify both the flame of passion and the patience of perspective. And we need to fund projects that address not only the urgent needs of the moment but also the fundamental questions of the long term, research that will fully reveal its value only from the perspective of decades.

The prognosis is good. The Trust is gratified to see a continuing, strong commitment to science from the government of Ontario through the Ministry of Research and Innovation, and from the government of Canada through the Canada Foundation for Innovation and other funding programs. It's a commitment that will bear fruit in economic and social well-being for Ontario.

On the subject of commitment, it's only appropriate that I close by acknowledging the hard work and insight of my predecessor in the Chair, Rob Prichard. Rob has been tireless in his dedication to research in this province, serving on our Board from 2001 to 2006. He exemplifies both the passion and the perspective that moves science forward.



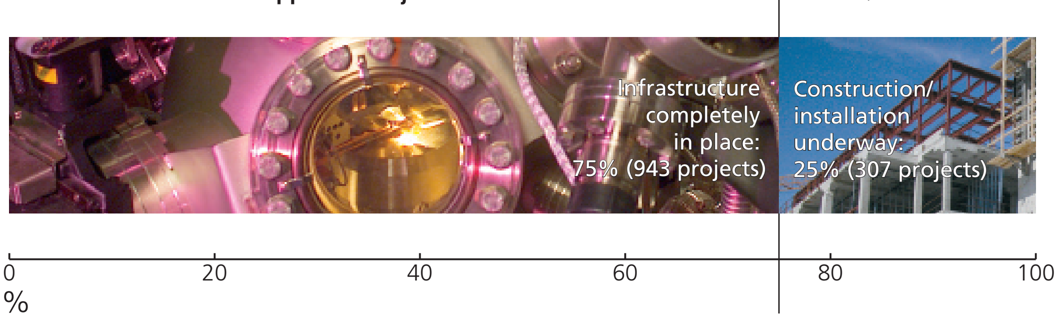
Cal Stiller
Chair
Ontario Innovation Trust

The Trust

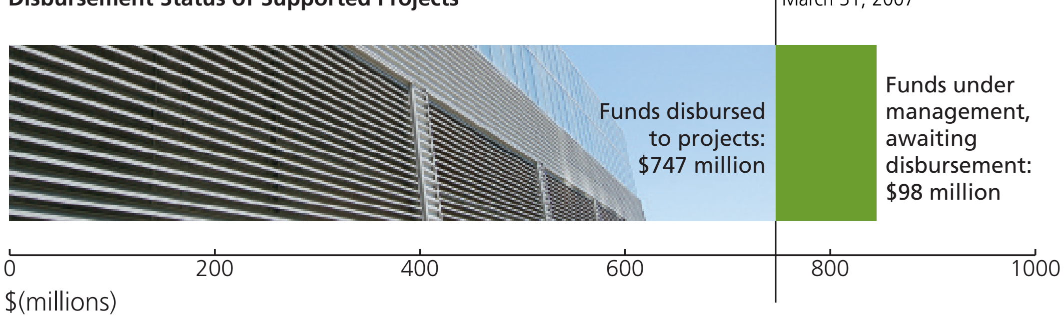
A Snapshot in 2007

The Trust has now committed the entire amount of its principal, plus earned interest—a total of $845 million—to research infrastructure projects. For the remainder of its ten-year mandate, the focus of the Trust will be on reporting and accountability: ensuring that project milestones are reached, reporting results and celebrating collaborations and successes.

Construction Status of Supported Projects



Disbursement Status of Supported Projects



The Board of the Ontario Innovation Trust

The Ontario Innovation Trust is governed by a seven-member Board of Directors. Two Board members are appointed by the universities of Ontario, one member each by the hospitals and community colleges and three by the Government of Ontario.

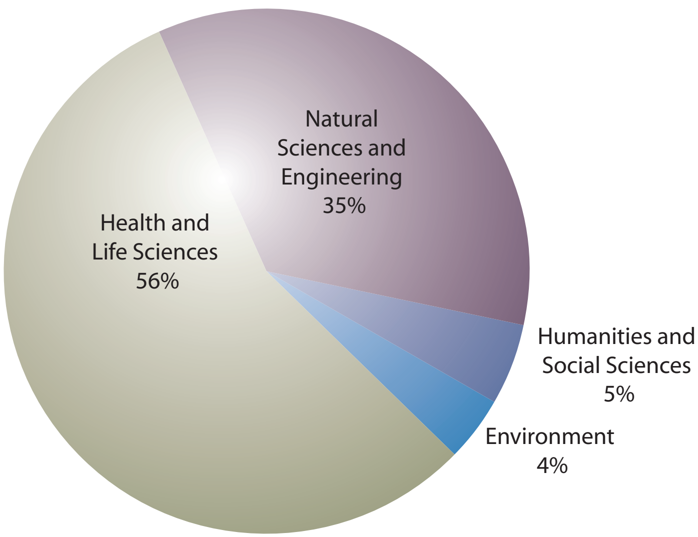
BOARD MEMBER	TERM OF SERVICE	APPOINTED BY
Calvin Stiller Chair	1999 – present	Universities
Rob Prichard	2001 – 2006	Universities
Ian D. Clark	2007 – present	Universities
Bette Stephenson	1999 – present	Hospitals
Rick Miner	2002 – present	Community Colleges
Phil Howell	2005 – present	Province of Ontario
Janet Mason	2005 – present	Province of Ontario
George Ross	2006 – present	Province of Ontario

TRUST INVESTMENTS

The How and the Why

How the Trust Invested

Infrastructure Investments by Discipline



Why the Trust Invested

The Trust's investments have been in research infrastructure. A primary consideration for investment has been a project's ability to secure infrastructure funding from the Canada Foundation for Innovation.

The Trust has also based its investments on a project's potential to:

- enhance Ontario's capacity for innovation, economic growth, health or environmental quality
- contribute to Ontario's ability to retain and attract highly qualified research personnel
- encourage collaboration with the private sector

- encourage the sharing and efficient use of research infrastructure among and within institutions
- contribute to Ontario's existing strengths in research

PARTNERS

Provincial and Federal

The success of the Ontario Innovation Trust is due in significant measure to strong partnerships both provincially and federally.

The Trust was established by the Government of Ontario in 1999. Today, the partnership with the province continues through a relationship with the Ministry of Research and Innovation that involves:

- publicizing Ontario research successes and significant milestones;
- partnering in promoting the importance of research and innovation to the province;
- sharing of information and progress reports.

The ministry currently funds research infrastructure through the Ontario Research Fund.

Throughout its mandate, the Trust has also worked closely with its federal counterpart, the Canada Foundation for Innovation (CFI), with each partner providing up to 40 percent of eligible infrastructure costs.

The CFI has been a valuable source of information and expertise at every stage of the investment process, from initial assessment of project applications through on-going evaluation of funded research.

Ontario

Ministry of Research and Innovation
www.mri.gov.on.ca

Canada Foundation for Innovation
Fondation canadienne pour l'innovation

Canada Foundation for Innovation
www.innovation.ca

For a complete and up-to-date list of Ontario Innovation Trust investments visit us at *www.oit.on.ca*

PARTNERS

Private and Public

Over 1,000 public and private partners play an important role in research funded by the Ontario Innovation Trust. In most cases, institutions and their partners provide 20 percent of the funding, with the balance of research costs being shared evenly by the Trust and the Canada Foundation for Innovation.

Note: These investing partners were identified by applicants. As research projects progress, additional partners will have been added.
The Ontario Innovation Trust apologizes to partners who may have been left off this list.

3-Soft
Agriculture and Agri-Food Canada
ABB Bomem Incorporated
ABB Extrel
ABI - Applied Biosystems
ABS Manufacturing
AC Radiographic
ACA TMetrix
Academic Development Fund
Accelrys
Accurion
AccuScan Instruments
ACS Petroleum Research Fund
Actimetrics
Acuson
AD Instruments
ADCOM
Adobe
Adrian Brown Consulting Limited
Advanced Biotech
Advanced Presentation Tech
Advanced Science Design
AEATechnologies
AEI Technologies
AeroTech Positioning Systems
Affymetrix
AGCO Allis
AGIE Limited
Agilent Technologies
Agricultural Electronics Corp.
Agronix Incorporated
Air Canada
Alberta Environmental Protection
Alberta Research Council
Alcatel
Alfa Medical
Algorithmics Solutions Gmbh
Alias/Wavefront
Allentown
Allpatech Industries
Aloka
ALPAC
Alpha Controls
Alpha Technologies
Althexis Essential Therapeutics
Aluminum Company of Canada (ALCAN)
Alzheimer Society of Ontario
AMA TMetrix
American Sigma Ltd.
Amersham Biosciences
Amersham Health Inc.
Amersham Pharmacia
Amnis
Amphibico
AMS Coherent
Amsdell Incorporated
Anachemica
Anacom Systems Co.
Analogy
Anatech Inc.
AnCare
Anchor Manufacturing
ANCO Engineers Inc.
Andec International Services Incorporated
Angel Computers
Anishinabek/Ontario Fisheries Research Centre
Anritsu
Ansoft Corp.
Anson Funds
APB
Apollo Photonics
Apple Canada
Applied Biosystems
Applied Electronics Ltd.
APS Tech
Aquaneering
Aquatic Habitats
Arbin Instruments
Archibus Incorporated
Arcturus
ARISE Technologies Corp.
Arius 3D
Ascend Instruments
Ascension Technologies
ASDI
Ashwarren International
ASI Applied Systems
Astro Med Inc.
ATAS
A-Tech instruments
ATI
Atlantis Scientific Inc.
Atomic Energy of Canada Limited (AECL)
ATS RheoSystems
ATS Scientific Inc.
Audcomp Computer Systems
Aurora Scientific Inc.
Autoclave Engineering
Avaya
Aventis-Pasteur
Aviv Instruments
AVW-TELAV
AXIC
Axidata
Axon Instruments
AXYZ Automation Inc.
Aymes Medical
Bakers
Balckhauck
Barringer Instruments
BAS
Baycrest Foundation
Bayer Foundation
Bayer Inc.
BC Hydro
BCAgencies
BCKDF
BD Biosciences
Beckman Coulter Inc.
Becton Dickinson
Bell Canada
Beta Tek
Betatek
Biacore
Bio Rad Laboratories
BioComp Instruments, Inc.
Bioetics
BioLog. Inc
Bio-Lynx Scientific
Bionetics Corp.
Bioniche Life Sciences
Biosense Webster
Biosyntech
Biothermica
Blue Newt Software Inc.
BOC Edwards
Bolen Distributing Inc.
Botterel Fund
Bowater Pulp & Paper Canada Inc.
Brain Innovation
Brill Academic Publishers
Brinkman Coulter Canada Ltd.
Brinkman Instruments
British Columbia Knowledge Fund
Brock Computer Store
Brookhaven Instruments
Brothers
Bruel and Kjaer
Bruker Biospin
Bruker Canada
Bruker Companies
Bubble Technologies
Buchanan Forest Products Ltd.
Buehler Canada
Burleigh Instruments
Burtek Systems Inc.
Bushtukah Out.
Buxco Limited
Cadence Design Systems
California Analytical
Calumet College
Cameca (SA)
CAMH Foundation
CAMM
Campbell Scientific
Canada Mortgage & Housing Corp.
Canadian Blood Services
Canadian Cancer Society
Canadian Forest Services
Canadian Hydrogargen
Canadian Life Technologies
Canadian Pacific Foundation
Canadian Space Agency
Can-Am Insturments Ltd.
Canberra Packard Canada
Cancer Care Ontario
Cancer Ontario Institute
CANMET (Natural Resources Canada)
Cannaught New Investigator Fund
Canon Canada
Canon USA
Cansel Survey Equipment
Cardiac Care Network
Cardiff
Carl Zeiss Canada Ltd.
Carson Group Inc.
Cartesian Technologies
CCR
CD Nova
Celestica Incorporated
Cellomics
Celluform Concrete Systems
Centre for Research in Earth and Space Technology (CRESTech)
Centre for Studies in FM
Centre of Mining Technology
Centre Tech.Gaz Natural
Centre-Line
CGI
Challenge Env.
Champion
Change Foundation
Chawkers Foundation
CHEO-Dept of Cardiology
Child Health Research Institute
Children's Hospital of Eastern Ontario
Chromatography Sciences Co.
CIAR
CIF Corp.
CIMTEC
Cinequip
Ciphergen
CIPI
Circusoft
Cisco Systems Canada
City of Kitchener
City of Pickering
Civic Auxiliary
Clark-MXR
ClearTech Industries Incorporated
Climatic Testing Systems
Clinton Electronics Corp.
CNC Engineering
Cogient Corp.
Cognos Inc.
Coherent Incorporated
Coherent Laser Group
Columbus Instruments
COM DEV Limited
Comercial Photocopy
Communication and Information Technology Ontario (CITO)
Compudata Systems
Compusense
Computer Hardware Services
Computer Shop
CONAC Software Corp.
CONACYT-Mexico
Conductus Incorporated
Conestoga-Rovers & Assoc.
Constant Temperature Corp.
Continuum Lasers
Convergent Bioscience
Convirons
Core Microsystems
CosMos
Coulborn Instruments
COURSE
Coventor
CPI Automation
CR Younger Found
Creo
Crist Instruments
Criticare System, USA
CRS Automated Solutions
CSC Chromatography
CSIRO
CTF Systems Inc.
CTI Molecular Imaging Inc.
CWS
Dach Asociates, UK
Daimler Chrysler Canada Inc.
DAKO Diagnostics
Dalimar Institute
Dalimar Instruments Inc.
Dantec
Dap Technologies
Dapannet Inc.
Datacomp Scientific
Defence Research Establishment
Dell Canada
Dell/Hewlett Packard
Delta Med
Department of Fisheries and Oceans
Diamed AG
Diamond and Schmitt
Diatek
Digital Instruments
Digital Technology Associates Inc.
Dionex
Discovery Diagnostic
DNA Star
Dr. J D Adachi
Ducks Unlimited Canada
Dumanski
Dunlop Architects Inc.
Duo Communication of Canada Ltd.
Dupont Canada Inc.
Dynamix Professional Video
Dynamix Systems
ECOS, Japan
Edcom Multimedia
EGI
EISCA
Elcan Otical Tech
Elections Canada
Electrical Geodesics, Inc.
ElectroLab
Electro-Medical Institute
ElectroSonic
Eli Lilly Canada Inc.
Elkom North America
El-Mar Inc.
EMERTEC R&D (Halifax)
Empirisoft
Empix Imaging
Enconair
Endoscope
Engin Seismology Grp.
En-Pls Inc.
Entrust Inc.
Environics Research
Environment Canada
Epson
ESBE Scientific
ESI/Standard Systems Intl.
ESPEC
ESRI Canada
European Space Agency (ESA)
Exactatherm
EXFO Burleigh
EXFO Electro Optical Engineering Inc.
EXFO Photonics Solutions
Exploration Outfitters
Extreme Networks
Exxon Chemical
Fagnou
Fakespace Systems Inc.
Falconbridge Limited
Father Sean O Sullivan Research Cr.
Fibics Inc.
Fieldworker Products
Filamatic
Fine Science Tools
Fire Testing Technology
Fisher Biotech
Fisher Hamilton
Fisher Scientific
FLIR Systems Canada
Float N Flag
FM: Systems
Folio Instruments
Ford
Foss North America
Fowler Kennedy Clinic Trust
Foxboro Canada
Fox-Tek
Free University, Berlin
Fugi Medical Systems
Fund.Mar Avacucho-Venezuel
Gamble Technologies
Garden Club of Toronto
Garden Instruments
Gatan Soquelec
GDS Instruments Ltd.
GE Canada
GE Medical Systems (GEMS)
Gemco
Gemini Positioning Systems Ltd.
Genemachines
Generation 5
Genetic Microsystem
Gennum Corp.
Geological Survey of Canada
Geomatix
Geonics Ltd.
GeoSpatial Timberline Inc.
Geostat
GER-HI-RES
German Federal Government
Gerstel
GG Hatch Isotope Laboratory
Gibsons Sound and Vision
Giga-Tron
GlaxoSmithKline Inc.
Global G.A.D.
Global Interiors
GN Nettest Canada
GR Younger Foundation
Green Municipal Investment Fund
Greenhouse Grower Supply
Group4 Technologies
GroupSystems.com
Growing Panes Glassworks
Growsafe Systems
GTMA
Guelph Food and Technology Centre (GFTC)
Guelph Utility Pole Company Ltd.
GW/Vingmed
Hagen
Haliburton Forest
Halltech
Hamamatus
Hamilton Heath Sciences Corp.
Hamilton Regional Lab Med Prog.
Handshake Interactive Technologies

Hanoun Ltd.
Harvard Apparatus
Harvard University
Health Canada
Heart and Stroke Foundation of Ontario
Heavy Construction Association of Toronto
Hegermonic
Heidenhain Corp.
Helios/Oceana
Henderson Research Centre
Henrys
Hewlett Packard Company (Compaq)
Hilferdine Scientific
Hitachi
HKL Technology
Holohil Systems
Honeywell Canada
Horiba
Hoskins Scientific
H-Power Enterprises
Huber
Human Resource Development Canada
Huntsman
HVS Image
Hydrogenics
IBB Rheology
IBM Canada
iDesign Solutions
Imagenius
Imaging Research Inc
Imetronic
Immersion Studios
Impulse Systems
Inco Ltd.
Informax
Infrared Laboratories
InMotion Technologies
Innovation Technology
Innovative Magnetic Resonance Imaging Systems Inc. (IMRIS)
Innovative Sports Training
Innovision
INSIGNIA Solutions
Instec, Inc.
Institute for Clinical Evaluation Studies
Institute for Polymer Research
Institute of Biomaterials and Biomedical Engineering
Instron Canada Inc.
Insurance Corp. of BC
Intavis
Integrated Measurement Systems
Intel Corp.
Intelvac
Interfax Canada
Intergraph Geomedia
Interlaken
International Development Research
International Mechatronics Systems Inc.
Interscience
Intersense Inc.
InterTechnologies
Intronix Technologies
Ionics/Sievers
Ion-TOF
IPG Photonics
iRobot
Iron Fusion, Ontario
Island Corp.
Isomass Scientific Inc.
Itasca Ltd.
IXIA
J.P. Bickell Foundation
Jack A. Frost Ltd.
Jali Medical Inc.
Jamesway Incubator
Janis Research
Japanese Science and Technology
Jasco Inc.
JDS Uniphase Corp.
Jeol Canada
JKL Micro
JMC-COSMED
Johanson Innovations
Johnston Ultravec
Jordair
JTech Medical
Juniper
Kaijo Corp.
Kester Solder
Kevin Burke Fund
Kheops Technologies Inc.
Kintek
Kipp & Zonen
Kistler Inc.
Kodak Canada Inc.
Kopf Instruments
KQ Corp.
Kratos Analytical, Inc.
Kresge Foundation (USA)
Kurt J. Lesker Company
KVH Industries
Kx Systems
L Oreal/Startup Fund
Lab Products
Lab Products, Inc.
Labcor
Lakeside Process Controls
Lambda Physik (USA)
Laval Lab Inc.
LC Tech Services
Leco Instruments
Leica and Narashige
Leica Canada
Leica Geosystems
Leica Microsystems
Leistritz Corp.
Leitch Technology Corp.
LH Systems LLC
LHSC/RRI
Liburdi Engineering Ltd.
LiDCO Ltd.
Lifetronics Medical
Light Machinery
LIS
LMI 3D Machine Vision
London Scientific Ltd.
Lord Corp.
Lordly Jones Ltd.
Lotek Wireless
Louisianna Pacific
LSM Technologies
Lucent Technologies
Macintosh Canada
MagiQ Technologies, Inc.
Magnetic Measurements Ltd.
Mainline
Maltron Inc.
Malvern
Mandel Scientific
Manleys Basics
Man-Tech
Man-tech Associates
MapInfo Corp. Canada
Maple Instruments
Maple Leaf Agresearch
Maple Lodge Farms
MAR Research
March McBirney
March Networks
Mars Food Ltd.
Marsh McBirney Inc.
Mass Multimedia
Massive Die-Form
Masterflex
Materials and Manufacturing Ontario (MMO)
Matrix Vision
Maury
Maxxam Analytics Inc.
Mayhew
Mayo Clinic
McAllister Funds
McFarland Audio
McGraw Hill Publishers
MDS Laboratories
Measurand Inc.
Mechanical Dynamics Inc.
Mediacom
Medi-Man Rehabilitation
Medimmuni
Medisoft
Medoc Advanced Medical Systems
Medtronic Inc.
Melles Griot
Merck Frosst Canada Ltd.
Meridian Scientific
Meteoroligical Service of Canada
Metro Toyota
Mettler Toledo
MFC Research Contract
MGP Information Systems Ltd.
Micralyne
Microage
MicroCal, LLC
MicroLas Lasersystems Germany
Micromass
Micrometrics
Micro-Optics
Microsoft Corp.
Microsoft Research
Microthermics
Microway
Middlesex-London Health Unit
Millenium Technologies International Inc.
Miltenyi Biotech Inc.
Mini-Mitter Co.
Ministry of Education (Quebec)
Ministry of Environment
Mirarco/ELRFS
MISCO
Mitel Corp.
MJ Instruments Sales Company
MJ Research Inc.
mmWave Technologies
Moffat Kinoshita Architects Inc.
Molecular Simulations Inc.
Molecular Structure Corp.
Monopros Ltd. Canada
Montfort Hospital
Montreal Biotech
Moor Instruments Inc.
Morpho-Tech
Motion Analysis Corp.
Motionwatch
MPB Technologies Inc
MPI for Polymer Research
MRTechnologies
MRV Communications
MSI
MTO
MTS Corp.
Muirheads Basics
Multigon Industries Inc.
MVSystems
myNeuroLab.com
Mynix Technology
Myricom
Myrinet
Namox Inc.
Nanometrics Inc.
Nanonics/SFR
Nanovation Technologies
NARSAD and NIMH
NASA - Johnson Space Center
National Cancer Institute of Canada
National Electrostatics Corp
National Instruments
National Research Council (NRC)
National Sanitorium Foundation
National Science Foundation (USA)
Natural Resources Canada
NBTel
NEC CPU
NEDO
Neocera/LamdaPhysik
NetTest Canada
Netzech
Neuro Scan Labs
Neuroceptor Inc.
NeuroScan Labs
Neurotron
New Focus Inc.
New Metals & Chemicals
Newark Electronics
Newport Instruments Canada
Nexgen Ergonomics
Niagara Peninsula Childrens Centre
NICHHD
NienKamper
NIH
Nikon Canada Inc.
Nitro Microsystems and HP
NK Biotechnical
NOHFC
Noldus Information Technology
Noraxon
Nortech GSI Inc.
Nortel Networks Corp.
North Carolina State University
Northern Digital Inc.
Northern Ontario Heritage Fund
Northstar Medical Systems
Novatech
Novel Dynamics
Novint Tech. Inc.
NRC
NSERC
NTT Photonics Laboratories
Nuaire
Nucletron Canada
NuDaq
Oak Ridge National Labs
Object Workshops Inc.
OceanOptics/Gamble Technologies
OFR
Ohio Lumex
OHRI
OISE
Oldham and Robinson
Olympus/Carson Group
Omicron
OMM
OMNR Geomatics Section
Onix Lazer
Ontario Cattlemens Association
Ontario Forest Industry
Ontario Living Legasy Trust
Ontario Mental Health Foundation
Ontario Power Generation Inc.
Ontario Work Study Program
Ontario Workplace Safety Insurance Board
Onward Computer Systems
Opal-RT
OPNET Technologies
Optikon
Optiwave
OptiWave
Optocom
Optotrak
Opus Automation
Oriel/Gamble Technologies
Oriental Scientific Instruments
Origin
ORTECH Environmental
Orthopedic & Arthritic Foundation
Osmonics
Ottawa General Hospital
Ouorum Technologies
Ovantum
Oxford Instruments
Parmalat Canada
Paroscientific Inc.
Parr Instruments
Passat Ltd.
Pattern Discovery Software Inc.
PCI
PE Biosystems
Peak Motus
Peak Performance Technologies Inc.
Perkin-Elmer
Pfizer Canada Inc.
Pharmacia
Phelps Dodge Mining Inc.
Philips Electron Optics Ltd.
Philips Medical Systems
Phillips - FEI
Phoenix Geophysics
Photon Technology International
Photonics Research Ontario (PRO)
Placer Dome Inc.
Plaut Systems and Solutions
Plexon Inc.
PointGrey Research
Polycontrols
Polytech-PI Inc.
PowerSim Technology Inc
Primate Products Inc.
Primm Labs
Princess Margaret Hospital Foundation
Princeton Instruments
PriTel
Process Products
Procor Ltd.
Procyon Biopharma
Prospect Scientific
ProSum Solutions
Protein Solutions
PTI Inc.
PUC Inc.
Qiagen
QNX
QPR Systems AB
Q-sense
Qualitytest International Inc.
Qualix Direct Inc
Qualtech Systems Inc.
Quanser
Quantum Designs
Quarry Communications
Quesant
Quintron
Quorum Technologies
Raindrop Geomagic
Region of Waterloo
Regional Municipality of Hamilton-Wentworth
Reko Machine Builders
Relion Industries
Remspec Inc.
Renishaw
Research Corp.
RHC and Associates
RHK Technologies
Richard Brancker Research
Rigaku MSC
Roche-Diagnostics
Rockwell Automation
RocScience Inc.
Rofin-Sinar
Rogers Cable
Rogue Research
Ronin Consulting Services
Roper Scientific
Rose Scientific
Roxon Medi-Tech Ltd.
Royal Ontario Museum
RSoft Inc.
RTDS Technologies, Winnipeg
RWDI
Ryobi Die Casting (USA) Inc.
Sable Systems
Safe Software
Saint Marys Pulp and Paper Ltd.
San Diego Instruments
Sapphire Instruments
Saudi Arabia Government
Scanco
Scanditronix-Wellhofer Inc.
Schering Canada
Science Imp.
ScienceTech Inc.
Scientific Imaging Technologies Inc.
Scientific Instruments
Scientific Products and Equipment
Sciex
Sci-Med Inc.
Scintrex Earth Science
SCP Science
Sea & Sea
Seimens Canada
Sensible Technologies
SensoMotoric Instruments
Sensor Technologies Ltd.
Sensors and Software Inc.
Sevets
SFR
SG Power
ShapeGrabber
Shapetape
Shelley Medical Imaging
Shwachman Diamond Canada
Sievers/Ionics
Sigmacon
Silicon Graphics Inc.
Silicycle
Silvaco Data Systems
Simon Fraser University
Singer Instruments
Skycan
SMART (Halifax)
SmarterKids Foundation
SMS Machine Tool Ltd.
SOCC Optoelectronics (USA) Inc.
Softchoice Corp.
Solinst Canada Ltd.
Soltek Powersource Ltd.
Sonometrics Corp.
Sony Canada
Soquetec
South Bay Tech. Inc.
Southwest Sun Inc.
Spatial Geo-Link Ltd.
Specialty Equipment
Specs Gmbh
Spectra Research Corp.
Spectral Dynamics
Speed-Com Technologies
Spencer Foundation
Spotfire
SPSS Inc.
Spyn, Inc.
SR Research
SRI Instruments
SSEF
ST Microelectronics
Standard Imaging
Standford Research Systems
Stantive Solutions Inc.
Starkey, Avaaz
Start-up Grant, Eric Croiset
Statistics Canada
Stealth Computers Corp.
Stens Corp.
Steris Canada
Steves Music
Stoelting
Stratasys Inc.
Strategic Concepts
Stratogene
Sudbury Regional Development Corp. (SRDC)
Sumitomo Electronic USA Inc.
Summit Technologies Inc.
Sun Microsystems
Suncor Energy Foundation
Sutter Institute
SVT Associates
Swiss Instrument Ltd.
Syntest Technologies
Systems for Research Corp.
T&T
TA Instruments
TD Canada Trust Bank
Technel
Teknion
TekniScience
Tektronix Canada
Telelogic
Telus
Terraplus Inc.
Test Equity
Test Force
Testforce
Testing Machines Inc
Tetra Pak Canada Inc.
Texas Instruments
Thar Designs
The C3 Group
The Centre for Addiction & Mental Health
The Drafting Clinic
The MathWorks
The Ottawa Hospital (TOH)
The Pump Works
Thermo Finnigan
Thermo Instruments
Thermo Mat. Characterization
Thermomicroscope
Thiessen Team Manufacturing
Throne Computer Systems
Timber Specialities Ltd.
Titles Microcentre
Topcon Canada
Toronto Atmospheric Fund
Toronto General Hospital
Toronto Region Conservation Authority
Toronto Road Builders Association
TorroVap Ltd.
Toxin Alert
TrackMe
TransCan
Transim
Transition Technologies
Trilon quality Systems
Trimension
Tripos Inc.
TRIUMF
Trudell Medical International
TSI Inc.
TurboSonic
TVO
Tyco Healthcare
U.S. EPA
U.S. Office of Naval Research
UBC Blusson
Ultramar Canada
Unidata
Unilever Group
Uniroyal Chemical Ltd.
Unitec-Horton
United Grinding Tech.
Unitek-Miyachi
Universal Laser (CES)
University of Laval
University of Manitoba
University of New Mexico
Upton and Sullivan
USDA
USDOE
USE Hickson Building Products Ltd.
USFT
UVP Bioimaging Systems
Varian Inc.
Varian Vacuum Technologies Ltd.
VC Scientific
Veeco Instruments Inc.
Vendor Discounts
Ventana
Verifia
Vicon Inc.
Videoscope
Videoworks
Viromart Ltd.
Virtek Laser Systems Inc.
Vir-Tis
Virtual Micro
Viscotek Corp.
Visible Genetics Inc.
Vistek
Vivid Group Inc.
Vonsovici Consulting
VP Research
VRP Web Technologies
VWR Canada
Wale Apparatus
Wards Automotive
Waterline Ltd.
Waters Chromatography Inc.
Waters Ltd.
Westaim Corp.
Weston Bakeries
Wetec
Whitaker Foundation
WipWare
Wolfram Research
Wyatt Technologies
Xerox Corp.
Xerox Research Centre of Canada (XRCC)
Xilinx Corp.
XL Resonance
Xymotech
Yolles Group
Zanini Developments
Zeidler Grinnell Partnership, Architects
Zeiss Canada
Zeiss Empix Imaging
Zeton Inc.
Zygo Corp.
Zymark

PLACES AND PROJECTS

An overview of Trust-supported research in Ontario

Ontario Innovation Trust Investments 1999 – 2007

CITY	INSTITUTION	NUMBER OF OTHER FUNDING PARTNERS	NUMBER OF PROJECTS	TOTAL PROJECT COST	OIT FUNDING
Barrie	Georgian College	5	1	$1,161,469	$464,588
Belleville	Loyalist College	2	1	$459,300	$183,720
Guelph	University of Guelph	150	93	$147,433,518	$53,687,338
Hamilton	McMaster University	200	138	$189,477,974	$64,138,427
Hamilton	Mohawk College	5	2	$429,248	$171,345
Hamilton	St. Joseph's Hospital	2	2	$28,156,836	$11,262,736
Kingston	Queen's University	117	101	$230,801,690	$66,804,893
Kingston	Royal Military College of Canada	11	6	$5,689,479	$1,702,272
Kitchener	Conestoga College	10	2	$2,612,504	$920,648
London	Fanshawe College	8	1	$619,360	$243,230
London	Lawson Health Research Institute	3	1	$9,247,734	$2,864,000
London	London Health Sciences Centre	3	1	$7,992,143	$2,818,062
London	London Regional Cancer Centre	2	1	$820,000	$211,500
London	Robarts Research Institute (The University of Western Ontario)	3	4	$26,085,008	$8,624,260
London	The University of Western Ontario	170	116	$277,351,649	$90,261,215
North Bay	Nipissing University	1	1	$418,203	$166,646
Oakville	Sheridan College	5	4	$4,617,016	$1,694,992
Ottawa	Algonquin College	5	3	$2,881,392	$1,045,482
Ottawa	Carleton University	113	50	$121,290,826	$37,608,466
Ottawa	University of Ottawa	154	98	$212,166,283	$73,058,559
Peterborough	Sir Sanford Fleming College	5	2	$2,651,218	$1,060,487
Peterborough	Trent University	17	17	$20,088,473	$5,573,252
Sarnia	Lambton College	5	1	$1,806,964	$722,786
Sault Ste. Marie	Sault College	22	4	$4,659,459	$1,827,851
St. Catharines	Brock University	33	23	$17,615,815	$5,396,828
St. Catharines	Niagara College	11	6	$4,542,752	$1,675,253
Sudbury	Laurentian University	35	19	$9,341,663	$3,483,959
Thunder Bay	Confederation College	8	1	$692,000	$276,800
Thunder Bay	Lakehead University	28	20	$12,564,055	$3,869,347

CITY	INSTITUTION	NUMBER OF OTHER FUNDING PARTNERS	NUMBER OF PROJECTS	TOTAL PROJECT COST	OIT FUNDING
Toronto	Baycrest Centre for Geriatric Care/ Rotman Research Institute	2	1	$31,089,517	$10,712,000
Toronto	Centennial College	4	1	$707,700	$284,930
Toronto	MaRS Discovery District	23	1	$25,000,000	$10,000,000
Toronto	Humber College	19	1	$1,747,900	$698,900
Toronto	Mount Sinai Hospital	25	8	$93,129,740	$35,246,997
Toronto	Ryerson University	37	25	$8,787,544	$3,433,018
Toronto	Seneca College	11	4	$3,627,587	$1,243,774
Toronto	St. Michael's Hospital	7	2	$8,878,207	$3,520,595
Toronto	Sunnybrook Health Sciences Centre	17	4	$42,308,229	$16,561,292
Toronto	The Hospital for Sick Children	3	5	$31,636,872	$10,522,437
Toronto	University Health Network	7	7	$72,312,480	$23,024,995
Toronto	University of Toronto	251	263	$546,919,868	$206,498,126
Toronto	York University	107	51	$40,673,835	$15,210,768
Waterloo	Perimeter Institute for Theoretical Physics	3	1	$21,788,010	$5,624,892
Waterloo	University of Waterloo	165	88	$125,433,053	$45,594,725
Waterloo	Wilfrid Laurier University	21	26	$16,572,452	$6,574,321
Windsor	University of Windsor	39	43	$22,826,581	$8,040,750
			1,250	**$2,437,113,606**	**$844,611,462**

SUMMARIZED FINANCIAL STATEMENTS

Year ended March 31, 2007

PKFHill
CHARTERED ACCOUNTANTS

PKF Hill LLP
41 Valleybrook Drive, Suite 200
Toronto, Ontario, Canada M3B 2S6
www.pkfhill.com

Auditors' Report

To the Directors of
Ontario Innovation Trust

The accompanying summarized balance sheet and summarized statements of operations and capital and changes in capital are derived from the complete financial statements of Ontario Innovation Trust as at March 31, 2007 and for the year then ended. In our auditors' report on the complete financial statements dated June 1, 2007, we expressed an unqualified opinion. The fair summarization of the complete financial statements is the responsibility of management. Our responsibility, in accordance with the applicable Assurance Guideline of the Canadian Institute of Chartered Accountants, is to report on the summarized financial statements.

In our opinion, the accompanying financial statements fairly summarize, in all material respects, the related complete financial statements in accordance with the criteria described in the Guideline referred to above.

These summarized financial statements do not contain all the disclosures required by Canadian generally accepted accounting principles. Readers are cautioned that these statements may not be appropriate for their purposes. For more information on the entity's financial position, results of operations and cash flows, reference should be made to the related complete financial statements.

PKF Hill LLP

Chartered Accountants, Licensed Public Accountants
June 1, 2007

Summarized Balance Sheet as at March 31

	2007	**2006**
ASSETS		
Current assets		
Cash and prepaid expenses	$ 114,124	$ 57,440
Short-term investments	27,745,822	56,217,603
Due from Innovation Institute of Ontario	80,000	80,000
	27,939,946	56,355,043
Long-term investments	76,406,081	103,560,581
Due from Innovation Institute of Ontario	-	80,000
Property and equipment	87,442	97,787
	$ 104,433,469	$ 160,093,411
LIABILITIES AND CAPITAL		
Current liabilities		
Accounts payable and accrued liabilities	$ 216,995	$ 111,102
Due to Innovation Institute of Ontario	79,169	203,072
	296,164	314,174
Capital		
Invested in property and equipment	87,442	97,787
Restricted for approved grants (internally restricted)	95,886,679	153,899,435
Unrestricted	8,163,184	5,782,015
	104,137,305	159,779,237
	$ 104,433,469	$ 160,093,411

Summarized Statement of Operations and Capital
Year Ended March 31

	2007	2006
Revenue		
Interest income	$ 4,722,983	$ 6,684,527
Expenses		
Consulting and management services	662,707	665,030
Service fees paid to Innovation Institute of Ontario	620,619	687,475
Salaries and benefits	411,719	480,678
Investment and custody services	124,451	175,678
Office and general	103,756	79,627
Amortization	54,224	48,806
Travel	24,405	47,684
	2,001,881	2,184,978
Excess of revenue over expenses before undernoted items	2,721,102	4,499,549
Loss on sale of investments	350,278	-
Eligible project disbursements	58,012,756	118,342,617
Deficiency of revenue over expenses	(55,641,932)	(113,843,068)
Capital, beginning of year		
As previously stated	160,690,019	273,622,305
Adjustment (note 1)	(910,782)	-
As restated	159,779,237	273,622,305
Capital, end of year	$ 104,137,305	$ 159,779,237

Summarized Statement of Changes in Capital
Year Ended March 31

	2007				2006
	Invested in Property and Equipment	Restricted for Approved Grants (Internally Restricted)	Unrestricted	Total	Total
Capital, beginning of year					
As previously reported	$ 97,787	$ 153,899,435	$ 6,692,797	$ 160,690,019	$ 273,622,305
Adjustment (note 1)	-	-	(910,782)	(910,782)	-
As restated	97,787	153,899,435	5,782,015	159,779,237	273,622,305
Deficiency of revenue over expenses	(54,224)	(58,012,756)	2,425,048	(55,641,932)	(113,843,068)
Purchase of property and equipment	43,879	-	(43,879)	-	-
Capital, end of year	$ 87,442	$ 95,886,679	$ 8,163,184	$ 104,137,305	$ 159,779,237

Summarized Note to Financial Statements – Year Ended March 31, 2007

1. Adjustment to Capital, Beginning of Year
The financial statements for March 31, 2006 have been corrected for an accounting error made relating to amortizing premiums paid on bonds over the term of the bond from acquisition to maturity. This adjustment relates only to 2006.

This change has been applied on a retroactive basis, and accordingly the comparative figures and the opening unrestricted capital fund balance have been restated. The effect of this change is to decrease the opening unrestricted capital fund balance by $910,782. Short-term investments decreased by $402,019 and long-term investments decreased by $508,763 at March 31, 2006. Interest income decreased by $910,782.

Compensation Disclosure
In accordance with the Public Sector Salaries Disclosure Act, all salaries in excess of $100,000 have been reported to the Province of Ontario and are as follows:

	2007	2006
David Bogart	$ 143,750	$ 125,000
Christopher Pringle	-	111,668

Included with consulting and management services expenses are payments in the amount of $158,307 (2006 -$133,699) made on a purchase of services basis to Knox Innovations for the services of Kenneth W. Knox as President and CEO of the Trust.

About this Report

This report covers the activities and financial position of the Ontario Innovation Trust up to March 31, 2007, with a particular focus on the last 12 months of that period. Significant program events that occurred after the reporting period may also be referenced.

The Ontario Innovation Trust was created by the Government of Ontario to invest in research equipment and facilities at Ontario's universities, colleges, research hospitals and other non-profit research institutions. The Trust is governed by an independent Board of Directors, according to the terms of a Trust agreement established by the Ontario government. A small professional staff administers the program.

Highlights at a Glance

Ontario Innovation Trust Investment	$844.6 million
Investment from other sources	$1,592.5 million
Total Value of Infrastructure Investment	$2.43 billion
Number of Projects funded by the Ontario Innovation Trust	1,250
Private and Public Sector Partners involved	1,000+
Universities involved	18
Community Colleges involved	15
Research Hospitals and Health Science Research Institutions involved	11
Other Research Institutions involved	2

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