

# U of A • Engineer

Keeping in Touch with  
**Alumni**

Ron Nolan's  
Hatch Marks

Reluctant  
Pioneer

Taking Control  
Systems Out  
of the Box

Engineers  
with Heart

Dean Lynch is  
**Markin' a  
Milestone**

# Greetings from the Dean



This fall marks an exciting milestone for the Faculty of Engineering. At a gala event during Reunion Weekend, we officially opened the Allan P. Markin/Canadian Natural Resources Limited Natural Resources Engineering Facility (NREF).

The Faculty of Engineering has long been a leader in the field of natural resources engineering and has played a major research role in supporting clean energy activities across Canada. For many years the Faculty has supplied the energy industry with well-prepared, outstanding graduates, along with research and new technology, through collaborative programs. Now, with the opening of NREF, these students and the specialized research and technology will have a dedicated home.

NREF will house the Department of Civil and Environmental Engineering, including the School of Mining and Petroleum Engineering—the largest engineering department in Canada focused on natural resources engineering. Previously scattered throughout campus in 10 different buildings, the department needed consolidated space for teaching and research in natural resources development, including programs in petroleum, mining, environmental, geotechnical, water resources, structural, and construction engineering. With the completion of this new \$65 million state-of-the-art facility, these programs and their associated research will come together under one roof, resulting in optimum conditions for interdisciplinary collaboration. Moreover, the Faculty's researchers now have the opportunity to expand their work in a more technologically sophisticated environment.

It was thrilling to celebrate this opening with over 1,000 supporters of the Faculty and to acknowledge and thank them for being the foundation of this success. The construction of this building could not have happened without the generous support of the provincial government, our many corporate and individual donors, and our alumni in particular. Your advocacy has and will continue to help ensure that the Faculty of Engineering maintains and enhances its reputation in the top five per cent of engineering schools in North America. Thank you for your commitment to the Faculty, both in the past and into the future.

I hope you will enjoy this fall edition of the *U of A Engineer*.

David T. Lynch, PhD, PEng  
Dean, Faculty of Engineering



**Vision** *To be one of the largest and most accomplished engineering teaching and research centres, a leader in North America.*

**Mission** *To prepare top quality engineering professionals, to conduct world-leading research, and to celebrate the first-class reputation and outstanding accomplishments of alumni.*

**Values** *Dedication, integrity, professionalism, and excellence in teaching, research and service to the global economy and community.*

*U of A Engineer* is the Faculty of Engineering alumni magazine. It is published three times a year by the Dean's Office and is distributed to Faculty of Engineering alumni, friends, and staff.

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# Message from the Editor

Just as peer recognition is important in the engineering profession, so it is in communications. Thus, it is with great pride I announce that the *U of A Engineer* alumni magazine received a Capital Award from the International Association Of Business Communicators (IABC) in the category of communications skills and tactics. Winning an award of excellence, the magazine was rated 8.7/10 by the judges noting "Design elements clearly reflect objectives in the work plan. Excellent publication."

Contributing to this excellence is the excellent subject material—Engineering graduates make for great reading! If you have story ideas or updates to share, feel free to contact me at (780) 492-4514 or sherrell.steele@ualberta.ca. Now, enjoy the fall issue of *U of A Engineer*.

**Sherrell Steele**  
Publisher/Managing Editor



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# Taking Control Systems

by Lois Hammond

## *Out of the*

*It's 2002*

AND

CONOCOPHILLIPS

INC. IS OPERATING

OIL AND GAS

The company needs to update the software controlling the flow of oil and other processes. On each platform, the Bailey® consoles where operators command the software are rapidly becoming obsolete. Where are the experts who can upgrade them? An around-the-world web search takes the company to Ready Engineering, Corp. in Spruce Grove, Alberta—one of the few companies in the world with the expertise.

The Spruce Grove location is just one of the surprises at Ready Engineering. The young president and founder, Lee Ready (MEng Electrical '98), has no office—only a desk beside all the others—and he goes home to eat lunch with his kids. Susan Ready, his wife, is company co-founder and controller. Service means finding out what clients really need and, if necessary, creating new technology to address those needs. That's how Ready's primary client, TransAlta Utilities Corp. got a state-of-the-art coal blending system, which Ready is now marketing in China.

Though Ready provides general electrical and control engineering services, it specializes in serving the niche market for Bailey®, Ovation®, and other advanced control systems. This expertise, innovation, astute management, bright employees, and what Ready calls “fanatic customer service” all account for the company's success. After steady annual revenue growth of 70 per cent, 2003 revenues reached \$2.5 million.

“The U of A has been instrumental in our success,” explains Ready. In the beginning, his Master of Engineering gave him more confidence and credibility. Clients reasoned: “This guy has done a Master in control systems, so we can entrust our systems to him.” The U of A also provides a pool of engineering talent; all of Ready's engineers are U of A alumni.



BOX

Ready describes the company's essential business: "Frequently, engineers know what they want the physical processes to do, but they don't know much about the computers that control them. That's the void we fill."

Often, that involves refining existing industrial control systems. When companies contract large, multidisciplinary engineering firms to build or expand an industrial facility, they usually include their standard control package. Later, customers may realize their specs were met, but they still don't have all the specifics they need. Enter Ready Engineering. "We come in afterwards to customize the control systems and make them do what the customers really need," says Ready. For example, after a large firm completed the Edmonton Compost Facility, Ready reprogrammed the controls to make delivery of the raw material and other processes more efficient.

Another company to take advantage of Ready's expertise is TransAlta. Experts at TransAlta's coal-fired power plants have an ongoing challenge: blending coal types with differing qualities to achieve maximum heat generation and emission control. Meeting that challenge makes a difference of millions of dollars. For example, the right coal blend can save

a million by preventing uncontrolled combustion that may clog the system.

Ready took on the challenge and created ABACAS™ (Automated Blending And Coal Analysis System) software to give TransAlta the process control it needs. The system controls the mass flow of coal up to an incredible 99.6 per cent. Ready says the technical design was easy when compared to implementing it in real situations full of complex, unpredictable variables, including weather. It's been a four-year process.

"This is leading-edge technology in underground coal mine settings," says TransAlta geologist Andrew Hickinbotham. He explains that a few other coal-blending control systems are available but they're prohibitively expensive to use.

Ready's R&D continues with second-generation technology that he calls CoalFusion™. The company is now marketing the software in the world's two largest coal-producing countries: China and the United States. The marketing strategy includes partnering with local "re-sellers" who currently provide

other products to potential customers and are trusted by them.

At Ready, everyone is expected to be a salesperson by building relationships—the core of its customer service—and identifying opportunities.

"All business is about requests and offers to take care of concerns. It's a communication process," says Ready. "It starts with digging to identify the real needs and stepping back from the specs in a client's original request to understand the "why" behind the "what."

Ready has a unique way of teaching this to young staff. When he works with them on R&D projects, he intentionally withholds information about what he needs, thereby training them to extract it from a client (him, in this case).

Ready sales manager and former chemical engineer Mike Sadler is another key coach. "We find new graduates can ask all kinds of technical questions, scope out the technical problem, and dial in quickly as to how to solve it." says Sadler. "But very often they leave the human aspect off to the side. Who needs this solution and how would they use it? Who else

WE'RE TRYING TO BRING  
THE TECHNICAL AND  
HUMAN SIDES OF THE  
PROBLEM TOGETHER, SO  
THE SOLUTION REALLY  
WORKS FOR THE CUS



# Margaritas

## Anyone?

Lee Ready has fun operating on all cylinders, both in the company and outside of it. Mike Sadler relates a typical story.

One January, Sadler casually mentioned that it would be great to have a blender on their summer camping trip but, of course, they'd have no power to run it. Come August, camp is being set up and Lee disappears into the truck for awhile. He emerges carrying a gas-powered blender, created with parts from a weed whacker, a household stepping stool, and his conventional kitchen glass blender. The margaritas never tasted so good.



## ON READY ENGINEERING

in the company might be interested in this? We're trying to bring the technical and the human sides of the problem together so the solution really works for the customer."

To do that, Ready engineers constantly consult with the client's operations and maintenance people. Project manager Chris Stasiuk (Electrical '98) recalls an experience that illustrates this well.

While implementing ABACAST™ at TransAlta, he went down to the reclaim tunnel to see if the coal feeders were loading the belt according to software commands. There, he met an old guy who'd been shoveling coal for 20 years. "He could put his hand on the belt and tell you how much coal was there" says Stasiuk. "He knew the system inside out. It was pretty impressive." Though the man had never used computers before, he got on board to provide specific feedback needed for modifications.

These days, Stasiuk is surprised to find himself in business development and sales. "Lee saw this ability in me when I didn't. He pushed me gently to develop it. I have to say he was right, and now I actually quite enjoy this different role."

Jeff Whitt, (Electrical '94) manager of Ready Technologies Inc. in Olympia, encourages staff to consciously manage Ready's relationships on the job. Before Edmonton engineers go on site for an American project Whitt talks to them about keeping their eyes and ears open to customer needs, other work coming up, and the client's relationships with Ready or other companies.

Ready's determination to manage employees according to his high principles was reinforced by a hard lesson. After working happily for TransAlta for seven years, he managed the Alberta and B.C. Energy Services Division for a major multinational company selling electrical power, equipment, and engineering services. It was a company in big financial trouble at the time. Without any of the promised help from the sales division, Ready increased regional sales by a quarter and doubled operating profits in one year. He did it partly by training the engineers to be his sales force.

"We managed this turnaround, and in the process we stepped on some pretty big toes in the Hamilton head office," says Ready. There were two camps in the pressured company,

and when the president was "retired" Ready found himself in the wrong camp, with a six-month severance package. It financed his full-time U of A studies to finish an MBA and acquire an MEng, and motivated him to start his own company, run according to his values.

"From the beginning, Lee said he wasn't becoming rich off the backs of his employees," says Susan. Those employees praise their boss, who has never had to advertise for staff. People like Whitt, a former client, are drawn to Ready by what they see: innovative technology, transparent decisions, and clear policies so they always know where they stand, professional development opportunities supported with educational subsidies from \$2 to \$10K per year, an accessible president only a desk away, freedom to follow their own interests if they make a valid company case for it, and flex time to support family life.

What's Lee's most satisfying experience with Ready? The answer reveals his character and management style. No, it's not special technology or the steady company growth. It's the day he sat back during the mission and values exercise, listening to his employees before speaking himself. To his delight, they came up with his core values—unprompted.

What's most frustrating? "When you know you have a better offer on the table than somebody else, and for reasons that are almost completely in left field, they're not going to go with that offer. Some competitors will promise everything and they can't deliver. We know that and the customer should know that. We know because we usually go in to clean up the mistakes. Actually, a lot of our work is cleaning up mistakes. It's frustrating because it costs the customer more, and we only get a fraction of the revenue we could have had."

Ready is a self-admitted perfectionist who aims high, without going for broke. "We don't want growth for growth's sake. Growth will come naturally if we do things right, taking care of customers." He says of his proprietary coal blending technology, "Technically, I'm excited about what it does, but I'll be bouncing out of my chair once we've got customers seeing the same thing and buying. I'm always cautious about getting excited over new technology and spending our money, so

President Lee Ready, PEng, MBA  
C.Eng Electrical '98

Start-up 1997

Offices Spruce Grove (Head office)  
Olympia, Washington; Houston, TX

Employees: 20

Annual Revenue \$2.5 million

Core Services Distributed control  
systems (DCS) and electrical en

Expertise Bailey® and Ovation® DCS  
other human machine interface s  
programmable logic controllers,  
databases, historians, operatin  
and networks, and commissioning

Innovative Technology the automat  
blending and coal analysis syst

Clients Transalta Corp., EPCOR,  
ATCO Ltd., Luscar Ltd., Scanted  
(Australia), ConocoPhillips Ind  
(Indonesia), Hudson Bay Mining  
Smelting Co., Ltd., and others

Core Values Integrity, technical  
excellence, innovation, opportu  
and customer service.

Awards Spruce Grove and Distric  
Chamber of Commerce New Busines  
of the Year (2009) and Business  
Year (2002), CIBC Alberta Small  
Award of Distinction.

Website [www.readyengineering.com](http://www.readyengineering.com)

that we don't overextend ourselves. We're getting close, though. All it takes is a couple more sales and case studies, and yes, I'll be bouncing off the walls, too."

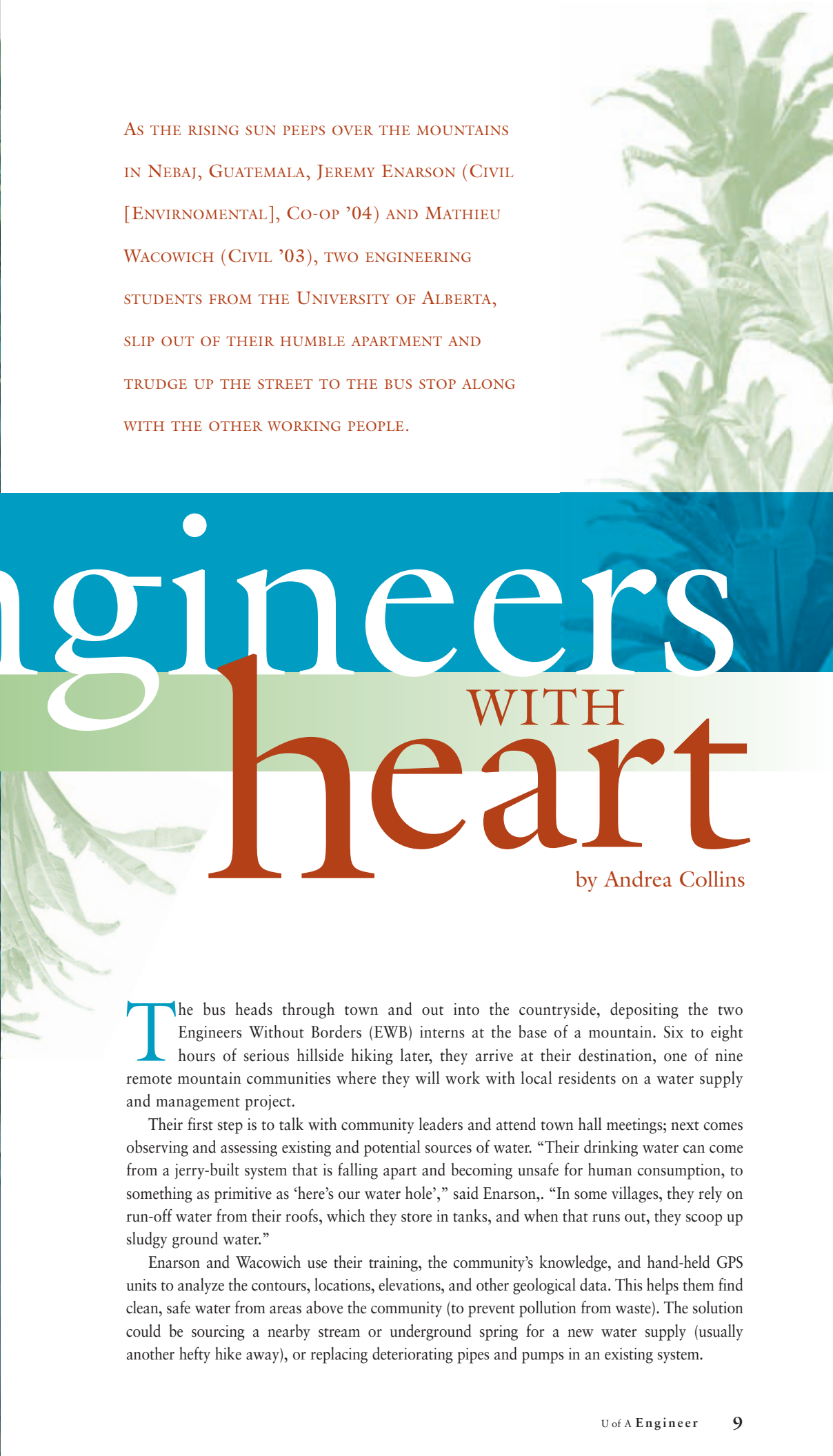



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Edmonton-based freelance  
journalist.



Left to right: Jeremy Enarson (Civil, [Environmental], Co-op '04), intern; Katherine Cross (MEng Civil [Environmental] '02), vice president, special projects; Don Thurston (Chemical '58), sponsor; and Waleed Gratalla (Civil [Environmental] Co-op '04), past president - Engineers Without Borders, University of Alberta chapter.





AS THE RISING SUN PEEPS OVER THE MOUNTAINS  
IN NEBAJ, GUATEMALA, JEREMY ENARSON (CIVIL  
[ENVIRONMENTAL], CO-OP '04) AND MATHIEU  
WACOWICH (CIVIL '03), TWO ENGINEERING  
STUDENTS FROM THE UNIVERSITY OF ALBERTA,  
SLIP OUT OF THEIR HUMBLE APARTMENT AND  
TRUDGE UP THE STREET TO THE BUS STOP ALONG  
WITH THE OTHER WORKING PEOPLE.

# Engineers WITH heart

by Andrea Collins

The bus heads through town and out into the countryside, depositing the two Engineers Without Borders (EWB) interns at the base of a mountain. Six to eight hours of serious hillside hiking later, they arrive at their destination, one of nine remote mountain communities where they will work with local residents on a water supply and management project.

Their first step is to talk with community leaders and attend town hall meetings; next comes observing and assessing existing and potential sources of water. “Their drinking water can come from a jerry-built system that is falling apart and becoming unsafe for human consumption, to something as primitive as ‘here’s our water hole’,” said Enarson. “In some villages, they rely on run-off water from their roofs, which they store in tanks, and when that runs out, they scoop up sludgy ground water.”

Enarson and Wacowich use their training, the community’s knowledge, and hand-held GPS units to analyze the contours, locations, elevations, and other geological data. This helps them find clean, safe water from areas above the community (to prevent pollution from waste). The solution could be sourcing a nearby stream or underground spring for a new water supply (usually another hefty hike away), or replacing deteriorating pipes and pumps in an existing system.

# EWB envisions a world of opportunity, dignity, and freedom where all people can meet their basic human needs and fulfill their potential.



When they return to Nebaj after each village visit, Wacowich begins work on project planning and Enarson puts together the voluminous technical reports required for each community. “We write them in a way they can be understood by the community, and afterwards, arrange for them to be translated into Spanish. That way, the community can carry the project forward themselves, if needed.”

The EWB interns on the Ixil Water Development Project in Guatemala came from the Faculty of Engineering’s chapter of EWB. U of A Engineering students have also gone on EWB internships to Ghana, Nepal, Bolivia, and other countries.

Engineers Without Borders is a university-based, Canadian organization that tries to solve problems in third world countries through technological solutions. EWB envisions a world of opportunity, dignity, and freedom where all people can meet their basic human needs and fulfill their potential. There are 22 chapters across Canada.

The Faculty of Engineering chapter began in 2001. The Faculty provides an office and equipment for the student executive, along with the services of a faculty advisor, Dr. Alidad Amirfazli. Start-up operational funds came from a single alumni donor, Don Thurston (Chemical ’58), now the president of Selkirk Portfolio Management Association in Calgary. Thurston’s four-year financial commitment (2002–05) has provided a solid base for the local chapter.

Thurston was impressed by the fact that EWB is a fully Canadian organization and student-driven. “I always planned to give something back to Faculty of Engineering. However, I wanted a project that was as close to the students as possible. I had lots of international experience from my work as an engineer, so when I read an article about Engineers Without Borders in an APEGGA newsletter and talked with Engineering Dean Lynch, it struck the right chord.”

Along with providing his financial contribution, Thurston also serves as an informal

advisor to the group, assists in the selection of interns, and attends EWB national conferences.

“I see my influence as offering advice when they want it. I’ve helped them focus on the big picture and long-term planning, for example, and to see that the social component of these projects is as important as the engineering solutions. Then I step back and watch them throw their ideas, energy, and drive behind it.”

“I’d like to challenge other engineers to get involved,” Thurston adds. “So far, I’m the only grey-haired guy at the conferences, and the only donor to the Faculty of Engineering chapter.”

The Faculty of Engineering chapter of EWB is led by a student president and executive. In 2003 the chapter was led by Waleed Giratalla (Civil [Environmental], Co-op '04), who graduated this past May and is now working in Africa. The current president is Kelsey Chegus, who is in her third year of her engineering studies.

Advisor Alidad Amirfazli says the students involved with EWB gain many things, even

when they stay at home. They learn to think globally, they become sensitive to other cultures, they make a difference in a developing country, and they learn to create and manage an organization.

Interns like Wacowich and Enarson are hand-picked as being open and above-board, sensitive to cultural differences, and non-critical. They take cross-cultural training in both Canada and the country where they intern, and immerse themselves in learning the local language when they first arrive.

Thanks to the work of the 2003 interns, EWB has nearly completed the assessment stage of the project. Once Spanish translation of the reports is complete, EWB representatives will return to Guatemala to bring concrete evidence to the people that will show them what has been achieved, and what they hope



to do. The next stage is to try to implement the proposed changes, a step that requires volunteer engineers, time, and money.

The Faculty of Engineering chapter can rely on one alumnus: Katharine Cross, (MSc Civil

or work abroad.” Cross’s desire for adventure has recently led her to take a seven-month placement with EWB and Enterprise Works International. “I will be providing technical support on a small-scale agricultural irrigation project. The focus is to expand a pilot project, which involved micro-irrigation using treadle pumps.”

Cross has the title of vice president, special projects with EWB’s Faculty of Engineering chapter. She is working with the current executive on the Guatemala project, preparing proposals, logistics, and partnership agreements. Soon Cross will focus on an immediate need: to raise \$10,000 to keep the Guatemala project



Far left: EWB intern Mathieu Wacowich (Civil '03) with two new Guatemalan friends.

Left: The community of Vijolom III provides labor for an EWB project. Right: Andreas Brito, Village guide, and his family.

going over the next year. “If alumni would get involved, as advisors, fundraisers or donors, it would be a big help,” she says.

“The Guatemala project was initiated by the Faculty of Engineering in 2002, shortly after they founded their chapter of Engineers Without Borders,” says EWB co-

debating politics or ideology. They are outcome-oriented. With their work in Guatemala alone, they are making a difference in 10,000 lives.”

Roter believes the Faculty of Engineering project has a great chance at success but, like all EWB chapters, it will have its challenges. “Students are very committed to EWB while they are in school. But often, when they graduate, they move away or are too busy with their new jobs to continue. Sustainability is one of our biggest challenges.”

However, EWB is beginning to attract volunteers from outside the student body. In time, it may grow to be a mix of students,

engineers and other professionals, in a model similar to Doctors Without Borders.

“With all our work, the key is not what we are doing, but how we train organizations in third world countries to become self-sufficient,” says Roter. “We want the knowledge to stay there and be utilized well beyond our direct intervention. As engineers, we not only want to ‘teach a man to fish’; we want to enable him or her to design a better fishing rod and reel, and share that knowledge with others.”

For young engineers, there’s nothing like it: adventure, international travel, new languages and cultures, teamwork, new friends from around the world, community relations experience, international work experience that will benefit their long term careers, and best of all, the chance to make a difference in the world.

Go to [www.ualberta.ewb.ca](http://www.ualberta.ewb.ca) to contact Engineers Without Borders.



Andrea Collins is an Edmonton-based freelance writer and communications consultant.

**“We want the knowledge to stay there and be utilized well beyond our direct intervention. As engineers, we not only want to ‘teach a man to fish’; we want to enable him or her to design a better fishing rod and reel, and share that knowledge with others.” says Roter.**

[Environmental] '02), who came forward to help EWB in 2002. On graduation, she applied for and received a four-month EWB internship in Bolivia, focused on a community recycling project in Las Paz, the capital. On her return, she joined U of A’s EWB chapter, believing that her experience would benefit others.

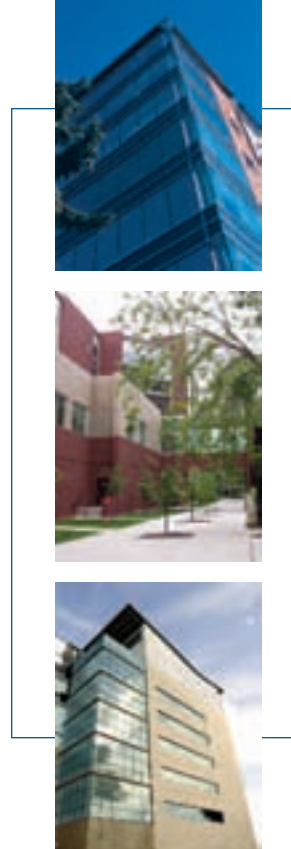
“I found the internship work interesting,” said Cross.. “I have always wanted to travel

founder and co-CEO George Roter. “The students in this chapter have energy, and know how to get people involved. They have strong student leadership, exceptional faculty support, and good NGO partners. Their approaches are pragmatic; planning and prioritizing comes first before they start the work, and though they are committed to helping others, they don’t get bogged down

While most people mark birthdays and anniversaries,

Engineering Dean, Dr. David T. Lynch (PhD Chemical '82)

marks milestones that are set in concrete.



# Dean Lynch is Markin' a

On October 1, 2004, Lynch marked a major milestone with the grand opening of the Allan P. Marking/Natural Resources Engineering Limited Natural Resources Engineering Facility (NREF). This is the newest member in the Engineering “family” of buildings and marks a dramatic expansion to the perimeter of the Engineering precinct. The Dean’s expansion plan includes the \$73 million Engineering Teaching & Learning Complex and the Electrical & Computer Engineering Research Facility, the recent official opening of the \$65 million NREF, and the future \$120 million National Research

Lynch has been marking many milestones in 2004. The year began with the Alberta Chamber of Resources naming him the

“Resource Person of the Year”. Next, Alberta Venture magazine recognized Lynch as one of “Alberta’s 50 Most Influential 2004” and a key “science driver”. The magazine noted that during Lynch’s tenure, the Faculty produced groundbreaking research that discovered a new way to produce electricity for the first time in 160 years. Lynch was also recognized as a formidable fundraiser, securing government research dollars (a \$10.7 million combined grant from federal and provincial governments) while also building a long list of partnerships with the private sector.

Next in the growing list of milestones, during Reunion Weekend 2004 Lynch received an Award of Excellence from the U of A Alumni association, recognizing recent and specific accomplishments.

Most recently Lynch was presented the “Outstanding Contribution to Alberta Science and Technology Community Award” by The Alberta Science and Technology (ASTech) Leadership Foundation. This prestigious award recognized Lynch’s extensive and tangible contributions to the Alberta science and technology community in education, public awareness, and ambassadorship. Also noted were his contributions to infrastructure, strategic partnerships, and technology transfer.

Marking milestones appears to be the theme for the Dean in 2004. Say, Dr. Lynch, that’s a lot of miles/kilometres on your odometre!

**Top: photo caption, photo caption, photo  
Middle: photo caption, photo caption, photo  
Bottom: photo caption, photo caption, photo**



# Milestone

Dr. David T. Lynch  
(PhD Chemical '82)



Ron Noland  
(Electrical '60)

Ron Nolan (Electrical '60) is a quiet man with a modest demeanor. He has the kind, plainspoken manner of a favorite uncle; a salt of the earth type, dedicated to his family and doing his best to give back to the community. When describing his life philosophy, he doesn't speak of building dynasties or fostering innovation; he talks about

# RON NOLAN'S HATCH MARKS

treating people with respect: "I think I treat employees, clients, and the general public honestly, and I'd like to think all people are honest until proven otherwise. I don't understand people who are suspicious of everybody. Life's too short. I get ripped off the odd time, but I think it's a better way to operate than the other way around."

BY STEPHANIE WEI

**H**e is also, in many ways, larger than life. A fellow and a director of the Canadian Academy of Engineering, he is the incoming president of the prestigious non-profit organization. He is also the chair and CEO of Hatch Ltd., a company one client refers to as “one of the world’s most knowledgeable and leading process and metallurgical design firms.”

When Nolan speaks of Hatch, the company he has led for over 15 years, the line between the personal and corporate identity blurs. It is his vision that has guided Hatch to its place of dominance in the international mining services industry. Hatch has existed since 1955, but under Nolan’s direction it went from being a largely Canadian operation to an integral part of the global mining and metallurgy industry. It now provides services to almost all of the world’s largest mining companies.

“We start out saying we’re an engineering company, but we’re a lot broader than that,” says Nolan. He breaks down Hatch’s many diverse and complex projects into basic terms. “We do two things: we engineer and construct mining and metallurgical projects. We’re probably the largest complete mining services company in the western world,” he states proudly. “The second thing we do is infrastructure, largely around mass transit—a lot of subway work and a lot of tunnelling.” As a partner in Hatch Mott MacDonald, the company has been involved in award-winning projects all over North America.

Nolan’s talent for seeing things in their simplest form has served the company well. Several years ago, Nolan looked at where the industry was heading and realized some fundamental changes were occurring. As the mining industry became more globalized, Nolan realized that Hatch had to do the same to compete.

“Primary production of mining and metal was leaving North America to some degree and going to low-energy third world countries,” says Nolan. “There was a lot of integration of the industry into a very small number of large mining houses, and we just felt we had to be where they were in various parts of the world. It was an evolution.”

Hatch entered a period of expansion, acquiring engineering and project management firms all over the world. Hatch now has over

4,500 employees, in offices from Chile to China. “It’s been a very satisfying career. I’ve helped Hatch to reach its position as number one supplier of consulting services to the mining and metallurgical industry in the world and that’s very gratifying. It’s a great success story that doesn’t get told enough.”

Nolan, a big-picture thinker, has carefully built up his company by supporting his clients and addressing their needs. “My favorite part of the job is relating to the clients. We try to concentrate on how we can help our clients’ businesses, rather than our own business. We have a motto here that if we can help our clients move ahead, then that will help us at the end of the day.”

In addition to growing the business internationally, Hatch has developed a strong international reputation for operations support. In the past, clients looked to Hatch for its metallurgical know-how and technological

expertise. These days, Hatch is becoming known for outsourcing engineering services to the clients in their own facilities—from the mine opening and smelters right down to maintenance support and financial analysis. “We’ve managed to vertically integrate our services and capabilities to better serve our clients. We have truly globalized, and I don’t think many firms can say that.”

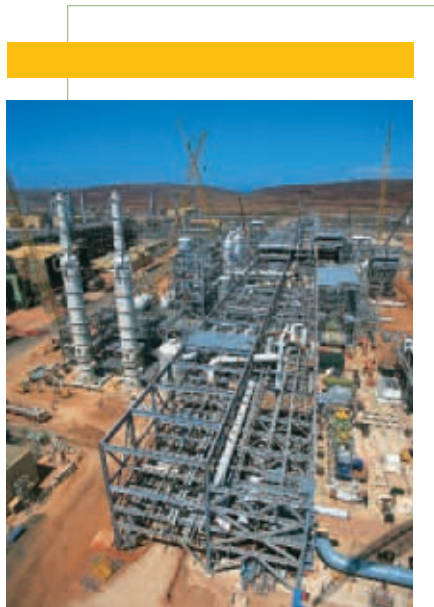
When Nolan talks about Hatch, one can feel the sense of family he has nurtured. He feels a greater responsibility for his staff than many other heads of major corporations.

He talks about the challenge of balancing the financial affairs of the company while expanding globally and still delivering a fair rate of return for the shareholders. “We do things a little bit differently than some of our competitors do. This business is quite an up and down one. We’ve always tried to suffer through the bad times, and to some degree the shareholders suffer, but we’re very reluctant to lay off anybody until we absolutely have to. We’ll ride through some pretty big downturns with our staff, and I think they appreciate that. People are very loyal; they like the company. I think on a whole we’re looked at as a good place to work.”

Nolan spends a lot of his time thinking about new technologies, and how they will affect the direction of the company. In the near future, he sees Hatch diversifying into the Canadian energy sector. He talks about setting up shop in Calgary and challenging the work being done in the oil sands. “I try to formulate the vision,” he explains. “I think of myself as a visionary, and I believe this has led to the success that we have achieved in becoming the dominant engineering firm in the global metals industry.”

A long way from the farm in southern Alberta where Nolan grew up, perhaps, but like many things in his life, it seems almost a natural progression. “At the start, I did not plan a career path—I simply was offered great opportunities in electrical engineering, and I worked hard with them,” he recalls.

Nolan started out at TransAlta after graduating, and within a few years found himself at an electrical firm that worked with Hatch. After part of the company was bought



**Top photo: Hatch’s train project, the Woodside LNG 4 in Burrup Peninsula, western Australia. Bottom photo: The Alouette aluminum smelter in Sept-Iles, Quebec.**



Nolan, a BIG-PICTURE THINKER, has carefully built up his company by SUPPORTING HIS CLIENTS and addressing their needs. “My favorite part of the job is RELATING TO THE CLIENTS. We try to concentrate on how we can HELP OUR CLIENTS’ businesses, rather than our own business. We have a motto here that if we can HELP OUR CLIENTS MOVE AHEAD, then that WILL HELP US at the end of the day.”



Cattle auction at Nolan’s Bar 5 simmental stock farm.

by Hatch, Nolan took over the electrical department. He moved through the ranks to become vice president of engineering, then executive vice president, and eventually took over as president and CEO in 1988.

Growing up in rural Alberta instilled a strong work ethic in Nolan that is still present today, even as he contemplates life after Hatch. “I guess I’ve worked hard my whole life. I like what I do. I suppose at this stage of my life, I could do with some slowing down a bit, smell the roses. But it’s going to be hard to leave here. I view the company as a very exciting place, and I think the company is just poised to really go ahead.”

As a student, Nolan wasn’t always sure that engineering was the right choice for him. “My mother wanted me to be a lawyer,” he laughs. “My best subjects were science and math, and I suppose at the time I had a decision to make.” Deciding on engineering, Nolan enjoyed his time at the Edmonton campus. “It was a good time actually, a really good time,” he recalls. In his first year at the University of Alberta, he spent most of his time hitchhiking between Edmonton and

Picture Butte, devotedly visiting his girlfriend.

Of course, it got easier once he got married in his second year and could focus on studying rather than hitchhiking. They have now been together for almost fifty years.

Nolan has always placed his family at the top of his priorities: “Balancing personal family time with the demands of the business has always been a challenge for me,” he claims. Yet he always finds time to visit his in-laws back home, or to cheer on his grandchildren at sporting events.

As he looks forward, Nolan envisions doing more of the things he enjoys doing now: spending time with his family, rooting for his favorite sports teams, and working for the community.

Nolan also has a farm to tend to—not a simple hobby farm, but a large cattle farming operation with herds in Canada and South Africa. “I guess being raised on a farm, my interest comes from that heritage,” he chuckles. Bar 5 simmental stock farm has kept Nolan and his family busy for over 30 years, and will probably figure prominently in his retirement life.

Over the last few years, Nolan has also dedicated a significant amount of time

in community work, from raising funds for universities and hospitals, to working to raise the profile of engineering. “I’ve tried to give something back to the community,” he says modestly. “It’s not easy; your time is at a premium when you’re running a company.”

“My education prepared me well. I thought the University of Alberta’s program was pretty sound at the time.” Nolan has no regrets about becoming an engineer. While dealing with people is the favorite part of the job, Nolan really misses the pure engineering. “I love the engineering aspect. Of course, I don’t get to do much of it anymore.”

In light of the importance of engineering in our society, he is disappointed in the way that society views the profession of engineering. “It’s a little disconcerting, because what we do influences society so much.” Through his work with the Canadian Academy of Engineering, he hopes to improve the situation.

He advises engineers starting out in their careers to hang in there. “There are a lot of distractions. You can make more money in finance or other areas. But engineering itself is so rewarding. And eventually, you can be rewarded financially. I’ve certainly never regretted it. It’s been a great career.”



Stephanie Wei is a Toronto-based freelance journalist.

He grew up on the banks of the placid blue river that meanders through his home village in the sub-tropical countryside of China's Guangdong province.

And though the carefree sailing and fishing excursions of his youth are a distant memory for Dr. Dejiang Long (PhD Civil '91), the rivers of China keep calling him home.

# The Long March from

“I learned how to swim in that river, and how to catch small fish,” reminisces the Calgary-based principal of Golder Associates, a consulting group with global credentials in environmental science.

Now 42, Dr. Long originally moved to Canada in 1985 on a one-year post-graduate scholarship to study hydraulic engineering at the University of Alberta. His Chinese teachers fully expected him to return to wrap up his grad work at Beijing's most distinguished engineering school, Tsinghua University. But the allure of life in the “decadent” west proved irresistible. He lingered in Edmonton, ultimately deciding to settle in Alberta. He completed his doctoral thesis in 1991, under the supervision of Dr. Nallamuthu (Raj) Rajaratnam.

Yet, time and again, professional obligations have drawn Long back to his roots, back to the

deltas, watersheds, and irrigation districts of China. And the Chinese, while regretting their loss of a gifted water resources engineer, continue to reap significant rewards from his efforts on their behalf.

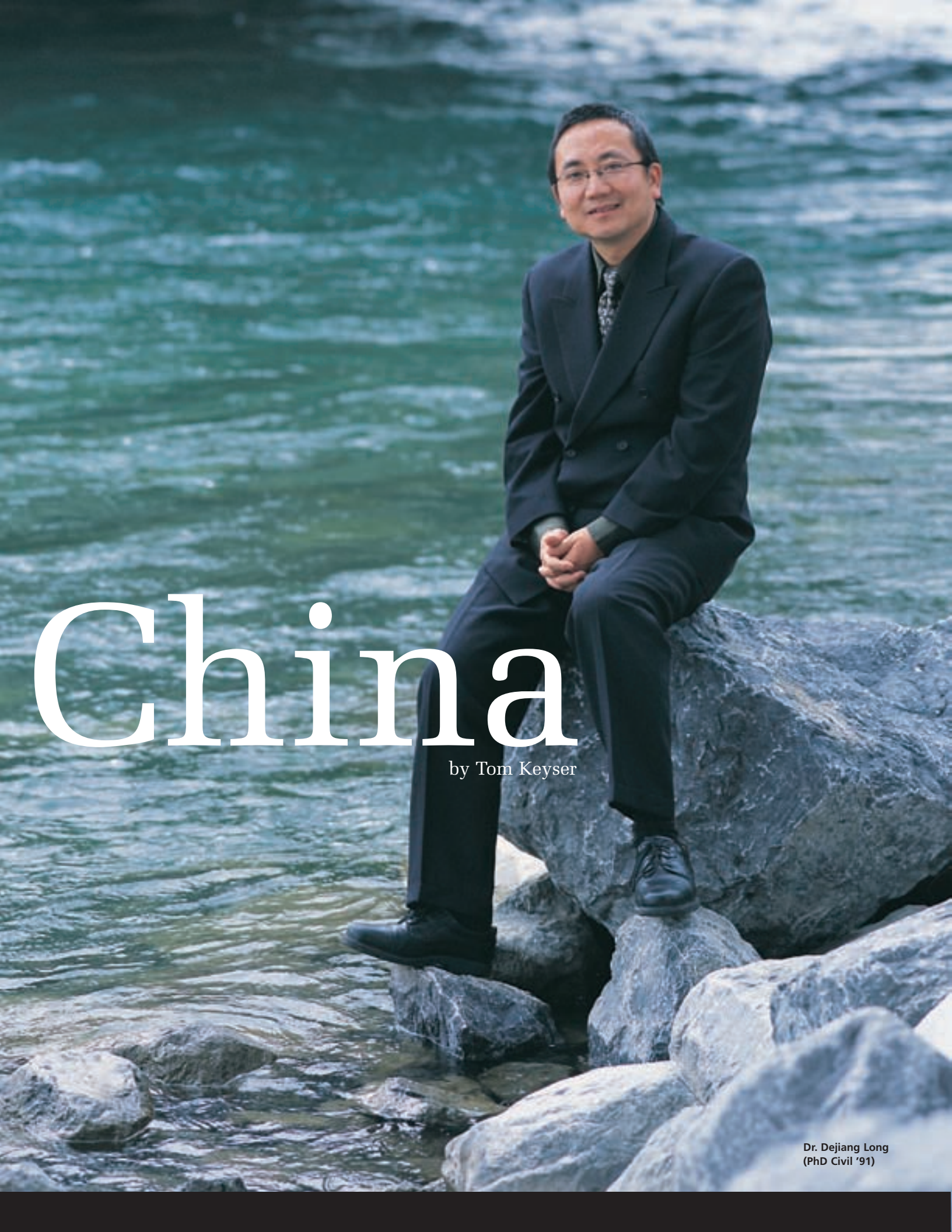
You might say he represents money in the bank. One water management project, directed by Long, has already saved Chinese authorities more than \$20 million US since its completion four years ago.

Heading up an elite unit of international specialists, including colleagues from Golder Associates, Japanese experts, and engineers from two Chinese research institutes, Long spearheaded development of innovative software designed to improve the complex drainage and water management system for China's fertile Sihu Basin. Reinforced by Dr. Slobodan Simonovic, a University of

Western Ontario flood-management expert, the Golder team was recruited by the World Bank, which helped to finance the four-phase job in the basin—10,000 square kilometres of rich farmland, home to five million people.

Golder became the primary consultant for the critical fourth and final phase of the six-year project, ultimately developing the flood-management tool known as Sihu Decision Support System (DDS) software. Praised by the World Bank as a groundbreaking solution, the new software enables Chinese engineers to accurately forecast the onset of high water within the sprawling basin, while enhancing the drainage capacity of the existing infrastructure.

“During the summer flood season, the river rises as much as five to 10 metres higher than ground elevation within the basin,” Long explains. “Extremely high dikes keep

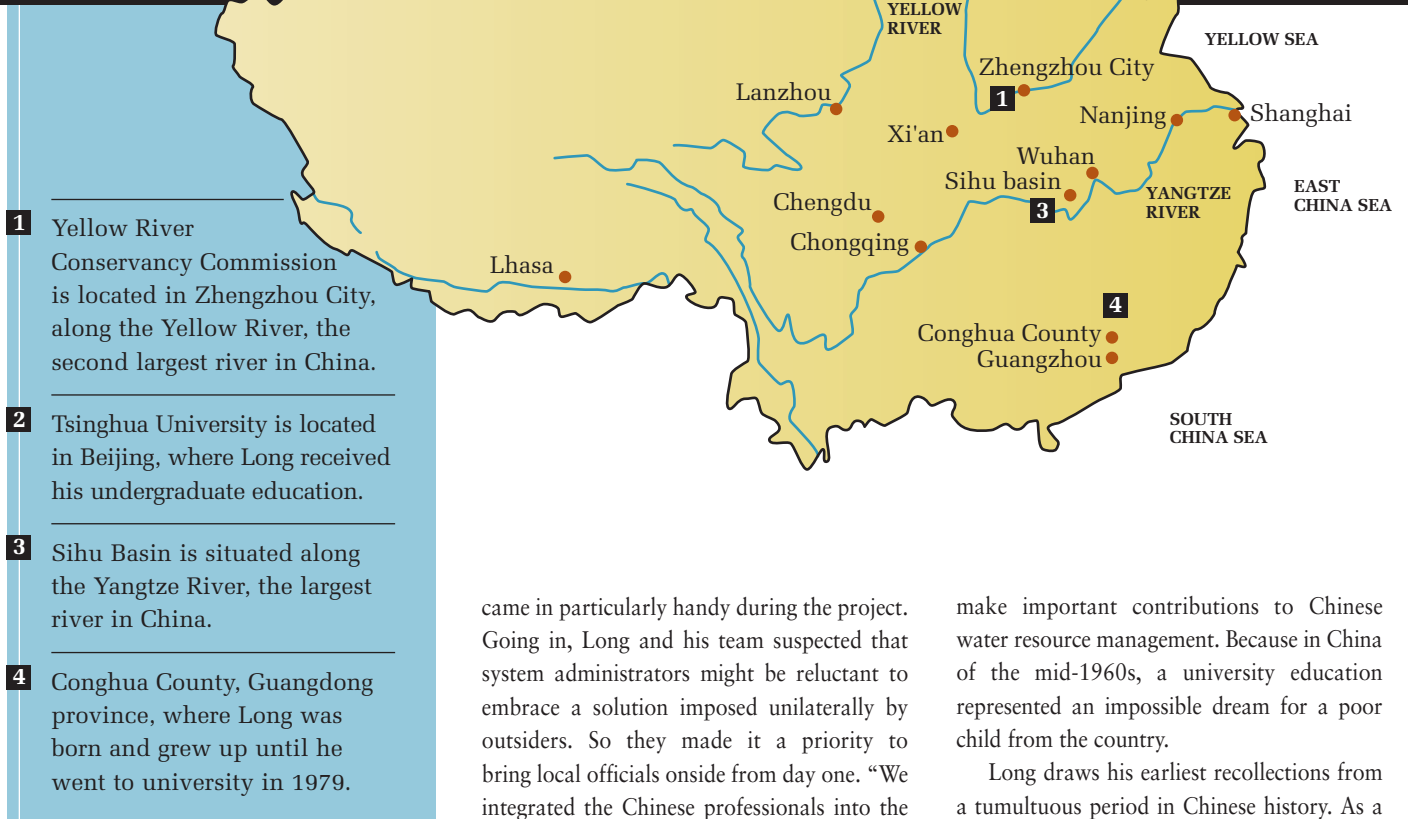


# China

by Tom Keyser

Dr. Dejiang Long  
(PhD Civil '91)

# CHINA



the river at bay. But since the basin has no natural water outlets, the Chinese rely on an extensive drainage system.”

A series of massive electric pump stations, each able to discharge 2,700 cubic metres a second, acts as the system’s main bulwark. Meanwhile, operators keep flood damage to a minimum by manipulating an intricate network of sluices and drainage canals. Excess water within the basin (which annually receives 1.2 metres of rainfall) is diverted to two nearby lakes, which serve as holding ponds.

Logistically, the management of such a labyrinthine system is a nightmare in the making. Or it was, until Golder’s innovative DDS software came to the rescue. “The Chinese didn’t have access to sophisticated management tools. That’s why we came to help them,” says Long.

His team’s knowledge of regional cultural attitudes and traditional business methods

came in particularly handy during the project. Going in, Long and his team suspected that system administrators might be reluctant to embrace a solution imposed unilaterally by outsiders. So they made it a priority to bring local officials onside from day one. “We integrated the Chinese professionals into the whole process,” he says. “They had a very important say on project objectives.”

Truth to tell, most of the software solution package, which subsequently earned an Award of Excellence from the Association of Consulting Engineers of Canada, was actually developed by the Chinese themselves, with their visitors providing key methodological, technological, and supervisory support.

On a personal level, Long confides that the chance to return to the land of his birth to lend a supportive helping hand to his compatriots was a dream come true. “That’s one thing I do feel. Very satisfying,” he says.

A charming, soft-spoken and modest man, Long was born in 1962. “Year of the Tiger,” he grins. Many of his childhood memories are joyful, others less so. But there was little about his humble beginnings to suggest that a bright and sometimes undernourished youngster from an insignificant riverside village (Population: 10,000) would one day emerge to

make important contributions to Chinese water resource management. Because in China of the mid-1960s, a university education represented an impossible dream for a poor child from the country.

Long draws his earliest recollections from a tumultuous period in Chinese history. As a youngster growing up during the Cultural Revolution (1966–76), he was frequently forced to work alongside his classmates for weeks at a time, doing compulsory manual chores on experimental farms. “They tried to educate students by sending them to work. It was hard labour. We learned practical farming skills and had no studies at all,” he says.

He also endured the trauma of looking on while the infamous Red Guards condemned his father, a minor Communist party official and ex-schoolteacher, as a dangerous intellectual. Long’s father was incarcerated in a work camp for several years before he was allowed to return home.

A harsh social policy authored by Chairman Mao-Tse Tung, the Cultural Revolution brought turbulence to even the most remote rural communities. Mao imposed desperate measures to renew the “revolutionary spirit” on the Chinese mainland, seeking to rid the Politburo of officials who had fallen from grace

while simultaneously purging so-called elitist elements from the educational, cultural, and health care systems.

And though Long and his two brothers grew up in a loving family, money and food were scarce. They lived in a two-room apartment while sharing cooking facilities with another family. "We didn't have a lot to eat," recalls Dejiang. "Sometimes even during the Chinese New Year, I cried for meat, either because my parents couldn't afford it or because of a general shortage."

Perhaps to compensate, Dejiang embraced his academic work with vigour and zeal. Though reforms meant frequent interludes of hard labour, Dejiang's productive hours in the classroom gave him boundless pleasure. He received top marks and emerged as a student leader.

Nevertheless, an intelligent young man from the Guangdong countryside had little opportunity to pursue higher education while the anti-intellectual Cultural Revolution held sway. Luckily for Long, its precepts were swept away by powerful winds of political change in 1976. And under the subsequent leadership of Deng Xiaoping, even the poorest rural children became eligible for university entrance.

When the time came, Long was ready. He earned high scores on his entrance exams, ranking among the top three candidates within a province of 86 million inhabitants. One big-city journalist was so impressed by the unprecedented accomplishment that he travelled to Long's village, interviewed him, and praised him in print.

Once on campus, he wasn't allowed his own choice of program, however. Campus authorities decided for him. Nevertheless, Long concedes things turned out for the best. Streamed into hydraulics engineering, he did well enough to crack the academic top 10 of his undergraduate class.

Then came a year-long scholarship to the U of A. "I thought that was an excellent chance to get out of the country and learn about the West," Long says now. "When I came out, I expected to go back to China. In school and on campus, you went through rigorous political training and absorbed the communist ideology."

Although he had been active in the youth wing of the Communist Party, Long quickly

adapted to the more open and relaxed Canadian lifestyle. He was particularly impressed by Dr. Rajaratnam, who influenced him deeply. "Raj was not only outstanding academically, he really cared about the lives of his students. He had our best interests in mind," he recalls.

In turn, Dr. Rajaratnam was dazzled by the foreign student's advanced grasp of engineering principles. He took the young man under his wing, supervising his PhD studies and encouraging him to apply for additional U of A scholarships and grants. These allowed Long to extend his stay in Edmonton.

Since successfully completing his thesis in 1991, Long has declined a variety of offers to go back home to stay. But he has returned a number of times for professional as well as personal reasons, most recently on behalf of the Yellow River Conservancy Commission (YRCC).

Long confides that the chance to return to the land of his birth to lend a supportive helping hand to his compatriots was a dream come true. "That's one thing I do feel. Very satisfying."

Impressed by his breakthrough work in the Sihu Basin, Chinese officials sought him out to provide advice on a much more complex proposal—the development of long-term strategies for flood management within the vastly larger and immeasurably more problematical Yellow River watershed.

Management of the sediment-choked Yellow River is far from a straightforward proposition. The second-largest freshwater ecosystem on the Chinese mainland, the Yellow River Basin is enormous—800,000 square kilometres, or about 80 times the area of the Sihu Basin. For decades, scientists have been struggling to address and overcome awesome management challenges posed by the river. These include an annual cycle of alternating floods and droughts, which generates what experts term a "supply and demand imbalance."

In spring and summer, the silt-laden waters frequently overflow their banks, creating severe flood risks for the region's 235 million inhabitants, many of whom are impoverished farmers who subsist on annual incomes as low

as \$75 US. Toward the end of the year, however, the character of the river abruptly changes. Late autumn droughts have been known to last for months at a time, reducing water flow to little more than a trickle.

In partnership with the YRCC and the Canadian International Development Agency, Golder Associates has asked Long to head up a team charged with the task of monitoring and mapping flood damage on the lower Yellow River, using Canadian-developed radar satellite technology.

Long's work represents a critical first step towards a new and truly effective system of water management and flood control, similar to improvements introduced to the Sihu Basin. "We're calling it the Digital Yellow River Project and it's quite ambitious and large in scope," he explains. "They want us to precisely identify the areas which flood, as well as the extent of the damage caused by

flooding. Then the information can be used to convince (political) decision-makers to allocate more resources for flood warning and damage management."

A second component of the project is every bit as important. Members of Long's team hope to help their Chinese colleagues develop new software tools able to provide flood-damage assessments of pinpoint accuracy. From there, new watershed models can be designed to help YRCC planners and operators re-allocate their resources to ensure an adequate water supply, as well as the improved health, prosperity, and agricultural productivity of those who live and work along the banks of the Yellow River.

With Long's help, future generations of Chinese children will share his pleasant memories of growing up along a placid blue river.



*Tom Keyser is an Calgary-based freelance journalist.*

# When the Rubber



# R Hits the Road



by Debbie Waldman

**H**ugh Donovan (Civil '78) has no trouble remembering his introduction to asphalt rubber. It was 1976, and he was testing the then-new road surface for the City of Edmonton.

He wasn't impressed. "It did not perform well," he recalls. "The surface deteriorated, and the rocks started coming out of the mix."

And yet, when the Tire Recycling Manufacturers Association (TRMA) approached him in late 2000 to reconsider the technology, Donovan, didn't hesitate. Now director of engineering services for the City of Edmonton, he'd read enough to know the process had been modified and worked well in other jurisdictions. "I went in with an open mind," he says.

And, you might say, open roads: in the project's second year, 2003, 23,000 tonnes of asphalt rubber were laid on test sections on Edmonton and Sherwood Park streets, up from 3,500 tonnes the year before. It's also being tested in Calgary and Lethbridge, and on a few sections of highway in the province.

The engineers who served on the steering committee have been uniformly impressed with the latest incarnation of the material. It has proven to be quieter, less likely to rut, and more skid resistant than traditional asphalt.

"Everybody seems pleased so far," says Lyle Treleven (Civil '97), the project manager/coordinator for EBA Engineering Consultants, Ltd. in Edmonton, which was hired by the TRMA and Alberta Transportation in early 2001 to research asphalt rubber and provide the department with recommendations about ideal applications in Alberta. "It's not a miracle material but it is better than conventional asphalt for several reasons."

For one thing, it's considerably quieter. According to Treleven, asphalt rubber reduces the ambient sound level by up to eight decibels—a significant difference not only for drivers but for those living nearby.


In the City of Edmonton and in Strathcona County, residents and officials have been vocal and enthusiastic about the noise reduction. Some have gone so far as to request that asphalt rubber be used to pave more roads.

"There was an article in the local paper about asphalt rubber, and people in general just noticed the difference," says Bob Horton (Civil '80), county engineer and manager of engineering and environmental planning for Strathcona County. "We've had people calling in and there have been letters submitted."

Because asphalt rubber is still in the evaluation stage, no decisions have yet been made as to its future in the province. But no one is ruling out the possibility that it will become a permanent fixture in at least some jurisdictions.

"We have a number of locations within the City of Edmonton that require noise attenuation structures," Donovan says. "If we can reduce the noise by using an asphalt rubber mix, it may preclude us from having to build very expensive noise attenuation devices to get a similar result."

Asphalt rubber's reintroduction in Alberta came about through the efforts of the TRMA, which was founded in 1993 after then-Minister of the Environment Ralph Klein decided the province needed to recycle



“Fundamentally the challenge for the Tire Recycling Management Association and for an effective recycling program is to encourage the development of markets for the product. That is why we’re getting involved in asphalt rubber—to see if it works in this climate.”

tires instead of letting the old ones pile up and become potential hazards.

“Eliminating stockpiles prevents or avoids threat of tire fires, which have significant impact on groundwater contamination,” explains Al Schulz (Chemical ’68, MEng Mechanical ’74), who was assistant deputy minister of environmental regulatory service under Klein and is now the APEGGA representative to the TRMA. Because abandoned tires are an ideal place for water to collect, getting rid of them also minimizes the threat of West Nile by eliminating potential breeding grounds.

The TRMA began recycling tires in earnest in the mid-1990s. By the early part of this decade, the stockpiles were gone, Schulz says. Recycled tires are shredded into one-inch and two-inch chips, or shred, which are used in civil engineering projects including road stabilization and leachate for landfills. Some of that shred is further processed into rubber crumb.

Since 2001, when the TRMA asphalt rubber steering committee got off the ground, rubber crumb has been used primarily as an alternative surface for playgrounds and riding arenas, and to make molded products and dairy mattresses.

“Fundamentally the challenge for the Tire Recycling Management Association and for an effective recycling program is to encourage the development of markets for the product,” Schulz says. “That is why we’re getting involved in asphalt rubber—to see if it works in this climate. Once we have tested and evaluated the technology, the industry can develop those markets and run on its own.”

In North America, asphalt rubber has been used the longest and with the greatest success in warm climates, mostly in Arizona and California. In fact, Alberta engineers

spent some time studying the roads in Arizona and meeting with transportation experts there to learn more about asphalt rubber’s benefits and drawbacks.

In 2002 and 2003, the TRMA brought in an asphalt blending company from Arizona to make asphalt rubber for Alberta roads. The company used locally recycled tires, Alberta asphalt oil, and gravel. But bringing the experienced workers and their equipment here, even for very short periods, drove costs up significantly. Also, by importing the equipment and technology, Alberta municipalities had to fit their schedules around American projects.

This year, the TRMA opted to find an Alberta-based contractor willing to invest in the equipment and expertise. Fath Industries of Edmonton won the contract, bought the equipment, and sent a plant operator to Arizona for training.

“Everybody seems to be fairly confident that Fath will have success with this equipment,” Treleven says. “They have their own paving plant, and they have been guaranteed a certain amount of tonnage or production days for the next three years to make the purchase feasible for them.”

Asphalt rubber is made from rubber crumb, aggregate, and asphalt oil binder. Back in the 1970s, the crumb was blended into the aggregate and the oil was added afterwards in what was known as a “dry” process. In the new, “wet” process, developed in Arizona, the asphalt oil binder is heated to approximately 195 degrees Celsius. The rubber crumb is added and the mixture is agitated and cooked simultaneously for approximately 45 minutes. After the rubber crumb reaches a gel-like consistency, the asphalt rubber binder gets pumped into the asphalt mixing plant with

the aggregate or gravel. The two are mixed together and used immediately.

The latest technology has been more successful than its predecessor. But while the California and Arizona engineers’ claims of noise reduction have certainly proven to be true, Albertans aren’t yet reaping other benefits touted by those south of the border.

In California, engineers have been able to reduce the asphalt rubber overlay thickness on the road surface by 50 per cent and still retain good performance. Alberta engineers aren’t convinced that will work here.

“We’ve tried in a couple of locations, but the thinner stuff isn’t performing as well as we would like,” Treleven says. “It’s cracking more than the thicker layers. We’re thinking more along the lines of being able to reduce it by closer to a third, but that’s not proven yet. It’s something that’s going to take some time to evaluate.”

Arizona’s asphalt rubber roads have had no reflective cracking (where a crack “reflects” through an overlay), but that hasn’t been the case in Alberta. Almost all asphalt will develop some cracks, but Alberta’s cold temperatures mean it’s bound to happen sooner and more extensively.

“We looked at Flagstaff, Arizona. They do have a low temperature value of minus-30 in the winter, but I suspect that’s for about 30 seconds,” Donovan says. “They get snow, but their high end temperatures are much hotter than ours, and their low-end temperatures don’t last for as long as ours.”

Donovan isn’t convinced that asphalt rubber prevents low temperature cracking. “I haven’t seen an asphalt that does that, and that we can use in our environment,” he says. To accomplish that, the asphalt would require an oil binder two to three grades softer than



what's currently used here. The result: "We would find there would be phenomenal rutting of our roadways, because the material would shove and push under tire traffic."

Low-temperature, or thermal cracking, is inevitable in Alberta's climate regardless of the surfacing material used, but asphalt rubber seems less likely to sustain permanent damage from fatigue cracking—which occurs from repeated use and aging. "Any fatigue cracking that's reflecting through does knead back together with traffic on it," Horton says. "That doesn't happen with other kinds of road surfaces."

Asphalt rubber's ability to mend itself is one reason that Allan Kwan (Civil '78) feels it has such promise. As the executive director of technical standards for Alberta Transportation,

The key word there is we. "It's a team effort," Treleven says. His employer, EBA, was honoured earlier this year for its work with asphalt rubber—winning an Award of Excellence in Transportation Infrastructure from the Consulting Engineers of Alberta. But Treleven stresses the importance of input from the TRMA, Alberta Transportation; the Cities of Calgary, Edmonton, and Lethbridge; Strathcona County; Husky Energy; the Alberta Roadbuilders and Construction Association; and the U of A's Faculty of Engineering, where Dr. Hamid Soleymani is studying the performance of asphalt rubber.

Al Schulz, who has chaired the steering committee since its inception, also credits teamwork for the project's success. "The strong engineering component and the years of

to perform in our climate," Treleven says. "We're experimenting with different mix designs and using different grades of asphalt cement to see if we can get the performance level we are seeking."

Alberta is currently the only province in Canada using asphalt rubber, although the technology has been tested in Ontario and will be tested in British Columbia this year. It's more expensive than conventional asphalt; the rubber crumb and higher-than-normal oil binder content add to the cost, as does the blending process itself. But if Alberta engineers can fine-tune the recipe to make it work here, the benefits in terms of longevity may outweigh the initial cost.

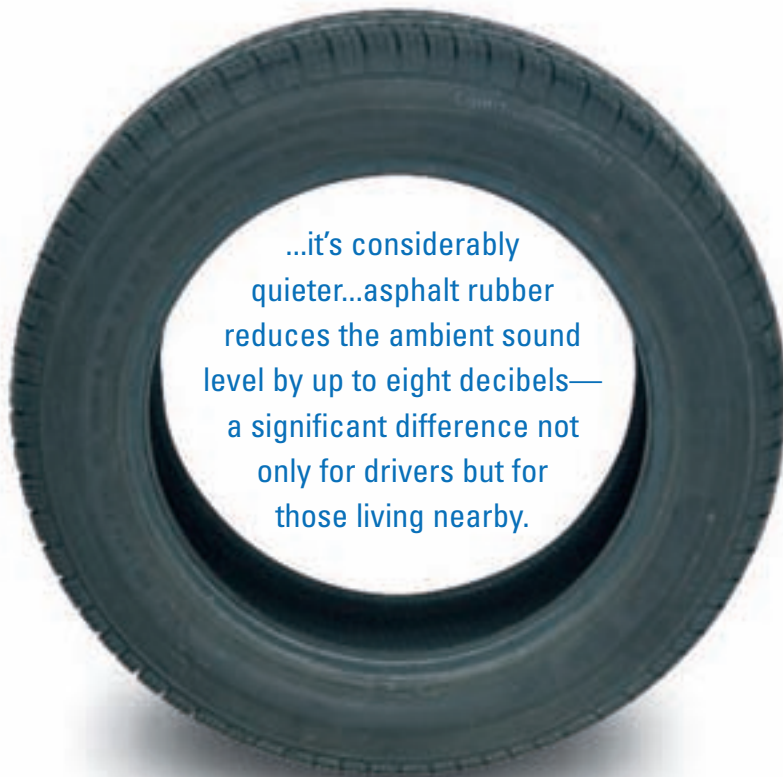
Whether it will ever be cost-effective enough for widespread use is unclear. That has to be evaluated over the life-cycle of roadways, generally 10–15 years, and has to include repair and maintenance. Other performance benefits such as noise reduction may be quantified in terms of avoiding more costly and unsightly alternatives.

"For the foreseeable future, let's say for the next five years, due to the high initial cost it's probably only going to be feasible for large rural highway paving projects, large communities that have large paving projects, or smaller communities located in proximity to a larger one," Treleven says.

That's not to say that smaller communities may never have a chance to experience the benefits of asphalt rubber. Kwan argues that the entire province is already benefiting, even those who have never had the experience of driving on a smooth and quiet asphalt rubber road.

"If you look at our department's business plan, we are also charged with being environmentally responsible," he says. "Noise is an environmental issue. And even though asphalt rubber is more expensive, if you use half the thickness in the long run, over its life it may be cheaper than the conventional asphalt, so that's why I'm so optimistic."

Asphalt rubber may have had a wobbly beginning, but don't be surprised if it bounces back for a strong future.



...it's considerably quieter...asphalt rubber reduces the ambient sound level by up to eight decibels—a significant difference not only for drivers but for those living nearby.

Kwan searches for state-of-the-art practices and new engineering solutions for the province. He believes he's found a good one in asphalt rubber.

"Rubber can stretch. So, by that logic, if you can integrate it into the pavement, the material is more flexible," he says. "The more flexible the pavement, the less cracking there will be. But of course, we don't want it to be so flexible that it can't handle the traffic flow, so we're looking for that perfect balance."

paving experience represented on the steering committee provided an excellent project sounding board for the program development and has provided technical direction and critical evaluation of the project," he says.

The TRMA and the key road owners have committed to continue testing asphalt rubber through 2006. "By that time we will have had it on the roads for five years and we'll have a much better idea of whether it's going



Debby Waldman is an Edmonton-based freelance journalist.

# RELUCTANT PIONEER

## Linda Van Gastel

by Tom Keyser

It was her third year of chemical engineering at the University of Alberta and Linda Van Gastel (Chemical '67, MSc Chemical '72), was happily sailing along in the top quartile. Then a well-meaning professor took her aside.

"You know, Linda, it's going to be hard for you to find a job," the professor gently advised the Faculty's sole female student. "You really ought to think about trying another field. Perhaps library science?" Shocked and inwardly seething, Van Gastel murmured a few polite words, then hurried on her way.

"He was right about it being hard for a woman to find a job in engineering," she says in retrospect. "But it made me mad. That remark was a motivator. I just said to myself, 'I'm going to show you.'"

She did exactly that during a productive and thoroughly rewarding business career. And, from a 21st-century perspective, the current president of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA) is able to smile at the memory. After all, times have changed pretty dramatically. Today, one quarter of Alberta's engineering students are women.

"So many young women are considering or entering the profession," she says today. "I think it's marvellous."

Soft spoken and non-confrontational by nature, Van Gastel wasn't the type to carry a chip on her shoulder. She was no activist, no crusader. But that doesn't mean the slights she endured were forgotten. In truth, they made her stronger.

APEGGA's second female president laughs out loud while sharing a tale about another instructor, who had a weakness for off-colour jokes. Before he told one in class, he routinely asked the "token" female to step outside.

Was she discouraged? At times, certainly. "It was shocking—overwhelming—to go to these classes and find I was the only woman." Quitting, however, wasn't an option. From childhood, she'd been steeped in a family credo: once you're committed, finish what you start.

Though admittedly staggered by her first taste of campus reality, Van Gastel dug in and became a reluctant but persistent trailblazer. Her tenacity—plus a natural aptitude for math and science courses—served her well. And she led by example, pulling down terrific marks while earning the respect of her peers, who unconditionally welcomed her to the campus social whirl.





# R

Not surprisingly, Van Gastel frequently found herself cast in the role of mentor—and she loved every minute of it. “For whatever reason, people felt free to come and talk. I always made sure my door was open,” she says. “It was a part of the job I enjoyed. One of the most important things we were doing was building relationships and helping people find their way.”

“So many young women are considering  
or entering the profession...”

I think it’s marvellous.”

Though the 17th female to graduate from U of A’s Engineering Faculty (Virginia Webb was the original, class of ’48), Van Gastel downplays any suggestion that she was a pioneer. Nevertheless, her first-hand experience with sexist attitudes, so prevalent in the 1960s and ’70s, helped shape her personal sense of justice.

She brings that strong sense of fair play to her one-year term as APEGGA president, a posting that began in April of this year. Her performance record is impressive. As a member of the Association’s practice standards committee, for example, Van Gastel helped to draft human rights guidelines for the workplace.

And while serving as president-elect for most of 2003, she chaired a task force on “inclusivity,” a panel that proposed impor-

post-graduate sortie into the job market, Van Gastel began to realize that her well-meaning professor had known what he was talking about. Unable to break into the profession, the disappointed grad returned to the U of A, eventually completing a computer-based MSc.

At the time, computers were new and untested in business environments. After finishing her MSc, Van Gastel was thrilled and relieved to accept a systems position with Western Research and Development (later Bovar) located in Calgary at first, then later in Vancouver.

The company was doing cutting-edge work in the emerging science of air-quality monitoring and emission control. Western put its newest employee to work on one of the first real-time computer systems to play an important day-to-day role in the Canadian business community. The work was stimulating, a perfect fit for her skill sets. Unfortunately, the company ran into trouble. Along with several others, Van Gastel was caught in a downsizing squeeze.

As luck would have it, her computer expertise ultimately led her back to Calgary and, by a twist of fate, back to engineering.

Van Gastel remembers her first job interview with David Tuer, now board chair of the Calgary Health Region. It was 1976, and Tuer (who subsequently rose to the CEO’s chair of PanCanadian

Energy Corp.) was a dynamic rising star with the company “I had three job offers,” Van Gastel recalls. “But I was so impressed with David, I decided to hold out for a position with PanCanadian.

She hasn’t regretted the move. At the time, PanCanadian (which subsequently merged with Alberta Energy Company to form EnCana Corporation) was a national leader in the emerging discipline of computer science. In fact, Van Gastel’s group developed and fine-tuned the company’s first supervisory control and data acquisition (SCADA) systems. “David Tuer was a visionary in computer applications,” adds Van Gastel. “Even then, he was a make-it-happen kind of guy.”

The wheel had come full circle. Van Gastel made the most of her first real chance to make a go of an engineering career, almost

10 years after failing to crack the Alberta profession’s gender bar.

As a PanCanadian reservoir engineer, Van Gastel soon saw that some of the unspoken prejudices against women in the professional workplace were falling away. And her fascination for what she likes to call “the art of the science” made an adventure of her daily routine. “There was a history in that company of respecting the engineer,” she says now.

It was a high-pressure job, involving reserve estimates and trend analyses that often placed the success or failure of a given oil or gas play in the balance. “More realistically, you’re working on a decline analysis,” Van Gastel explained. “You’re relying on the information supplied by geophysics, geology, and production performance to model the behaviour of a given reservoir.”

The reluctant but determined pioneer was so proficient at her job that her bosses eventually drafted her to join another exclusive club: PanCanadian’s management and executive team. And throughout the 1980s and ’90s, she watched with pride and approval as more and more women were attracted to the profession.

Van Gastel retired not long after PanCanadian and AEC merged to form EnCana Corp. in 2002. But she’s not exactly taking things easy. After more than a decade of active service on APEGGA committees and councils, she enjoys the president’s chair. Meanwhile, she’ll continue to serve on the board of the Alberta Science and Research Authority (ASRA).

Other priorities include her husband, Arnold, the two grandkids (“the youngest is a potential engineer-in-training,” she grins), her daughter, Sharon Boucher, and son Kyle Biswanger, who studied mechanical engineering at the University of B.C.

Van Gastel tells a story on her son. “Kyle enjoyed engineering, but decided to pursue his Masters in Management Science. He did so well on his Graduate Management Admission Test (GMAT), I asked him, ‘What were you doing in engineering, anyway?’” Kyle’s response: “Well, I started. So I had to finish.”

Like mother, like son.



Linda Van Gastel reviewing daily oil market status with Rob Stevens, manager of oil marketing at Pan Canadian.

tant legislative changes within the 40,000 member organization. After a period of close study, Van Gastel and her colleagues advocated for the creation of a new membership category, a way to accommodate internationally-educated practitioners and others who are able to demonstrate their competence but whose academic backgrounds don’t quite mesh with the established syllabi used by APEGGA.

“This shouldn’t be some exclusive club. Anyone who can demonstrate their capability should be able to acquire a licence to practice,” says Van Gastel. “I really believe it’s an important initiative.”

Back in the late 1960s, however, the engineering profession wasn’t quite ready for change, nor inclusivity—not where female engineers were concerned. During her first



Tom Keyser is an Calgary-based freelance journalist.

# CAMPAIGN 2008

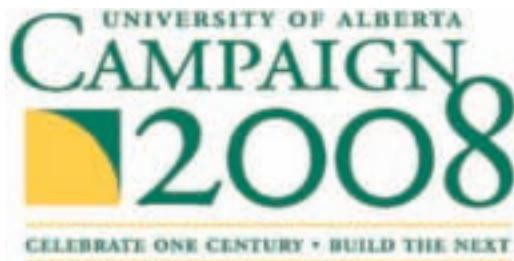
*The Faculty of Engineering is proud to be part of the University of Alberta's fund raising campaign.*

## *Celebrate One Century —Build the Next*

Campaign 2008—Celebrate One Century—Build the Next, is the official campaign theme. The Faculty of Engineering calls on alumni, donors, and other university supporters to recognize and build upon the foundation of excellence that began 100 years ago, and to create their own legacy by helping the University of Alberta move into a new era of development and discovery. Campaign 2008 is generating momentum as our campus moves towards its centennial celebrations and completion of the campaign in 2008.

calendars. This will be a high-energy celebration of University of Alberta supporters and the impact their gifts have made. Over 1,000 guests—including students, faculty, and staff from the university community, as well as campaign co-chairs, community leaders, and past and present supporters of the university—will be invited to join us for the festivities at the Saville Centre.”

Says David Lynch, Dean of Engineering, “Funds raised for Campaign 2008 will be dedicated to three strategic initiatives within the Faculty of Engineering. First, our focus on



Engineering is very well represented on Campaign 2008. Nizar Somji (MEng Chemical '85) and Jim Stanford (Petroleum '60, LLD [Hon] '00) have agreed to serve on a team of five co-chairs. Says Somji, “Engineering alumni have a well-established giving history with the University. I hope and trust that my friends and colleagues will lend their enthusiasm to this cause.”

The public launch of Campaign 2008 is scheduled for November 2, 2004 from 11:30 a.m. to 1:30 p.m. at the Saville Centre, south campus. Says Stanford, “Mark your

attracting the best and brightest students to the Faculty of Engineering will help to ensure the long-term growth of the profession. Second, we will continue to build intellectual capacity through the recruitment and retention of outstanding professors. Finally, we will continue to enhance the teaching and research environments through state-of-the-art infrastructure and support for the development of well-rounded, exceptional graduates.”

Check the Faculty of Engineering website for further information and updates on Campaign 2008.

### Dates to Remember

## Bulletin Board & Alumni Events

The complete details for the following alumni events were not yet confirmed at press time. Please visit [www.engineering.ualberta.ca/alumni](http://www.engineering.ualberta.ca/alumni) or call (780) 492-7050 (toll-free 1-800-407-8354) for more details.

**Edmonton Regional Alumni Reception for Electrical & Computer Engineers**  
February 17, 2005

**Edmonton Regional Alumni Reception for Mechanical Engineers**  
March 17, 2005

**Fort McMurray Regional Alumni and Friends Reception**  
April 12, 2005

**Ottawa Regional Alumni and Friends Reception**  
February 9, 2005

**Palo Alto Regional Alumni and Friends Reception**  
January 27, 2005

# NORTH to

*SPRING 1942: Army recruiters come to speak to the third- and fourth-year Engineering students at the University of Alberta. The students are needed, not for service in war-torn Europe or the mobilization efforts revving up in Asia, but here at home—building a highway to link Edmonton, Alberta to Fairbanks, Alaska. It is three weeks before final exams but they are needed urgently; the Dean agrees to grant them their year if their term grades are high enough.*

BY ANDREA COLLINS



Alaska Highway Section D, with an army jeep and Osgood shovel.

George Ford (Civil '42, MSc Civil '46, DSc [Hon] '88), who later became the Dean of Engineering, remembers how excited he was. "I raced down the hall with my books in my arms, but I was stopped by Professor Hardy who asked where I was going. 'I'm heading home to see my mother and dad and then I'm going up to the Alaska Highway.' He shook his head and said, 'No, you're not,' and I ended up having to write my exams."

Ford won the gold medal that year because, as he says, "They took away my competition." He joined the work crew three weeks later in May. His close friend, Ralph McManus (Civil '42, MSc Civil '46), escaped the professor's clutches and went up in April.

"Ten of us from U of A rode up together on the Northern Alberta Railroad to Pouce Coupe in northern British Columbia," says McManus. "If you haven't ridden that old railroad, you really missed something. You needed two bunks for each person, one on

either side, so you could flop back and forth. It was the roughest ride I've ever had."

The U.S.A. Public Roads Administration (PRA) was the civilian road-building authority in charge of the project. The U of A Engineering students were hired as surveyors by the PRA. The students were among the 16,000 civilian and army workers who arrived to do the work that spring, and housing was at a premium. Conditions on arrival were rough. "If you were lucky, you got a tent; otherwise you slept by the side of the road," said McManus. "In 1943,



George Ford and Ralph McManus graduate with their master's degree in Engineering, U of A, 1946.

# Alaska



However the real challenge wasn't the movement of supplies; it was completing the Herculean engineering task ahead.

Though an overland route to Alaska had been proposed many times since the turn of the 20th century—first for the gold rush and later to boost the northern economy—it was always stalemated by a lack of money, motivation, and military support. When World War II broke out, Canada deployed the bulk of personnel and supplies overseas, but took the precaution of building a network of northern airports leading from Edmonton to Alaska (1939–41). Together with a few airbases in Alaska, it formed the Northwest Staging Route, used to ferry planes and supplies to British ally Russia across the Bering Strait. Canada also saw its potential for defence against a Pacific attack.

However, the United States believed a Pacific attack unlikely, especially since they had built an arc of Pacific defences around the aggressor Japan. How could that little nation hope to break free of U.S. domination, and

Alaska was particularly vulnerable. Purchased from Russia in 1867, it had a population of 72,000 people in 1940. There were only 21,500 military personnel based there, and they had to deal with a shortage of anti-aircraft guns and inadequate roads. It was the natural place to breach North American defences, and the Japanese knew it; documents recovered after the war showed an attack plan for the Aleutian Islands and Alaska.

After rapid-fire discussions with Canada, the American government had agreed in March 1942 to foot the bill for all costs, including labour, if Canada would provide the right-of-way and waive taxes and import duties. A U.S. bill to approve the project and costs was passed, and within weeks the first troops arrived.

There were four routes proposed initially, and each had its supporters. British Columbia and Alberta were at loggerheads, as each province wanted to be the staging area for the route. Alberta triumphed for two reasons: an inland route was deemed safer from attack and

I was left behind to finish up when they moved the camp and took all the tents. I had to sleep in an old trapper's cabin that was full of pack rats. I never got to sleep all night."

Indeed the men were lucky if they got almost anything in those early weeks. Supplies came by ship to Skagway, Alaska or by railway to the end of the line. Then they had to be trucked in, following the path of the new road being hacked out of the wilderness. Sometimes, when work parties got stranded, bush pilots would drop emergency supplies.

**"YOU OF THE UNITED STATES PROVIDED THE TOIL,  
WE OF CANADA PROVIDED THE SOIL."**

*~ Ian Mackenzie, November 1942*

why would they when their hands were full in Asia? Their apathy disappeared on December 8, 1941 when Pearl Harbor was bombed; fear of more attacks along the west coast of North America escalated and a panicked public demanded protection.

easier to build, and following the Northwest Staging Route made good military sense.

The U.S. Corps of Army Engineers was given the daunting task to hew a pioneer road from Dawson Creek, B.C. to Fairbanks, Alaska for the quick transport of troops.



Liard Bridge, 1943. The rivet crew from New York.

They were to complete 1,400 miles (2,253 metres) of northern wilderness road in eight months. They mobilized 10,000 men, assigned each regiment a section of road, and began work on March 8, 1942.

Three of the regiments were made up of African American troops, all from the Deep South. Severe cold and inadequate clothing made their travail even tougher during the winter of 1942–43, one of the coldest in history.

never seen or touched snow. They found one guy (frozen) two days later but they never found the other one.”

The U.S. Army workers, charged with speed, took little care to plan their route in advance. Instead they plunged through the most rugged terrain in North America with sheer grit and determination. They plowed their way through the tree line and built temporary bridges and culverts out of wood. Although

When the highway was officially opened in November 1942, Ian Mackenzie, representing the Canadian government said, “You of the United States provided the toil, we of Canada provided the soil.”

However, many Canadians, like Ford and McManus, were toiling too. They were hired by the PRA, which was charged with building an actual highway within two years—a road adequate for the military supply convoys destined for Alaska and for future civilian traffic. They used the pioneer road forged by the Army to move along the route, but their route often deviated in many places to sites where the grades, soil or other conditions were more manageable.

“The PRA were first-class road builders and they were going to make a glorious highway,” said McManus. “I surveyed the first two miles and we had to cross-section and mark everything in detail. Then, when we got further out of town, they got the hurry-up order and the career officer in charge had the bulldozer go anywhere he wanted it to.”

## IT (ALASKA) WAS THE NATURAL PLACE TO BREACH NORTH AMERICAN DEFENCES, AND THE JAPANESE KNEW IT; DOCUMENTS RECOVERED AFTER THE WAR SHOWED AN ATTACK PLAN FOR THE ALEUTIAN ISLANDS AND ALASKA.

“I remember hearing about two of them walking off into the wilderness shortly after they arrived,” said Ford. “They saw Pink Mountain and thought it was topped by snow. They decided to hike there, as they had

little remains of their pioneer road today, their achievement became the stuff of legends. The south and north crews met at their target, Contact Creek, on September 24, 1942—eight months and nine days after work began.



“One place called Suicide Hill had a 32-degree grade and a right angle turn at the bottom,” said Ford. “Someone put a sign at the top that said, ‘Prepare to Meet Your Maker’. Unfortunately, that happened more than once. I’ll never forget the night we were camped at the bottom of the hill when a transport truck tipped over and 32 soldiers were killed. We had to pick up the bodies.”

There were other tragedies along the trail too. McManus remembers when three planes en route to Russia went down near his camp. “The leader’s plane failed and he crashed. For some reason, the other pilots followed him in. Maybe they thought they could land and survive, possibly make a rescue, but they died too.”

For the most part, though, the work involved days of hard work and monotony. The surveyors scouted ahead with the work parties following close on their heels. “The bulldozers would hit the trees low and put a notch in them,” recalls McManus. “Then they’d hit them high and over they’d go. They’d scoop them over to the side of the road. There were piles and piles of fallen trees all along the way.”

Waste was rampant. The roads were a sea of mud, and the muskeg led to additional challenges. Trucks bogged down and were abandoned; others were towed out of the muck but had to discard their loads. “I drove a truck all summer and I never bought a gallon of gas,” said McManus. “If a supply truck upset, they would abandon their gas cans. You’d open a can and sniff it. If it was gas, you’d take it; if it was water, you’d leave it.”

Mistakes occurred often, caused by speed, uncertainty about the terrain, and plain ineptitude. “They made cooks out of truck drivers and truck drivers out of cooks,” said Ford, “so there was bound to be snafus. I remember one time they wanted us to go look for gravel. Colonel Warren from Canada told the U.S. officers that they would not find gravel there but they made the men dig it up anyway. Sure enough, there was no gravel.”

The workdays were long, usually 10–14 hours, and work commonly went on seven days a week. About the only diversion for those

based in the bush was drinking or cards. “We never got into the drinking,” says McManus with a grin, “but we sure got good at bridge.”

However, there were some consolations. Both U of A grads said the cooks in their work camps were exceptional, and both agree that the pay was good—certainly better than the pay of junior professors at the time.

“When we came back in the fall, we were hired as instructors,” said Ford. “We were paid \$100 a month, but \$15 of it was in Social Credit scrip, which was only good at Uncle Ben’s Exchange, and we were only paid for eight months’ work.” (Note: scrip were

stamp cards issued by Alberta’s Social Credit government that people could redeem for cash or merchandise.)

It was no surprise that both men returned to the north for the summer of 1943. By this time the U.S. Army had left, and the PRA began the work of straightening and widening the rough-hewn road, reducing the grades and sharp turns, and building permanent bridges and culverts.

McManus’s crew rebuilt a series of small bridges. “We heated the rivets, then threw them to the men on the steel. They caught them and placed them in the holes with tongs, and then riveted them from the other side.”



## THE ALASKA HIGHWAY TODAY

**LENGTH: 2,446 KM (1,520 MILES)**  
FROM DAWSON CREEK, B.C. TO  
FAIRBANKS, ALASKA

**LENGTH WITHIN CANADA: 1,915 KM**  
(1,190 MILES)

**SURFACE: ASPHALT, CHIP SEAL**  
(TAR AND GRAVEL)

**SEASON: OPEN YEAR-ROUND**

**HIGHEST POINT: SUMMIT (MILE 392),**  
ELEVATION 1,295 METRES (4,250 FEET)

**STEEPEST GRADE: 10 PER CENT,**  
STEAMBOAT MOUNTAIN (MILE 351)

SOURCE: WWW.THEMILEPOST.COM

# Cross Hairs on History



Hudson's Bay store at Dease Lake, 1943.

Ford's team was assigned to a major steel bridge over the Liard River. "They brought in some Native American bridge builders from Elmira, New York," said Ford, "They really knew their stuff—they'd built the Golden Gate Bridge in San Francisco. My job was to inspect the rivets and mark any that were not put in well, so they could be pulled or replaced. The crews had a rivet race every day with their day's pay as wager and they sure didn't like me finding any bad rivets. I got on the wrong side of their Chief for this and he began to throw rivets at me. One day he hit my hard hat so hard the point came off the rivet."

"However it was this same Chief who rescued me another day," he added. "I was walking on steel as it was going out. My rod man was too afraid to walk out on the furthest section so I went out for him. When I got out there, I looked down at the river hundreds of feet beneath me, got dizzy, had to sit down and then simply froze. I couldn't move an inch. That big Indian walked out and sat beside me and talked to me for a while. Then he said, 'Let's go down.' He told me he'd be right behind me and he kept talking as we walked. When we got down, he said, 'Now go back up there.' I said, 'you know where you can go' and he said, "You know where you can go if you don't; you can go home because you'll never go on steel again. Now walk up there, walk out to where you were and walk back.' I did, and that was that."

WHEN I GOT OUT THERE,  
I LOOKED DOWN AT THE RIVER  
HUNDREDS OF FEET BENEATH ME,  
GOT DIZZY, HAD TO SIT DOWN  
AND THEN SIMPLY FROZE.  
I COULDN'T MOVE AN INCH.



Alaska Highway, 1943. Laird River Bridge. Driving sheet piling at Pier 1.

The PRA was ordered to complete the Alaska Highway by fall 1943 and had to sacrifice some quality to meet the deadline. However, the highway they built was the precursor of the one that takes supplies and tourists to Alaska today. Responsibility for maintaining the Canadian portion of the road moved from the U.S. to the Canadian army in 1946, and then to Public Works Canada in 1964. The highway has been upgraded and improved many times, but it still follows the wilderness route of the wartime road builders.

As for Ford and McManus, they returned to teaching at U of A, completed their Masters in Engineering in 1946, and they each married

and started families. Though their roads deviated for many years (Ford became Dean of U of A Engineering and McManus a successful private consultant), they remain fast friends today. Both men (now well into their 80s) still live in Edmonton. They remain competitive, arguing good-naturedly over the fine points of engineering, the "true" story behind the Alaska Highway, and the many other memories they have shared for 66 years.



Andrea Collins is an Edmonton-based freelance writer and communications consultant.

ALLAN P. MARKIN

CANADIAN NATURAL

RESOURCES LIMITED

NATURAL RESOURCES

ENGINEERING FACILITY

# NREF

## Winning awards even before opening

Even before completion, the newest building in the Engineering precinct was winning friends and influencing people. Certainly the judges at Construction Specifications Canada (CSC) were impressed.

In CSC's quality documents competition this year, NREF won two of the maximum three awards.

The Cohos Evamy Partners, prime consultant on the NREF project, received an honourable mention for their work on this new building. This award recognizes exceptional entries with limited deficiencies. Says Doug Connell, partner with Cohos Evamy, "The number of honourable mention awards presented is at the discretion of the judges;



CONSTRUCTION SPECIFICATIONS CANADA (CSC) IS A NATIONAL ASSOCIATION WITH CHAPTERS ACROSS CANADA. CSC IS A MULTI-DISCIPLINARY, NON-PROFIT ASSOCIATION DEDICATED TO THE IMPROVEMENT OF COMMUNICATION, CONTRACT DOCUMENTATION, AND TECHNICAL INFORMATION IN THE CONSTRUCTION INDUSTRY.

however, only one award has ever been presented. I am very proud that it was presented to Cohos Evamy this year for the NREF project."

CSC's merit award recognizes entries that use new or unusual approaches, or that handle specific conditions in a particularly effective manner. NREF earned this award in recognition of its unique structure that was

created with a fast tracked construction management document structure, thanks to a joint partnership of Cohos Evamy and PCL (an Edmonton-based engineering firm). "The number of merit awards presented is also at the discretion of the judges, however, like the Merit Award, this is the first project presented this award in the four years of the competition," says McConnell.

These awards are significant. No other architectural or engineering practice in Canada has received an award from the CSC. Congratulations to Cohos Evamy and PCL. What a debut for NREF!



Content provided by Phil Haswell, Director of Facilities for the Faculty of Engineering.

# New Career Chapter SINGAPORE



*U of A Engineering alumni are making an impact across Canada and around the world. “Virtual Engineer” features on-line interviews with alumni working outside of Edmonton.*

*Here we meet Dr. Guanling Su (Electrical '71), president of Nanyang Technological University in Singapore.*

## **What has been your career path from graduation to now?**

I went to California Institute of Technology after graduation in 1971 and received an MS in electrical engineering. I then returned to Singapore to work as part of my obligation under the President's Scholarship and Colombo Plan Scholarship that funded my studies in Alberta. I had been working on defence science and technology since then, focussing initially on radar and electronic warfare. During my thirty years in defence, I took three years off to Stanford University and received my PhD in 1983; working on signal processing using distributed arrays of sensors.

I was for 11 years the Director of Defence Science Organisation, the national defence research laboratory. I restructured it as a not-for-profit company in 1997. In 2000, after a stint in the Ministry of Defence as deputy secretary (technology), I restructured the technology, procurement, construction and IT arm of the Ministry as an independent government agency, serving as chief executive. In 2003 I assumed the position of president, Nanyang Technological University (NTU) when my predecessor retired.

## **What has been the most memorable/exciting/disappointing/challenging/rewarding aspect of your career thus far?**

Unfortunately most of my work has been classified. I can say, however, the building up of a leading edge electronic warfare capability for the Singapore Armed Forces is something I am very proud of. I also derive great satisfaction for bringing the defense research and development from a “reinventing the wheel” level to a level where leading nations like Sweden, France, Israel, and the United States have meaningful research exchanges with us.

My present job is an entirely different challenge. I consider one chapter of my career closed after thirty years. Now I am less than two years into my new career—learning a lot and getting much satisfaction from the responses of students and the public. There are the inevitable disappointments from time to time, unavoidable perhaps—as I have taken an entrepreneurial approach to university administration.

A big challenge facing me is the transformation of this university—from one dominated by engineering and business to a complete comprehensive university—and expanding undergraduate enrolment from 16,000 to 22,300.

## **What are some of the unique engineering challenges in Singapore/Asia?**

I think the greatest engineering challenge in Asia is the environment. How to protect the environment while developing the economy, sometimes at breakneck speed? This is exacerbated by the prevalent poverty in many Asian countries such that “development or else” becomes the buzzword.

Sustainable development is thus a very important issue. We are making our small contribution with a joint environmental engineering Masters and PhD program with Stanford University that will train engineers for this task.

Clean water is another critical area for engineers in Asia. It is also important in Singapore as we rely upon imported water for almost half our needs. Much development has been taking place on processes to purify water.

The practice of engineering in Asia spans a wide spectrum. For many countries previously under colonial administration (Singapore was under British rule), many of the practices derived from the colonial masters. Other countries have developed their own practices, but standards vary a lot. There is a lot of room to learn from each

# P*in*PORE



## How did your experience with the Faculty of Engineering/University of Alberta equip you to be president of NTU?

I think it was the student experience at the U of A that influenced me most in my present job. I remember some of the orientation activities, which seem quite inane and pointless at the time. But I did develop a very close group of friends that comprised many nationalities. We also gained a better appreciation of our own culture as it is

other and harmonize standards to meet international requirements.

Singapore has developed its standards and practice from the British and added its own experience over the years. It is a very safety-conscious practice regime, with double layers of checking for much of the construction industry-oriented practice.

Singapore's challenge is how to maintain our reputation for safety and integrity while being quick on our feet in adopting new technology and practices.

### What has been your proudest achievement, personally, professionally or socially?

I am proud of my role in strengthening the defence capabilities of Singapore, a critical factor for survival and speaking rights.

### How did your education or experience at Faculty of Engineering/University of Alberta equip you for your career path?

My undergraduate education at the University of Alberta laid the groundwork for the subsequent research and study at California Institute of Technology and Stanford University. The "Option 3" in the

Electrical Engineering department (which very few took) gave me valuable grounding in fundamental science and mathematics, without which I would have found it difficult to cope with the very demanding work at Caltech and Stanford.

I remember most the Ritual of the Calling of an Engineer, and proudly wear my iron ring to this day.

### What are your remaining connections/associations with the Faculty of Engineering/ University of Alberta?

Although I have been back to Edmonton for visits, the Lister Hall residential complex and some old houses near campus hold the most memories for me. (I stayed in Henday Hall and McKenzie Hall for two years).

### What emotional/sentimental/intellectual/professional connections/associations still remain with the Faculty of Engineering/University of Alberta?

I remember with fondness my four years at the University of Alberta. To this day I feel at home when I visit Edmonton. I keep in touch with many friends from my years there. I still visit them from time to time.

sharpened in an alien environment. I still remember being part of a dragon dance troupe at the Northern Alberta Jubilee Auditorium for Chinese New Year, something I never did in Singapore.

I am focussing a lot on the student experience at NTU, partly because of my happy experience at U of A.

### What fosters pride for you as an alumnus?

The growth and the achievements of the University make me proud. I was very happy to meet President Rod Fraser in Singapore some years ago and to see how hard he is working to raise the international profile of the university. The nanoscience initiative is worthy of mention and a coup for the U of A.

### What messages do you have for potential students, undergraduates, and young professionals just entering their fields?

Enjoy what you have and pursue your passion. But do not hold preconceived ideas or you may miss great opportunities. Build a career through varied exposure, especially international exposure. The world is so interconnected now that all of us have to look worldwide for opportunities.

## Chemical

### Karasiuk, Carolyn (Chemical '83)

Remember statistics? What is the probability of three U of A Chemical Engineers playing on the Canadian National Canoe Polo teams going the World Championships held in Miyoshi Japan, July 2004? That is exactly what Tina Larson (Chemical '92, MSc Chemical '94), Brad Cameron (Chemical '94) and Carolyn Karasiuk (Chemical '83) did this summer.

What is canoe polo? Canoe polo is played in a kayak and has been described as a combination of hockey, basketball, and water polo. Canoe polo is an exciting game to watch, with rapid changes in the pace of the game when loss of possession occurs. Hand tackling (pushing the opponent with the ball up-side-down) and boat checking are permitted, adding a physical aspect to the game and delighting spectators. This thrilling sport, while requiring great individual skills in kayaking, ball handling, and strategy, promotes a high level of teamwork and sportsmanship. It can be played by young and not-so-young alike and is an excellent sport for families. Canoe polo is a tremendous activity that increases skills for lifelong

paddling that can be extended to river kayaking, sea kayaking, and other paddling activities.

Canoe polo is played in three-metre-long kayaks with rounded ends and foam bumpers. With five players on each team, the game can be played indoors in a swimming pool or outside on still water. Anchored, floating goals are positioned at each end of the playing area suspended two meters above the water. A standard water polo ball can be passed by hand or paddle to other players or "dribbled" on the water to move the ball around the pitch. A player has only five seconds before either dribbling or passing the ball. The objective is to score the most goals. Games consist of two action-packed ten minute halves.

The sport of canoe polo began to develop in 1978, with international competitions initiated in the early 1980s. The first world championships were held in Sheffield, England in the summer of 1994 with the participation of only one Canadian men's team. On July 11, 2004, three Canadian National teams, men's, women's and under 21 men's, departed for the sixth World Championships in Japan. The women's team hoped to place in the top eight against stiff competition from Europe and Australia, where the sport has had a head start in development.

Brad is a member of the men's team and also coaches the women's team. The men's team is striving for a top 10 finish, which would be Canada's best finish in five World Championship drives.

Tina and Brad work at Weyerhaeuser in Grande Prairie and train with Wapiti Whitewater Kayakers ([www.telusplanet.net/public/rak\\_acl/wwwpaddlers.html](http://www.telusplanet.net/public/rak_acl/wwwpaddlers.html)). I am a contractor at the Esso Strathcona Refinery and a part-owner of Norellco Contractors Ltd. a roadbuilding construction company based in Edmonton, I train with Edmonton Whitewater Paddlers ([www.paddlewp.com](http://www.paddlewp.com)).

As engineers, we are fortunate in that we can easily fund our sporting activities, but many of our teammates are not so able and must search for sponsorship. Most international canoe polo competitions are held in Europe, but this will change starting in 2005 with the World Masters Games in Edmonton followed by the World Canoe Polo Championships in 2008. It is an opportunity for sponsors to help Canadian events and athletes while being visible in Canada. For information regarding sponsorship opportunities, please contact Chris Goss at [chris@arc.ab.ca](mailto:chris@arc.ab.ca).

### Nichol, Ken (Chemical '61)

I am replying to the recent letter to the editor in the summer issue of *U of A Engineer*. I take exception to Mr. Stollery's philosophy regarding the reality of transportation and the environment. I am a chemical engineer with an MBA in economics and marketing, and a businessperson with international experience. As a builder/contractor I need a truck (to work) not a Prius or an Escape Hybrid. Impractical. Buses make up about 12 per cent of commuters, cars the rest. About 90 per cent of the commuters could take the bus and leave the driving to us. Not too convenient though, and very costly (\$8,600/yr.). SUVs are a macho/ego thing. They have to go. I don't want to formally criticize Mr. Stollery because he could be Bob's brother who I know, admire, and does good things. However, there is nothing wrong with corporate Canada or



Left to right: Tina Larson (Chemical '92, MSc Chemical '94), Brad Cameron (Chemical '94), and Carolyn Karasiuk (Chemical '83).

being fiscally conservative about the “bottom line.” Industry creates jobs and allows health, education, and other social services to operate from taxes created. We can still live in harmony with the environment. Try living on clean air and water; you still need some carbohydrates and proteins to pay the bills. Work to live, or live to work? I prefer the latter.

**Oyen, Gerald (Chemical '59)**

Here’s a quick update for those classmates who might remember me. I am the senior partner in Oyen, Wiggs, Green, and Mutala, an intellectual property firm in Vancouver that specializes in patents, trademarks, copyright, and intellectual practice. With 14 practitioners, this is the largest firm of this sort in western Canada. We have been in practice in Vancouver for 25 years.

**Civil**

**Bacon, Don (Civil '59)**

I have recently retired and returned to Calgary after almost 45 years in the electric utility industry. I left TransAlta Utilities in 1993

after 34 years. From there, I was the chief executive officer for four electric utilities in four countries, including West Kootenay Power in British Columbia, UnitedNetworks in New Zealand, United Energy in Australia, and, most recently, Midlands Electricity in the United Kingdom.

**Mechanical**

**Kubasek, Wayne (Mechanical '71)**

Please pass on my regrets on being unable to attend the May 13, 2004 Houston alumni function. I was in Europe that week.

Here’s an update on my career. After I left Alberta Chamber of Resources (and Canada) in 2000, I went on to manage the Alaska Gas Pipeline feasibility study in Anchorage, Alaska. When that fizzled due to lack of U.S. energy legislation, I moved on to work the huge Kashagan field in the North Caspian Sea out of ExxonMobil Development Company’s Houston office. Another challenging environment! Perhaps there will be another opportunity to meet sometime in the near future.

**Metallurgical**

**Harvey, Grant (Metallurgical '87)**

I have recently been promoted to vice president, sales, and marketing for Hobart Brothers, a leading manufacturer of welding consumables. I have just moved my wife (Margaret) and four children (Jeffrey, 14, Savannah, six, Melanie four, and Graham four) to Troy, Ohio. I presently look after our sales and marketing activities in North America and also am managing our European welding operations based in Sweden.

Just thought I would give you a “heads up” on an old alumnus.



**Keep in Touch**

[engineer.alum@ualberta.ca](mailto:engineer.alum@ualberta.ca)

Graduate’s Name \_\_\_\_\_

Year of Graduation and Degree \_\_\_\_\_

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Organization \_\_\_\_\_

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Postal Code \_\_\_\_\_ Telephone \_\_\_\_\_

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**What’s New with You?**

(Comments for possible publication in a future magazine.)

E-mail, fax or post this information to  
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The personal information requested on this form is collected under the authority of Section 33c of the Alberta “Freedom of Information and Protection of Privacy Act” for the purposes of updating and maintaining donor/alumni records. Questions concerning the collection, use or disposal of this information should be directed to Advancement Services, 6-41 GSB, University of Alberta, Edmonton, AB, Canada, T6G 2H1. Phone: (780) 492-0328, Fax: (780) 492-1862.

**BARDELL, GARY R.**  
(MEng Civil '78) PEng



is CEO of Churchill Corporation, ranked 799th in profit among Canada's 1,000 largest publicly traded corpora-

tions. This ranking was compiled by *Report on Business* magazine and distributed by the *Globe and Mail*.

**BROWN, TOM**  
(Civil '71) PEng



is senior vice president, Alberta Civil Division, Leducor Industries Limited. Profit for the Leducor Group of Companies was

ranked 91st out of Canada's 100 biggest private companies as recorded by *Report on Business* magazine.

**CARTER, DR. JAMES (Jim) E.**  
(DSc [Hon] '03) PEng



is president and CEO of Syncrude Canada Limited. Syncrude was ranked 16th out of Canada's 100 biggest private

companies by *Report on Business* magazine.

**CHRISTENSON, GREG**  
(Civil '79)

was awarded the Gord S. Shipp Award, one of the national SAM awards, by the Canadian Builders' Association. These awards recognize excellence in new homes and renovation design, innovative technology and construction techniques, and outstanding marketing and sales activities. Mr. Christensen is partner in Christensen Developments Ltd., an Edmonton-based homebuilder.

**CRONE, HOWARD**  
(Chemical '84) PEng



has received an Honour Award from the U of A Alumni Association. Honour awards recognize specific and recent accom-

plishments of U of A graduates. Mr. Crone was a partner in Cequel Energy Inc., a junior oil and gas exploration and production company which merged with Progress Energy to form Progress Energy Trust in July 2004.

**DANIEL, PATRICK**  
(Chemical '68) PEng



was named most respected corporate leader by Alberta Venture. Mr. Daniel is president and CEO of Enbridge Incorporated.

Enbridge's profit was ranked 30th in the top 1,000 largest publicly traded Canadian corporations by *Report on Business* magazine. It was ranked 31st of Canada's 100 biggest companies by market cap.

**DMYTRUK, CHRYS.**  
(Chemical '60) PEng



was recently elected to the council of the Association of Professional Engineers, Geologists and Geophysicists of

Alberta (APEGGA) for a two-year term. Chrys served on the APEGGA council once before. His volunteer activities with this association span many years both as a member and chair of a number of committees. During his professional career, Chrys worked for Celanese Canada Inc., Alberta Economic Development, and more recently as director of communications and public affairs at APEGGA.

**DOERR, HARVEY**  
(Mechanical '81) PEng



is president of Murphy Oil Limited. Murphy Oil's profits were ranked 75th in Canada's 100 biggest private

companies by *Report on Business* magazine.

**DYKSTRA, SID**  
(Chemical '80) PEng



is president and CEO of OPTI Canada Inc. OPTI was ranked eighth on Alberta Venture's list of 10 "young energy companies

worth watching." New to the market, OPTI has raised more than \$1.8 billion to finance the development of the Long Lake oil sands project, expected to produce 60,000 barrels of sweet crude oil per day by 2007.

OPTI's profits were ranked 713th of 1,000 among Canada's largest corporations by *Report on Business* magazine.

**FAMILONI, DR. BABAJIDE**  
(PhD Electrical '86)



has been appointed dean of the College of Sciences and Technology for Savannah State University in Georgia, United

States. Dr. Familoni joined The University of Memphis as an associate professor in the Electrical Engineering Department in 1992, and was selected as chair of the department in 1997. During his tenure as chair, Familoni successfully developed and launched a computer engineering program, which resulted in a name change for the department in 2000. Familoni is a founding director of the Tennessee Biomedical Engineering Consortium (TennBec), which engages in state and regional collaborative activities to advance the field of biomedical engineering in

the Tennessee Valley region. As dean, Familoni will oversee the departments responsible for 10 undergraduate degree majors and one graduate degree program, the Georgia Tech Regional Engineering Program, the Regents Engineering Transfer Program and the Dual Degree Engineering Program, and both the Naval and Army Reserve Officers Training programs.

**GRANDIN, Michael**  
(Civil '66) PEng



is CEO of Fording Coal Trust. Fording was ranked 55th in the top 1,000 companies by profit by the *Globe and Mail's Report*

*on Business* magazine. This is a significant increase since 2002, when Fording ranked 956th. The change in profit was \$314 million. Fording was ranked 92nd of Canada's 100 biggest companies by market cap.

**GROZIC, DR. JOCELYN L. H.**  
(Civil '94, PhD Civil '99) PEng



received the Early Accomplishment Award from the Association of Professional Engineers, Geologists and

Geophysicists of Alberta (APEGGA) for exceptional achievement in the early years of her professional career. Dr. Grozic is assistant professor at the University of Calgary. She is one of the few researchers in the world studying gas hydrates and gassy soils. Her research to date has made fundamental contributions to the field of soil mechanics.



**JOHNSON, RAY**  
(Electrical '67) PEng



is Edmonton branch manager for Sierra Systems Group Inc., the recipient of one the Alberta Business Awards of Distinction sponsored by the Alberta Chambers of Commerce. Sierra received the University of Alberta/TELUS Partners in Workplace Learning Awards of Distinction, given to an employer committed to providing learning opportunities for employees. Sierra Systems is a management consulting and systems integrator based in Edmonton.

**KARASIUK, CAROLYN**  
(Chemical '83) PEng



was one of three U of A chemical engineers with the Canadian National Canoe Polo teams who went to the World Championships in Miyoshi, Japan in July 2004.

**HOLE, JACK**  
(Mechanical '78) PEng



is serving the final year of a three-year term on council for the Association of Professional Engineers, Geologists and

Geophysicists of Alberta (APEGGA). Mr. Hole is executive vice president for Lockerbie & Hole, a century-old contracting firm headquartered in Edmonton.

**KALYNCHUK, DWAYNE**  
(Civil '78, MEng Civil '91) PEng



has been appointed manager of engineering services for Walton International Group. Prior to this, Mr.

Kalynchuk was senior consultant with Stantec in Edmonton.

**KERNAHAN, CAM**  
(Electrical '80) PEng



has been appointed vice president, operations with Shaw Communications Incorporated. Mr. Kernahan will be responsible for overseeing the day-to-day cable operations in Calgary, southern Alberta, Saskatchewan, Fort McMurray, and the Kootenay regions. Kernahan joins Shaw with a strong background in operations, customer relationship management, product management, and engineering. Prior to joining Shaw, Kernahan held a number of senior level management positions and most recently held the position of vice president and global account executive with a global provider of electronics manufacturing.

**KVISLE, HAL**  
(Civil '75) PEng



is president and CEO of TransCanada PipeLines Ltd. in Calgary. TransCanada was ranked 22nd of the 1,000 largest publicly traded corporations in Canada. This ranking is according to after-tax profits in the most recent fiscal year and was reported by the *Globe and Mail*.

**LENARDUZZI, STEVEN**  
(Civil '96) PEng



has been appointed to the board of directors of Edmonton Downtown Business Development Corporation. Mr. Lenarduzzi is in the Edmonton office of Stuart Olson (a Churchill company).

**MAIER, DR. GERALD J.**  
(Petroleum '51, LLD [Hon] '99) PEng



has been appointed an Officer of the Order of Canada. The Order of Canada is Canada's highest honour for lifetime achievement. An internationally successful businessperson, Mr. Maier served as chair and CEO of TransCanada PipeLines and is also a recognized leader in the community.

**MARKIN, DR. ALLAN**  
(Chemical '68, LLD [Hon] '02) PEng



is chair of Canadian Natural Resources Ltd. (CNRL). This company's profits were ranked 12th out of Canada's 1,000 largest publicly traded companies by the *Report on Business* magazine. It was ranked 27th of 100 biggest companies by market cap at \$10,481 million.

**MARKLE, DAVID A.**  
(Engineering Physics '58)



was elected to the prestigious National Academy of Engineering (NAE), regarded as one of the highest professional distinctions accorded an engineer. Mr. Markle's election was based on his instrumental role in the invention and development of advanced photolithography systems used in the manufacture of semiconductor devices.

NAE membership honors those individuals who have made important contributions to engineering theory and practice, including significant contributions to the literature of engineering theory and practice, as well as those who have demonstrated accomplishment in pioneering new fields of engineering, making major advancements in traditional fields of engineering

or developing/implementing innovative approaches to engineering education.

Markle is senior vice president and chief technology officer at Ultratech. He has held this position since November 2001. Prior to that, he served as Ultratech's vice president of advanced technology since joining the company in 1984. During his 19-year tenure with Perkin Elmer Corp., he led the invention and development of the Micralign, a scanning projection aligner, and the Micrascan step-and-scan, a deep ultraviolet lithography system.

In addition to holding more than 35 patents, Markle has developed technology used in leading research projects such as Skylab. In 1994, Markle was honoured by the Optical Society of America with the David Richardson Medal in recognition of his contributions to the field of applied optics—an award honoring top optical scientists in the world.

**MCDUGALL, JOHN R.**  
(Civil '67) PEng



on behalf of the Alberta Research Council (ARC) has signed a \$700,000 research contract with LUKOIL-Komi, a subsidiary of Russian oil giant LUKOIL. This is LUKOIL's first major research contract signed with a foreign company. ARC will evaluate a heavy oil production technology in northern Russia, with a focus on reservoir engineering issues, studying core samples and conducting numerical reservoir simulations. Mr. McDougall is president and CEO of ARC.

## MISIC, DR. JANKO

(MSc Civil '70, PhD Civil '74) PEng



has been appointed to the 2004/2005 board of directors for the Consulting Engineers of Alberta. Mr. Misic is chair and chief

financial officer of Techna-West Engineering. He obtained his BSc in Civil Engineering from the University of Zagreb (former Yugoslavia). He published several technical papers (Journal of the American Concrete Institute), worked for two consulting engineering firms in Edmonton, prior to founding Techna-West Engineering in 1979. Through an orderly growth the company now has over 70 employees, servicing resources-based industries, manufacturing plants, and infrastructure (government) sectors.

## MOLDON, DR. JOHN

(Engineering Physics '62) PEng



is continuing on council for the Association of Professional Engineers, Geologists and Geophysicists of

Alberta (APEGGA). Dr. Moldon is retired from the public service of Canada.

## MORGAN, GWYN

(Mechanical '67) PEng



is president and CEO of EnCana. Calgary's EnCana Corp. was recognized by the federal government for efforts to encourage

development in third world countries. EnCana received the Improvement of Physical and Social Infrastructure Award for its integrated community health initiative in Ecuador. This award is part of the 12th annual Canadian Awards for International Cooperation as distributed by the Ministry of International Co-operation.

EnCana received the top ranking by profit of the 1,000 largest publicly traded Canadian corporations, measured by assets by the *Globe and Mail's Report on Business* magazine. This was significant improvement over the prior year where it was ranked 237th.

## PALAMAREK, MIKE

(Electrical '88) PEng



has been appointed senior partner with Cybertech Automation Inc. in Edmonton. Mr. Palamarek joined Cybertech in 1997

and has over 16 years of industry experience. He is senior control systems integrator responsible for numerous oil and gas, electric utility, municipal, and oil sands research projects. Prior to joining Cybertech, Palamarek was a control systems consultant, engineering department head, and overseas engineer.

## PARKER, DON

(Mechanical '78)



has been appointed president and chief executive officer for Loumic Exploration Inc., following his recent appointment

to the board. Mr. Parker is an energy executive with over 26 years of extensive experience, primarily in the western Canadian sedimentary basin. Parker has held a variety of positions with both public and private companies in the energy industry. He has been a petroleum engineer with Amerada Hess Canada and with BP Canada Ltd., an executive vice president with Harbour Petroleum Ltd., the president of Boundary Creek Resources Ltd., and, most recently, as the senior manager of Corporate Development for Emera Energy Incorporated.

## PETHER, DON

(Metallurgical '70)



is president and CEO of Dofasco Incorporated. Dofasco was ranked 77th of Canada's 100

biggest companies by market cap by *Report on Business* magazine. Dofasco Inc. is worth \$2,693 million.

## POOLE, DR. JOHN

(Civil '37, LLD [Hon] '87) O.C. PEng



along with his wife Barbara, was inducted into the Alberta Order of Excellence. They are the first couple to be jointly

inducted in the 23-year history of the awards. Alberta Order of Excellence awards are the highest honour the province can bestow on its citizens. The Pooles were recognized for decades of support to the arts, community, and social service organizations.

## ROSS, BRIAN

(Civil '78) PEng

has been appointed to the 2004/2005 board of directors for the Consulting Engineers of Alberta. Mr. Ross is with AMEC Infrastructure in Calgary.

## SHISHKIN, JONAH

(Civil '99) PEng



is the first recipient of the G.L. Kulak Scholarship in Steel Structures Research. This \$15,000 scholarship was awarded by the Alberta

Regional Committee of Canadian Institute of Steel Construction. The scholarship is named after Dr. Geoff L. Kulak, a retired U of A professor who has made many contributions to the steel industry in Alberta, in Canada, and in the world. Mr. Shishkin is now studying under professors Grondin and Driver, doing research on steel plate shear walls.

*The Canadian Institute of Steel Construction is a national industry organization representing the structural steel, open web steel joist, and steel plate work fabrication industries.*

## STAPLES, LARRY

(Civil '74) PEng



has been appointed president-elect for the Association of Professional Engineers, Geologists and Geophysicists of

Alberta (APEGGA). Mr. Staples is with Canspec Group Inc., an Edmonton-based consulting firm.

## STEWART, JIM

(Civil '71) PEng



has been appointed executive vice president and chief operating officer for UMA Group Limited. All of UMA's operations,

including market sectors and regional offices, will report to Mr. Stewart. Prior to this, Stewart was leading UMA's earth and water market sector and was regional vice president for UMA's operations in northern Alberta. UMA is an employee-owned company with staff of 1,000 across Canada.

## STOWKOWY, STEVE

(Civil '79) PEng



has been appointed to the 2004/2005 board of directors for the Consulting Engineers of Alberta. Mr. Stowkowy has

recently been appointed as manager, urban infrastructure in UMA's Edmonton office responsible for infrastructure rehabilitation, land development, transportation, and drainage.

**SUNDARARAJ, DR. U. T.**  
(Chemical '89) PEng



received a Morand Lambla international research award from the Polymer Processing Society. The award recognizes originality,

high achievement, and potential for continuing creativity among young researchers (39 years old or younger) in polymers and polymeric products. The award was judged by individuals representing different geographical regions in the world (this year, there were two from North and South America, two from Europe, two from Asia) and different polymer research fields. The award will be presented to Dr. Sundararaj at the Society's annual international meeting in Melbourne, Australia. Sundararaj is associate professor and associate chair in Chemical & Materials Engineering.

**TROVATO, NICK**  
(Civil '79, MEng Civil '84) PEng



was re-elected for a second term to council for the Association of Professional Engineers, Geologists and

Geophysicists of Alberta "(APEGGA). Mr. Trovato is partner with Read Jones Christoffersen Ltd., a national consulting firm specializing in structural design, restoration, and building sciences.

**TYLER, RORY**  
(Mechanical '81)



has been appointed senior client partner with Korn/Ferry International's Calgary office, where he is a member of the firm's

Global Financial Services group. Tyler specializes in senior-level executive search for Canadian and multinational companies in the financial services industry.

Tyler has 17 years of experience in the financial services sector, serving as a member of the board of directors and a senior officer of a publicly-traded investment management firm until February 2004. Prior to this, Tyler spent over 15 years in the investment banking business, most recently based in Calgary as managing director and co-head of the Canadian energy and power practice of a major U.S. investment bank. Tyler also has a background in engineering, having worked for several years in this capacity for a multinational oil and gas company.

**VAN GASTEL, LINDA**  
(Chemical '67, MSc Chemical '72) PEng



has become the 85th president of the Association of Professional Engineers, Geologists and Geophysicists

of Alberta (APEGGA). Ms. Van Gastel is now retired from EnCana. She has served APEGGA for 13 years, including five on council.

**WASHUTA, ART**  
(Civil '73) PEng



has been appointed UMA's regional vice president for Edmonton region. This will be in addition to his continuing responsibilities as regional manager,

transportation and as project manager on a number of major assignments including the Anthony Henday Drive southeast ring road (design, build, finance, operate project as Alberta Transportation's engineering consultant), and the south light rail transit extension (tunnel and portal for the City of Edmonton).

**WONG, CHI M.**  
(Electrical '70) PEng



received the Alberta Ingenuity Fund Research Excellence Award for innovative research used to improve economic

and social well-being. Mr. Wong, in close collaboration with others at the NOVA Research and Technology Centre in Calgary, embarked on a research program leading to the development of cracking coils that would have inert surfaces, thus limiting the formation and deposition of catalytic coke. This research represents the most advanced surface science chemistry and is the best product on the market to reduce coke formation and deposition during the steam cracking process.

**WRIGHT, IAN**  
(Civil '77) PEng



has been appointed vice president, water treatment for Associated Engineering in Calgary. Mr. Wright will lead initiatives

in the water treatment sector.

Editor's note:  
Faculty congratulations can now be found at [www.engineering.ualberta.ca](http://www.engineering.ualberta.ca)

## in memoriam

*The Faculty of Engineering sincerely regrets the passing of the following alumni and friends.*

Atkins, Hugh (Chemical '56)  
Bridgeman, William (Electrical '50)  
Bressey, Douglas (Electrical '49)  
Carlson, Richard M. (Mechanical '70, MEng Mechanical '81)  
Creighton, H. H. Lowry (Electrical '41)  
Davis, George F. S. (Civil '49)  
Fisher, William (Civil '57)  
Howden, Donald (Mining '51)  
Hoyle, Wilfred (Electrical '43)  
McClary, Norman (Electrical '43)  
McRae, G. Douglas (Mining '39)  
McTavish, Donald (Civil '66)  
Moore, Don (Chemical '49)  
Podmore, John (Civil '62)  
Setters, Jack (Electrical '45)  
Tegart, Delmar (Chemical and Materials [Mining] '36)

## for the record (missed memoriams)

*The Faculty of Engineering was recently made aware that the following alumni passed away more than a year ago.*

Brushett, Edward (Chemical '54)  
Kuchison, Henry (Civil '57, MSc Civil '60)  
Knight, Ronald (Civil '49)  
Martyntkiw, Wolodymyr (Mechanical '71)  
Mayer, Morris (Civil '50)  
Miller, Albert (Chemical '35)  
Podgurny, Marco (Electrical '45)

## Errors and omissions

In the kudos section of the summer magazine, it was wrongly reported that Bob Gomes (Civil '78) was reappointed to a second term as president of the Consulting Engineers of Alberta (CEA). He is now past president and treasurer. Jim Stewart (Civil '71) and Dale Loewen (Civil '84) have now completed their terms on the board of CEA. Apologies to CEA for these errors.

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on capital gains on property you leave to your family. Help shape the future of your Faculty.

For further information contact:

David M. Petis, Assistant Dean  
External Relations  
Faculty of Engineering, University of Alberta  
E6-050 Engineering Teaching  
& Learning Complex  
Edmonton, AB T6G 2V4  
Tel: 780.492.5080  
Fax: 780.492.0500  
e-mail: david.petis@ualberta.ca



Sheldon (Bob) Comfort (Mining '33) has given a gift of a lifetime to Faculty of Engineering



### I wish to make a gift of:

\$100    \$500    \$1,000    \$2,500    Other \$ \_\_\_\_\_

cheque (made payable to the University of Alberta)    VISA    MasterCard

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Name (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

### I have also enclosed:

a corporate matching gift form from my (or my spouse's) employer

If you were an Alberta resident on December 31, 2003 and have already given \$200 elsewhere, your combined income tax savings will be:

Your donation to the U of A	\$100	\$500	\$1,000	\$2,500
Your tax savings for your gift:	\$42.50	\$210.98	\$421.95	\$1,054.88

### I would like my gift to support:

\$ \_\_\_\_\_ Faculty of Engineering in support of undergraduate student projects, new educational initiatives in all disciplines, and general student life enhancement activities.

\$ \_\_\_\_\_ Chemical and Materials Engineering

\$ \_\_\_\_\_ Civil and Environmental Engineering

\$ \_\_\_\_\_ Electrical and Computer Engineering

\$ \_\_\_\_\_ Mechanical Engineering

\$ \_\_\_\_\_ Mining and Petroleum Engineering

\$ \_\_\_\_\_ The Patrick Kent Memorial Fund

\$ \_\_\_\_\_ The Robert Skinner Mechanical Engineering Equipment Legacy Fund

I would like information on how to make a gift of publicly traded securities to support the Faculty of Engineering at the U of A.

I would like information on how to include the Faculty of Engineering at the U of A as part of a will, life insurance, or other planned gift instrument.

I have provided for the Faculty of Engineering at the U of A in a will or trust agreement.

Please return to: Office of the Dean, Faculty of Engineering, University of Alberta,  
E6-050 Engineering Teaching & Learning Complex, Edmonton, Alberta T6G 2V4