

U of A • Engineer

Keeping in Touch with Alumni

A photograph of two men in dark suits and ties standing in front of a wall of various international flags. The man on the left has grey hair and is smiling slightly. The man on the right has dark hair and is looking directly at the camera.

BRAWN AND KING'S excellent Adventures

Tom Brown's
Construction Zone

Rocketeer Tim Poon
Soars to Success

Cold War
After Effects

George Carpenter,
Satellite Tracker

Message from the Assistant Dean



Graduates, friends, and associates of the Faculty of Engineering work in every major sector of the economy and serve society through technical research and development, infrastructure renewal, environmental protection, resource development, and innumerable other ways. U of A engineers are helping to raise the standard of living for Albertans, Canadians, and the world.

Given your extensive professional contributions, it is not surprising to note your generosity as sponsors and donors to the Faculty. Through your support, current and future generations of engineering students, faculty, and staff will

have access to a truly superb educational and research environment. This will provide immense benefits to them and also to our society as a result of their individual and collective accomplishments. The success of each generation of engineering graduates is inexorably linked to the accomplishments and support of the prior graduates who have been so instrumental in creating opportunities through building and developing our province and country. Your support of the Faculty of Engineering demonstrates and builds this long tradition of engineering alumni supporting the next generations of students and graduates.

I'd like to recognize philanthropic commitment as one of the fundamental foundations for the future of the Faculty and the profession. On behalf of the Faculty, I sincerely thank alumni, corporate sponsors, and professors emeriti for helping to better your Faculty of Engineering program for future generations.

Please enjoy this winter 2004 edition of *U of A Engineer*.

David M. Petis
Assistant Dean, External Relations



Faculty of
ENGINEERING
University of Alberta

Vision *To be one of the largest and most accomplished engineering teaching and research centers, 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.*

UofA.
Engineer
Winter 2004 Issue 13

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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Faculty of
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Message from the Editor

I hope you enjoy the winter issue of *U of A Engineer*. This issue marks my first anniversary as editor and publisher. It has been a great pleasure to produce this magazine.

This issue's "Crosshairs on History" was inspired by alumni artifacts donated by Wesley F. Elford (Electrical '37). Do you have artifacts and archival data that would be of interest to fellow alumni? If so, I'd be very interested in hearing from you. Call (780) 492-4514. Or use engineer.alum@ualberta.ca to submit your ideas. Now, enjoy the magazine!

Sherrell Steele
Publisher/Managing Editor



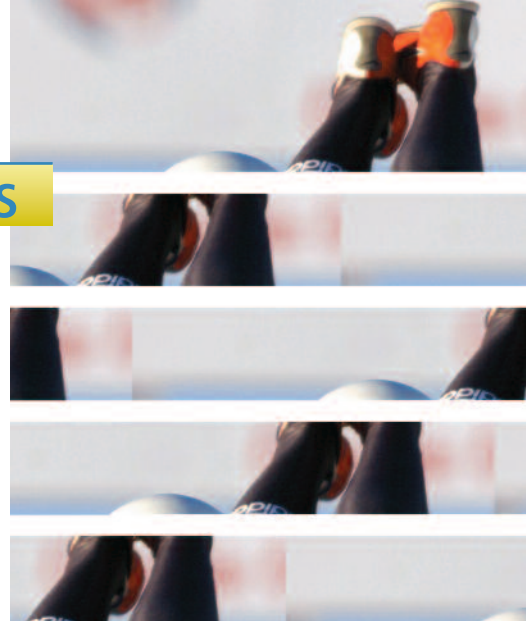
Publications Mail Agreement No. 40051128

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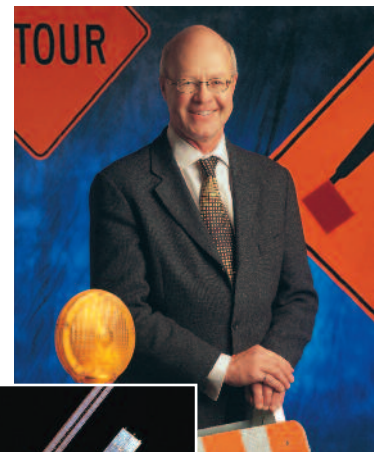
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Dear U of A Engineer:

The ad on the back cover of the *U of A Engineer*, Winter 2003 edition prompted me to write you. I only wish such student projects as designing cars were available when I went through engineering 50 years ago.

I have followed with interest such student projects as the solar car and the FutureTruck Ford SUV fuel efficiency modification. I was less impressed to see the racing car (the Formulae SAE). Now, I know that a lot of engineering design goes into a vehicle of this type, but I believe this work is best left to the professional racing community. What is needed is more innovative design of extremely efficient, safe, minimal weight transportation vehicles.

I'm sure readers are aware of the hope provided by hydrogen as fuel and fuel cells and perhaps readers are as concerned as I am about the time to elapse until any appreciable environmental relief will be provided. The University could help by researching the design of a two-person, lightweight, safe, hydrocarbon-powered, and extremely efficient highway vehicle to mitigate environmental damage over the intervening years. Such a vehicle would be marketable as fuel costs become more onerous.

The American Rocky Mountain Institute (RMI) has developed the concept of the "Hypercar" which goes further than the design innovations of the Honda "Insite" and the Toyota "Prius". With the Hypercar, RMI indicates that at least 80 m.p.g. and possibly up to 200 m.p.g. is achievable.

Engineering staff and students may research details of the Hypercar concept at the RMI website: www.rmi.org. It would be wonderful if my alma mater could contribute to this gratifying research.

Yours truly,



W. E. Stollery, PEng (Civil '51)



Formula SAE race car.



Dear Mr. W. E. Stollery:

Mr. Stollery writes to express appreciation of student vehicle projects such as FutureTruck and Solar Car, which highlight environmentally friendly vehicles.

Vehicle design projects are a great way to get student engineers focused both on the problems and on developing new solutions. (They are also a good measure of quality for our program and students when our teams rank highly against major international universities.)

While appreciating some projects, Mr. Stollery expresses concern that the Formula SAE (FSAE) race car project misses the mark and he points at the "Hypercar" concept proposed by Rocky Mountain Institute as a better paradigm. Should our students participate in Formula SAE? While the product produced in FSAE is a sort of a race car, the project is actually one of the most thorough in terms of automotive engineering. FSAE is a true design competition emphasizing development of a light, safe, economical car that could be successfully manufactured and marketed. The automotive industry is eager to find students with those particular design skills and their active recruitment efforts show why they support the competition even though they don't sell race cars.

Beyond this, it is interesting to note that this year's U of A entry in Formula SAE actually put many attributes of RMI's theoretical Hypercar onto the road, including a small efficient engine, infinitely variable transmission, ultra-light safety frame and low-mass carbon fibre body. And, while the U of A team didn't win this year's competition, they showed what could be done using a renewable biofuel (ethanol) and they set the standard for the best fuel economy. From U of A students, we would expect nothing less.

Yours truly,



Dr. Dave Checkel



Dear U of A Engineer:

It is with trepidation that I dare write to you. First, I would like to congratulate you on the *U of A Engineer* (Winter 2003).

I was born in Edmonton in 1914 in the General Hospital and graduated from Victoria High School with honours in 1931 in the midst of the Great Depression. I wanted to go to university when I graduated but I could not afford the \$250 fee. I was unemployed for nine months but finally got a job as a butcher's helper in the Safeway store that used to be just at the end of the High Level Bridge.

By 1939 I was a member of the Edmonton Flying Club and won my pilot's license. I joined the RCAF in 1940 as a pilot. When I was released in 1945, I was told I could get back to my job, which I did. In November the government ruled that I could go to university if I wished to. A new class in engineering would be available in January 1946. At that time, as a married man, I qualified for \$92 per month as government support. So I took that opportunity and graduated in 1949.

I was fortunate to have such professors as "Ikky" Morrison, Drs. Sheldon, Cooker, Gads, Thorssen, and so many more. I still have an interest in the U of A and have memories of so many. There are still alumni living in the Ottawa area, but alas, we see each other more infrequently.

I rejoined the RCAF in 1949 and retired in 1966. John Ruptash, then the Dean at Carlton University, persuaded me to join him there. I taught at Carlton until 1983, when I retired as Associate Dean. A mild stroke in 1997 precipitated my move to Nepean, Ontario.

Thanks for sending the alumni news. I received the Dean's kind invitation to the Alumni Brunch. I am 89 and feeling my age a bit, so with regret I cannot accept his kind invitation, but wish that those who can attend will enjoy it.

Very best regards to any who remember me.

Truly thankful,

C. R. Thompson a.k.a. C.R.T. (Chemical '49)

P.S. The secret code for radar during the early War was CRT. As many of my students were radar technicians, my nickname became "CRT".

in memoriam

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

Atkins, Walter Falahy (Mining '38)
Barry, Kevin Robert Thomas (Civil '01)
Bridgeman, Cecil Kyle (Mining '41)
Brown, Walter B. L. (Mining '40)
Chan, Anthony Yiu Hung
(Chemical '65, MSc Chemical '69)
Chmilar, William (Chemical '49)
Clarke, Ralph Leonard Arthur (Chemical '48)
Dey, George Douglas (Civil '63)
Elford, Wesley Fred (Electrical '37)
Hawkins, Thomas Earl (Mining '39)
Hutton, John Stuart
(Mechanical '69, MSc Mechanical '71)
Irving, Jack E. (Chemical '50)
Johnson, Vernon (Civil '49)
Kinasevich, Rostyslav Sylvester (Mining '58)
Martiniuk, Dr. Reginald Mark (Electrical '83)
Masuda, Akio (Chemical '64)
McMeekin, George Rex (Chemical '41)
Nicholls, John Henry (Chemical '45)
Norem, Dr. Allan Gordon
(Engineering Physics '50)
Rideout, Vincent C. (Engineering Physics '38)
Simmons, Dale McLeod (Petroleum '53)
Sillitoe, Sydney (Electrical '31)
Stefanick, George (Civil '50)
Thorsley, Lloyd L. (Electrical '48)
Walker, Wilfred Lawrence (Civil '50)
Whelpley, Lynn Adaille (nee Boettcher)
(Mechanical '73)
Zahary, William (Mechanical '60)

for the record (missed memoriams)

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

Armstrong, Roger (Mining '35)
Bishop, Edward, Q.C. (Electrical '34)
Chan, Anthony (Chemical '65, MSc Chemical '69)
Chizen, Martin (Electrical '45)
Kasalu, A. B. R. (Alexius) (Civil '77)

Back in the era of ducktails, penny loafers and “How Much is that Doggie in the Window,” two sweaty-palmed undergrads—Frank King and Bob Brawn (both Chemical '58)—struggled to get comfortable in the hard chairs of a University of Alberta lecture theatre.

While they fidgeted, a no-nonsense engineering professor named Dr. Leonard Gads (Civil '39) spelled out the new facts of life. “Look to your left and look to your right,” Professor Gads commanded the roomful of wide-eyed scholars. “Neither of the two people you see will be here by the time you graduate.”

Time fulfilled the prophecy. By the time Frank and Bob stepped up to accept their hard-won degrees, two-thirds of their classmates had fallen by the wayside.

Although they both made it through, they weren't always the keenest of students. “We were both scientifically inclined. But sometimes we'd sit near the back of class so the profs couldn't get at us,” Brawn smiles, raising an eyebrow. Gifted with an abundance of horse sense, Brawn turned his engineering degree into

gold. He founded a number of successful companies, including the Acclaim Energy Trust and Turbo Resources Inc., one of the most vibrant and diversified independent resources companies in Canadian oil patch history. Along the way, he somehow found time to compile an exemplary record of public service.

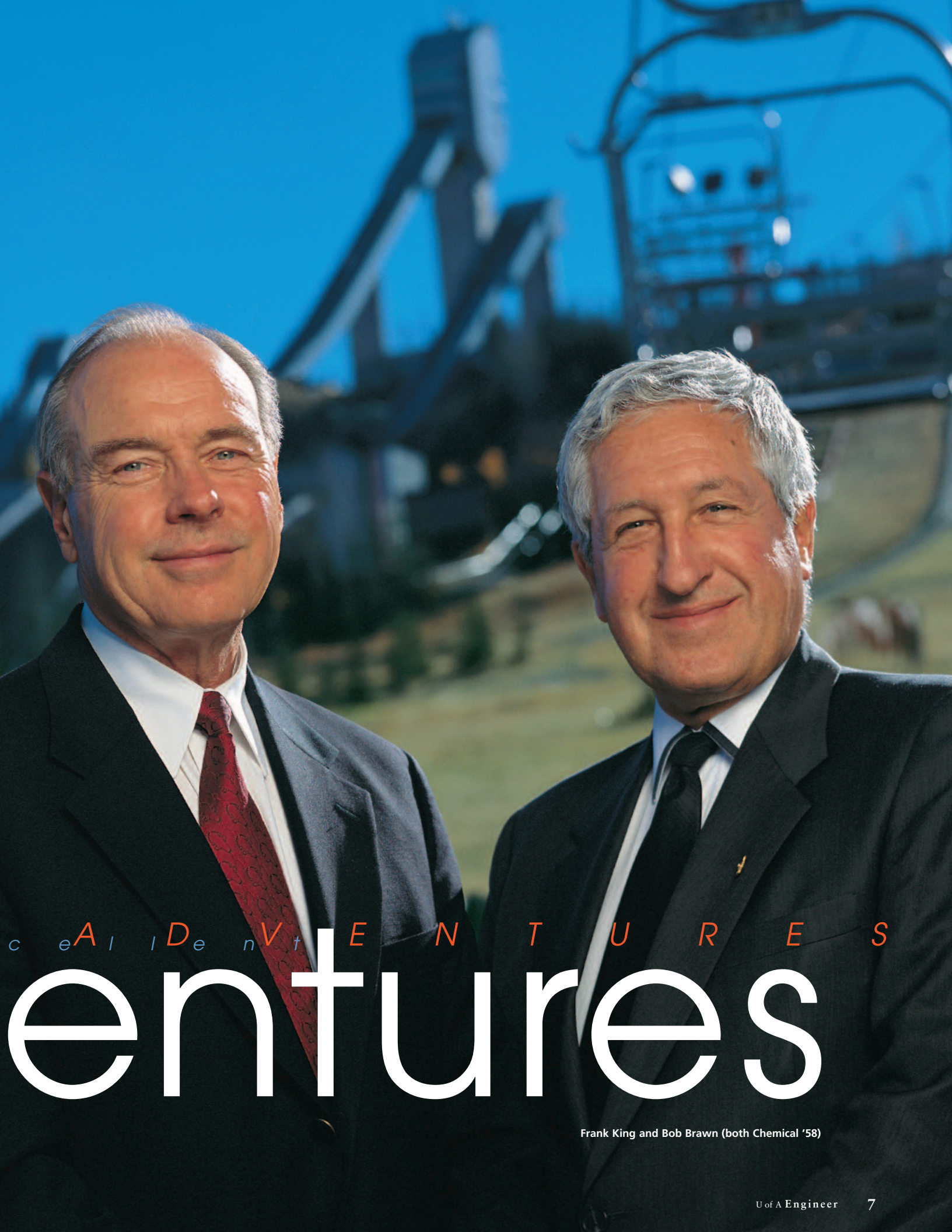
Meanwhile, his high school buddy carved out niches of his own. A born sales whiz, the personable King developed several successful business enterprises before embarking on his most excellent career adventure: sparking Calgary's successful bid for the 1988 Olympic Winter Games. He subsequently helped mount what many insiders still consider to be the greatest Winter Games ever.

Last July, when Vancouver won the right to host the 2010 Winter Games, Frank King felt a rush of combined nostalgia and déjà vu.

KING AND BRAWN'S

excellent Adv

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v



c e A I D e n V t E N T U R E S

entures

Frank King and Bob Brawn (both Chemical '58)



King considers the legacy fund to be the Winter Games Organizing Committee's most significant and enduring contribution.

As a director of Vancouver's bid committee, King shared the joy and patriotic pride of his West Coast colleagues. At the same time, he was overwhelmed by emotions surging back from a similarly glorious moment in Baden-Baden, West Germany, in September 1981. When Calgary was named 1988 host city that day, King, a prime mover behind the bid, punched the air with an exuberant, victorious fist. From that moment through to the '88 closing ceremonies, the volunteer chair of the Winter Games Organizing Committee (a.k.a. OCO'88) worked tirelessly.

So 15 years later, when the offer came to join the Vancouver-based 2010 Organizing Committee, King begged off, with thanks. "It would take a huge amount of my time," he explains. Instead, he has offered his services on an ad-hoc, advisory basis. "It's a call-me-when-you-need-me situation," he says. "After all, every Games is different. The Vancouver people have to put their own stamp on 2010."

King and Co. did exactly that in Calgary. And among the first people he recruited for the OCO'88 board was Bob Brawn, his old school chum. Shrewdly, King asked Brawn to help keep an eye on the Organizing Committee budget, which had been bolstered by the committee's share of record ABC network television revenues of \$309 million U.S. funds.

"What we needed at the board level more than anything else was financial astuteness," recalls King. The public perception was influenced by the ghost of the 1976 Montreal



Summer Olympic Games (a financial fiasco which lost \$1 billion). Taxpayers were afraid they might be paying for our Games for years afterward."

Thanks in large part to Brawn and his fellow fiscal watchdogs, the reverse came true. The Games generated an unprecedented total cash endowment of \$150 million.

From the early days of Calgary's Winter Games bid, King had been pushing his own far-sighted vision: the creation of an enduring post-Olympics legacy, specifically designed with future Canadian athletes in mind.

After canvassing a cross-section of former and future Olympians, King and Bob Niven (president of the bid committee and subsequent vice chair of OCO'88) became convinced of the need to establish an endowment fund for the exclusive benefit of amateur athletics. In conversation, the athletes confirmed King's suspicions: that a chronic funding pinch had restricted the number of available top-notch coaches and well-equipped training facilities.

Thanks to the determination and astute financial management of OCO'88 directors

such as Brawn, King achieved his goal. "Every year, leading up to the Games, we budgeted for more money to funnel into the legacy fund," King remembers. "We considered the legacy fund to be part of our normal costs. If our budget committee was asked to loosen the purse strings, we simply told people, 'The legacy money is reserved and gone. You can't touch it.'"

Adds Brawn: "It wasn't easy. There were constant temptations to spend more money. But the organizers stuck to their budgetary guns. Thousands of serious athletes, recreational skaters, and bunny-hill skiers are sincerely grateful. King considers the legacy fund to be OCO'88's most significant and enduring contribution.

Following the Games, the Calgary Olympic Development Association (CODA) was asked to administer the fund. Ultimately, CODA, and other smaller coaching funds, received a \$90-million share of the record surplus. Today, the endowment fund has almost doubled in size and generates \$10 million a year in interest. And CODA, the country's largest private funder of winter sport development, continues to fulfill its athletes' legacy mandate.

Both King and Brawn look on the wonders wrought by the OCO'88 legacy fund with a mixture of pride, humility, and awe. "It was a lot of work and it took a lot of endurance," reflects Brawn. "But the goal of creating this type of value for a community is exactly what the Olympics should be all about."

Bob Brawn's hardheaded business acumen served OCO'88 well. And he came by it the old-fashioned way—by rolling up his sleeves and plunging in up to his elbows.

A self-effacing man, Brawn admits he was only an average chemical engineering student at the U of A. Yet his schooling developed a strength for solving problems. He applied



this skill to the world of commerce, with startling long-term results.

In the mid-1960s, after serving a five-year apprenticeship as a field engineer with Mobil Canada and a subsequent five-year stint as manager of International Drilling Fluids, Brawn purchased SL Refineries, a struggling oil recycling facility in Edmonton. Brawn eventually rolled SL Refineries into Liberty Resources Inc. In 1970 he changed its name to Turbo Resources Inc. and slipped into the presidency.

Under Brawn's stewardship, Turbo Resources became one of the more glamorous business stories of the mid-1970s boom. An independent and fully integrated Canadian energy company, it competed head-to-head with international giants in exploration, refining, marketing, and oilfield services.

By 1980, Turbo owned 300 service stations in five provinces, as well as the largest oil drilling rig operation in Canada. At its peak, the company employed 3,000 people. By combining sales from five thriving divisions (exploration, real estate, refining, gasoline retailing and refining), Turbo was able to project revenues as high as \$1 billion for 1985.

Before that could happen, the roof caved in. Concerned by industry projections that oil prices could top the \$80-a-barrel barrier

within 10 years, the federal government stepped in with the National Energy Program (NEP) of 1980.

A complex program of taxes and controls, the NEP was drafted to allow Canadians to share in so-called "windfall" profits projected



to be made by the oil patch. The program redirected significant chunks of corporate revenues back to the feds. Most energy industry insiders deplored the NEP, regarding it as intrusive punishment for their entrepreneurial success.

To worsen matters, the projected high prices didn't materialize. In fact, prices imploded, as economic recession set in. It spelled disaster for the Western Canadian energy industry, Turbo Resources not excepted.

Like other energy giants, Turbo was caught short. The company was in the middle of a large take-over offer for Merland Exploration, and the resulting debt load would prove unmanageable in the new economy created by the NEP. Management began to shed assets in an effort to stay afloat and, after limping along for about ten years, the company was eventually acquired by Shell Canada.

Nevertheless, Brawn looks back without regret. "It was the experience of a lifetime. At one time, we were doing half a billion in sales each year. But it's not about money, it's about accomplishment—building something you can be proud of."

Interestingly, Frank King played a starring role in one key postscript to the Turbo story. In 1969 King had teamed up with Don J. Cameron (Chemical '58). Together, they established a successful Canadian company to design and build natural gas processing plants

in Western Canada under the auspices of the Ralph M. Parsons Corporation, a major U.S. engineering/construction company.

Eventually King sold his friend Brawn on the idea of building an innovative "pocket refinery" for Turbo, to rise within sight of Calgary International Airport. Brawn said, "Well if you're so interested in the refinery idea why don't you join Turbo and we'll build it together?" King joined Turbo in 1975 and became a senior vice president and a director of the company.

Completed in 1982 for only \$250 million, the efficient little refinery was assembled in modular sections and ran at maximum capacity from its first day of operation. Ten years later, it closed, falling victim to Turbo's continuing financial struggles. By that time, in an ironic twist, lenders and investors had turned to King, a former Turbo executive and board member, to return as company president and to negotiate the sale of Turbo.

But the Class of '58 didn't let business setbacks hold it down for long. King remains president of Metropolitan Investment Corporation and chair of Network Health Inc., a company with 300 employees. He also continues an active business life, serving the Chamber of Commerce board and six corporate boards—including Acclaim Energy Trust, where he serves with his friend Bob Brawn.

And Brawn? After leaving Turbo, he hooked up with Danoil Energy, a little-known private company. Ultimately, Danoil merged with Western Facilities Fund and its wholly owned subsidiary, Nevis Ltd., to form the Acclaim Energy Trust, which in 2003 reported an asset value in excess of \$500 million. Brawn served as Acclaim Chair until 2003. Today, he serves as the trust's Chair Emeritus while enjoying stamp collecting, winemaking, and golf in his leisure hours.

But he still looks back on the ripsnortin' days of the mid-1970s boom with undisguised relish. "Hey, you go for the gusto," Brawn grins. "Why else are we here?"



Tom Keyser is a Calgary-based freelance journalist.

TOUR

CONST

Tom Brown (Civil '71)

To Tom Brown (Civil '71), the new student accommodation now rising at the University of Alberta brings back memories of his days as a third-year civil engineering undergraduate and student coordinator for the Lister Hall residences.

Tom Brown's

RUCTION ZONE

by Nordal Flakstad

Actually, most construction projects interest Brown, Leducor Alberta Limited's senior vice president and the 2003 chair of the Canadian Construction Association (CCA). Brown credits his involvement in industry associations partly to experience garnered in the early 70s, first as a Lister Hall floor representative and then as the student coordinator for all students in residence.

There were few familiar faces on campus when the Grande Prairie teenager first arrived at the U of A in 1967. However, residence

very much became Brown's home-away-from-home, where he quickly made new friends, including Conrad Kathol (Civil '71) from Red Deer.

"We met the first day of university and we've been friends ever since," explains Kathol, president of Invader Exploration Inc., a Calgary-based oil and gas company. He recalls his friend Brown as "a hardworking and dedicated type of fellow who was always very loyal to his employees and friends. He was very competitive in sports and classes. It carried through to his working career."

Kathol recalls that Brown was always game for intramural sports and usually eager to play quarterback in pick-up touch-football scrimmages. There was more of an accomplishment behind that than some players realized.

At age two, Brown was struck by polio. The youngster spent several days in an iron lung and he reflects: "I very nearly didn't make it." He remains sharply cognizant that while he survived, others did not. Brown can't actually remember being in the iron lung but he clearly recalls a series of surgeries required on his ankle and leg as he



Above: Nipawin Bridge, Nipawin, Sask., CANA Engineering

Left: Hydraulic turbines and generators, B.C. Hydro underground power house, Mica Creek, B.C.

was growing up. Just as firmly etched in memory is parental insistence that he engage in physical activities, including swimming, to increase his strength and endurance.

“When you’re a kid, and sick, there is a natural inclination to feel sorry for yourself. My parents didn’t let me do that. They made me overcome any disabilities I may have had as a result of the illness,” says Brown.

His parents also encouraged him to follow the footsteps of an uncle who was a civil engineer. Brown adds that parental urging wasn’t hurt by the fact “I was reasonably okay in the math and science side of the curriculum so it naturally flowed into engineering.”

His engineering classmates benefited from those academic strengths, often turning to Brown as exams loomed. “We always went to Tom because he had always taken the best notes,” says Kathol, who remembers Brown as a top student more inclined than some to study, rather than to join mates partying on the eve of an exam.

But hitting the books late also took its toll. Brown remembers sleeping in before at least one final exam. That sleepy student remains thankful to Professor Geoffrey Kulak for letting him rewrite one exam after he had ignored the alarm clock.

Fortunately, that didn’t happen often and Brown graduated without difficulty in 1971, though he admits, “I didn’t have a clear idea of what I would do when I graduated. Getting into construction was an accident, but a very good accident.”

There was a dearth of engineering employment in the early 1970s, and Brown counted himself lucky when hired by CANA Construction Ltd. as a surveyor for a power project in Grande Cache. Brown acknowledges he wasn’t really a surveyor but, like all civil undergrads at the time, had gone to survey school.

“I have to admit that a few piles were placed in the wrong place as a result of my inexperience,” Brown says.

“Over the next five years, I bounced across many of the more remote locations in Western Canada. I was single and often assigned to project responsibilities.”

There are “Brown was here” projects through much of Western Canada, including a bridge at Nipawin, Saskatchewan, and a dam at Mica Creek, British Columbia. Among Brown’s favourites were the many bridge projects that he worked on—from Lethbridge in the south, to familiar surroundings of Grande Prairie in the north.

Brown left CANA in 1977 to work two years with Federated Cooperatives in Saskatoon, overseeing store construction. Then CANA vice president, John Thompson, (Mechanical ’69), convinced Brown, already “a known CANA commodity,” to return to the fold as its chief engineer.

Now president of Hazco Environmental Services Ltd. in Calgary, Thompson speaks of his former colleague “as an unbelievably hard worker and a really dedicated guy. He’s tenacious when he wants something and he works hard to achieve it. He’s competitive.” It’s a trait highly valued by construction companies, reliant as they are on effective contract bidding and estimating, areas in which Brown excelled.

Brown agrees with this characterization. “I like to think I’m fairly driven and put in a fair bit of extra effort in the workplace. I think that was instrumental in moving me along to where I am today.” He also returns Thompson’s compliment, noting, “While at CANA, John taught me a lot of skills that have helped me survive in construction.”

Brown’s career progress included a 1989 move from CANA, where he was general manager, to a similar job with the rival Leduc Group’s building and road construction division. Leducor now is a diversified company involved in civil, pipeline, building, industrial, and commercial construction in Canada and internationally. The company got started in 1947 when it built the road to the historic Leduc No. 1 well site.

When Brown joined, Leducor was looking for someone with his mix of skills in the building and civil disciplines to expand a relatively new building division.

With Leducor’s restructuring in the mid-90s, Brown returned to familiar ground when he became vice president of the highway construction and maintenance divisions. His bidding skills led the company in new directions, as Alberta Transportation began to outsource routine highway maintenance. Leducor now maintains 8,000 kilometres of primary and secondary highways within a large area of central Alberta. As a traditional roadbuilder, Leducor also remains active in new road construction and major rehabilitation.

Also in the mid-90s, Brown was invited to join the CCA’s 75-member board, after having led a number of regional and provincial

organizations, notably the Alberta Roadbuilders and Heavy Construction Association (ARHCA). In 2003, the Association gave him a first-ever Special Leadership Award for his involvement with



Connaught Bridge, Rogers Pass, B.C.

ARCHA and CCA. Before becoming the CCA 2003 chair, he held a succession of executive positions in the CCA, as secretary, treasurer, and vice chair.

All of this comes as no surprise to Gordon Parchewsky (Civil '71), president of North American Construction Group Inc. in Spruce Grove, and a construction competitor and colleague of Brown's for many years.

"Tom's a leader," Parchewsky says. "He does a good job of bringing forward ideas and knows what needs to be done."

As head of CCA, Brown worked to ensure that construction attracts new and enthusiastic talent. "The image of the industry may have been one that was perceived to be a bit low-tech, without lots of barriers to entry. The fact is that there are highly skilled people in the construction industry and it offers some very rewarding careers and challenges. As an association, we're trying to get out that message."

Brown also hoped to raise awareness of the pressing need to reduce Canada's \$50-billion-plus "infrastructure deficit", caused by governments' failure to invest sufficiently in the upkeep of roads and other infrastructure.

During his career, Brown has witnessed many changes in his industry. They include the transition from blueprints and reams of paper to electronic processes handling construction design, bidding, and costing. Concepts such as design/build, where contractors draw up and construct projects, and public/private partnerships, under which contractors assume long-term operating roles, are now common. Increasingly, builders of roads, buildings, or plants are contracted to maintain them. Brown predicts, "Contractors are going to be more vigilant about building something if they are going to be on the hook for maintenance costs."

Construction is also a much more safety-conscious industry than the one Brown started off in three decades ago. Brown credits this to "good incentives, particularly in Alberta, to have good safety programs and good claims management to look after our workforce. There has been a financial payback there in addition to the obvious human benefits."

As he looks back over his eventful life, it's clear that Tom Brown values his U of A school days.

In addition to enduring friendships, he explains, "The university gave me my first exposure to people from other countries and other cultures. I hadn't had a lot of experience in that, growing up in Grande Prairie."

Brown credits university with building his problem-solving skills—"the ability to take a problem, to analyze it from scratch, to come up with a solution, and to test it a bit." It also taught him to listen, a vital skill in construction. "You have to develop the proper working relationship with the client so that both parties get what they want out of the deal. It takes some listening and some compromise."

A career, like a structure, must rest on a firm foundation. Tom Brown remains convinced U of A Engineering provided that.



Nordal Flakstad is an Edmonton-based freelance journalist.

Canadian Construction Association Builds a National Voice for Industry

In March 2004, Brown will complete his term as chair of The Canadian Construction Association. The Association represents 20,000 small and large affiliated firms, with a combined workforce of 900,000 and total annual revenues of \$134 billion.

The national association acts as a clearing-house and hub for the multi-faceted construction industry. It also serves as Canadian construction's national voice.

In his term of office, Brown saw a healthy combination of industry self-interest and public service

in CCA's continued lobbying of governments to dedicate greater resources to maintaining and improving Canada's road, water, sewer, and other public infrastructure. So, when the federal government announced in its 2003 budget that \$9 billion would go toward infrastructure upgrading, CCA officials, while thankful, were also quick to point out that federal plans fell far short of what was needed.

Another CCA objective, and a top personal priority for Brown, was upgrading technical and

managerial skills of those working within Canadian construction. Already contributing to that end is the CCA-sponsored Gold Seal Certification (GSC) program. So far, the 10-year-old program (consisting of industry experience, course work, and exams) has allowed 6,000 construction project managers, superintendents, and estimators to enhance their skills. Brown, who himself holds the GSC designation says, "Having the program gives more of a sense of professionalism to people who have this certificate because it's quite challenging."

The Cold War

After-Effects

“Probably the most widely used unit of gamma radiation is the roentgen. At 100–200 roentgens, the probable effect on humans is sickness and some deaths. At 300–600 roentgens, there will be severe sickness and many deaths. Over 600 roentgens, there will be few survivors.”

U.S. Army, Fort Belvoir, Virginia, 1961

by Sherrell Steele

In the early 1960s, Wesley F. Elford (Electrical '37) worked as a fallout shelter analyst in the Advanced Research Unit for United States national defense in Boston. As part of an interdisciplinary team of engineers, physicists, and executive personnel, he toured plants and factories to assess their readiness and preparedness for nuclear disaster.

Elford's team traveled to industrial plants to study their facilities, analyze their operations, and write reports for the Pentagon in Washington, D.C. At times, Elford was called to make verbal presentations—give classified information—to a group of high level military personnel.

The team investigated steel mills in Chicago, New Orleans, and the Mississippi; electric

power plants in Fontana, North Carolina and the Tennessee Valley Authority in Chattanooga; a yeast plant south of Chicago; a sardine plant in Maine; and a flour plant in Buffalo. At each stop, it was Elford's job to ask if the plant or factory had an adequate plan in place should nuclear war occur.

Elford prepared for these highly specialized tasks by reviewing government documents,

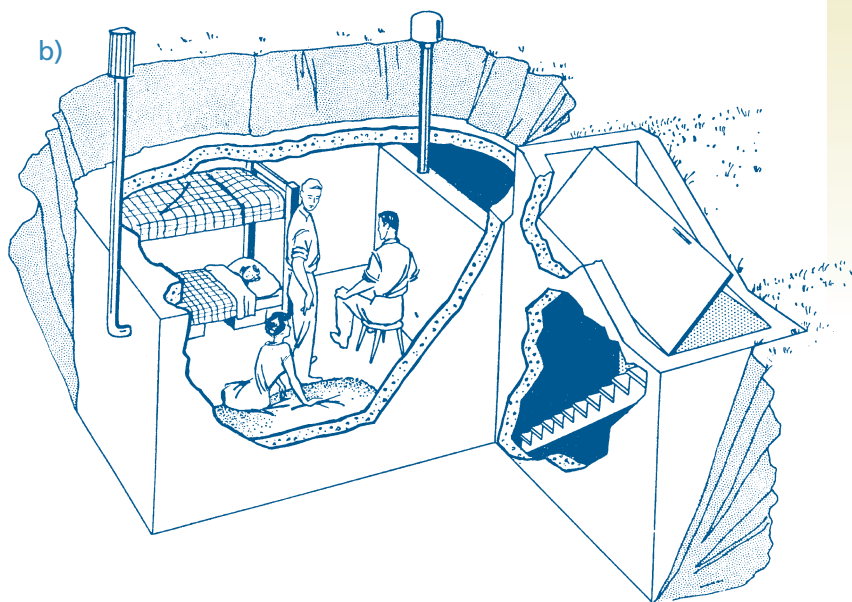
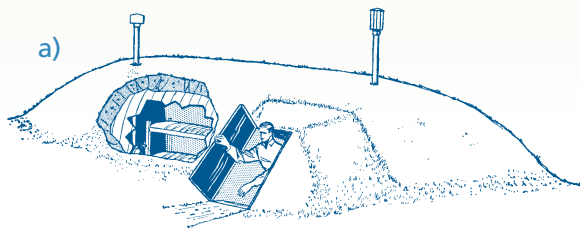
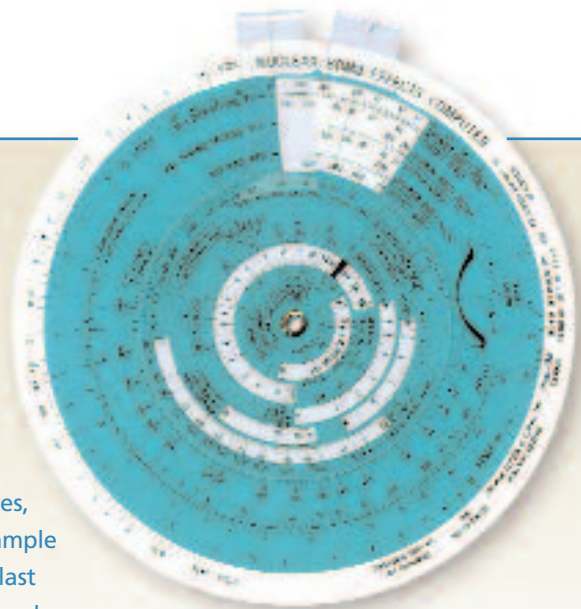


Civil Defense Comic Book

Published in 1956 and illustrated by Al Capp (creator of the Li'l Abner comic strip) this comic book combines humour with natural disasters—an unusual mix.

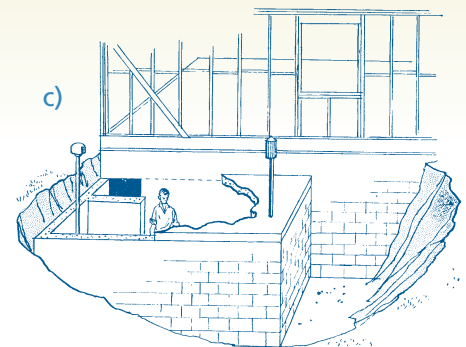
Nuclear Bomb Effects Computer

This circular computer, circa 1962, was used to calculate the effects of nuclear detonations. The outer perimeter measures yield in kilowatts and megatons. The inner perimeter measures maximum overpressure in p.s.i., maximum dynamic pressure in p.s.i. and maximum wind speeds in m.p.h. The windows reveal damage and overpressures, probable biological penetration, and impact. One sample calculation on the computer tells us that a surface blast of 100 kilotons arrives 5.0 seconds after detonation and has a duration of 1.7 seconds.



The Family Fallout Shelter

This 1959 publication issued by the Office of Civil and Defense Mobilization provides diagrams of the following options for family fallout shelters: a) pre-shaped metal shelter, b) underground concrete shelter, and c) basement concrete block shelter.



books, and pamphlets for information on nuclear war and other civil defense issues. He also took courses in fallout shelter analysis at Worcester, Mass.

In 2001, Elford made a donation of documents, books, and pamphlets to the Faculty of Engineering with these words, "I hope it can be used to the betterment of education of future engineers."

These artifacts provide a fascinating view of the Cold War politics of the late 50s and early 60s.

Sadly, Elford is now deceased, but he has left behind a fascinating archival legacy of his professional specialization. In a letter to the Dean, he summed up his unusual career by saying, "I want to thank the University of Alberta for preparing me to face the

challenges of the world and meet the offered assignments as they came my way. It has been a wonderful journey."

Luckily for us, the fallout of Elford's career journey was archival not radioactive.

Editor's note: If you have artifacts or archival material of interest to U of A Engineer, please contact Sherrell Steele at [780] 492-4514.

He's not exactly a ball of burning, swirling gas, but make no mistake:

Tim Poon (Electrical '01) is a star.

He spent last summer as a rocketeer, at the International Space University (ISU) in Strasbourg, France.

**Tim Poon
Soars to SUCCESS**
by Charlayne Bozak

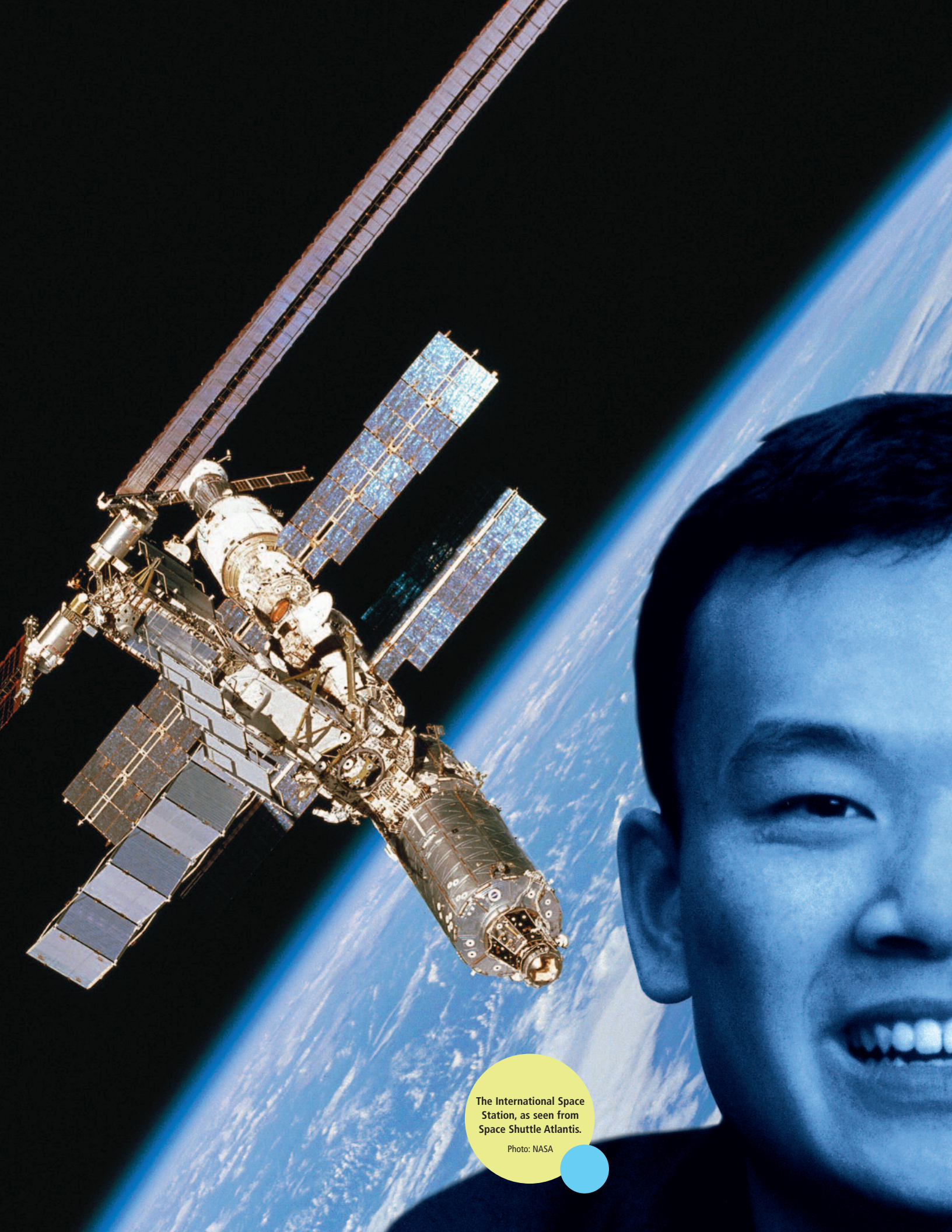
Sixteen Canadians attended the ISU's summer session, in which experts from across the globe exchange ideas on the different aspects of space exploration. Ten of those, including Poon, received funding from the Association of Universities and Colleges of Canada.

In the first part of the session, Poon studied subjects not normally associated with space—subjects beyond rockets and robots. He learned, among many other things, how the human heart is affected by space travel, the international laws and UN policies that apply to space exploration, and how venture capital for projects is raised. "There were so many different topics," he says. "You need to know how your specialty applies to other aspects of research."

The participants wrote exams after the courses and then were split into groups. Each group was given a project, and sent to view a location associated with it. Poon's department, systems design, visited a rocket engine test facility in Germany where they viewed the structures and hydrogen rockets used to launch satellites. Other groups traveled to sites including an astronaut training centre and a major satellite company.

The systems design department was asked to develop a mission plan for the International Space Station, and discuss how it can be used for future lunar missions. Because of the Space Shuttle Columbia's accident in February 2003, Poon's group had to look at things a little differently. "During the past several years, lunar exploration hadn't been considered much, and I think that might be

Rocketeer



The International Space Station, as seen from Space Shuttle Atlantis.

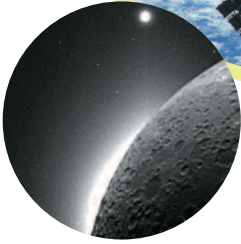
Photo: NASA



Photos: NASA

Above: The International Space Station, with Earth in the background.

Left: The Moon, illuminated by light reflected from Earth. This photo was captured by the Clementine spacecraft in 1994.



a little short-sighted,” he says. We don’t really know much about the moon, its resources and how it might be used as a staging ground for other projects.

“NASA puts humans in space and is researching travel to Mars. But it would take over a year to complete a mission to Mars and we haven’t really studied how the human body reacts to extended time in space. With the current space station, missions are generally limited to six months.”

The group, which featured specialists from varying disciplines, considered other potential roles for the space station in lunar exploration. They discussed its possible use as a site for testing and small-scale construction, and as an aid to transportation.

In the case of transportation, they looked at whether or not the station should be moved in its orbit to serve as a stopover for lunar missions. Poon used his expertise in telecommunications to assess the requirements for international communications.

“There were graduate students, senior management from aerospace related companies—an all-over mix. We made a pro and con list. If we kept the space station in its current orbit would it be a waste of resources? Or would it be better to travel directly to the moon from Earth? We also considered training and testing.”

Based on the premise that the current International Space Station would eventually be completed (it’s still under construction), the team concluded that the station could serve as a valuable tool for future lunar missions. The group compiled its findings, along with recommendations for other uses for the station, and presented a report to their sponsor, NASA.

For Poon this was the most memorable moment of the session. “At the very end, the group, as a whole, presented the analysis to the client. Preparing the presentation, seeing the group working together toward a common goal—that really stood out for me. You couldn’t be individualistic in this session.”

When he returned home, Poon saw his *alma mater* in a new light. “I’ve always known that the U of A had excellent facilities, programs, professors, and students. But it’s not always something you fully appreciate until you have something to compare them to. Not that things over there are much different—the people are excellent and the students are just as devoted—but I have a new appreciation for our new facilities.

“I also learned how to plan my life according to my surroundings. In Edmonton, it’s nice being able to go out at 11 p.m. and get something at the grocery store. When I was in Strasbourg everything shut down at six and there was no Sunday shopping.”

Like a star, Poon is brilliant—not that you would ever hear the modest 25-year-old say so himself. In 1996 he earned a perfect score on his International Baccalaureate exams, one of only two perfect scores in Canada, and one of sixteen in the world.

In 2004 he plans to defend his master’s thesis, in which he will use mathematical theory to characterize a wireless signal—taking one signal and showing how it interacts with the large number of interfering signals around it.

To illustrate, imagine wireless signals as a snarled mess of hundreds of different colours of yarn. Through mathematical theory, Poon will consider where one of the colours (signals) begins and show how and

where it snakes through the tangle of all the others. He’ll use mathematical models to detect the colour and distinguish it from the other pieces of interfering yarn.

He sees this theoretical work and his experience at the ISU’s summer session as opportunities to build a strong fundamental appreciation of telecommunications. “We gain a better appreciation of the world around us if we know its foundations,” he says. “Some people may not think that space exploration is practical, but studies have shown that the majority of North Americans support it. Space has also allowed us to improve our scientific knowledge in different fields. We gain different perspectives than we would on Earth—in robotics, as seen in the Canadarm; monitoring climate and weather patterns; and studying varying kinds of life-support systems.

“On an international or global level, space teaches us about the nature of the world today. It could provide us with a negotiating ground. China is currently looking into lunar exploration, and other countries are seeing more and more potential in it. It shows us the potential for international cooperation, as well as conflict.”

Poon’s enthusiasm is echoed in the words of one of his role models, Stephen Hawking, who said, “To confine our attention to terrestrial matters would be to limit the human spirit.” Poon is doing his best to maintain that unlimited spirit.



Charlayne Bozak is an Edmonton-based journalist and public relations practitioner.

Rocketing to Fame

In 2003 Tim received the Leaders of Tomorrow Award from the Alberta Science and Technology Leadership Foundation (ASTech). Poon was recognized for his valuable contribution to Alberta’s high-tech industry since age 17 and for his ability to motivate others.

ASTech awards recognize outstanding contributions to science, technology, and research in the province.



Tim Poon accepts the ASTech Leaders of Tomorrow Award from Victor Doerksen, Minister of Alberta Innovation and Science (right) and Dr. Bob Church, Chair of the Alberta Research and Science Authority (centre).



Virtual Engineer and

Satellite Tracker

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 George Carpenter (Electrical '60).

What was your career path from graduation to the Stanford Research Institute?

After graduation I went to graduate school at Stanford University in California.

Stanford was very kind to me. They basically paid me to go to graduate school for three and a half years and awarded me two degrees. I initially studied ultra-low-frequency (ULF) and very-low-frequency (VLF) radio waves that originated in or propagated through the magnetosphere to characterize that region.

My first research assignment was to find a way to use signals from U.S. Navy VLF transmitters to study the dynamic character of the magnetosphere. By 1962 I was routinely monitoring Navy VLF transmissions at a number of sites in the western hemisphere and had set up a measurement system at Stanford to monitor transmissions

propagating below the ionosphere. Those capabilities proved ideal to monitor the effects of the five U.S. and three Soviet high-altitude nuclear tests that year.

Researchers at Stanford Research Institute (SRI) learned that I was working on nuclear test data and asked if I would include their data in my analysis. The end result was that SRI offered me a job in September 1963.

In the early days, most of my research was focused on determining how radio waves were affected by nuclear detonations, and the consequence of those effects on communication and surveillance systems. Later, that research expanded to include investigation of the electromagnetic pulse (EMP) produced by the detonation itself. That became a lifelong interest, and eventually resulted in an accumulation of about 16,000 data items that

Above: The 46-metre parabolic antenna at Algonquin Park, Ontario in 1999. The facility was used to test the ability of the sensors on GPS satellites to accurately locate electromagnetic pulses from nuclear detonations.

I recently turned over to the National Nuclear Archive in Albuquerque, New Mexico.

As my career at SRI progressed, I found that many of my projects required deployment of specialized equipment to the far corners of the earth (and into space). I knew many of the world's airline schedules by heart. Because of these increased responsibilities, I was promoted to senior research engineer, program manager, and associate laboratory director.

Later in my career, I led a team that pioneered the use of radar to penetrate forests, jungles, and the earth itself to expose hidden targets. More recently, I applied a 46-metre diameter parabolic antenna facility to measure about a dozen parameters of the L-band navigations signals broadcast by the Global Positioning System (GPS). The government was so happy with our performance that we are developing a measurement system for the new GPS system of satellites that will be launched in the near future.



Left: The ridged feed horn is being winched up into the 46-metre diameter parabolic dish antenna at Algonquin Park in Ontario.

Below: The ridged feed horn just after it had first been installed at the feed point.



I ended my full-time career at SRI as the Director of the Geoscience and Engineering Center. After several years in that position, I decided that management was a lot less fun than research, so in 1999 I decided to “retire” to a part-time senior technical advisor position. That has turned out to be very rewarding as I have participated in a calibration of EMP sensors aboard GPS satellites using the 46-metre antenna at Algonquin Park in Canada, written a history of EMP measurements associated with domestic and foreign nuclear tests, and still have a small contract with Lawrence Livermore National Laboratory to support their EMP activities.

What is your proudest achievement, professionally or personally?

I’ll choose an adventure I had fairly recently—in fact, after I had “retired”. It was very important technically, but in addition, it was very satisfying personally to know that I could still carry out my responsibilities under very difficult conditions at the end of a 40-year career.

The Global Position System (GPS) satellites carry a package intended to detect the

detonation of nuclear weapons. One of the sensors (W sensor) in the Nuclear Detection System (NDS) package looks for the electromagnetic pulse (EMP) generated by nuclear detonations and reports such detections to a central location on the ground. By correlating the time of arrival of the EMP at multiple satellites, the central processor determines where and when the detonations occurred.

So, how do you calibrate such a system? In 1994 I assembled equipment at our 46-metre antenna facility at Stanford University. The key component was a device that could generate an electrical impulse of about 250,000 volts. Only a very few long-distance power lines operate at such a high voltage level.

Even with that enormous source and considerable antenna gain, we could illuminate only one satellite at a time. To calibrate the system properly, we needed to illuminate at least four satellites at the same time. The trick we used to avoid that requirement was to precisely measure the time we illuminated each individual satellite so the results could be combined to simulate simultaneous illumination of multiple satellites.

We sequentially illuminated four satellites over a period of a week, and were, in fact, able to combine the results to obtain a satisfactory calibration. To do that, we had to push the limits of what the Federal Aviation Authority (FAA) would tolerate. They were extremely worried that our EMP would cause a passenger jet to fall out of the sky; so all operations were limited to the middle of the night when few aircraft were landing or taking off from the three nearby international airports.

By 1999, many of the satellites in the GPS constellation had been replaced by those of a new design, so the GPS program office decided they wanted to repeat the 1994 calibration. The Air Force had steamrolled the FAA in 1994, but in 1999 the FAA refused to authorize a test at our SRI facility. As the stalemate became more entrenched, I realized that we would never be allowed to operate at our facility, so I began to look around for other places that we could go.

There aren’t a lot of 46-metre antenna facilities in the world, so I quickly approached my friend Wayne Cannon at York University in Toronto to see if there was any hope of using the one at Algonquin Park. I didn’t want to scare him, but I explained that a no-fly zone of up to a 100 km radius would have to be established around his facility while we were operating. Eventually the answer came back that we could use the facility and the GPS Program office jumped at the chance.

A deadline of three months was set for completion of the test. Failing to meet the schedule just wasn’t an option, as more than a dozen agencies were involved.

My assignment was to get the pulse transmission system in place and operational before the control and data acquisition systems arrived.

The first time we operated, all the fire alarms at the site went off and provoked worried calls from distant fire departments. That kind of thing happens when you radiate a peak instantaneous power of about 250 gigawatts. To put that in perspective, the entire province of Alberta generates and

consumes only about 8 gigawatts. The big difference is that our power delivery lasted only a few nanoseconds per pulse.

Over a period of about eight days and nights we calibrated a dozen satellites in complete compliance with test plans. The results were beyond anyone's expectation.

How did your education and experience at the Faculty of Engineering equip you for your career?

Over the years I have come to realize that a university degree is not a certificate of knowledge, but a certificate that you possess the skills to solve problems and the tenacity to do so. I was trained to be an electric power engineer, but have spent virtually no time working in that field. However, my training in basic science and engineering, and my training in how to solve problems is the foundation of my career for the past 40 years.

What are your remaining connections with Edmonton or the U of A?

I attended both the 25th and 40th class reunions and was pleased to have the opportunity to walk the campus. There has been so much change that it is like going to another planet.

I attend the University-sponsored alumni meetings here in the San Francisco area. I leave those gatherings with the feeling that I should return to Alberta and be part of it.

What else fosters pride for you as an alumnus?

My pride in the U of A goes back a long way. My mother (BA '32) graduated there, so it's in the blood. Looking back on my years on campus, I realize that most of my professors were highly dedicated teachers. My first physics professor (I wish I could remember his name) used to conduct experiments in class. They were so

fascinating that I did not realize until after Christmas that he had a withered left arm that he never took out of his pocket. It had been damaged in a radiation accident at Chalk River.

Another thing that fostered pride was my interaction with classmates at the 40th reunion. They are all successful people because of their education at U of A.

I buy a multi-year supply of sweatshirts and other U of A clothing every time I am on campus. My friends and co-workers know full well where I went to school. I think this latent exhibitionism stems from wearing that black engineering school jacket for the better part of four years on campus.

What message do you have for fellow alumni?

Here is a challenge to my classmates; let's ALL meet in Edmonton in 2010 for a 50-year reunion and see how things are turning out.

Desert Warrior

These photos were taken in Kuwait in December 1991. You see me south and east of the "highway of death" where a large column of Iraqi forces were attacked as they retreated from Kuwait. They were traveling through a narrow passage in an escarpment and could not get off the road. You can see the escarpment in the distance in the upper right corner of the photo. There were still hundreds of military and civilian vehicles destroyed on each side of the road when we were there. We detoured east of the main road and soon came across a burned out tank with numerous shells surrounding it.

We were a few miles east of our operations camp in northwest Kuwait. The reason I was in Kuwait was to support Air Force tests of advanced weapons in a desert environment. We did not want the Iraqis coming across the border looking for us, so our cover was that we were an



advance party for an airborne parachute exercise that was publicly announced. We came in ten days before the drop and disappeared in the desert guarded by a dozen Air Force special police. I think the officers wanted to show off, so they had side arms also. I told them I had shot thousands of gophers in Alberta as boy, but they would not give me a gun.

The real airdrop was quite a sight. 600 Army rangers showed up for work at a base in Kentucky one morning and were told they were heading to Kuwait that day in full battle dress. They boarded four C-130 cargo planes and flew

non-stop with airborne refueling. About 4:00 p.m. the next day they arrived at a large air force base west of Kuwait City and filled the sky with parachutes. More than a thousand military personnel observed the drop, including our group. The Rangers captured the airbase, had something to eat, and undertook a 50 km march in the rain. Next morning they marched past our camp at 7:00 a.m. and set up their own camp several kilometres or so up the road.

Our tests went well and we made it home in time for Christmas.



The U.S. rangers in full combat gear.

ABOUGOUSH, MICKEY (Chemical '70) PEng



has been appointed to the board of directors for CCR Technologies Ltd., a leading technology and service provider to the oil industry

mid-stream and downstream sectors. Abougoush is currently the president of Teknica Overseas Ltd., a corporation that provides consulting services and software products to petroleum exploration and production companies. He is directly responsible for business development and marketing in North Africa and the Middle East.

BOYCE, DARRYL K. (Mechanical '82) PEng



was appointed vice president of the American Society of Heating, Refrigeration and Air Conditioning Engineers

(ASHRAE) at the Society's 2003 annual general meeting. Boyce has been a member of ASHRAE since 1983 and has served on the board of directors, Region II director, and regional chair. He is the recipient of the ASHRAE Distinguished Service Award and the ASHRAE Region II Regional Award of Merit.

ASHRAE, founded in 1894, is an international organization of 55,000 people with 160 chapters and members in 128 countries. Through research, standards writing, publishing, and continuing education, ASHRAE's objective is to advance the arts and sciences of heating, ventilation, air conditioning, and refrigeration to serve the evolving needs of the public.

BRADLEY, BERNIE (Chemical '64)



was appointed to the board of directors for the Inter Pipeline Fund. Bradley is a senior executive with more than 20 years

experience in Canadian and U.S. crude oil pipeline business, including pipeline engineering and operations, business development, and financial management.

CAUGHILL, DAVID (MSc Civil '92) PEng

has been appointed as an associate to Golder Associates Ltd. Caughill practices geotechnical engineering in the Canadian North, and has been the Yellowknife office manager for Golder Associates since 2001.

CHANG, HELEN (Petroleum '88, MSc Petroleum '90)

has been appointed chairperson of the Canadian Section of the Society of Petroleum Engineers (SPE) for 2003-2004. Chang received the SPE Young Member Outstanding Service Award in 2002 and is now serving a three-year term on the awards committee for this service award. Chang has also been selected as a Mentor of the Millennium by the Alberta Women's Science Network for 2004 for her contributions to Operation Minerva and her mentorship of students in engineering, science, and mathematics.



Helen Chang is the third from the left in the front row.

CREVOLIN, JEAN PIERRE (Metallurgical '70) PEng



has been chosen as president of National Association of Corrosion Engineers (NACE) International for

the 2003-04 term. Crevolin is the fifth Canadian to become president since NACE's inception in 1943. A member of NACE for more than 25 years, he has served most offices of the Edmonton section and Canadian region's northern area. He has worked in the corrosion industry for more than 30 years

DANIEL, PATRICK (Chemical '68) PEng



is president and CEO of Enbridge Inc. Daniel was appointed to the Board of Trustees for the Enbridge Commercial Trust,

which conducts the affairs of the Enbridge Income Fund.

Daniel was rated #58 out of 200 on National Post's Business magazine's "2003 Bang for the Buck" survey. This survey considered three variables to assess CEO performance: compensation, three-year return on investment and "bang for the buck".

Daniel is a director of Enbridge Energy Co. Inc., EnCana Corporation, and Enerflex Ltd. He is also a member of the Provincial Audit Committee.

Enbridge was voted most respected in the category of community support in a poll conducted by Alberta Venture magazine in 2003. Employees at Enbridge are actively involved in their communities. The Canadian Centre of Philanthropy has recognized Enbridge for efforts with the homeless and for the United Way Campaign which raised more than \$1 million.

DEUTSCH, CLAYTON, DR. (Mining '85) PEng



was named a 2003 Canada Research Chair, one of five new research chairs at the U of A. Dr. Deutsch holds the research chair in

natural resources uncertainty management. As a geostatistician, he uses mathematical models to determine the probability of finding oil, minerals, and other resources in a given area. This method "fills in the blanks" in data supplied by more traditional methods of searching. Thus, oil companies can find gushers that might be missed by seismic and drilling searches.

Deutsch is a professor in Civil and Environmental Engineering.

FARIS, NABIH (Chemical '73)



has been appointed to the board of directors of Result Energy Inc. Faris is president of the Intergulf Group of Companies,

which, through its subsidiary Intergulf Investment Group, holds significant positions in junior and senior oil and gas companies. Faris was a director of Renaissance Energy and Equatorial Energy and has served on the board of Penn West Petroleum since 1988.

FEICK, JOHN, DR. (PhD Chemical '68)



was appointed to the Alberta Electric System Operator (AESO) board. Dr. Feick brings extensive technical and energy industry experience in operations, finance, regulatory, and strategic planning.

Feick is the executive chair of Matrix Solutions Inc., an environmental services company in Calgary and is chair and partner in Kemex Engineering

Errors and omissions

There was a typo on page 35 of the Fall 2003 magazine. Our correct URL is www.engineering.ualberta.ca. Thanks to Jennifer Brockington for pointing this out.

Ltd., a process engineering company also based in Calgary. He has held senior executive positions with NOVA Corporation and NOVA Chemicals Ltd. and served on the board of Enmax Energy for three years. He currently serves as a director for Aux Sable Liquid Products Inc., Occidental Petroleum Ltd., and Fort Chicago Energy Partnership.

The Alberta Electric System Operator (AESO) leads the safe, reliable and economic operation and planning of Alberta's inter-connected power system and facilitates Alberta's real-time wholesale market, which has more than 200 participants and between \$3 and \$5 billion in annual energy transactions. AESO is focused on facilitating an independent, fair, open, and efficient market for the exchange of electric energy, and overall coordination of provincial load settlement.

FREDERKING, ROBERT, DR.
(Mechanical '64) PEng



was awarded an honorary doctorate of technology from the Helsinki University of Technology at the May 2003 conferment ceremony. This was in recognition of his work as a leading scientist in the field of ice mechanics. Dr. Frederking has worked in close collaboration with Helsinki University for more than 25 years. He has played a key role in project exchanges that have had Canadian researchers participate in projects in Finland and Finnish researchers participate in projects in Canada including work in the Arctic. Frederking spent 33 years of his career at the National Research Council of Canada and has recently retired.

GEE, TERRY
(Civil '84) PEng



was appointed as general manager of MWK Engineering Ltd. and as regional manager for D. A. Watt Consulting Group—northern Alberta. Gee brings 20 years of comprehensive private and public sector experience in transportation design, construction, and project management.

GRANDIN, MICHAEL
(Civil '66) PEng



was named one of Alberta's 50 most influential people by Alberta Venture magazine. Grandin is chair and CEO of Fording Canadian Coal Trust. Alberta Venture recognized him for his influence in the energy sector. Grandin took over leadership at Fording in 2003 after the \$1.8 million deal between Fording Inc., Teck Comico, Sherritt International, and their respective financial backers. This deal created the world's second-largest metallurgical coal producer, providing 25 million tons of coal to steelmakers around the world.

Grandin also serves on the boards of EnCana, IPSCO Inc., Pengrowth Corporation, BNS Split Corporation, and Enerflex Systems Limited.

HARRIS, S. BRUCE
(Metallurgical '71) PEng



has been appointed as vice president, operations for Pembina Pipeline Corporation. Harris has been with Pembina since 1981, first as a pipeline engineer and then in variety of technical and supervisory positions. In his most recent position as manager, pipeline operations, Harris was responsible for the day-to-day operational supervision of an integrated pipeline network that

transported 700,000 barrels per day of light conventional, synthetic crude oil, condensate, and natural gas liquids from producing regions across Alberta and northeastern British Columbia. In his new role he will assume executive responsibility for pipeline operations, engineering, and drafting.

HICKEY, DON
(Electrical '71) PEng



has been appointed to the board of directors for Economic Development Edmonton. Hickey is vice president of facilities and operations at the University of Alberta.

HOGG, BRAD
(Computer '94)



was nominated in the Emerging Entrepreneur category of the Ernst & Young Entrepreneur of the Year award. Hogg is president and CEO of Vintacom Media Group.

HOLE, HARRY
(Civil '44) PEng



was named one of Alberta's 50 most influential people by Alberta Venture magazine. Alberta Venture recognized Hole's influence in the community and in professional services. The magazine mentioned the Hole brothers' \$5 million donation to help build the Hole School of Construction Engineering at the Faculty of Engineering's about-to-be-completed Markin/CNRL Natural Resources Engineering Facility.

Hole is a partner in Nunastar Properties Inc. and is retired from the family's construction firm Lockerbie & Hole.

HOLZMAN, JONATHON, DR.
(Engineering Physics '99, PhD Electrical '03) EIT



received the Governor General Gold Medal for the best PhD dissertation at the University of Alberta. Dr. Holzman also delivered the keynote address at the Fall 2003 Convocation. He graduated with a perfect grade point average (GPA) of 9.0. This is but the latest in a string of academic accomplishments including the G. B. Walker PhD Thesis Prize in October 2003 and a prior sequence of awards dating back to 1993. He also completed his BSc with a 9.0 GPA.

Holzman currently works at the ultrafast photonics and nanooptics laboratory in Electrical and Computer Engineering. His research is in the area of free-space terahertz generation. His theoretical and experimental work looks at novel methods for both generation and detection of free-space terahertz waveforms.

IBRAHIM, MAJID
(Civil '53) PEng

received the 2002 Career of Excellence in Engineering Award from the Association of Professional Engineers of Trinidad and Tobago. Ibrahim received this honour for outstanding contribution and service to the engineering profession and to the advancement of the Association. He is now retired from his most recent position as coordinator and advisor to the Ministry of Integrated Planning and Development in Trinidad and Tobago.

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



has been appointed senior consultant with Stantec in the Edmonton office. Kalynchuk will be assisting infrastructure management and pavement engineering, as well as transportation and environmental infrastructure practice areas, primarily in their marketing efforts.

He has served on the board of directors of the American Public Works Association (APWA) 2002. He has been a member of APWA for 20 years and has been involved at the national level for 12 years. He is now the fourth Canadian President of APWA.

KEMP, ROBERT
(Chemical '82) PEng



has been appointed as manager of the environmental and energy division of Levelton Engineering Solutions in Calgary. Kemp has 20 years of experience with environmental approvals for industrial facilities, assessment of air quality impacts, contaminated sites, and other environmental projects in Alberta. He provides senior environmental and consulting services, in addition to leading Levelton's growing engineering and scientific services.

KRIVIAK, GARY
(Civil '81, MSc Civil '85) PEng



has recently joined CH2M HILL's transportation business group in Edmonton. Since graduating, Kriviak has practiced as a consulting engineer, completing numerous structural and bridge engineering assignments throughout western and northern Canada. In conjunction with

his management activities in the CH2M HILL Edmonton office, he will provide clients with project management, planning, and design services in the transportation engineering sector, specializing in bridges and structures.

KVISLE, HAL
(Civil '75) PEng



was named one of Alberta's 50 most influential people by Alberta Venture magazine, for his role in the energy sector. Kvisle is president and CEO of TransCanada PipeLines Ltd. Alberta Venture magazine recognized his efforts to push TransCanada PipeLines' market capitalization more than \$11 billion, boosting its quarterly dividends, and increasing net earnings to \$747 million.

LENARDUZZI, STEVE
(Civil '96) PEng



was appointed manager, project development for the Edmonton office of Stuart Olson (A Churchill Company). Lenarduzzi brings extensive experience in project development and management through his previous career with Stuart Olson and as vice president, operations for Hothouse Design, an internationally renowned contemporary furniture design, manufacturing, and retail company.

LEUNG, JOSEPH. C. Y.
(Chemical '74) PEng



has been appointed to the University of Calgary Senate for the second term. Leung is executive vice president of Marquis Communities Development Inc. in Calgary.

LIDGETT, GEORGE
(Mechanical '85) PEng



has been appointed to the 2003/2004 board of directors for the Canadian Energy Pipeline Association. Lidgett is vice president operations with ATCO Pipelines in Calgary. He has been with ATCO since 1999.

The Canadian Energy Pipeline Association (CEPA) is the voice of Canada's major transmission pipeline companies. CEPA member companies transport 95 per cent of the crude oil and natural gas produced in Canada.

MASCHMEYER, DENNIS
(Chemical '61) PEng



was rated #117 out of 200 on National Post's Business magazine's "2003 Bang for the Buck" survey. This survey considered three variables to arrive at a CEO scorecard: compensation, corporate performance, and CEO performance.

Maschmeyer was appointed president and chief executive officer of Sherritt International Corporation in 2001. In 2003 he was also appointed president and chief executive officer of Luscar Limited.

MACLAINE, R. L. (ROD)
(Civil '74) PEng



was appointed president of worldwide construction of KBR (a division of Halliburton Canada Inc.). MacLaine has 28 years of Canadian and international experience in management of heavy industrial project construction. Prior to this, MacLaine served as senior construction manager for a \$2.5 billion refinery expansion project in South America.

MCDOUGALL, JOHN R.
(Civil '67) PEng



was appointed to the board of directors for Precarn Incorporated. McDougall is president and CEO of the Alberta Research Council (ARC). The ARC is involved in technology commercialization across a variety of sectors.

MCELWAIN, MATTHEW
(Environmental '00) EIT



has been accredited as a member in training in Registered Engineers for Disaster Relief (RedR). Members-in-training is a form of apprenticeship, providing practical experience in caring for refugees in disaster areas worldwide.

McElwain works as a member of the environmental group/water group at Earth Tech Canada in Edmonton. His position with RedR is a volunteer one.

RedR (Registered Engineers for Disaster Relief) recruits and trains engineers for service in disaster situations around the world, and provides training programs for workers with other relief agencies. In a typical year, more than 150 RedR personnel go on assignments in disaster zones such as Iraq, Afghanistan, and Kosovo working to restore the infrastructure essential to populations ravaged by natural and human-made disasters.

MCFARLANE, GRANT
(Chemical '93) PEng



works with Alberta Pacific Forest Industries (Al-Pac), a recipient of an Emerald Award for climate change. This award recognized Al-Pac's greenhouse gas reduction program. McFarlane is a member of Al-Pac's carbon central team

tasked with identifying and providing expertise to the company's greenhouse gas reduction initiatives.

MEYER, ART
(Mechanical '79) PEng



was recently appointed to the board of directors of the Canadian Energy Pipeline Association. Meyer is the vice president, technology with Enbridge Pipelines, where he holds leadership responsibility for engineering, gas pipeline technical services, information systems, pipeline integrity, and supervisory control systems. He is also president of the Alberta Chamber of Resources, vice chair of the CSA Oil and Gas Standards steering committee, a member of the Washington based Pipeline Research Council International, and a member of the Alberta Government Aboriginal Industry Advisory Committee.

MILLS, ROBERT F. E.
(Civil '98) PEng



was recently appointed as an associate at the Fort McMurray office of Thurber Engineering Ltd. Mills has been involved in a variety of geotechnical, environmental, and materials engineering projects. He has been with Thurber since 1998 and became manager in 1999.

MORGAN, GWYN
(Mechanical '67) PEng



has been awarded an honorary bachelor of applied technology degree from NAIT for his significant contribution to Canada's energy sector, the Calgary community, and the technical education of Canadians.

Morgan was also named one of Alberta's 50 most influential people by Alberta Venture, for his role in the energy sector. As head

of the country's largest independent oil and gas producer and the fourth most valuable company by market capitalization, he has produced stable share prices in a bear market and bottom line earnings of \$1.2 billion on sales of \$10 billion.

Morgan was rated #42 out of 200 on National Post's Business magazine's "2003 Bang for the Buck" survey. This survey applied a formula to company performance and CEO compensation variables to arrive at a CEO scorecard.

EnCana was voted most respected in corporate performance and was cited for employee development in a poll conducted by Alberta Venture magazine in 2003. The company reported strong earnings of \$1.25 billion in 2002 and increased daily oil and gas sales by 12% that year. EnCana encourages its employees to have entrepreneurial drive and provides many opportunities for professional and personal growth.

PETHER, DON
(Metallurgical '70)



was recently appointed president and CEO of Dofasco Inc. Pether is also board chair Dofasco de Mexico, and president, DoSol Galva Inc., Dofasco's joint venture galvanizing line in Hamilton. Pether also serves on the board of Dofasco Inc., Dofasco U.S.A. and Powerlasers Limited. Formerly president and chief operating officer, Pether started his Dofasco career in 1970 and held several positions in the metallurgical department, later moving through the ranks as general sales manager, vice president commercial, and executive vice president, Dofasco Inc. and general manager, Dofasco Hamilton.

PHILLIPS, ROBERT
(Chemical '71)



has been appointed to the board of directors for Macdonald, Dettwiler and Associates Ltd., an information company in Richmond, British Columbia.

Phillips is currently president and CEO of the B.C. Railway Company, formerly vice president of Husky Oil. He previously held senior positions at MacMillan Bloedel, including senior vice president of business development and strategy.

POON, TIM
(Electrical '01) EIT



received a \$10,000 Alberta Science and Technology (ASTech) Leadership Award. The ASTech Awards honour individuals who have made significant contributions to the science and technology community. Poon received the 2003 Leaders of Tomorrow Award. The ASTech judges commended him on his research, activities, and record of academic excellence.

PURCELL, GARY
(Mechanical '82) PEng



was appointed as vice president, business development for Deer Creek Energy Ltd. Purcell has more than 20 years of diverse experience in the Canadian oil business. Purcell was formerly vice president, business development at Rio Alto Exploration Ltd. Prior to that he spent several years with Suncor Energy Inc. in senior business development, planning, finance, and engineering roles.

REBEL, C. P. (KEN)
(Civil '81) PEng



joined CH2M HILL's Edmonton transportation business group in April of 2003. Since graduation Rebel has been practicing as a structural engineering consultant on major transportation projects throughout Alberta and Western Canada. Rebel is a senior structural engineer and project manager with a wide range of experience in the design and construction of new bridges and the rehabilitation of existing bridges. He is also involved in the management of the Edmonton office and is the regional design build coordinator for CH2M HILL's Canadian region.

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ROBSON, DAVID
(Electrical '61)



was named one of Alberta's 50 most influential people by Alberta Venture magazine, for his role in the technology sector. Robson is chair and CEO of Veritas DGC Inc. and winner of the 2002 Ernest & Young Entrepreneur of the Year Award.

ROGOWSKY, DAVE, DR.
(MSc Civil '80, PhD Civil '83) PEng



joined UMA as a structural engineering specialist with the transportation team in Edmonton.

Dr. Rogowsky's structural design and construction experience spans five continents and almost three decades. His primary technical interests include environmental engineering concrete structures, prestressed concrete structures and assessment, and repair and rehabilitation of existing structures.

SALLOUM, FARES
(Electrical '73)



has been appointed to the Board of Directors for Macdonald, Dettwiler and Associates Ltd., an information company in Richmond, British Columbia.

Salloom has also joined the board of directors for fSONA Communications, a leader in free space optical wireless solutions. He brings to fSONA a wealth of telecom experience.

Salloom served on the boards of directors of TELUS in Canada; IUSACELL in Mexico; CANTV in Venezuela; PRTC in Puerto Rico; CODETEL in the Dominican Republic; and the Verizon Foundation.

SCHMIDT, NATHAN, DR.
(Civil '90, MSc Civil '92) PEng



has been appointed to Golder Associates Ltd., Prairie Region. Dr. Schmidt is a senior water resources engineer in their Edmonton office. Schmidt specializes in river engineering and geomorphology, hydrology, and water management. He is registered in Alberta, British Columbia, and the Northwest Territories/Nunavut and has broad experience in the oil sands, mining, and transportation industries.

SHELLY, NEIL
(Mechanical '84) PEng



has been appointed executive director of the Alberta Forest Products Association (AFPA). Shelly held various positions in the oil and gas sector, and consulted in environmental engineering for the government of Alberta. Since joining the AFPA in 1995, he has been responsible for a wide variety of areas including energy deregulation and forest management issues.

The Alberta Forest Products Association is a private, non-profit industry organization. It represents 65 member companies involved in the production of lumber, pulp, paper, panel board and added-value wood products. Membership forms the province's third largest manufacturing sector, which generates more than \$8 billion in revenue and provides 54,000 jobs for Albertans.

SLIMMON, TOM
(Metallurgical '64) PEng



received the 2003 John Jenkins Award from the Canadian Standards Association (CSA) for his outstanding leadership and dedication in the development and advancement of pipeline standards. This award is the most prestigious honour presented by CSA.

Slimmon is with TransCanada PipeLines Ltd. as a senior materials engineer. Slimmon has demonstrated his outstanding dedication to standards through his active involvement in CSA's standards process since 1979. He has chaired a number of committees and subcommittees in CSA's Oil & Gas Pipeline Systems Program.

CSA is a membership association serving industry, government, consumers, and other interested parties in Canada and the global marketplace. A leading developer of standards and codes, CSA aims to enhance public safety, improve quality of life, preserve the environment, and facilitate trade. To help people understand and apply standards, CSA offers information, products, and training.

SLUPSKY, STEVEN
(Electrical '86, MSc Electrical '88) PEng



is founder and chief technology officer for Scanimetrix, a technology start-up that has developed a wireless semiconductor testing kit. At the 2003 Banff Venture Forum, the company was honoured for giving the best presentation, and won the Best Early Stage Company Award.

SOMJI, NIZAR J.
(MEng Chemical '85) PEng



is president and CEO of Matrikon Inc. A leading international consulting firm, the Braham Group Inc., ranked his company number 21 in the top 100 Canadian professional services organizations. This list compares the total annual revenue of Canadian information technology companies.

Matrikon also appeared in Profit magazine's annual list of the top 100 fastest-growing Canadian firms. The company has gone from 76th to 61st place.

STANFORD, JAMES
(Petroleum '60, LLD [Hon] '00) PEng



was appointed to Canada's Outstanding CEO of the Year Board of Directors.

SU, GUANING, DR.
(Electrical '71)



was appointed president of Nanyang Technological University. A previous holder of the Singapore President's Scholarship, he graduated with BSc, MS and PhD degrees in Electrical Engineering from University of Alberta, California Institute of Technology, and Stanford University respectively. Dr. Su attended post-graduate programs in business administration at University of Singapore and Harvard Business School.

Su was appointed adjunct associate professor at the Department of Electrical Engineering, National University of Singapore in 1991 and promoted to adjunct professor in 1995, teaching radar systems and signal processing. He also served in the National University of Singapore Business School teaching management of technology from 1998 to 2000.

Su is currently serving on the board of the second Singapore Telco, Starhub, and Singapore Millennium Foundation. He is also advisor to a start-up company, Bitwave Private Limited.

He was awarded the Public Administration Medal (Silver) in 1989, the Public Service Medal in 1997, the Public Administration Medal (Gold), and the Long Service Medal in 1998 by the President of the Republic of Singapore.

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



has been appointed to a task force on professional liability insurance by the Council of Association of Professional

Engineers, Geologists and Geophysicists of Alberta (APEGGA). This task force will review and make recommendations to Council on the current state of insurance coverage available to members and permit holders. It will investigate the option of establishing APEGGA or a nationally operated insurance program to provide members and permit holders with alternate ways to obtain insurance coverage. The outcomes will ensure that APEGGA's regulatory objectives are met and that risks inherent in professional practice are appropriately managed.

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



is serving as first-ever president elect for the Association of Professional Engineers, Geologists and Geophysicists of

Alberta (APEGGA). In election year 2004-05, Van Gastel will automatically become the second-ever female president. She served on APEGGA Council from 1998-2001. She chaired two Council task forces—on relevance and work place issues—

and is currently a member of the Council task forces on licensure and professional liability insurance. She also served on the Council task force on regulation of corporate practice and various other committees dating back to 1991.

Van Gastel, now retired, was EnCana's vice president of applied reservoir development, in the company's offshore and international operations division.

VERHAPPEN, IAN
(Chemical '82) PEng



has been named Fellow of the Instrumentation, Systems and Automation Society (ISA). This honour recognizes

outstanding achievement in scientific or engineering fields. Verhappen was cited for his contributions to the development and understanding of Fieldbus technology (an "open" protocol for the proper transfer and handling of process automation data). He has spent his career working to make Foundation Fieldbus truly interoperable.

Verhappen is an engineering associate at Syncrude Canada. He has been with Syncrude for more than 16 years.

The Instrumentation, Systems, and Automation Society (ISA) is a 38,000-member global, non-profit, educational organization connecting people and ideas in automation and control. The Society fosters advancement in the theory, design, manufacture, and use of sensors, instruments, computers, and systems for automation and control in a wide variety of applications. ISA is a leading technical training organization and a respected publisher of books, magazines, and standards. ISA also serves the professional development and accreditation needs of Control Systems Engineers (CSE), instrument technicians, and others within the field of automation and control.

Faculty Congratulations

LYNCH, DAVID T.
(PhD Chemical '82) PEng



has been named Resource Person of the Year by the Alberta Chamber of Resources. Dr. Lynch was selected for his tremendous

contribution in building the Engineering Faculty's capacity in technology, research, and human resources.

Dean Lynch foresaw the need to build university capacity for engineering graduates and research to address growing industry demand and enrolment potential. He rose to that challenge through a series of bold initiatives that have resulted in a major expansion of Alberta's engineering facilities,

with commitments from industry and government now approaching \$250 M. These investments will provide capacity for an additional 1,000 undergraduate and 550 graduate students, will add more than 100 research and teaching laboratories, will permit a 40% increase in engineering programs, and places Engineering's capacity within the top 5% in North America. Lynch also played a key role in securing the right to locate the National Research Council National Institute for Nanotechnology in Alberta.

ACR recognized Lynch as a leader who has built capacity, in his area of expertise, that will continue to develop and transform Alberta's resource industries for years to come.

Editors note: Due to space considerations, additional Faculty Congratulations will be published in the Summer 2004 issue.

WILKINSON, RON
(Chemical '76) PEng



has been promoted to vice president, operations and technology with Agrium. Wilkinson has more than 25 years engineering

operations and business management experience within the petrochemical industry.

WILSON, PAUL
(Chemical '70)



has been appointed to the board of directors for Coril Holdings Ltd., a private holding company. Wilson is president and

CEO of Loram Maintenance of Way Inc. in Hamel, Minnesota. Loram manufactures, leases, operates, and services railway maintenance equipment.

WINHOLD, TERRY
(MEng Civil '85) PEng



has been appointed to Golder Associates Ltd., prairie region. Winhold is senior water resources engineer in their Calgary office. He

has more than 25 years experience in the planning, design, and construction of water resources development projects. His principal areas of specialization are river engineering, open channel hydraulics and hydraulic structure design. In addition, Winhold has considerable experience in project management, contract administration, and public consultation.

Chemical

Burger, David (Chemical '67)

My compliments to David Petis and the other Faculty of Engineering staff for the success of the May 27 Calgary and Regional Alumni and Friends Reception. I found the atmosphere very congenial. I was impressed by the presentation by Dean Lynch and by the news of the new facilities and the reputation that the Faculty has built over the past several years. I am looking forward to accepting your invitation for a tour of the facilities at my earliest opportunity.

Kaupp, Doug (Chemical '86)

I enjoyed the summer 2003 edition. Keep up the great work. Here's a bit of an update.

Following graduation, I sustained myself with relatively brief stints as a consulting process engineer and as an instrumentation sales representative in Edmonton. In spring of 1990, Shelly and I moved to Lethbridge where I supported the City's process operations as the treatment plants engineer. I implemented numerous process automation projects on supervisory control and data acquisition (a computer system used to monitor and automate a plant or process), and was involved in the development of the patented biological nutrient removal process that is now used at the Lethbridge wastewater treatment plant.

1994 brought with it an assignment as water treatment plant manager and the birth of our daughter Emilee. Multi-million-dollar plant upgrades and the rewards of managing dedicated people (rather than just the pumps, valves, configuration databases, and output relays) were added to my rich experiences as a new father.

Migrated from the river valley to City Hall around Y2K (as in both the year and the project) to eventually become the water utility manager. Long-term planning, regional provision of water services, along with stakeholder involvement and local politics keep my office life plenty interesting. Thanks to the patient support of my family, I also completed an on-line MBA from Athabasca University, in June 2003.

Schmidt, Reinhard (Chemical '49)

I have been retired since 1992 and living in Kingsville, Texas. I am taking it easy and playing golf—not very well but I shot a hole-in-one in 2002.

Civil

Appelt, V.M. (Mark) (Civil '50, MSc Civil '55)

Quite by accident I came across the Spring 2000 issue of *U of A Engineer* and reread it all. The article on slide rules evoked memories of both university days and wartime training.

While I was in England with the First Canadian Survey Regiment, our training included learning to use the slide rule. In one of the early sessions, the instructor told us to move the slide so that the index was opposite the figure 2 on the fixed portion, and then to move the cursor to 2 on the slide. He asked what the result was. One member of the class said: "3.98!" This resulted in gales of laughter.

I have fond memories of a rather good "log log decitrig" (?) rule I used at U of A during my undergrad years. Sadly, I no longer have it. Its departure is shrouded in mystery.

Appelt, Felix (Civil '50)

George Ford's article in the summer 2003 issue of *U of A Engineer* brought back memories of Alex Mair, particularly as a colleague at NAIT. What I most remember about Alex is how he was called to introduce the guest speaker at awards and graduation ceremonies. While the speaker himself was often boring and pompous, Alex could be counted on to put some life into the proceedings, with his meticulous research into his subject, his unique style of speaking, and his droll humour.

Huculak, Nick (Civil '52)

Many thanks for the alumni reception at the Faculty Club (Edmonton) on April 12, 2003. It was well organized, cordial, and informative. Our class (Civil '52) had a very successful reunion last October with 26 of 42 attending. We retired engineers appreciate any opportunity to meet socially with colleagues and faculty and to keep in touch with the university. Thank you again.

Hughes, Ralph (Chemical '61, MSc Civil '63)

I know you need big awards and such. But how about Clem Demet, Ed Hughes (Mechanical '99), Rod McDaniel, Glen Robinson, Gerry Knutson (Chemical '56), etc. who created the circumstances for the awards to happen? Look below the awards. Someone helped. Often a PEng.

I have a market rule that as soon as the CEO is published as the leader in the Canadian business community, "Short The Stock" (Nortel, Bre-ex, Enron, Worldcom, King Resources, John M. King, Fund of Funds, Bernie Cornfield, Coastal, IOS International, etc). Engineers (not accountants) were often involved in the exposure of all the debacles. Think about it.

Hurst, Charles K. (Civil '37)

I appreciated the invitation to the Dean's Brunch on Saturday, October 4, 2003. Unfortunately it was not possible for me to attend.

I have enjoyed the Dean's visits to Ottawa. The alumni receptions give Ottawa graduates an opportunity to learn of the developments at the University and also to make contact with local graduates.

Although I cannot claim great academic achievements, I can say that my engineering career has provided professional satisfaction and many personal and community activities.

I started as a rodman on the location survey of the Banff-Jasper highway in 1935, then moved on to be chief engineer of Canada Public Works. Along the way I enjoyed working with many engineers from all provinces of

Alex Mair Way

The City of Edmonton has named the avenue that runs in front of the Archives in honour of Alex Mair (Civil '48). The "Alex Mair Way" is on 108 Avenue between 104 and 106 Streets. The City wanted to commemorate "one of the greatest historical storytellers of the last century". Mr. Mair passed away on September 15, 2001.



Canada and many countries. I provided engineering advice to Columbia, Venezuela, and the West Indies for CESO. Altogether it has been a great life as an engineer.

I hope the Dean will continue to pay us visits down here in the Capital City.

Irving, Glenn (Civil '53)

Mrs. Irving and I were privileged to attend the 2003 Reunion Weekend and in particular the Friday reception and the Saturday brunch.

The education I received in the course of my engineering studies provided a solid foundation on which to develop my career. I look back with fond memories and appreciation for the superb instruction we received from the faculty members, both full-time and part-time.

I wish the Faculty of Engineering continued success in the future.

Nettleton, Peter (Civil '53)

The Class of 1953 reunion and the Dean's cocktail party were great events that will always be remembered. The Faculty's hospitality and excellent arrangements were outstanding. Dr. George Ford's book, *The Sons of Martha*, will keep me busy reading throughout the winter months.

The Dean's Brunch on Saturday and tour of facilities left our class with the impression of what a great job the Faculty of Engineering is performing. David Lynch's responses to questions showed us how a competent Dean should be. His concern about students being a resource and the need to try and buffer rising fees with scholarships shows his empathy for them. Obviously, the Faculty of Engineering had quite different challenges in 1953.

Thanks again for making this such a meaningful reunion.

Otto (nee Lee), Addie (Civil '97 Co-op)

I got married on July 19, 2003 to an engineering alumnus, Darren Otto (Civil '97). We reside in Red Deer, where he has a position with UMA Engineering.

Otto, Gordon (Civil '82)

I am a proud alumnus of the Civil Engineering class of '82, who plowed head-first into the National Energy Program (NEP) and in large part moved on to other things. I went on to law school, having observed that while they'd stopped building bridges they seemed never to stop making laws. It has worked out nicely. I still chuckle a bit whenever it is suggested (generally at election time) that the NEP is all forgotten. We know better, don't we?

Whether or not one ever finds an opportunity to practice as an engineer, it is a great education and it is a profession populated by wonderful people. In my observation, engineering graduates generally prove successful at whatever they pursue, and I do not believe that is mere coincidence. There is a great deal to be said for the engineering disciplines of abundant hard work, focused study on matters of practical application, and teamwork.

It has always been a privilege and pleasure to be associated with the University of Alberta in general and the Faculty of Engineering in particular. And it is nice to stay in touch. You have a fine magazine chock-full of articles and opportunities of broad interest and appeal. Thank you and keep up the good work.

P.S. Took a cruise to Alaska, where I had great fun in Skagway riding the White Pass and Yukon Route (WPYR) railway. It is, apparently, an international historic civil engineering edifice. Not sure what that might mean, but might be interesting to research. It was built at the turn of the century at the tail end of the gold rush and operated commercially until the early '80s. After shutting down for a half-dozen years it was revived and rebuilt to accommodate the growing cruise boat trade in day excursions. One notable fact was that the WPYR pioneered containerized shipping (boat/rail) in the '50s in business of serving the Yukon.

Computer

Bhasin, Sunny (Computer '02)

With a group of other computer engineers, we have launched our first software application, which can be found at www.gradesreport.com. I'd love to share this with the magazine, and perhaps gain some publicity in the process.

In September and October 2003 I traveled to Singapore, Malaysia, Mumbai, New Delhi, Hong Kong, and San Francisco.

Electrical

Freeman, James (Electrical '89, MSc Electrical '91)

I continue to operate a management consulting business from my home office and recently completed an installation of quality assurance monitoring software for EPCOR's call centre operations in Edmonton and Calgary.

My wife Sandra and I recently moved into Rosedale in Edmonton and I am now working on new project opportunities. I had a busy summer competing in triathlons and running races. I ran the Royal Victoria Marathon in October. Sandra and I are expecting our first child in March 2004.



Smith, Kenneth (Electrical '43)

I now live in Indianapolis. I volunteer at a library, a hospital, and a museum. I retired from the RCA in 1988, where I was manager of the camcorder operation.

Su, Guaning (Electrical '71)

I made some of my best friends at the University of Alberta and thoroughly enjoyed my four-year stay, even though we had that one winter (January and February, 1969) with temperatures remaining below zero Fahrenheit for 26 consecutive days. I still have the certificate of survival from the Edmonton Journal. Some favorite memories are: first snow in October, skiing in Banff and Jasper, ice sculptures, thermodynamics class, graduation in Northern Alberta Jubilee Auditorium, Golden Bears hockey games, and skating in Mayfair Park.

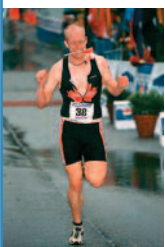
I did my MS at Caltech and PhD at Stanford. I worked on defense research most of my career before going on to management of the national defense research establishment and after that the defense acquisition and research agency.

I am currently president of Nanyang Technology University in Singapore. The university picked me for their leader after a global search. I was appointed January 1, 2003. I hope to visit Alberta some time in the future in this role. I hope to strike up a relationship in research with both U of A and Alberta Research Council (which, incidentally, has an office in Singapore).

Materials

Marcotte, Kyle (Materials '01)

I've been working as materials engineer in fuel cell development at Global Thermoelectric in Calgary. In my spare time I've been competing for the national elite duathlon team (run-bike-run). Over the last couple of years I have been competing in races throughout North America and Europe. I recently came back from Switzerland where I finished 55th at the world elite duathlon championships. It's hard competing against professional athletes who train full-time, but I find the balance of working full-time for a world leading company and racing against the world's best both challenging and humbling (especially when I get my backside kicked—which happens often.)



Mechanical

Beaubien, Matt (Mechanical '99)

I'm currently working in the Detroit area in the automotive industry for a company that does "nice" assembly work (www.performanceas.com), and living in Windsor. I've been working on a few programs, but probably the most interesting is the intake/supercharger assembly for the upcoming Ford GT. However, I've recently accepted a new job that has me working in the plastic injection molding industry in France. I will be living near Geneva, Switzerland for approximately the next three years before returning to the Detroit metro region.

Hui, Tim (Mechanical '00)

I just want to take this opportunity to thank Laurie Hanasyk and Dr. Lynch for the alumni gathering in Toronto on October 23. It was very interesting to learn of all the new developments at the Faculty. I look forward to keeping up with the advances in the Faculty in future alumni gatherings.

Learmond, Ray (Mechanical '63)

I recently completed a 25-month around-the-world sailing adventure in a 74-foot yawl. I am now looking for something interesting to do. Contact me at ray.learmond@sympatico.ca.



MacPherson, Timothy (Mechanical Co-op '96)

While my academic or career accomplishments won't make headlines, I am enjoying a fulfilling career at Syncrude Canada Ltd. as a project manager. It's gratifying to represent Syncrude at Engineering's Career Fairs and co-op student interviews at the University of Alberta.

At the beginning of 2001 I met an intriguing young lady named Ana through an international pen pal website. After corresponding for six months, I flew to Porto Alegre, Brazil to meet her in person. This may sound like a Harlequin romance, but we fell head over heels in love! Skipping to the final chapter, we got married in Brazil four months later and then returned to Canada where we are in the initial stages of living happily ever after.



O'Connell, Liam (Mechanical '80)

I am relocating to Europe for a year with NOVA Chemicals Limited. I will be based in Breda, Netherlands and will be the leader of European capital projects. NOVA Chemicals owns and operates four styrene production facilities in Europe, one near Marseille, France, one north of Paris, France, one in southern Holland and one near Manchester, England.

My role is to manage the major capital expenditures across all four sites and to ensure all projects carried out are done on time, on schedule, and within budget. The portfolio to be managed is in excess of \$40 million Euros over the next few years.

I interface with different cultures throughout Europe, as well as North America, and report to both the vice president of supply chain in Manchester, England as well as the director of central engineering in Pittsburgh, Pennsylvania, U.S.A. Project managers leading the individual projects will report directly to me.

Rumbold, Dave (Mechanical '84)

I thought I'd drop you a note and pass along my compliments on *U of A Engineer*. I think it does a great job sharing some interesting stories and making the alumni more aware of



Robert Skinner Mechanical Engineering Equipment Legacy Fund

Bernard and Monica Skinner established an endowment to purchase major pieces of equipment, specifically for Mechanical Engineering programs and labs, in memory of their late son Robert (Mechanical 1990–92).

Robert was killed in September 1992, just as he began his second co-op term during his third year of studies. He had gone hiking at Lake Louise, was caught in unexpected weather, lost his footing, and fell to his death. He was 19 years old.

Robert treated his studies seriously and would have made a good engineer, citizen, husband, and father. This fund honours his name and benefits his surviving peers in Mechanical Engineering. Donations to this fund are welcome.

the Faculty legacy etc. For example, I passed along the second-last issue to my Dad to look at a couple of the articles.

Stout, Curtis (Mechanical '86, MSc Mechanical '91)

The fall issue of *U of A Engineer* is terrific! Well done! I enjoy reading *U of A Engineer* because it is much more than a technical magazine. It is very refreshing to read about the incredible interests and experiences of people who just happen to be engineers!

Tien, S. G. (Mechanical '72)

I am happy to be a regular recipient of *U of A Engineer* and enjoy reading the many interesting articles about U of A and related matters. I graduated from the U of A in 1972 and have lost touch with many friends and classmates since then. Hopefully my short update and contact information will allow me to re-establish some communications.

I left Canada in 1972 to take up employment with Texas Instruments in Richardson, Texas and re-entered graduate school in California that fall. After completing my graduate studies, I proceeded to work for Hewlett Packard and Rolm—both in Silicon Valley—and in 1976 I took up a job in Kalimantan, Indonesia in marine engineering construction

with Bechtel/Mobile. In 1978, I was recruited into the semiconductor business and worked the following five years in materials and financial controller positions for National Semiconductor of Santa Clara but based in Singapore and Thailand.

In 1983 I had the opportunity to start Seagate Technology in Thailand and continued to live and work in Thailand for Micropolis Corp. (U.S.A.), Read Rite Corp. (U.S.A.) through 1998. I returned to Palo Alto in the spring of 1998 with Read Rite Corp. for one year to lead a tape head business unit, returning to Asia to continue working in data storage for Singapore and Thai companies based in China and Thailand from 1999 through 2002. At present I am stationed in Bangkok, Thailand, managing a Thai company in the surface mounted technology contract manufacturing business.

I hope to visit U of A next year with my family who now live in Palo Alto, California.

I can be contacted via e-mail sgtien@loxinfo.co.th or phone (661) 852-0539. I look forward to hearing from some friends and classmates at U of A.

Physics

Saville, Hedley (Engineering Physics '49)

I retired in 1986 after 30 years as an engineer at de Havilland Aircraft in Toronto. Today, I am well on my way to achieving my goal of collecting pension for as many years as collecting pay. I'd be overjoyed to hear from anyone who knew me at the U of A during my years there. Hedley.saville@tel.tdsb.on.ca is my e-mail address.



Keep in Touch

engineer.alum@ualberta.ca

Graduate's Name _____

Year of Graduation and Degree _____

Do you have a new address?

Home Address _____

Business Address _____

Organization _____

Title _____

Street _____

City _____ Province _____

Postal Code _____ Telephone _____

Fax _____

Preferred E-mail _____

What's New with You?

(Comments for possible publication in a future magazine.)

E-mail, fax or post this information to
engineer.alum@ualberta.ca
Fax (780) 492-0500
E6-050 Engineering Teaching & Learning Complex
Edmonton, Alberta T6G 2V4

The personal information requested on this form is collected and protected under the authority of the Universities Act and Section 32 (c) of the Alberta Freedom of Information and Protection of Privacy Act for the purposes of maintaining up to date records of alumni and friends and obtaining alumni feedback.

Reunio



by Katherine Irwin,
Acting Manager, External
Relations, Edmonton

Reunion 2003 brought more Engineering alumni back to their alma mater than ever before. Attendance at the annual Dean's Reception and Dean's Brunch was almost double that of previous years. As always, our Engineering alumni made up a large share of the overall Reunion Weekend attendance. More than one third of gala guests were Engineers or their partners. Perhaps our graduates have never outgrown that reputation of enjoying a good time!

To kick the weekend off, Dean David Lynch invited Engineering alumni to join him and his wife Joan for a reception at the Faculty Club on Friday evening. This proved a popular and entertaining event as alumni reconnected with their classmates and friends. Dr. Lynch warmly welcomed all alumni, then spoke briefly about the Faculty's recent successes and plans for continued growth. Although the event was scheduled to wrap up at 6:00 p.m., many guests continued socializing in the dining room and at other area restaurants.

A gorgeous sunny day greeted visitors on Saturday. One of the more popular events was the annual Dean's Brunch, for all alumni who graduated more than 50 years ago. More than 130 alumni attended Dr. Lynch's brunch this year. We will soon need larger venues to host these events!

Following brunch, many groups posed for class photos. The rest of the day was filled with Open House lectures, displays, and tours of various departments, the new Engineering Teaching & Learning Complex, and the Electrical & Computer Engineering Research Facility.

Saturday afternoon, the Faculty of Engineering co-hosted the official groundbreaking for the new National Institute for Nanotechnology (NINT). At the ceremony, Dr. Lynch explained some of the new building's special features. It will be one of the world's most technologically advanced research facilities and also the quietest space in Canada. NINT will house research space for nano-related researchers from the

Chemical and Materials Engineering and Mechanical Engineering Departments of the Faculty of Engineering.

Alumni then returned to the ETLC building for several lectures, including talks on nanotechnology and its potential impact on everything from materials design to scientific and medical research.

As always, the Saturday events wrapped up with the gala dinner and dance. Our alumni enjoyed a fine meal, followed by a video retrospective of the University of Alberta's growth since 1908. U of A

"Very well organized.

Good food.

Excellent presentations
by Dean Lynch."

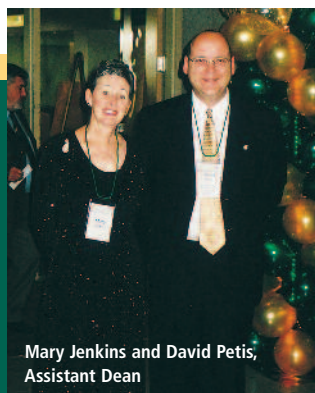
~Reunion attendee

"Loved the ETLC
displays. I liked that
the University Open House
was the same weekend (as
Reunion 2003) and seeing all
those teens with parents in tow
was precious. Brilliant!"

~Reunion attendee

Mary Jenkins — married to Jack Jenkins (Chemical '53)

"As 'wife of' I must tell you what a wonderful time Jack and I enjoyed during our first Homecoming, October 3rd-5th. It was great to renew acquaintances. We enjoyed everything so much we have already penciled in October 2008. The organization was superb, the events varied, the opportunities to meet old friends and make new ones were many.



Mary Jenkins and David Petis,
Assistant Dean

I felt it was as much my reunion as Jack's. I want to express my gratitude at being included in every activity. I would encourage all couples to return to the U of A and enjoy your traditional Alberta hospitality."

Craig Harrold (Civil '63) class organizer

"You and your staff must be exhausted. On behalf of the Civil Engineering Class of 1963, I wish to extend my sincere thanks for all your dedicated efforts over the past 18 months, in overall plans for the reunion events, and in special assistance to our particular group of fellows with our special needs. Our get-togethers were an outstanding success and the feedback I am getting is that everyone had a great time."

n2003

"A wonderful affair.
Many thanks for
a great school."

~Reunion attendee

President Dr. Rod Fraser recognized William Kent (Civil '31) as the oldest alumnus (and one of the most enthusiastic) attending Reunion Weekend. Then the dancing started—our alumni proved they have not forgotten how to kick up their heels as they enjoyed music from the 1930s to the present day.

Sunday morning, many Engineers met again with Dr. Fraser at the President's Brunch, and another successful Reunion Weekend wrapped up.

Many class organizers planned get-togethers for their classes, as a complement to events

organized by the Faculty of Engineering and the U of A. Special dinners, a few games of golf, tours of various Edmonton attractions, and other events kept our alumni busy. The Faculty of Engineering appreciates the efforts of all our class organizers to help their classmates celebrate their special year reunions. Thank you for your enthusiasm, dedication, and hard work.

To build on the success of Reunion 2003, we are already making plans for next year. Mark your calendars for Reunion 2004: Thursday, September 30 to Sunday, October 3, 2004. A key component of Reunion 2004 will



Sheldon (Bob) Comfort (Mining '33)
demonstrates alumni pride at Reunion 2003.

be the official opening of the Markin/CNRL Natural Resources Engineering Facility. We invite all of our alumni to celebrate with us.

Alumni and Friends Events

By Laurie Hanasyk, Manager, External Relations, Calgary

Toronto Regional Alumni and Friends Reception

On October 23, 2003, alumni host Don Pether (Chemical [Metallurgical] '70) welcomed more than 40 fellow alumni and guests to the third annual Toronto Alumni Reception held at the prestigious York Club. Everyone in attendance enjoyed the opportunity to hear about the changes on campus as well as to meet old and new acquaintances living and working in the Toronto area.

Victoria Regional Alumni Tea

Dr. David Lynch and Engineering's External Relations staff David Petis and Laurie Hanasyk flew from snowy Alberta to Victoria, and their trip was eventful to say the least. A snowstorm in Calgary caused a domino effect of flight cancellations, stand-bys, delays, and late arrivals.

Fortunately all eventually made it safe and sound to the second annual Victoria alumni event, held on October 29, 2003 at the beautiful Hotel Grand Pacific. Victoria alumni Host Ed Chwyl (Chemical '65, MSc Civil [Petroleum] '68) did a fabulous job entertaining more than 30 alumni until the Dean and his staff arrived.

Vancouver Regional Alumni and Friends Reception

The sunny weather showcased the spectacular views of the harbour from the 34th floor of Vancouver's Hyatt Regency. Alumni host Robert (Bob) Spencer (Chemical [Mining] '48) welcomed more than 55 guests to the third annual Vancouver alumni reception held on October 30, 2003. Those in attendance enjoyed the opportunity to reminisce with fellow engineering alumni who live and work in the Vancouver area.

During all of these alumni events, Dr. Lynch spoke about the tremendous growth of the Faculty, the opening of the new Engineering Teaching and Learning Complex and the Electrical and Computer Engineering Research Facility. He also mentioned the ground breaking for the National Institute of Nanotechnology on October 4, 2003 and the construction of the new Markin/CNRL Natural Engineering Resources Facility. This facility will support natural resources engineering programs by providing modern instructional facilities for undergraduate and graduate students.

Thanks to everyone who joined us at the Toronto, Vancouver, and Victoria alumni events.

CEA/AT/ARHCA Transportation Conference

The Consulting Engineers of Alberta (CEA), Alberta Transportation (AT), and the Alberta Roadbuilders and Heavy Construction Association (ARHCA) host their annual Transportation Conference on March 15 and 16, 2004. Topics include safety, environment, bridges, innovation, special projects, and more. This conference will be of interest to project managers, supervisors, principals, and municipal representatives. Expected attendance is between 350 and 450. For further information contact CEA at (780) 421-1852.

Cold Regions Engineering - 12th International Specialty Conference

The International Winter Construction Symposium and Expo, in partnership with the Canadian and American Societies of Civil Engineers, provides a forum for technical and specialty publications and for industry presentations in Edmonton, May 16–19, 2004. On the general theme of doing business in the cold, topics will include infrastructure, site restoration, ice and snow engineering, permafrost engineering, environmental engineering, hydraulics and hydrology, manufacturing, power generation, and much

more. For further information on research and technical presentations contact Dr. Daniel Smith, Department of Civil and Environmental Engineering at (780) 492-4138. Go to www.iwcse.com for registration information.

Discover E Science Camps

Discover E Science Camps for children and youth, ages 8-18, are held in July and August. Go to <http://discovere.ualberta.ca> for further information.

Editor's note: *U of A Engineer* is looking for alumni who have participated in Discover E camps, perhaps as instructors or as parents of children who have attended. This is for an upcoming article. Please contact sherrell.steele@ualberta.ca if you would like to participate.

International Smalltech Conference (COMS 2004)

The ninth annual international microsystems and nanotechnology conference will take place in Edmonton August 29–September 2, 2004. The conference will bring together 400 leaders from the micro- and nanotechnology industries worldwide. For more information contact Leigh Hill, Cluster Program Manager (780) 424-9191 Ext 642.

Metallurgy China 2004 and Metal Asia 2004

The China International Metallurgy Industry Expo and the Asian International, Foundry, Forging, and Industrial Furnaces Exhibition will take place June 8-11, 2004 at the New International Expo Centre in Shanghai, China. Go to www.hfcanada.com for further information, or call toll free 1-800-727-4183.

Spring Convocation

Spring Convocation for Engineering graduates will take place June 3. For further information, contact Corrine Callihoo at (780) 492-2376.

Alumni Events

Alumni Reunion Days

The University of Alberta will host Reunion Days September 30–October 3, 2004. The Dean's reception will be held October 1. The Dean's Brunch, Engineering Open House, and Dean's Forum will be held October 2.

Calgary Regional Alumni and Friends Reception

Calgary and area graduates are invited to an alumni reception on May 11, 2004, from 5:00-7:00pm. Go to www.engineering.ualberta.ca/alumni for further details.

Edmonton Alumni Reception for Mechanical Engineers

Mechanical Engineering graduates who reside in the Edmonton area are invited to an alumni reception at the Faculty Club in Edmonton on April 20, 2004, from 7:00-9:00pm. Go to www.engineering.ualberta.ca/alumni for further details.

Fort McMurray Regional Alumni and Friends Reception

Fort McMurray graduates are invited to an alumni reception on April 13, 2004, from 7:00-9:00pm. Go to www.engineering.ualberta.ca/alumni for further details.

Markin/CNRL Natural Resources Engineering Facility Grand Opening

The Faculty of Engineering will officially open the Markin/CNRL Natural Resources Engineering Facility on October 1, 2004. Watch for further details in future issues of *U of A Engineer*.

Faculty of Engineering
 University of Alberta
 E6-050 Engineering Teaching
 & Learning Complex
 Edmonton, AB T6G 2V4

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University of Alberta ENGINEERING

Patrick Kent Memorial Fund



Family and friends of Patrick Kent (Mechanical '86) have established a memorial fund to build the Patrick Kent Memorial Drilling Lab in the new Markin/CNRL Natural Resources Engineering Facility.

On October 3, 1998, Patrick Kent was tragically murdered while working on an oil lease north of Calgary for his company KB Resources Ltd.

Total contributions to date are \$40,700 with the ultimate goal of \$250,000. The Class of '86 Mechanical Engineers

as well as industry have given generously to this fund, but more is needed. For further information go to www.engineering.ualberta.ca or contact:

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 Tel: 780.492.5080
 Fax: 780.492.0500
 e-mail: david.petis@ualberta.ca



I wish to make a gift of:

\$100 \$250 \$500 \$1,000 Other \$ _____

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

_____/_____/_____/_____/ expiry date: _____

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, 2002 and have already given \$200 elsewhere, your combined income tax savings will be:

Your donation to the U of A	\$100	\$250	\$500	\$1,000	\$2,500
Your tax savings for your gift:	\$41.75	\$104.38	\$208.75	\$417.75	\$1,043.75

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