



New chair

Engineering professor Ray Gosine has been named to a new C-CORE-sponsored chair in harsh environments research.

Speaking at C-CORE on Feb. 16, President Meisen announced that Gosine will hold the Dr. J. I. Clark Chair for Operations in Harsh Environments, effective March 2001.

Gosine is a professor in electrical and mechanical engineering at Memorial and a researcher in intelligent systems with C-CORE since 1994. A MUN engineering alumnus, Gosine got his PhD from Cambridge University in England. His work in telerobotics, machine vision and pattern recognition has led to an extensive range of collaborative projects with industry, where intelligent systems support development in harsh environments and in applications where production or processing is not feasible for humans.

With its obvious applications for oil and gas development in Newfoundland's challenging offshore, the appointment is

New chair *see page 9*



The future's so bright: Memorial president Axel Meisen, James Lamb and Brad Bechtold of Landmark Canada, and industry minister Sandra Kelly view the 3-D software.

A Landmark deal

What does the U.S. vice-president have to do with Memorial's Oil and Gas Development Partnership?

In October of 1999, Dick Cheney, then-CEO of the Halliburton Group of Companies, announced that Landmark Graphics would give Memorial a 3-D software grant valued at \$13.5 million. That promise was honoured in November when the Dallas company presented a complete integrated software package to MUN's Department of Earth Sciences and Faculty of Engineering and Applied Science.

The leading supplier of integrated E&P technical and economic software and services in support of decision making about finding, drilling, and producing oil and gas, Landmark is a subsidiary of Halliburton Company, the world's largest energy service and equipment, engineering, construction and maintenance company. The specialized petroleum exploration and geosciences computer software enables researchers to create virtual reality images of the

extensive amounts of seismic and geological data which characterize oil and gas reservoirs.

With additional support from the Canada Foundation for Innovation (CFI), Memorial will build an advanced visualization center, or Decisionarium, to host the software. The donation is expected to augment student and professional training in the area, and lead to improvements in the region's drilling programs, reservoir management, and offshore safety. Mastery of advanced visualization techniques will place Memorial graduates amongst the best-educated specialists in the world.

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Message from the dean

How do we empower the engineering and applied science enterprise in a university setting while staying cognizant of the needs and expectations of stakeholders?

Clearly, the focus of engineering practice is society – that is, social needs and expectations provide the impetus for technological innovation and business opportunities. Engineering education has always had expectations of both an educational and an entrepreneurial nature. Neither fish nor fowl, we are both educators for a professional field and innovators – a worthy challenge that benefits many layers of society when effectively carried out.

What, then, can we make of a recent report by the Fraser Institute which urges Canadian universities to consider a more “performance-based approach”?

According to this group, universities ought to replace tenure with renewable, incentive-laden contracts to attract and retain high calibre talent; evaluate teaching and research separately and objectively; and implement reasonable collective agreements (my interpretation). In a buyer’s market for academic personnel, the Fraser Institute claims that a merit-based system would encourage greater drive, imagination and productivity while curbing the brain drain.

Given the prevailing academic culture and diversity within Canadian universities, a more moderate approach may be appropriate. As important as research is to the academic culture of the university and to the development of faculty members and students, universities should not be a community of scholars locked away learning. We need to be responsive to the larger community, province and nation by focussing on meaningful educational, professional and entrepreneurial outcomes. Communicating the benefits of interdisciplinary and liberal education in an era of increasing specialization is a challenge, but one that engineers must undertake to preserve the integrity and relevance of the profession.



R. (Sesh) Seshadri



Skiing for survival



In February engineering professor Dr. Siu O'Young joined his kayaking friends Peter Armitage and James Youden on a ski-trek across the Avalon Peninsula to celebrate Armitage's second anniversary of cancer survival.

The group erected a small cairn in the centre of the peninsula as a monument to everyone who faced cancer, including O'Young's own father and uncle.

The group plans to do it all again in February of 2004.

The trio departed from the St.

Mary's/Gaskiers area on February 9 and emerged four days, 70 kilometres, two snowstorms, and a lifetime later in Cape Broyle. Relying on their survivalist and winter camping skills, the group survived blowing snow, limited visibility, ice pellets and freezing rain.

Navigating the barrens of the Avalon Wilderness Area using compass and GPS, O'Young and his companions witnessed evidence of caribou, moose, fox, ptarmigan, snowshoe hare, and many other species.



Commonwealth education ministers visit

Sixteen education ministers and officials from around the British Commonwealth visited Memorial's St. John's campus last fall.

Representing Seychelles, Bangladesh, Tanzania, Nigeria, Lesotho, Dominica, the U.K., St. Vincent and the Grenadines, and Zambia, the ministers were in the area for the "Educational Diversity and Collaboration in Newfoundland and Labrador" pre-conference workshop, held in conjunction with the 14th Conference of Commonwealth Education Ministers taking place in Halifax, Nova Scotia, Nov. 25-27.

The province's Council for Higher Education organized the pre-conference workshop to showcase Newfoundland's solutions to its secondary and post-secondary challenges, and to build relationships in the area of international exchanges and development.

On campus, the ministers were treated to tours at the Health Sciences Centre, Student Affairs and Services, the Marine Institute, and Engineering, where guests were ushered through the INCA Centre and OERC facilities, and watched the action at the Manufacturing Technology Centre.

Professor M. Chanda from the University of Zambia reported he was impressed by the facilities. "Engineering is not a subject you teach only in the class; you need some practice as well. So I'm impressed with what you have here, and I think this is what leads to a good, solid engineering degree."

Hon. Dr. Herbert Sabaroche, minister for education, science and technology in Dominica, summarized, "You have technology that can revolutionize the world."

It's a small world, after all

So you think this winter's driven you crazy?



Abdullah al-Ghamdi

A cell biologist from the Saudi Ministry of Defense and Aviation medical services corps, Abdullah al-Ghamdi is part of a group of professionals taking the advanced diploma in environmental engineering from Continuing Engineering Education. A native of Saudi Arabia, where the temperature this time of year hovers around the 30 degree mark, al-Ghamdi and his family – wife Sabah and children Haifa (8), Asalah (6), Sara (4), and Mohammed (2) – moved to St. John's last September from Riyadh.

Like most Newfoundlanders who move away, al-Ghamdi doesn't hesitate to reply when asked what he and his family miss most about their home. "Our relatives," he said. The thirty-two year old has six sisters and a brother, and keeps in contact with his mom and dad by phone and email.

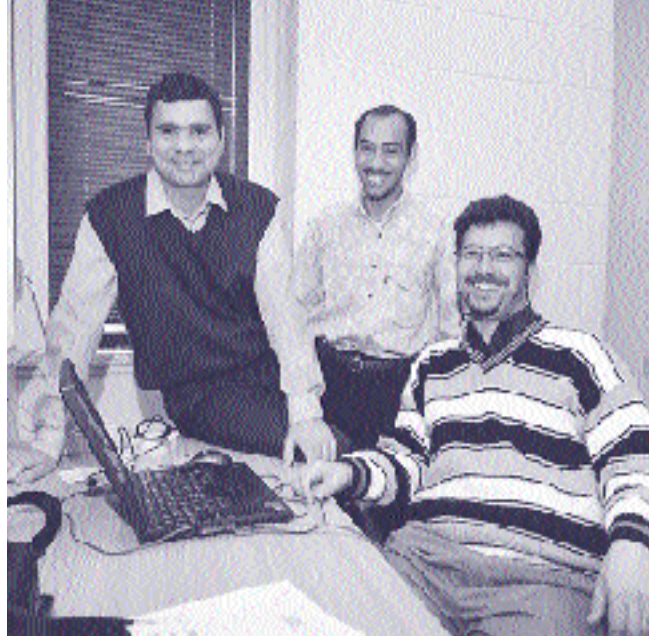
Mrs. al-Ghamdi comes from a large extended family, too, and might have felt the distance most acutely just three months ago when she gave birth to her fourth daughter, Remaa, at the Health Sciences Centre in St. John's.

The al-Ghamdis' school-age children attend McDonald Drive Elementary School where, their dad says, they have made many friends. But they miss the more plentiful entertainment opportunities in Saudi Arabia, where the 50-70 malls are more than places of commerce – they're events.

So in a move that's strikingly similar to their Newfoundland neighbours, the family is planning a trip for the end of the semester – a trip to Disney World.



Four of the five al-Ghamdi children enjoying the St. John's winter.



Continuing Engineering Education welcomed a group of students from Libya in January. The employees of Rasco Oil Company are taking CEE's certificate programme in Electrical Maintenance for Engineers. Pictured here: Adel Arebi Halab, Ezzeddin Ali Gamoudi, and Mohamad Elbashsir Elbush.

Setting the standard



Jordaan

As Memorial's relationship with offshore oil and gas production systems like Hibernia and the Terra Nova FPSO deepens, so, too, does faculty involvement in elements of the infrastructure required to make such projects successful. A member of the Canadian Standards Association — the not-for-profit association which develops criteria for development and certification activities within Canada, Dr. Ian Jordaan lends his expertise as both vice-chair of the Strategic Steering Committee for Offshore Structures (chaired by Greg Lever of Petro-Canada), and as a member of the technical subcommittee on general requirements and design criteria. His colleague, Dr. Hesham Marzouk, works with the subcommittee on offshore structures, as does Dr. Richard McKenna, director of ice engineering at C-CORE. Jordaan said it's significant to notice the shift in recent years from a western- to eastern-Canadian focus. "CSA emphasizes the local, so this is the place to be." The CSA annual general meeting will be held in St. John's this June.

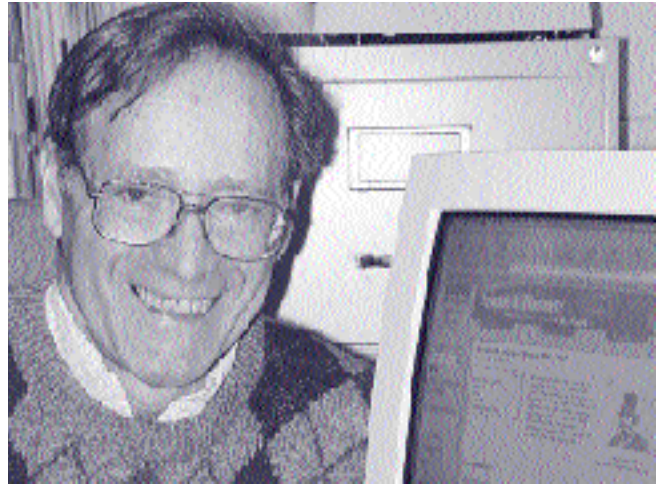
ITTC meets

An international group of experts met at Memorial in November to discuss the latest developments in marine propulsion. The Propulsion Committee of the International Towing Tank Conference (an ITTC technical subcommittee) gathered for three days of meetings in the Engineering Building.

Hosted by ocean and naval architectural engineering professor and Canadian representative Dr. Neil Bose, the group was comprised of chair Stu Jessup from the David Taylor Model Basin in the U.S.A.; Alex Pustohny from the Krylov Institute in Russia; Christian Dugue from Bassin d'Essais des Carenes in France; Yasushi Shirose from IHI Ltd in Japan; Jan Holtrop from MARIN in the Netherlands; Friedrich Mewis from Hamburg Ship Model Basin in Germany; and Pier Giorgio Esposito from INSEAN in Italy. (Jin-Tae Lee, representing KRISO in South Korea, was absent from the event.)

The purpose of the gathering was to discuss model testing methods for marine propulsion to ensure reliable predictions at full scale. Of particular interest was the predictability of power from podded propulsors – electric

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Dr. Ross Peters

Of mice and pen

Dr. Ross Peters got a surprise in December when his Web-posted lecture notes received attention from an unusual source.

Peters teaches an undergraduate course, 'The Engineering Profession', in which he uses great engineers from history as inspiring professional examples. Since 1997, he has been supplementing the course with Web resources, including lecture notes and helpful links to further readings.

One of his examples was British engineer Isambard Kingdom Brunel (1806–1859), best remembered as the

designer of the Great Eastern, the steamship that laid the transatlantic cable from Ireland to Newfoundland. Peters said students find the local connection interesting, while the professor himself admires the late engineer's drive to innovate and to accept professional, personal responsibility and risk.

Someone else was interested in Brunel, too. Just before Christmas break, Peters got an email from a BBC History Online assistant producer, who explained that she had found his lectures online and wanted to commission him to write an article. The paper was to be posted on the BBC site in support of a broadcast documentary about Victorian engineers, which aired in January in the U.K.

The modest professor was surprised – not by the fact that an audience outside of his student had read his material, but that the BBC had found his course notes sufficiently worthwhile to warrant a paid article – but finished the commission by deadline. His article appears online at http://www.bbc.co.uk/history/discovery/bypeople/brunel_01.shtml.

NECEC 2000

Over 130 students, faculty, electrical and computer engineers and other professionals attended the 10th annual Newfoundland and Electrical and Computer Engineering Conference, NECEC 2000, in St. John's in November.

Hosted annually by the Newfoundland and Labrador section of IEEE – the world's largest technical professional society – and co-sponsored by Memorial's Faculty of Engineering and Applied Science, the forum was an opportunity for the growing technical community within the province to share ideas on technical concepts, innovations, and implementations happening within the region.

Keynote speaker Dr. Tom LeFeuvre, director general of the Institute for Marine Dynamics (IMD), provided an overview of the federal research agency and its institute on the Memorial campus during his keynote address on NRC, IMD and Ocean Engineering. Outlining NRC's plans to assist in the development of a St. John's-based ocean engineering technology cluster, LeFeuvre said the plan is to link entrepreneurs, r&d institutions and technology-intensive firms to facilitate the network's ability to compete globally. He reported that NRC proposes to expand its research mandate through the development, in

NECEC see **page 9**

WISE women at MUN

MUN Engineering alumna Jane Kieley, in her role as president of WISE (Women in Science and Engineering) Newfoundland and Labrador, presented cheques to Sarika Wadhawan and Rhonda Chaytor in November. The two undergraduates won the first Nortel Networks/Women in Science and Engineering Scholarships, valued at \$5,000 each over two years.

Chaytor, a third-year computer science student from Spaniard's Bay and Wadhawan, a Term 6 electrical engineering student from St. John's, were selected from an impressive group of applicants for the awards, which are designed to reward scholastic excellence and encourage young women in these fields by providing financial support.

Wadhawan has contributed to a variety of community activities on her work terms, including Habitat for Humanity and the Hurricane Floyd relief efforts (in North Carolina), as well as the Society of Women Engineers and the Young Multicultural Women's Organization.

Chaytor is an active participant in science promotion to high school students, a university math tutor, and a contributor



(L-R): Jane Kieley, Rhonda Chaytor, Sarika Wadhawan, and Rolly Card

to Health and Community Services, the Canadian Paraplegic Association, and Memorial University residence and church activities.

Rolly Card, sales account manager – Atlantic Canada, Nortel, said his company was delighted to contribute in this manner since Nortel hires a lot of MUN graduates, particularly from engineering and computer science.

Applicants for the scholarships had to be female full-time students at Memorial in either third year Computer Science or Term 6 Electrical or Computer Engineering with a background of academic excellence, leadership qualities, involvement in student affairs and community activities, and an interest in science and engineering promotion.

IEEE generosity



Doug Squires of IEEE and Dean Seshadri.

In December, Memorial's engineers received \$15,000 for an endowed scholarship from the Newfoundland and Labrador section of IEEE – The Institute of Electrical and Electronics Engineers.

The endowment allows the faculty to give an additional \$1000 scholarship annually to a full-time undergraduate student in Term 3 of the electrical engineering or computer engineering program at MUN.

IEEE also gave another \$1000 so that the award could be given out as soon as possible, beginning with this year's winner, Mr. Sheldon Andrews of St. John's.

Criteria for the new scholarship include academic scholarship standing and activity within and contributions to the IEEE stu-

dent branch. Candidates for the award submit a one-page letter describing their IEEE involvement, professional goals, and student activities in the areas of electrical and/or computer engineering. A student may not hold the scholarship more than once.

Doug Squires, a retired electrical engineer and treasurer of the Newfoundland and Labrador section of IEEE, said, "IEEE has always been very active in supporting electrical and computer engineering students at MUN because we have a lot of interest in what they do. We fund an undergraduate scholarship for a Term 6 student, as well as an awards night for Term 8s, and we also have a special recognition award given at convocation. So yes, we value these students, and we do what we can."

Down to earth

The European Space Agency announced the award of a \$1.3 million contract to C-CORE to implement Phase III of the Harsh Environments Initiative (HEI) in February. Federal Industry Minister Brian Tobin, Premier Roger Grimes and European Space Agency representative Dr. Pierre Brisson headlined the event.

Launched in 1997, the Harsh Environments Initiative is an international network to identify, transfer and adapt technologies developed by European and Canadian space agencies into terrestrial and marine environments. These technologies span diverse projects, including satellite monitoring of pipelines on slopes, remote robotic mining operations, and automation of inspection tasks in sawmills, among others.



Mining telerobots in action at C-CORE

Speaking to an audience of industry and academic leaders as well as space agency partners, Minister Tobin said C-CORE's provision of opportunities for graduate research to students of Memorial University helps make Canadian companies more innovative and competitive in the global marketplace.

The focus of the Harsh Environments Initiative is on industrial operations in the economies of Canada and Europe,

especially oil and gas and mining, both of which undertake operations in inhospitable terrestrial and marine environments. Industries operating in harsh or geographically -remote terrestrial and marine environments face major challenges, such as minimizing costs and environmental impact while ensuring human safety.

Excerpted from an article that appeared in the Feb. 22, 2001, Gazette, by James O'Brien.

Anniversary marked

The annual candlelight vigil commemorating the anniversary of the murders of 14 female engineering students at L'École Polytechnic in Montreal was held on Dec. 6 in the Engineering Building.

The Vigil to Commemorate the 1989 Montreal Massacre and to Recognize Canada's National Day of Remembrance and Action to End Violence Against Women began with a candlelight procession that included representatives of student organizations, and was followed by guest speakers addressing their experiences of working in our community to prevent violence against women.

Hot wheels

Engineering students Gilles Gardner and Matthew Calvin test drive Formula MUN's entry for an international university-level design competition on formula-style race cars. The team travels to Pontiac, Michigan in May, and is actively seeking sponsorships from alumni and corporations. Faculty advisor Yuri Muzychka invites everyone interested in tracking the team's progress to visit the Web site: www.engr.mun.ca/~raceteam/.



Fair winds

Term 2 engineering student Blair Vincent advances his boat during the recent Ship Shape and Bristol Fashion boatbuilding competition held in the Engineering Building. The aim of the competition, organized by the Society of Naval Architects and Marine Engineers, Canadian Atlantic Section, was to create a vessel that could carry a load of pop cans the length of a trim tank – a distance of 1.5 metres. About 40 students and professors constructed 9 boats from a single piece of bristol board for the event. The student group is discussing hosting a regatta during the summer.



“Engineering is the business of technology. It makes little sense to carry out engineering research without an understanding of the application.”

—Dr. Ray Gosine, associate professor of electrical and computer engineering, Dr. J. I. Clark Chair for Operations in Harsh Environments, director of Intelligent Systems

Frequent flyers



Sharp with a ‘friend’ in Sarawak.

Malawi, Brunei, the Philippines, Singapore, Hong Kong, Malaysia, Indonesia, and Saudi Arabia. Both Sharp, a native of Glasgow, Scotland, and Lye, of Sabah, Malaysia, see a great deal of potential in Memorial’s ability to become a provider of choice for overseas engineering students. More information about the Second World Engineering Congress is available at: <http://eng.upm.edu.my/wec2002/>.

Drs. James Sharp and Leonard Lye have been invited to the International Advisory Committee for the Second World Engineering Congress, to be held in Kuching, Sarawak in 2002. The appointments recognize the considerable background both have cultivated as consultants and advisors to the region – Sharp as a visiting professor and external examiner to several universities, and Lye as the project leader of Memorial’s graduate program in water resources for Indonesian engineers. The two professors have taught around the globe, in



Lye with students at the University of Malaysia.

Landmark *cont'd from page 1*

At the press conference, Sandra Kelly, minister of Industry, Trade, and Technology, drew on her own experience in visiting a similar facility in Norway to express her appreciation for the donation.

President Meisen said the award marks another significant step for the university down the path to creating a bright future in teaching and research related to oil and gas.

Brad Bechtold, Landmark Canada's east coast account manager, noted that his company is also pleased by the connection with a university on Canada's east coast, and said the company is dedicated to expanding their presence in the region.

Engineering dean Dr. Rangaswamy Seshadri and Earth Sciences department head Dr. James Wright agreed the software will augment both existing and new programs, providing an excellent base on which to build the technological aspects of the new oil and gas strategy. "We plan to use the Landmark software extensively in teaching and research," Wright said, "and particularly with the established research and training partnerships between the petroleum industry, our own Centre for Earth Resources Research, and our affiliate Memorial University Seismic Imaging Consortium (MUSIC)."

ITTC *cont'd from page 5*

motors driving propellers from pods attached below a ship hull. The group determined that model tests are required for both the hull and podded propulsor together, as well as on the pod and propeller alone, in order to measure the thrust of the units independently and account for interaction and drag when bolted to a ship.

This was the second of four meetings the subcommittee will have over their three-year term that commenced in September of 1999. They also reviewed progress on other ship propulsion issues, especially the physical limits of very large propellers (over 10 metres in diameter, weighing over 100 tonnes) used in supercontainer ships.

Dr. Bose said it was a privilege to host the meeting in St. John's, reporting that the other meetings scheduled are set in world centres such as Rome, St. Petersburg and Yokohama. It was also an opportunity to showcase the facilities, including IMD and Marine Institute, and Bose said the marketing element cannot be overlooked: "Showing everyone that the facilities here are just as good or in some cases better than any internationally was an important step and a surprise to a few."

The group meets again to renew their discussions in June.

NECEC *cont'd from page 5*

co-operation with the MUN Genesis Centre, of an ocean engineering incubator facility at IMD, which will include a young entrepreneur program and community integration support.

Luncheon speaker Dr. Peter Simpkin of IKB Technologies drew on his experience as a conference organizer to talk about the planning stages of an NECEC electrical day, and also called attention to the presence of Dr. Bill Vetter, an originating member of the NECEC committee and retired engineering faculty member, who returned to Newfoundland for the event.

In addition to Memorial University, IMD and IKB, this year's conference included representatives from Aliant, Newtel, CISCO, Newfoundland and Labrador Hydro, Newfoundland Power, and Group Telecom.

New chair *cont'd from page 1*

seen as another step toward full implementation of Memorial's Oil and Gas Development Partnership, launched last fall.

Dr. Meisen said the engineering professor is an excellent choice for the position, and credited Gosine's research with laying the groundwork for future r&d successes in mining, aquaculture, fisheries, forestry, and oil and gas industries. The winner of several other prestigious honours, including a President's Award for Outstanding Research, a Petro-Canada Young Innovator Award, and an Early Achievement Award from APEGN, Dr. Gosine said his role as chair will be to provide a basis for undergraduate and graduate students to become involved in international research activities and to develop interests and expertise that lead into opportunities for technology careers – including a growing number of opportunities at home.

In collaboration with a junior chair to be established, the new position will reinforce the position of Memorial University and C-CORE as leaders in intelligent systems research and development, while supporting the growing number of Newfoundland technology companies that actively develop intelligent systems technologies.

Dr. Clark, after whom the chair is named, is an accomplished contributor to geotechnical engineering who originated the Harsh Environments Initiative and the Intelligent Systems group during his tenure as C-CORE president (1984-1997).

The announcement makes the seventh cross-appointment between the Faculty of Engineering and C-CORE.

Helping high-tech success

It began with a concept. Four Memorial students had an idea to take one of the group members' engineering research projects – the technology required for multi-robotic systems – and develop it as a commercial opportunity. The group was convinced that the application of the technology could have considerable market potential in harsh environments such as underground mining where there is a need to make operations safer and more efficient.

For graduate engineering students Jamie King, Lloyd Smith and Mike Wrinch, and MBA candidate Brad Suter, the dream became reality when Dr. Ray Gosine, an engineering professor and director of intelligent systems with C-CORE, suggested that the group contact the Hubert W. Kelly Memorial Chair in Youth-focused Technological Entrepreneurship in the Faculty of Business Administration. The chairholder, Dr. Bob Richards, had been actively meeting and working with students interested in new technology ventures well in advance of his position's formal start date (April 2000), and, upon meeting the students, was convinced of their potential. Acting as catalyst for burgeoning business ideas by connecting youth with campus resources like C-CORE, the Genesis Group, and the Faculties of Business Administration, Engineering, Medicine and Science, Richards provided the group with the



(L-R) Intrignia members Lloyd Smith, Jamie King, Brad Suter and Mike Wrinch at the MINExpo 2000 in Las Vegas, Nevada.

technical advice and support and business development expertise it needed. By mid-February, Intrignia Solutions was incorporated and had a board of advisers consisting of Drs. Gosine and Richards and Dr. Siu O'Young, director of INCA. Since then the company has come a long way. Showcasing at last year's MINExpo, the premier technology showcase for the international mining industry in Las Vegas, confirmed their hunch about the demand for their technology. In fact, no other company in the world is developing technology to service high harsh environments. Moreover, while the technology behind the movement of a single robot is relatively simple, the complexity increases exponentially as more robots are used. Intrignia's advantage is its ability to interact six robots.

Taking this technology to the market place is where Dr. Richards fits in, and the young entrepreneurs are grateful for his support and assistance, commending him as honest, unbiased, wise

and indispensable. For his part, Dr. Richards sees Intrignia as representative of an impending wave of start-up companies arising from the university environment, and an excellent example of the innovative thinking and entrepreneurial energy resident here.

"A research university is a cauldron of ideas," Richards said. "On any day of the week, untold numbers of commercially viable technologies and innovations are on the laboratory tables, or in the inventive heads of students and faculty. The challenge is to provide the navigational devices that connect potential entrepreneurs, at the very early stages of invention, with the many human, material, technical and financial resources available to help them.

He added, "Remember the name: Intrignia is one brilliant tip of a very large and multi-faceted star."

Excerpted from an article which appeared in the Dec. 14, 2000, Gazette, by Megret Yabsley.

Entrepreneurship, innovation, and navigation

BY BOB RICHARDS

Entrepreneurship is an observed phenomenon: we can witness the launching of enterprises, the taking of risks and the commercialisation of ideas; but we know little about why entrepreneurs behave as they do, when they do.

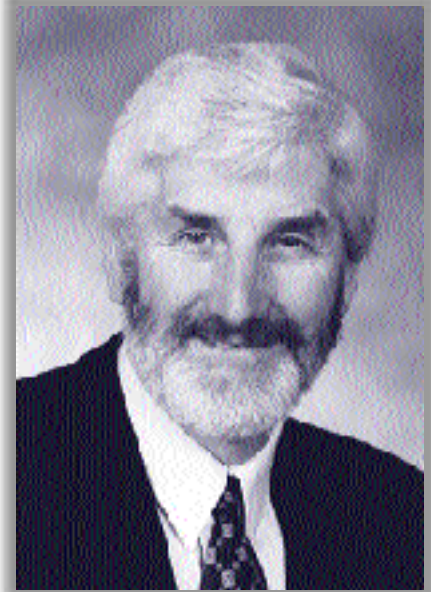
As the Hubert W. Kelly Memorial Chair in Youth-Focussed Technological Entrepreneurship (an initiative between NSERC, SSHRC, ACOA, The Crosbie Foundation, John Kelly and the combined faculties of Business, Engineering, Medicine, and Science), my goal is to increase the quantity, quality and success of venture-taking behaviour among technologically-competent, potential entrepreneurs by building supportive models, curriculum, cultures, and environments at Memorial University; and, in so doing, to maximize the entrepreneurial capability and spirit of students, faculty, and researchers.

To this end, we will launch (in collaboration with the P. J. Gardiner Institute for Small Business) the Enterprise and Entrepreneurship Gateway in September 2001. A mechanism to bridge the gap between the needs of potential entrepreneurs at the seminal stages of enterprise development, and the various resources, programs and agencies which already exist to meet those needs, the Gateway will function as a common point of entry for entrepreneurs at the idea stage of their enterprise – well in advance of when they would be visible to, or aware of, supportive agencies and programs in the academic and community environment.

Linking entrepreneurs with business coaches, the Gateway will assist clients in navigating the resources required to support their idea. Clients can then sharpen that idea into an enterprise plan, and get connected with the most relevant aid, be that the commercialization resources of The Genesis Group, a financial agency like ACOA, technical support from C-CORE and the National Research Council, or business support agencies such as the Canada Newfoundland Business Centres. The Gateway is catalytic in connecting the right client with the right resource at the right time, and is vital because, while there's no shortage of entrepreneurial resources in Atlantic Canada, the pathway to those resources is often unclear. The relationship between Intrignia Solutions and the Chair is one example of what can happen when technical ability and entrepreneurial spirit is provided navigational assistance.

The entrepreneur is someone with a high capacity for imagination, flexibility, creativity and innovation – someone willing to think conceptually and to see change as opportunity. Some entrepreneurs have a high tolerance for risk and a dogged optimism about both the world and their right to succeed in it. But too often, potential entrepreneurs struggle to reach their kindling point, and bright ideas flame out before finding concrete expression. The incubation of ideas and the fertilizing of innovation require supportive frameworks, intentional structures and a clear understanding of the phenomenon. Since latent entrepreneurship exists in abundance, our task is not to create entrepreneurial DNA, but to stimulate into action what is already here.

Dr. Bob Richards is the Hubert W. Kelly Memorial Chair in Youth-Focussed Technological Entrepreneurship. Co-founder, CEO, and former president of Genesis Organic Inc., he has been involved in the formation of five businesses and, in 1994, was named Newfoundland and Labrador Entrepreneur of the Year by the P. J. Gardiner Institute.



Centrepiece



As Minister of Industry, I am pleased to draw attention to the important role that Atlantic Canada continues to play in building an innovative Canada equipped to take on the technological and economic challenges of the 21st century. We are confident that we will meet them as we prepare ourselves to succeed in the new, knowledge-based economy.

The Government of Canada is keenly aware of the challenges and opportunities in creating an innovative economy. A key element of our strategy to capture the benefits of innovation for all Canadians is investing in research and knowledge and, in particular, strengthening Canada's capacity for innovation. We want Canada to be one of the top five countries for research and development. As its contribution, the Government of Canada will at least double the current federal investment in R&D by 2010. We will also invest an additional billion dollars a year by the end of this mandate. As a sign of its commitment, in 1997, the federal government established the Canada Foundation for Innovation (CFI) with funding of \$3.15 billion. The CFI supports the acquisition of leading-edge infrastructure at Canadian research institutions.

With the help of a grant from the CFI, Memorial University of Newfoundland is acquiring a "super computer" network that will serve researchers in the mathematics and statistics department who are doing applied research. This new computer system will help interpret data gathered from clinical cancer studies. It will also assist statistical applications in the environmental sciences, including a project to improve the accuracy of short-term weather forecasting. Researchers will also use the network to produce computer models that will answer important biological questions, such as whether an infectious disease is restricted to a particular population.

The Government of Canada will also create up to 2000 new Canada Research Chairs at our universities. This initiative will attract and help keep the top researchers in the world and act as a magnet for students who want to study in Canada with the best and brightest. Additional investments are being made in the knowledge infrastructure through the

Networks of Centres of Excellence, the Canadian Institutes of Health Research, our national Granting Councils, and exciting new initiatives such as Genome Canada.

Canadians are world leaders in connecting to each other via the Information Highway. We have the highest percentage of our population on-line of any country in the world. We were the first to connect all of our schools and libraries to the Internet. We have the highest penetration of telephone and cable networks in the world. These tremendous advancements promise to work wonders for Canadians everywhere in terms of greater improvements to health care as well as for our educational institutions.

We have built the world's fastest and most advanced optical research network, which is revolutionizing telecommunications technology. And we are exploring ways to bring high-speed broadband Internet access to all communities by 2004. The government is continuing its efforts to put its services on-line by that year.

Innovation lies at the heart of the knowledge-based economy. Our goal is for all Canadians to have the tools they need to fully benefit from the new economy, no matter where they live. The Government of Canada is committed to working with Canadians to make our country more innovative, productive and competitive in the knowledge-based economy.

The Wireless Vision Congress, which takes place in St. John's, Newfoundland, on September 26-28th, 2001, is an exciting event in the life of Newfoundland and Labrador, and all of Atlantic Canada. Like Marconi's historic achievement 100 years ago, the Wireless Vision Congress signals to the rest of Canada and to the world, that Newfoundland and Labrador is playing a key role in using innovation and technology to build a better Canada.

The Honourable Brian Tobin is Minister of Industry with the Canadian government, and former premier of Newfoundland and Labrador. He can be reached at tobin.brian@ic.gc.ca.

Building a better Canada through innovation and technology

November 1993 – MP for Humber-St. Barbe-Baie Verte since 1984, Tobin is appointed federal minister for Fisheries and Oceans in Prime Minister Jean Chretien's liberal majority government.

October 1995 – As federal minister for Fisheries and Oceans, helps establish a chair in fisheries conservation.

January 1996 – Returns to provincial politics and is acclaimed as the sixth Premier of Newfoundland and Labrador.

January 1996 – Announces \$5 million to establish a Centre for the Management of Sustainable Forest Ecosystems at Sir Wilfred Grenfell College.

July 1996 – With education minister Roger Grimes, meets CSU executive to discuss concerns about provincial loan funding and budget cuts to post-secondary education.

March 1997 – Helps kick off Memorial's most ambitious fund-raising campaign by announcing the provincial government would match all raised funds dollar-for-dollar even beyond the \$25 million target.

September 1997 – Officially opens the Summit of the Sea, an international conference focussing on ocean resources, at Memorial's Special Convocation honouring Dr. Vigdis Finnbogadottir, the former president of Iceland and the first elected female leader in history.

November 1997 – Facilitates implementation of a toll-free 1-888 student loans information hotline to improve access for post-secondary students outside St. John's.

January 1999 – With provincial education minister Judy Foote, announces the university's operating grant, including an increase of \$7 million for the next two fiscal years (to \$106 million), enabling Memorial to freeze tuition fees.

February 1999 – Wins his second majority government in the province of Newfoundland and Labrador.

March 1999 – Participates in the Memorial-co-hosted Canada Conference, in which more than 30 guest speakers debate topics relating to Canadian unity and the nation's role in international relations.

October 1999 – Facilitates the donation of a Landmark Graphics 3-D software package by Richard (Dick) Cheney, former U.S. secretary of state and CEO of the Halliburton Group of Companies.

December 1999 – Announces the provincial government will contribute \$7 million towards the construction of new student residences and an exhibition centre at Sir Wilfred Grenfell College.

January 2000 – Addresses the Faculty of Business Administration's first Associates Round Table of the new millennium.

February 2000 – Attends a media conference at MUN's medical school, at which federal Health Minister Allan Rock announces over \$650,000 in various project grants.

April 2000 – Helps seal the MUNSU time capsule into a wall at the new university centre as part of opening ceremonies.

June 2000 – Cuts the ribbon to help launch the INCA Centre, the Faculty of Engineering's newest high-tech laboratory.

September 2000 – Participates in the announcement of Memorial's new Oil and Gas Development Partnership.

October 2000 – Announces funding for The Rooms, a \$40 million centre to house the Newfoundland Museum, the Provincial Archives and the Art Gallery of Newfoundland and Labrador, a corporation of the university.

November 2000 – After departing provincial politics, wins election as MP for Bonavista-Trinity-Conception and is reappointed to the federal cabinet as Minister of Industry.

February 2001 – Helps launch Phase III of the Harsh Environments Initiative at C-CORE.



Hull of a guy: Moores in his element

To the max

Graduate engineering student Corwyn Moores isn't interested in breaking records; he wants to set them. A 24-year-old student from L'Anse aux Clairs, Labrador, Moores graduates with his B.Eng and M.Eng in Ocean and Naval Architectural Engineering this spring.

Grandson of a fisherman, Moores has spent a lot of time on the water, fishing, swimming, diving, and boating, so the drive to design for water is innate. In fact, it was his desire to be back on the water in Newfoundland that led Moores to change his initial plan to be a marine engineer with the Canadian Navy, and, as soon as ROTP basic training ended, to shift gears and start at Memorial. His brothers soon followed: Justin is doing a honors degree in biology, William one in biochemistry.

A seemingly permanent member of the Dean's list for the duration of his program at MUN, Moores takes his training seriously, and looks forward to the responsibility of the profession, considering it a personal challenge to do things right the first time.

After work-terms that have taken him from St. John's to Gander to Ottawa, and from Houston, Texas, to Aberdeen, Scotland, Moores' most recent project has been performing model scale propeller tests at IMD using their new dynamometer to measure single blade loads involving a propeller in ice. So what does that look like?

"Basically, we tested a propeller at various pitches, which were run at various thicknesses of ice," he explained. The goal of the research was to measure the loads of single blades hitting the ice. Most experiments account only for the total load of the blades as a group, not differentiating the force generated by the one in the act of hitting the ice from the others, encountering other materials.

Moores reported that the research was more time-consuming than complicated because it was new, adding that's why he enjoyed it.

The results from the testing are not only of benefit to IMD research partners Lloyds Register and Transport Canada; they are also the stuff of Moores' masters thesis, supervised by Drs. Brian Veitch and Neil Bose. With the tests themselves finished in late November, Moores explained that analysis hasn't been easy — because he maxed out IMD's data-acquisition capability.

"Basically, we tested a propeller at various pitches, which were run at various thicknesses of ice."

Navigating success

The year was 1993. At the cavitation tunnel deep within IMD, a stressed Memorial PhD candidate realized he was running out of money. Looking around, the young engineer noticed that the tunnel in which he was doing research was valuable as a commercial testing tool, that the international marine marketplace had a need for such a facility, and that his experience was a commodity.... At that moment, St. John's native Dan Walker became an entrepreneur.

Founded by Walker along with Carl Harris and some other Memorial graduate students, Marineering Limited — the company that would become the private-sector component of Oceanic Consulting Corporation, is a client-oriented ocean engineering research and consulting service linking several of the province's most important ocean-industry resources. A key player in the 'new Newfoundland', Marineering links Memorial's Ocean Engineering Research Centre and Marine Institute, and the National Research Council's Institute for Marine Dynamics, capitalizing on the fact that \$100 million worth of facilities are apportioned between three public-sector organizations and across two levels of government, mesmerizing potential clients.

Walker's fledgling company was successful from the start, but it has also faced challenges. Following Paul Martin's infamous 1995 budget and the ensuing rapid downsizing of the NRC, the company noticed its service was inappropriate to the then-suffering Canadian marine industry, and headed to the Offshore Technology Conference in Houston, Texas, in 1997. The business climate was promising, and when Walker decided Marineering should exhibit the following year, kismet saw the company forced to share booth space in the provincial government's exhibit with NRC. It was then that the entities realized their structure was a marketing miss, confusing potential clients. "They saw the Center for Marine Simulation, the Institute for Marine Dynamics, the Ocean Engineering Research Centre, and then they saw Marineering," Walker explains. "So they were getting five brochures from one community."

Upon returning to St. John's, Premier Tobin hosted a meeting at which Marineering made a case for integrating its marketing strategies with MUN and NRC's commercial capabilities — an alliance to facilitate business through client-oriented subcontracting of facility time and engineering services. The concept linked the technical credibility and scientific depth of the NRC and the university with the



private-sector team of Marineering — a crucial element, Walker argues.

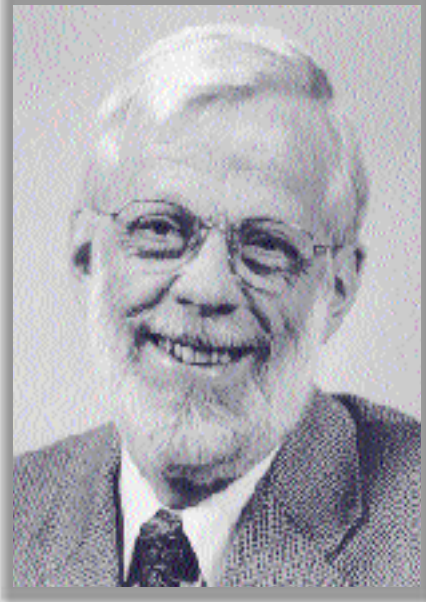
"We're cash-flow oriented, so we're going to perform. That's our only mandate — provide commercial services to our commercial clients. Strategic research? Talk to NRC. Education? Talk to MUN. Commercial design evaluation services? Talk to our company."

The result of that meeting, Oceanic Consulting Corporation, opened in November 1998 as a marine performance evaluation firm. Walker translates, "We take a prototype design and develop a method of evaluating the hydrodynamic performance of it — the motion, powering, maneuvering characteristics, and so on. Any kind of marine system — not only vessels, but gravity-based structures, bottom-founded designs, towed devices like underwater vehicles and systems for the seismic business — we test and analyze it."

With high-profile clients like American yacht designer Eric Sponberg and sailing phenom Russell Coutts, Walker says the challenge now is balancing business development with operations, citing the company's growth from 9 to 32 employees — mostly MUN and MI grads — in less than 3 years.

Walker credits his decision to study naval architectural engineering at MUN (B.Eng '89, PhD '96) for a good part of his success, but he's also grateful for apprenticeship in his family's business.

"Entrepreneurship in engineering is very important," he says. It's the art of doing with one dollar what any fool can do with two. "



MUN Engineering – then and now

BY JOHN MOLGAARD

A magazine “Past and Present” is published by a high school I attended. Old scholars provide the past, reminiscing about their good old days, while present students chronicle school activities full of the excitement of achievement and promise. As an “oldie” in this Faculty, I trust I am allowed to reflect on the past, knowing full well that the present and future is what really matters.

Oil and gas production offshore is the present bright hope for the Faculty as well as the province. While the shaping of undergraduate programs towards this is new, a focus on the offshore has been with us since Dean Angus Bruneau saw opportunities here for engineering in northern waters, leading, for instance, to pioneering studies on ice conditions in Lake Melville, the towing of ice-bergs, and the founding of C-CORE. In many ways the wheel keeps turning, as nearly thirty years later his son, Stephen, worked in the Faculty and C-CORE on similar issues. While I had little part in this early work by Angus, by the time Stephen got involved in ice engineering it was good to be able to help him towards his PhD in this area.

Engineering deans and faculty alike have been conscious of the challenges and opportunities in responding to the needs of this community. Yet it is a bit of a paradox that while this is the largest university in Atlantic Canada, the Engineering School has always been relatively small. Student enrolment has increased over the last quarter-century, but our faculty complement hasn't, so with many sectors of the economy and technologies for faculty to engage in, many opportunities and challenges, there are inevitable gaps in both new and old technologies.

For instance, you cannot help but be aware of the fisheries, still important to the province but involving few engineers. There has been some work at MUN on efficiency in fish processing, which was not sustained. However, the wheel has turned, albeit to a different issue, as several engineering faculty, myself included, are now in a major interdisciplinary programme on maritime occupational health and safety including the fisheries and oil. Yet this, too, is a repeat for the Faculty, for Dr. Ian Rusted, when he was V.P. (Professional Schools), led an interdisciplinary team with engineering faculty in a major occupational health study on health problems due to dust in the iron ore industry of Labrador.

Faculty join MUN with a variety of interests and aspirations and each effort matters, but matters more where individual efforts are similarly directed. Looking outside as well as inside the Faculty for partners helps, and the result is, in mathematical terms, the vector sum of several efforts. (The mathematically literate will know what that means). The challenge is to combine depth with breadth, knowledge with vision, science with application, collaboration and continuity with individual aspirations. Good luck to all who tackle this!

Dr. John Molgaard is a professor of mechanical engineering and an active member of the Medical Engineering Research Group. He can be reached at molgaard@enr.mun.ca.

Notables

Co-op director **Paul Batstone** has been honoured with an award from the Canadian Association for Co-operative Education (CAFCE) in recognition of his active volunteer service with the professional organization over the past five years.

Dr. Glyn George has been re-elected chair of the school council at Booth Memorial High School for the 2000-2001 school year. He has served as a community representative on that council since 1998, and is also the elected secretary of the Newfoundland and Labrador Federation of School Councils for the 1999-2001 term of office.



Civil engineering professor **Dr. Tahir Husain** has been chosen as a member of the Atlantic Canada Petroleum Institute's proposal evaluation committee on environmental impacts and effects. The committee meets twice a year to mentor proponents, provide advice and guidance on ACPI's research directions, and evaluate proposals on environmental loads and factors,

environmental impacts and assessments, sustainable development, and environmental design criteria. The term of the appointment is three years.

Dr. Mahmoud Haddara

accepted a certificate of appreciation from FutureSET on behalf of the faculty. The engineering and science school workshop and summer program whose children's camp is based in the S.J. Carew Building each summer also gave special thanks to engineering's technical services department, finance and administration manager **Jim Cooper**, and senior clerk **Rick Squires** for their efforts in making the camp a success.



Dr. Rangaswamy (Sesh) Seshadri, dean of the faculty, has had an article published in the millennium issue of the Journal of Pressure Vessel Technology. Titled "Limit loads using extended variational concepts in plasticity," the article deals with calculating and designing for stress in mechanical components and structures. The journal is published by the American Society of Mechanical Engineers.

Dr. James Sharp, currently visiting professor of civil engineering at the University of Hong Kong, was invited to the Team Canada trade mission reception in February, where, in addition to Prime Minister Chretien, 600 Canadian businesspeople and Chinese officials, he met up with another St. John's resident – **Dr. Bassem Eide**, vice-president of the BAE group and SNC Lavalin. Sharp also participated in the Croucher Foundation Advanced Study Institute on coastal eutrophication research (prediction, support systems and management of coastal pollution), in Hong Kong Feb. 5–12. He presented a paper on Human Health Risk-Based Design of Ocean Outfalls, co-authored by engineering PhD candidate **Mukhtasor** and faculty members **Drs. Tahir Husain** and **Leonard Lye**. The full text of the paper will appear in an upcoming Journal of Waterways and Maritime Engineering. Mukhtasor won the Student Award at the Annual Meeting of the Society for Risk Analysis held in Virginia in December 2000 for his paper Risk-based Design of Produced Water Discharge from Oil-production Platforms.



Dr. Leonard Lye was this year's winner of the APEGN Award for Teaching Excellence. The award was presented at the APEGN dinner and dance in March to mark Engineering Week.

Electrical professor **Dr. Bateshwar Sinha** retired from the faculty last August after serving 18 years with Memorial. An expert in microwave technology, Dr. Sinha has since

been appointed an honorary research professor with the faculty until September of 2003.

Term 8 civil engineering students **Dan Whiffen**, **Kris Clarke** and **Jabez Hunter** placed fifth out of 37 in the Concordia Bridge Building competition in Montreal in March.



Ocean and naval architectural engineering professor **Dr. Mary Williams** has been appointed to NSERC's university faculty awards selection committee for a three-year period ending June 30, 2003. She was also profiled in a recent issue of Terra Nova's newsletter, Flagship, discussing efforts to encourage women to


apply for positions in offshore technology and other science and engineering-related industries. The article also included MUN engineering graduate Kim Keating, currently working with the commissioning team on the Terra Nova FPSO, and MI grad Cindy Power, a vessel control systems apprentice in the FPSO control room.

Trevor Blakeley, chief executive of the Royal Institution of Naval Architects, spoke on the Role of the Professional Institution in the Education, Training and Professional Development of Naval Architects at a CAS student section meeting on April 9. Blakeley was in St. John's to help judge the competition for the RINA-Fleet Technology Student Naval Architect Award. Sponsored by Fleet Technology of Kanata, Ontario, the award goes to the top term 8 solo or group project in the B. Eng ocean and naval architectural engineering program at Memorial. **Dean Pelley**, **Jason Dawe** and **Michael O'Connell** won for their project, "A high speed small waterplane area twin hull ferry, St. John's to Halifax". The other judges for the competition were **Ian Glen**, president of Fleet Technology, and **David Murdey**, director of facilities at NRC's Institute for Marine Dynamics.

There are several new faces in the hallways. **Dr. John Shirokoff**, PhD metallurgical engineering, Queen's University, and postdoctoral-research associate at University of Illinois, has joined the faculty to teach materials science and manufacturing technology courses. His research interests are in the area of materials-interface and materials characterization (electrodeposited metals and alloys, catalysts, superconductors, cement, concrete, asphalt, geological materials). Dr. Shirokoff was previously a research engineer-associate professor at King Fahd University of Petroleum and Minerals. **Dr. Mohammad Tariq Iqbal**, a Ph.D. from Imperial College, University of London, has joined the faculty as an assistant professor to teach electronics, instrumentation and renewable energy systems. Dr. Iqbal's research interest is in the area of applied instrumentation and control engineering related to

wind energy conversion systems. **Dr. Amgad Hussein** is a graduate of Ains Shams University, Cairo (B.Eng 1984) and Memorial (MEng 1990, PhD 1998). His research interests are in the areas of structural mechanics and linear/nonlinear finite element modelling of high strength concrete for use in the offshore. As a structural design engineer working in St. John's, Dr. Hussein has participated in projects all over Newfoundland, including the Mile One Stadium. A member of APEGN and the Egyptian Syndicate of Professional Engineers, he will be teaching courses in structures engineering and construction management. **Craig Collins**, a recent graduate of Memorial's bachelor of science program (majoring in computer science), has joined the staff roster as programmer consultant for the Centre for Computer Aided Engineering. Mr. Collins will help with programming-related concerns in the department as well as the system and network administration of the C-CAE.

WISE Newfoundland and Labrador was among 66 organizations across Canada receiving funding from a new NSERC program to support initiatives in opening doors to opportunities in the sciences and engineering for young Canadians. The PromoScience awards were announced on January 18 by Industry Minister Brian Tobin and NSERC's Tim Nau in a ceremony at the Newfoundland Science Centre. Both WISE and the **NSERC/Petro-Canada Chair for Women in Science and Engineering** are hosting the "Working for Success" career skills workshop in May, and lending organizational support to the upcoming 12th International Conference of Women Engineers and Scientists, happening in July 2002 in Ottawa. A dynamic event happening only every three years in a different location around the world, the theme of this Canadian-hosted conference will be, Women in a knowledge-based society. Engineers, scientists, social scientists and students are invited to attend. More information is available at: <http://www.carleton.ca/wise/icwes12/icwes12.htm>.



Did You Know?

The faculty's resident **McNaughton Learning Centre on audio engineering (EN-1036A)** received a \$10,000+ upgrade from the **IEEE Canada Foundation**. The student-run semi-anechoic chamber, created with a similar donation two years ago, is used primarily for testing audio equipment (including building loudspeakers and studying active noise cancellation), and in graduate research into the acoustic properties of sea ice. The centre is funded by the **IEEE Canada Foundation** to provide learning opportunities for student-initiated engineering projects. Memorial is home to one of the most active **IEEE student branches in Canada**.

From the editor

I've been thinking a lot lately about the concept of risk. In an entrepreneurial sense, the adage is no risk, no reward; and this issue contains plenty of stories about those who have risked and earned in equal measure.

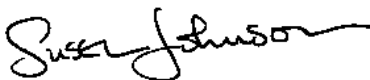
Dr. Siu O'Young risked body and mind to ski across the Avalon in a series of blinding snowstorms. His reward was creating a memento to his relatives, supporting a friend, and having an unusual wilderness experience. A member of an informal troupe of professors and students who gather routinely for whitewater and saltwater kayaking, rock climbing, and orienteering, O'Young believes there's a connection between good engineering practice and extreme sports enthusiasm – namely, the notion of managed risk, solid preparation, teamwork, and minimizing environmental impact.

In similar fashion, alumni Dan Walker and Mona El-Tahan took a sequence of risks to build their engineering expertise into successful businesses – endeavours that provide motivating examples for more local ventures, and which amply demonstrate the crucial role support mechanisms like scholarships, equipment grants, and research chairs play in bringing innovation to bloom.

In all of this risky behaviour, though, it's clear that everyone defines risk – and reward – differently. Perhaps the best example of this is the between-the-lines story of Sabah al-Ghamdi, the wife of a Saudi professional taking Continuing Engineering Education. Last fall, Mrs. al-Ghamdi accompanied her spouse to Canada so he could continue his education and advance his career. She'd never seen snow, didn't speak the language, had four children to rear, and she was pregnant. Something tells me that's a challenge Survivor creator Mark Burnett won't be producing anytime soon.

The point is, risk is defined by context. It's not about expertise, but comfort with a lack therein; it's not about supreme knowledge, but confidence that you can find the solutions and assistance you need as and when you need them.

So whether it's a new idea, new culture, or just a new haircut, risk – variously defined – is critical to engineering success. Without it, we will surely shrivel, but with it, great reward....



Susen Johnson



Sent to:



Alumni News



Mona El-Tahan (M.Eng 1980), the first female graduate of the engineering master's program, outshone over 50 worthy candidates to claim the Newfoundland and Labrador Organization for Women Entrepreneurs' Entrepreneur of the Year Award for the Avalon Region. A former employee of C-CORE and a founding member of the Newfoundland chapter of Women in Science and Engineering, El-Tahan was also recently appointed to the NSERC Committee on Scholarships

and Fellowships. However, she is best known as the president and CEO of CORETEC Incorporated, which specializes in offshore and environmental engineering, marine navigational aids, ice management and IT consulting. Since its start in 1988, CORETEC has achieved five copyrights and one international patent, and just recently the company announced it will install an Advanced Ship Autopilot System (ASAS) on the Hibernia shuttle tanker MT Kometik for sea trials. The new system will maintain a ship within a few metres of a pre-determined track, making travel safer and reducing fuel consumption. Installation on the ship is considered the last step before full commercialization of the product.

Craig Martin (Civil '97) was feted in the Canadian press in January for his heroism in saving a man from drowning. Martin, currently working in Calgary, was out for a walk with his girlfriend when they noticed the man sitting on a bridge, then saw him jump. Without hesitation, Martin ran into the frigid river, grabbed the 64-year old by the belt, and pulled him ashore, incurring mild hypothermia for his effort as rescue crews rushed to the scene. Martin is a native of Dildo, Trinity Bay.



CANCAM 2001

The 18th Canadian Congress of Applied Mechanics, will be held at Memorial's Faculty of Engineering and Applied Science June 3-7, 2001. Keynote speakers include Dr. Jim Boyle of the University of Strathclyde; Dr. Michael Isaacson of the University of British Columbia; Dr. Patrick Oosthuizen of Queen's University; and Dr. Samir Ibrahim of Old Dominion University.

For more information, contact
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or visit

www.engr.mun.ca/conferences/conapppmech/.

Alumni:

We want to hear from you! Whether it's a promotion, new business, baby, marriage, traveling the world in a kayak, or an invention—share your great news with us, and let your fellow students know how they can get in touch with you. Contact the editor at one of the addresses indicated on the bottom of this page, or e-mail susen@engr.mun.ca.

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