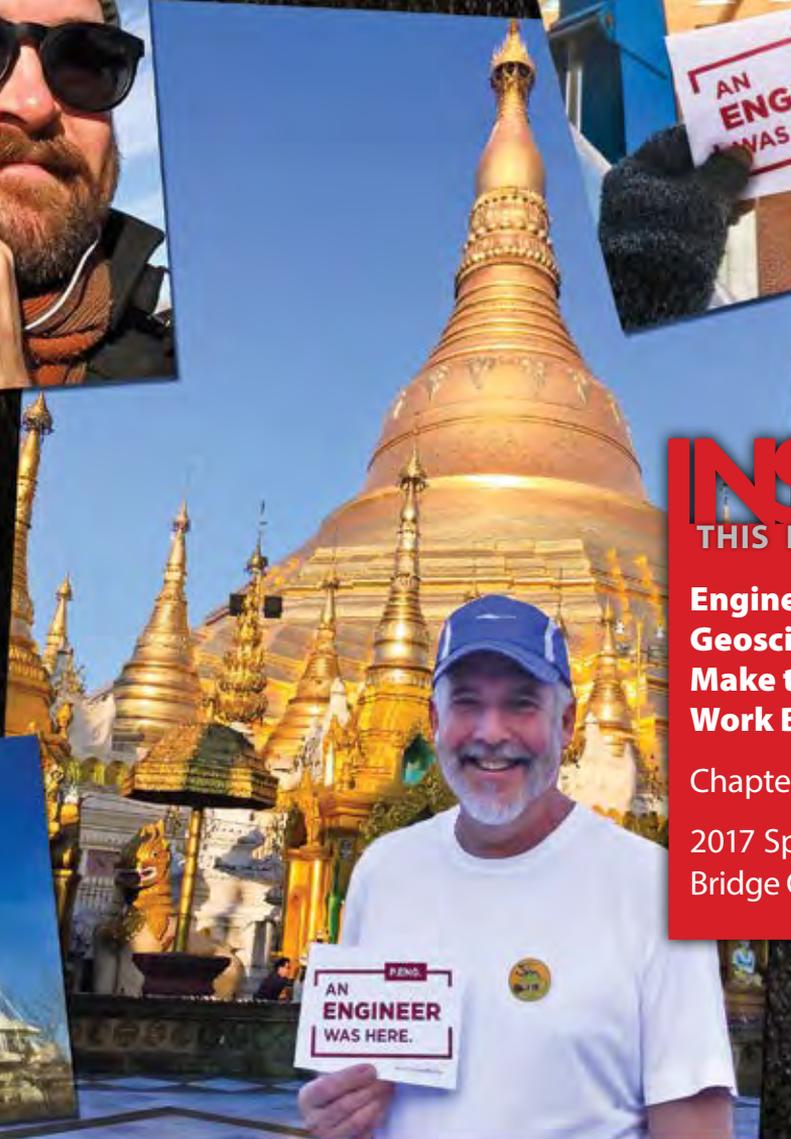
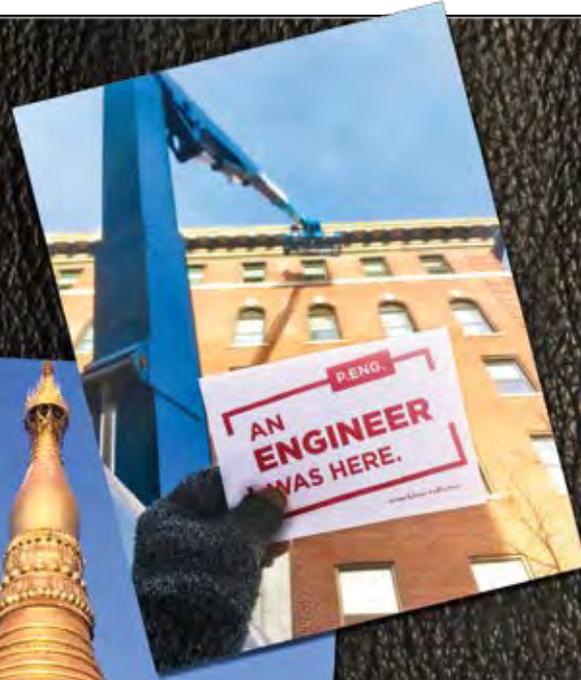


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THE KEYSTONE PROFESSIONAL

SUMMER 2017



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The Keystone Professional Committee would like to hear from you. Please email your comments to: amoore@EngGeoMB.ca. Members are also encouraged to submit articles and photos on topics that would be of interest to the membership.

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THE KEYSTONE PROFESSIONAL

The official publication of Engineers Geoscientists Manitoba



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Leaving a Legacy

At our Special Meeting of Members on April 19, 2017, the first agenda topic was a brief introduction to Policy Governance¹, as used by our Association. This included an overview of a Council meeting agenda and how Council monitors the CEO's and its own performance.

A practical benefit of Policy Governance is clear delineation between the responsibilities of Council and those responsibilities that Council delegates to the CEO. There are also more intrinsic benefits that can be described as helping shift Council's focus. Those shifts are: having outward vision, as compared to internal preoccupation; strategic leadership, as compared to focusing on administrative details; collective rather than individual decisions; focusing on the future, rather than the past or present; and being proactive rather than reactive. All these benefits help Council achieve one of our primary motivations and goals: to leave a legacy.

Engineers Geoscientists Manitoba will be 100 years old in 2020. What an exciting

milestone! We are part of an organization that has been around long before many of us, and will be active long after. Council's initiatives this year are aiming to evolve and mature Council and our Association while respecting the foundation established by previous Councils.

Member engagement processes that Council is piloting for developing Council initiated By-Laws, holding a Special Meeting, and communicating with Members are all part of our endeavour to leave a legacy. These new processes engage Members and employ the use of experts, such as lawyers for writing By-Laws. The By-Law Rewrite Project, which aims to review all By-Laws of the Association, is scheduled for completion by our Centennial. What a legacy it will be to leave a refreshed set of By-Laws in 2020, to guide our Association for the next 100 years. The Ends Refresh, completed this year, is being passed on to future Councils with instructions that these Ends are not written in stone and can be enhanced and

updated without waiting to do a complete refresh. A recent highlight for Council was meeting with our Past Presidents. They are an excellent example of leaving a legacy, and they continue to support Council by providing input into shaping our future.

Whether at work, in the community, or with our family and friends, it is important to consider the impact our work, decisions, and actions have on future generations. Perhaps your legacy is creative design, solving complex problems, or completing unique analysis; however, we should never underestimate the impact of volunteering and being a mentor and ambassador for the professions. Our legacy can be a combination of engineering and geoscience accomplishments, development of others in the professions, and influence on society. What legacy are you creating and leaving?

As always, your questions and discussion are welcome. You can email me at president@EngGeoMB.ca. ☺

¹ Policy Governance is a registered service mark of Dr. John Carver. Governance shift concepts are sourced from Governance Coach, a registered trademark of Janice Moore and Associates.



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The Future Looks Bright

Another crop of engineering and geology grads have surpassed their first career milestone – convocation day! Many are heading off to new jobs, while some are continuing with further studies. Graduating Senior Stick Andre Marchildon (Mechanical) has been accepted into the Aerospace Master's program at University of Toronto. Another grad is leaving to begin a PhD program at Stanford University. A third grad will begin a new job with Tesla in Palo Alto, California. Many will begin their careers here at home; contributing to the Manitoba economy. Congratulations to all for finishing the first leg of their professional careers.

Meet Erik

I had the pleasure of meeting Erik Johnson for lunch just prior to his final exams. The future of engineering is bright when you hear Erik's story. A graduate of J. H. Bruns Collegiate in Winnipeg, his interest in engineering



began with an uncle who is an engineer. The uncle involved him in small science experiments (eg. making current from a lemon, vinegar, and wires) as a child.

Later a power mechanics teacher invited Erik to participate on a team that would build a go-kart for the "Super-Mileage Competition". He designed and built the onboard computer to measure RPM, fuel flow, consumption, and mileage. The go-kart achieved 296 MPG with one adult driver on board. WOW!

While in his undergrad program at the University of Manitoba, Erik joined SAE – Society of Automotive Engineers, UMSAT – UM Satellite Project, and IEEE – Institute of Electrical and Electronics Engineers (Extreme Programming Competition) and began to strengthen his computer engineering skills. Head-hunted by Apple, Google, and Tesla, his decision to join Tesla was made because of his interest in hybrid vehicle security systems and the company's focus on technology, design, and energy innovation. In July he's off to California to begin a new job and Engineers Geoscientists Manitoba is sending best wishes to this new grad – Congratulations Erik!

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Strong Economy

The Manitoba economy is doing well. Real GDP was up 1.4% in 2016 and growth is expected to exceed 2.0% in 2017 ahead of the national average.¹ Numbers for the last quarter are up and it appears that the economy is making money. Sectors like mineral exploration and energy continue to face challenges, but all others are showing growth. Engineers are contributing to this success by applying their skills, knowledge, and expertise in manufacturing, agri-business, infrastructure, land development, biomedical, and many other sectors of the Manitoba economy.

More Women

Through new grads and immigration, Engineers Geoscientists Manitoba is seeing more women applying for licensure. Council is tracking the number of new registrants each month to determine if the number of women is increasing. Last month, the Registration Committee report showed 17% of new registrants were women. At a growth rate of 1% per year, the goal of achieving 30% by the year 2030 is realistic and attainable.

Indigenous Declaration

Council has set a new End for the professions: E-5.1 Increasing Indigenous membership. They want to see more Indigenous professionals join Engineers Geoscientists Manitoba each year. Over time, the Association will begin to reflect the 16.7% of Manitoba's population who are considered aboriginal.² Indigenous engineers and geoscientists are invited to make a self-declaration so that Engineers Geoscientists Manitoba can: (1) benchmark the number of Indigenous professionals in the membership; (2) gather data for statistical analysis; (3) determine strategic steps toward developing Indigenous engineering and geoscience professionals and finally (4) create, improve, and communicate supports for Indigenous members. Go to the web site and click on the menu button *For Professionals/Indigenous Declaration* to learn more.

An Engineer Was Here

Do you like to travel? Have you got pictures of cool stuff in peculiar places? Send them to the Keystone Professional (KP) Committee. *The Keystone Professional* magazine would like to highlight members posing with the "An Engineer Was Here" post card at various places around the world! If you are planning a trip or tour locally or internationally, request a post card (we have both P.Eng. and P.Geo. cards) and then take some selfies! We've enjoyed

seeing "An Engineer Was Here" selfies from Moose Jaw to Myanmar. Send them to the KP Committee or post them to Twitter and Instagram. Request a card by email to reception@EngGeoMB.ca.

Your feedback is invited and welcomed. If you have any thoughts on anything you read in *The Keystone Professional*, please email me at gkoropatnick@EngGeoMB.ca. ☺

¹ Manitoba Economic Highlights March 13, 2017, Economic & Fiscal Analysis Branch, Manitoba Finance.

² Source: <https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-011-x/2011001/tbl/tbl02-eng.cfm>



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Thoughts on Engineering Design

...and addressing “ill-defined” projects

Dr. M.G. Britton, P.Eng. FEC

The Natural Sciences and Engineering Research Council of Canada (NSERC) supports a unique program it calls, Chairs in Design Engineering. It was launched in 2001 when five Chairs were established. Dr. Tom Brzustowski, then President of NSERC, and the creative force behind the program, saw it as a way to improve the level and quality of design engineering activity within Canadian universities. Both industry and the profession were concerned with the research focus that had come to dominate most undergraduate engineering programs in Canada. The program has matured and expanded over the past 16 years, but some of the original concerns that it was created to address still require attention. The ultimate target was/is to establish a total of 16 concurrent Chairs across Canada.

The NSERC site notes that “NSERC’s goal in setting up the Chairs is to expand and improve Canada’s capacity and performance in all aspects of design engineering, including environmental design”. The on-campus structure of a Chair is relatively open, but “. . . partnership with industry, federal and provincial governments, and other private or public sector organizations” is, for all intents and purposes, required.

In fact, funds from NSERC must be matched, in cash or in kind, to assure that input and influence from the partners will exist.

As a guide in preparing a Chair proposal, NSERC has defined design engineering as “. . . a creative, iterative, and often open-ended process subject to constraints which may be governed by standards or legislation to varying degrees depending upon the discipline. These constraints may relate to economic, health, safety, environmental, social or other pertinent factors”.

It is probably fair to suggest that this is an ‘ill defined’ challenge. It is much more suited to discussion by philosophers than engineers. But engineers must propose solutions to address this ‘ill defined’ challenge. Typically philosophers make observations and pose ideas. They have the luxury of proposing a broad view of the problem being addressed. They don’t ‘speak engineering’ so their ideas are not bound by constraints of past design solutions.

An excellent illustration of a philosopher’s perspective on how to address a ‘problem’ can be found in Daniel Dennett’s book, *Intuition Pumps and Other Tools for Thinking*. He suggests that “A tool wielded well

becomes almost as much a part of you as your hands and feet, and this is especially true of tools for thinking”. It is easy to conclude, from an engineer’s perspective, that Dennett’s ‘tools for thinking’ are steps in maintaining one’s design competence. And, yes, for experienced design engineers, those ‘tools’ are a part of our being.

Dennett also notes that “The first step in any effective exploration is to get as clear as we can about our starting point and our equipment.”. Doesn’t that suggest we need to look at, and fully understand the problem before we start designing a solution?

In the case of developing a NSERC Chair in Design Engineering that is supposed to “. . . improve the level and quality of design engineering activity within Canadian universities”. Doesn’t this reduce to developing an engineering education model that will enhance design skills used in industry? Doesn’t it suggest that the source of fundamental information, and the necessary experience required to cause the desired change is off campus rather than on campus?

Clearly, not many Association members will need to develop a proposal for an NSERC Chair in Design Engineering. However, many, if not most, will be faced with project requests that are every bit as ‘ill-defined’. When you are faced with this sort of request, redefine the request in ‘street language’. It will broaden your perspective.

To help universities meet the growing demand for design engineering talent and to help them create and develop new and innovative designs, design concepts and design tools, NSERC is working to establish a total of 16 concurrent CDEs across Canada. Up to four Chairs are available in the current competition. ⊕



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Government Relations Stakeholder Engagement, Strategic Plan and Metrics

By C.S. Sarna, Director of Government Relations

In a regulated profession, such as engineering or geoscience, it is important to maintain a respectful and productive relationship with the decision-makers in government. For Engineers Geoscientists Manitoba, this means working with the Manitoba government to ensure that engineering and geoscience professions and stakeholders are not adversely affected by changes in laws and regulations, and to ensure that both are a key resource for the government to rely on for information and support within the engineering and geoscience area of expertise.

The overarching goal of the Association's Government Relations Department is to create a relationship with which government officials in all areas think "engineering and geoscience means Engineers Geoscientists Manitoba". Engineers Geoscientists Manitoba will be their first call as a reliable source of information, a source of new policy ideas, and a partner in satisfying the consumer (who is also the voter). Creating this relationship requires the formation and execution of a government relations strategic plan; a clear and thorough communications strategy to further engagement of members with government, further engagement of the Association with government, and to further engagement of supporting committees, task groups, and stakeholders related to the Association with the Department. Positive interaction among these groups will allow Engineers Geoscientists Manitoba to achieve its broader strategic goals and bolster communication and public relations efforts.

Stakeholder engagement will be critical for the successful development of a 2018-2025 government relations strategic plan. Several initiatives will be taken throughout the year to engage with stakeholders in order to collect

"Nearly all engineering Associations across the country have some level of government relations program. Whether the CEO/Registrar of an Association knows the Premier, or an Association hosts a government relations function and invites local government officials, there must exist a minimal level of government relations in order to be able to change legislation, regulation, policy, and codes."

information for developing the strategic plan. Membership will continue to be informed through E-News updates, *The Keystone Professional* articles, and engagement meetings.

Nearly all engineering Associations across the country have some level of government relations program. Whether the CEO/Registrar of an Association knows the Premier, or an Association hosts a government relations function and invites local government officials, there must exist a minimal level of government relations in order to be able to change legislation, regulation, policy, and codes.

Changing legislation, regulation, policy, and codes has presented challenges for Associations in the past. It may be because of this that there is a culture in engineering to accept that accomplishing such changes in partnership with government in a timely manner is not possible. Creating a mandate for an Association to change one piece of legislation, regulation, policy or code on an annual basis would help to bring forth a metric that could be measured by staff, Council, the membership, and stakeholders. The steps to obtain a change can be defined with human resource requirements tied to job descriptions and responsibilities, strategic/operational/action plans created for execution, and financial resources aligned with operations, to meet the mandate. The overall process, including the successes and challenges of fulfilling such a mandate, would be documented for review of the mandate by Council. At regular intervals, these metrics could be

measured to show performance indicators for varying aspects including; change in direction, recalculating the policies, processes and systems, financial and human changes, along with accountability and transparency to the stakeholders of the Association. If a legislative change hits a dead end beyond recoverability at any point, the resources, successes and failures experienced along the way are still documented to allow for improvement for the next proposed change.

Engineers Geoscientists Manitoba will continue to maintain a healthy relationship with government, and the Government Relations Department looks forward to continuing its work with its 2018-2025 Strategic Plan. We believe that including a mandate to change legislation, regulation, policy or code on an annual basis in the Strategic Plan will strengthen focus on government relations between the Association and government, and in so doing, better support professional engineers and professional geoscientists in Manitoba.

Stakeholder engagement for the Government Relations Department at Engineers Geoscientists Manitoba is ongoing. If you have input for the development of the Government Relations Strategic Plan for 2018-2025, please email me at ssarna@EngGeoMB.ca.

Engineers Geoscientists Manitoba's Government Relations Strategic Plan can be accessed at <http://www.apegm.mb.ca/pdf/GR/StrategicPlan2016.pdf>. ☞

THE BIG PICTURE

Winnipeg's Transportation Management Centre

By D. Strang, P.Eng., FEC

Senior engineers are a curious bunch. So, perhaps it was no surprise to see a full house at a recent February luncheon gathering of Manitoba senior engineers to learn about Winnipeg's new transportation management system. We are all curious about the technical guts of the system (did you know that the cameras pan, tilt, and feature 30x zoom, with self-cleaning capabilities?). But, perhaps more to the point, we know that this is a system that can affect the daily lives of all of us who live in, work in, or travel to Manitoba's capital.

As motorists, cyclists, and pedestrians, we naturally desire to get where we are going quickly and safely. But, more than that, we want to feel that we are being treated equitably and treated well by the system that we all navigate. *Why does this red light last so long when there is no cross traffic? Why do drivers always seem to get priority over walkers (or the reverse)? Why does it take forever to turn left onto a high-speed roadway? And, once I get on, why do I encounter so many traffic lights and they all seem to be red? Why can't they synchronize these lights for me?* More than just curiosity, these questions invoke passion.

Fortunately, Mr. Jonathan Foord, EIT, Signals Asset Engineer was on hand to present an explanation of both "why it is the way it is" and "what is being done about it".



Fun fact about Winnipeg: There are no freeways within the urban area (unless you count the mile-long Disraeli ...). You would be hard pressed to find another city of similar size that does not have an extensive freeway system with grade-separated interchanges. That leaves us with the not-so-fun fact that a whopping 658 'signalized' intersections have been built, with the apparent sole purpose of interrupting and impeding our cross-city journeys.

To the rescue: Winnipeg's new Transportation Management Centre (TMC), described as a 'traffic nerve centre,' opened in January 2017 with the twin goals of improving traffic flow and providing real-time, actionable traffic information to drivers. The 'nerves' provide the communication foundation for the system. Their performance is critical. We know from experience that nerve failure leads to pain and trauma.

THE OLD WAYS

Past attempts at traffic-signals communication and synchronization have included, for example, point-to-point electrical wiring connecting 'old-style' electro-mechanical signal

controllers in downtown Winnipeg.

A more high-tech example is the digital fibre-optic based centralized intelligent transportation system in Chicago. In Winnipeg's experience, the unfortunate occurrence of one cut tie-line wire lead to a painful downtown-wide failure of all traffic signals.

Chicago's traumatic experience has been more of a financial nature. The State of Illinois reports that \$75 million was spent to connect just 10% of Chicago's 3,000 intersections. The million-dollar-per-mile cost of fibre interconnect and a lack of maintenance have meant that a project started in the 1990s has left that city with only a few signals communicating with the central system. Little wonder that that both of these schemes have been abandoned.

THE NEW WAYS

But fear not, oh beleaguered Winnipeg driver/pedestrian/cyclist! Reliable digital signal controllers, inexpensive 4G cellular communications, cost-effective cameras, and radar-based vehicle detectors now underpin Winnipeg's system. Real-time communication from signals controllers at each signalized intersection and from

76 cameras at selected intersections can now provide information to a central control system on issues such as collisions, stalls, adverse weather, barricades, signals/camera malfunction, and special events (Bombers, Jets, etc.). Control-room technical staff are then able to monitor and correct problems by remotely modifying signals timings or dispatching repair crews.

While cellular communication offers high-bandwidth digital communication from in-pavement and over-roadway sensors and cameras, it has its limits. "Cellular modems can drop out," Mr. Foord admits. And the system is limited to the type of information that can be captured and digitized at each specific intersection. Luckily, the TMC receives information feeds from other sources, specifically verbal reports via 311 and real-time tracking of individual vehicles via something called the 'Waze app'.

THE NEW WAZE

In 2016, the City of Winnipeg joined the *Waze Connected Citizens Program*, a free, two-way data exchange where the City provides Waze with advanced and real-time road-closure, construction, and incident data. In exchange, Waze provides the City with real-time, anonymous, Wazer-generated slowdown and incident information.

I would be willing to bet that most of us more-senior engineers had never thought we could be Wazers, or heard of the GPS-based geographical navigation application program called Waze. However, this app (now offered by Google) is fast becoming an established piece of the new Internet-enabled sharing economy with at least 75 million users worldwide. In addition to sharing your vehicle's location (anonymously) with the TMC, Waze lets you share information on your drive, your ETA, and your location with friends and family.

All you need in your car is a hands-free, mounted, GPS-enabled smartphone with the free Waze app installed. Then, you, too, can be a Wazer! Any and all Wazers can get traffic information from the TMC to help decide which routes to take and which routes to avoid.

While the hands-free, mounted Waze set-up is said to be fully legal, there was some sense among the lunch-time

audience that the potential distracted-driver issue may not be fully resolved and it was noted that, where possible, a passenger may be the better Wazer.

THE FUTURE WAYS

Having fed us the technological scoop on the new system, Mr. Foord closed out his luncheon talk looking to the future of the TMC as a virtual onion. "When you start looking at it, there are so many layers, it's like an onion." Among the layers of future data integration could be things like train crossing time/location prediction, transit-system priority for special events, signal pre-emption for emergency vehicles, and even "adapted traffic-signal control."

While we don't know exactly what the future holds, we all left the luncheon with our hunger for technical detail satisfied. That was, of course, the goal of the luncheon sponsor, the Canadian Society of Senior Engineers (CSSE) – Manitoba Branch. But, if you find your future techie-self hungering for more and different kinds of knowledge, why not seek out a menu of future CSSE topics via the contact the info you can find at www.seniorengineers.ca.

OH, AND ABOUT THOSE CAMERAS...

Able to see three kilometres distant, the camera at Fermor & Lagimodière can zoom to show what is happening (albeit with limited detail) at the South

Perimeter & Lagimodière. Now, that's a big picture! Blowers and heaters remove dust and ice from the lens, while rapid tilting shakes off snow, and rapid panning flings away water (anyone remember those centrifugal/centripetal forces from first year?).

Default resolution prevents the identification of personal information such as license plate numbers, or facial recognition. Digital privacy masks are used to restrict the zoom-in view around areas where privacy is expected. Indeed, using only a laptop, Mr. Foord was able to remotely zoom one of the intersection cameras during his talk, which was held at the Engineers Geoscientists Manitoba office. While viewers could see the house, the entire picture window of the house was blacked out in the video image, making it impossible to see inside the house.

At the Winnipeg TMC, cameras are not used for detection of issues. Rather, the video is used for verification, understanding and monitoring of a situation that has been detected by other means. A data-driven video wall provides situational awareness to operators at the TMC, located in the City's Traffic Signals Branch building on Elgin Avenue. Cameras (along with Waze-generated actual-speed data) also aid in the conduct of traffic studies. Each camera costs about \$2,600. Hunger satisfied, indeed! ☺



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The CIPWIE Mentorship Program: A 30 by 30 Initiative

By K. Atamanchuk, P.Eng., MBA, PMP

The Committee for Increasing the Participation of Women in Engineering (CIPWIE) is an operating committee within Engineers Geoscientists Manitoba whose goal is to promote the inclusion of women in engineering by focusing on issues related to awareness, equity, recruitment, and retention. One of CIPWIE's main objectives is supporting Manitoba's push towards achieving the Engineers Canada 30 by 30 goal, which is to raise the percentage of newly licensed engineers who are women to 30 per cent by the year 2030¹. In 2016, only 14.1% of newly licensed engineers in Manitoba were female², indicating there is much work to do. While recruitment of young women into engineering programs plays a significant role (and there are a number of initiatives already underway to address recruitment), CIPWIE acknowledged that retention of women who have already selected engineering as their career path is also an important consideration in achieving the 30 by 30 goal.

To that end, CIPWIE developed a mentorship program in 2015 to help address retention of women in the profession. The initial pilot program consisted of 35 female engineering students paired with 33 female professional engineers in a student-driven relationship to provide students with an opportunity to see what a career in engineering could look like and to provide professional engineers with an opportunity to hone their mentoring skills and expand their professional network. In fall of 2016, the program, which operates from September to March, was expanded to 105 participants, and included the addition of members-in-training (or protégées), creating tri-party mentorship teams. In addition to providing career advice, the program addresses retention, as it allows all participants to develop a network of women to provide support, information, and guidance in a male-dominated industry.



“A big part of mentorship is providing new perspectives and enabling skill development in a different context. It is these new perspectives that contribute to creating a more resilient and change-embracing employee who is open to looking for win-win solutions.”

CIPWIE Mentorship Program Mentor

The CIPWIE Mentorship program is offered at no cost to participants thanks to the generous support from our program sponsors, including, the University of Manitoba – Faculty of Engineering, Friends of Engineering Manitoba, Inc., Engineers Geoscientists Manitoba, and the NSERC Prairie Chair for Women in Science and Engineering (CWSE), Dr. Annemieke Farenhorst.

The program itself is structured around four formal mentorship events. The kick-off event, held in October 2016, provided mentorship teams with an opportunity to meet each other, establish ground rules and goals for the mentoring relationship, and network with their team and others.

“The CIPWIE Mentorship Program provided me with an opportunity to connect with a mentor with valuable, relevant experience. She gave me advice on professional matters and provided a clearer perspective of what it is like to be a professional female engineer.”

Student Participant

The second event, held in November 2016, included a panel discussion entitled “Managing Transitions – It’s All About You” that focused on the various transitions engineers face in their careers – the transition from school to the workplace, the transition from MIT to P.Eng., transitions in jobs and work responsibilities, and transitions in and out of the workplace due to parental or sick leave.

Three technical tours were held in February 2017 to provide an opportunity for mentorship teams to get out and learn about different areas of engineering. Tours were held at the Manitoba Electrical Museum, the Royal Aviation Museum of Western Canada, and Price Industries. The program’s final event was held at De Luca’s Cooking Studio in March 2017, where

participants were treated to a cooking demonstration and delicious dinner. All events included time for teams to network amongst themselves and with others in the program. Between formal events, mentorship teams were encouraged to maintain contact at least once per month. On average, participants were in contact with their mentorship teams eight times over the course of the program in various forms such as email, phone calls, site visits, and lunch meetings.

"Being a mentor, it is great to meet young females currently enrolled in school to become engineers. It's also a great way to meet other professionals in Winnipeg."

Mentor Participant

Feedback on the first two years of the CIPWIE Mentorship Program has been very positive. Significant time and effort is put into the mentorship matching process, where participants are matched based on common technical area of interest (i.e. engineering discipline), career path interests (for example, technical, construction, project management, or business development), or by common extra-curricular activities. While this is a somewhat subjective matching process, the ultimate goal is to team participants in such a way as to maximize the chance of creating a mentorship team that 'clicked'. When surveyed, approximately 70% of participants indicated that they had 'good' to 'very good' compatibility with their mentorship team.

"I have had no female P.Eng. mentors in my work experience and this program gave me that connection I was missing out on."

Protégée Participant

A successful mentorship program can be viewed as one that encourages participants to seek out further opportunities to build professional and personal relationships. And while it is too early to measure the impact the program has had on retention within the profession, initial success in the CIPWIE Mentorship Program is indicated by the fact that over 69% of participants said they were 'likely' or 'very likely' to

remain in contact with their mentorship team after the program concluded and approximately 80% of participants said they would reapply to the program in future years. These figures suggest a continuation of interest in not only mentorship, but in the engineering profession as well.

If you are interested in joining the 2017/2018 CIPWIE Mentorship Program, the call for protégées and mentors will go out in August 2017 via Engineers Geoscientists Manitoba and for engineering students in September 2017.

In the meantime, if you have any questions about the program, or would like further information, please contact Kathryn Atamanchuk (kathryn.atamanchuk@umanitoba.ca).

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Made in Manitoba Myoelectric Prostheses

Emerging Technologies Enabling Rapid Development and Affordable Manufacturing

By L. Robinson, P.Eng.

Matthew Gale is a Winnipeg-based technologist who has turned an interest in assistive technology into a mission to reduce the cost of myoelectric-controlled prostheses for young amputees. Myoelectric-controlled prostheses are artificial replacements for a part of the body that use the electrical signals generated by residual limb muscles for user control, allowing for enhanced functionality and more natural movements. However, the cost of developing and manufacturing such devices can be prohibitive for many people – particularly for children, who can quickly outgrow the devices. The solution to this problem may lie at the intersection of the emerging technologies of additive manufacturing (commonly known as 3-D printing), and open-source software/hardware. Through the use of these technologies “...the ability to create patient-specific devices quickly and inexpensively is going to change the industry” according to Gale.

Gale has had a long time interest in assistive technology, but was unsure of how to get involved until a few years ago. He began volunteering at The Children’s Rehabilitation Foundation and met Dan Mazur, the Director of Prosthetics and Orthotics at the Rehabilitation Centre for Children. At the time, he was also working for Precision ADM, which specializes in additive manufacturing – allowing Matthew and Dan to collaborate and bring some of Dan’s ideas for 3-D printed applications to life. “This worked out well, as it gave us easy access to the technology, and Precision ADM was very generous in discounting the printing. We printed a few different devices for some kids, and they turned out great.” Indeed, the versatility, affordability, and speed of manufacture allowed by additive manufacturing have played an instrumental role in enabling Gale to innovate in his designs; “You obtain the



ability to create complex geometry that would normally be very challenging and expensive to produce using any other manufacturing method.” When speaking of his work experience with Precision ADM and Winnipeg’s Orthopaedic Innovation Centre, he also highlights the importance of professional mentorship in the development of his technical skills and knowledge; “I had the luxury of working with some incredibly talented people in the biomedical engineering and additive manufacturing fields. I was exposed to many additive manufacturing technologies, and received some very specialized training in both plastic and metal 3-D printing.”

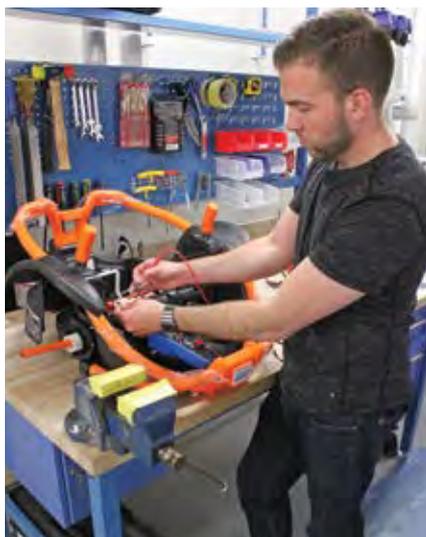
Through these experiences, Gale became more familiar with the available options for myoelectric-controlled hands. Determined to address their costliness, he decided to draw on his personal experience with robotics and microcontrollers to found his own company, Northern Bionics, to develop affordable prostheses. Last fall, he gave a 90-second pitch with no slides and no Q&A to a panel of judges at the North Forge Pitch Idol and walked away with the top prize of \$1000. He speaks highly of the experience: “Competing in the North Forge Pitch Idol contest was a great

experience. Pitching my idea to a large audience and panel of judges made me pretty nervous, but it was an invaluable experience, as it really makes you think about every detail of your idea and business plan.” North Forge is a non-profit, collaborative, innovation network conceived by the teams behind The Eureka Project, AssentWorks, Ramp Up Manitoba and the Startup Winnipeg program. Membership with North Forge allows potential entrepreneurs access to an extensive range of fabrication equipment to create their prototypes and products. Gale also gives credit to the North Forge staff and the mentorship services that they offer for helping his product development journey “They are an amazing group of people that want to do everything they can to help you succeed.”

Commenting on the technologies that have enabled his research and development, Gale says that open-source hardware and software, particularly inexpensive microcontrollers such as the Arduino family of products, has been key to allowing the rapid development of his prosthetic prototypes. Open-source hardware and software allow developers and users from around the world to contribute to a project and release their own variations of the original.

Contributors do everything from writing code and designing electrical-systems architecture, to producing documentation. Connected to the Internet, this can allow wide distribution of ideas and designs. "In the past decade, the speed of development and quantity of open-source microcontrollers, peripherals, and software like Arduino have made it less complicated to develop a prototype. There is a ton of information on the Internet, combined with so many people who are willing to help with your project." Gale says that 3-D printing has been key to the development of his prostheses, but admits that it won't fully replace conventional manufacturing any time soon. Rather, "3-D printers are just another tool, but they are a very powerful tool that will change how many devices are designed and manufactured." When asked to describe his biggest technical challenges, he says "Understanding how to make the device as usable and effective as possible was my steepest learning curve. The electrical and mechanical design was challenging, but I had zero experience designing a prosthetic device that a child would be using (and trying to destroy) day in and day out." He credits Dan Mazur with providing lots of very helpful input and guidance on prosthetic design.

Gale continues to move forward and has recently accepted a position as the Rehab Engineering Research & Development Coordinator at the Rehabilitation Centre for Children. Northern Bionics has also received a TechFutures grant from the Province of Manitoba to fund further development.



He says his next milestone is to ensure the safety and efficacy of the device so that regulatory approvals from CSA and Health Canada can be pursued. When asked what advice he would give students or young professionals who want to enter the field of biomedical engineering, Gale comments that "It's a much smaller job pool than manufacturing and some of the other more common engineering disciplines, but if you are patient and persistent you will land your dream job, or start something really cool, or both! It's incredibly rewarding to use your

knowledge and skills to help people who need it." Despite the complexity and challenges of improving the access and affordability of prosthetic devices, the reward and fulfillment of being able to affect the basic physical means by which people interact with their world will make all the effort worthwhile. Certainly, it will be exciting to see how emerging technologies continue to enable Matthew Gale and others working in the biomedical engineering field to embody the ethic of "My Life's Work Makes Life Work Better". ☺

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Spaghetti Bridge Competition

A SMASHING SUCCESS

By S. Goldstein

2017 marked yet another record year for the annual Engineers Geoscientists Manitoba Spaghetti Bridge Competition. Like last year, the competition was held over three consecutive days, making it easier for school groups to attend. There were 661 students who competed, building 319 trusses which were tested to breaking point during the event. Prizes were awarded for the strongest structure from each grade, and a team from Shaftsbury High School earned the top spot when the team's truss bore a 192.7 kg load before breaking!

"It's great to see so many students and teachers joining us this year to build strong entries in support of Winnipeg Harvest. Many bright, young minds applied a lot of engineering ingenuity with glue and spaghetti; participation has increased steadily each year. This year's contest entries held up **27,018 lbs.!**" Grant Koropatnick, P.Eng. FEC, Engineers Geoscientists Manitoba CEO & Registrar.

Engineers Geoscientists Manitoba donates \$1/lb to Winnipeg Harvest, who turn it into 20x with their buying power. With matching food donations from partners Canada Safeway and Peak of the Market, Winnipeg Harvest will receive almost 600,000 lbs. of food from the 2017 Spaghetti Bridge Competition!

"I'm absolutely thrilled to see we've set a new record for total weight and a new record for donations!" stated Kate Brenner, Managing Director of Winnipeg Harvest. "This event brilliantly educates young people on the value and importance of engineering, while teaching the virtues of compassion and empathy for those in need. Considering that 43% of the 61,914 monthly food bank users we assist are children, we are not only building bridges to span distances, but bridges to a better future. I thank Engineers Geoscientists Manitoba once again for their continued support for the families Winnipeg Harvest serves, and for continuing to inspire youth to excel in engineering."

The Spaghetti Bridge Competition was part of a series of events to celebrate Provincial Engineering and Geoscience Week (PEGW). The celebration is part of a National Engineering Month occurring across Canada throughout March 2017. PEGW also promotes careers in engineering and the geosciences to young people of all ages. ☺





Geology and Society: DIAMONDS

By R. Reichelt, P. Geo., FGC

*I dug up a diamond
Rare and fine
I dug up a diamond
In a deep dark mine
If only I could cling
To my beautiful find
I dug up a diamond
In a deep dark mine'*

In his 2006 song, *I Dug Up A Diamond*, Mark Knopfler uses the search for diamonds as a metaphor for the search for true love. Leaving aside the search for love for now, let's look at diamonds as a mineral and jewel.

Characteristics and Geology

Frederick H. Pough's handy field guide to rocks and minerals describes diamonds as being composed of pure carbon, cubic crystal system, perfect cleavage, a hardness of 10, varying in colour but usually yellow to clear². Diamonds are found in kimberlites, intrusions of ultramafic rock that originated deep in the earth's mantle³. The ages of the intrusions vary from approximately 3600 million years old (Archean) to less than 65 million years old (Cenozoic) but they are always found in stable continental cratons⁴.

Diamonds were formed in extreme conditions of heat and pressure at depths of 300 to 800 km below the surface⁵. Mantle plumes appear to have been important in the formation of kimberlites by bringing hotter mantle material to shallower depths where it began to melt to form kimberlites; these kimberlites melted then intruded into the continental crust, bringing the diamonds with them⁶. Erosion of kimberlite deposits can produce supergene diamond deposits where the kimberlite is eroded away and the diamonds remain⁷.

Production and Uses

Diamonds are produced in 35 countries throughout the world. The three leading producers are Russia, Botswana and Canada⁸. World production of industrial diamonds in 2015 was estimated at 127 million carats⁹. In 2015, Canadian mines produced 11.7 million carats of diamonds valued at \$2.1 billion¹⁰.

Figure 1 shows the location of diamond mines and projects in Canada.

A recent news report indicated that diamonds had been found in Manitoba near Knee Lake¹¹.

Diamonds are used for industrial applications and jewelry; only 20% of the diamonds from a mine are suitable for jewelry, the rest is used for industrial purposes¹². Industrial uses for diamonds are largely in cutting tools and abrasives¹³. An interesting property of diamond is its high thermal conductivity; this makes it extremely useful in heat sinks in electronics¹⁴.

In the United States, natural diamonds have been largely replaced by synthetic diamonds in industrial uses since quality is more consistent with synthetic diamonds¹⁵.

Figure 1. Diamond Mines and Advanced Projects in Canada, 2015





The ancient practice of people exchanging gifts makes diamonds ideal for high status gifts. Building on this traditional practise, De Beers has geared their marketing of diamond jewelry to satisfying the demand for engagement rings and other tokens of affection and commitment¹⁶. The diamond jewelry business has an estimated worth of US \$72 billion-per-year¹⁷. If we are to believe the marketing from De Beers, a gift of diamond jewelry is an indication of true love.

Last Word

And so we return to Mr. Knopfler's search for true love. While not the "last word" by any means on this subject, here is what he has to say later on in the song quoted at the beginning of this article:

*Maybe once in a lifetime
You'll hold one in your hand,
Once in a lifetime
In this land
Where the journey ends
In a worthless claim
Time and again
In the mining game*¹⁸

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ENGINEERS AND GEOSCIENTISTS MAKE THE WORLD WORK BETTER

P.GEO.
A
GEOSCIENTIST
WAS HERE.

By J. Loepky

Last fall, you may have noticed a spotlight on Engineers and Geoscientists. Working with Engineers Geoscientists Manitoba, Honest Agency created a campaign to increase awareness around all that these two deserving professions do for each one of us, every day. Thus, the campaign “An Engineer Was Here” and “A Geoscientist Was Here” was born.

After a recent rebrand of Engineers Geoscientists Manitoba from their previous name The Association of Professional Engineers and Geoscientists of Manitoba (APEGM), it was the perfect time to create an awareness campaign. The goal was to raise Engineers Geoscientists Manitoba’s profile, create membership dialogue, reflect the competency and ethics of these two professions, and generate public interest in hopes of not only increasing knowledge around the engineering and geoscientists designations (P.Eng. and P.Geo.) but to also to begin to develop relationships with government, media, and educational institutions.

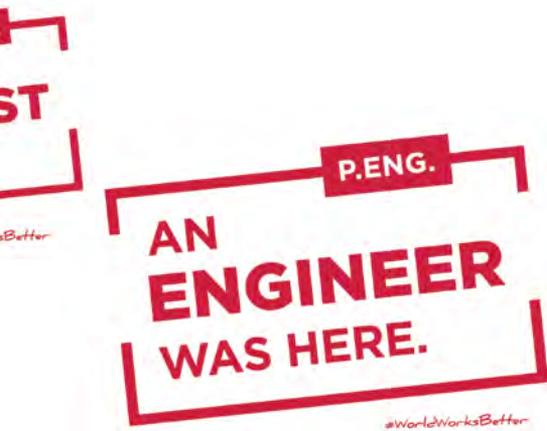
A product of a larger brand and advertising strategy, the campaign goals came to life visually through the use of stamp graphics applied to different media, boasting the slogans “An Engineer Was Here” and “A Geoscientist Was Here.” While the slogans created a sense of pride in members and cognizance in the public, the campaign tagline “Making Your World Work Better” ingrained the concept that without the expertise of engineers and geoscientists, our world would work much differently.

The campaign took an unexpected and unique approach when much of the information within the campaign itself related to the actual media on which



it appeared. Facts about engineering and geoscience appeared on transit shelters, buses and elevators – each with artwork specific to the medium – describing materials, mechanical feats, electrical accomplishments, and more.

A theater commercial, TV spot, and radio announcement were all developed with the same concept in mind – increase awareness of these professions by highlighting the fact that the things we enjoy and take for granted every day



would not be possible without an engineer and/or geoscientist.

The campaign launched during the Ingenium 2016 Conference, at the Fort Garry Hotel in Winnipeg. Taking full advantage of having so many members in one location, we decaled the inside of this historic hotel's elevators highlighting the many features and materials it takes to make it work. One elevator was dedicated to engineers and the other, geoscientists. Large format posters and brochures were created and distributed to inform members about the campaign and how they could take part. This included wearing and distributing the buttons that were created with the campaign slogans and using printed oversized postcards for sharing work and interesting facts on social media.

Outdoor billboards and a concentrated social media presence rounded out the campaign. Rather than highlight the billboards themselves, this media focused on inanimate objects, and the campaign slogan was modified to include the benefit that engineers and geoscientists brought to your life. Social media carried forward a stream of related articles, images with facts, and local images incorporating the conference postcard.

The success of the campaign was evident in the comments received from members and non-members alike. The increase in social media engagement on both Twitter and Facebook was encouraging, not just because of the volume, but because of the quality of engagement. The insights and comments from participants demonstrated that the campaign resonated with our audiences. And it provided the perfect platform on which to build phase 2 of the strategy in 2017. ☺

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P.L. Bonham	J.L. Johnson	S.E. Murray	A.J. Rosenblat	T. Zateyev
R.C. Callbeck	C.J. Kaminski	R.D. Neuman	M. Saediamiri	A.R. Zawadzka
D.J. Casar	A.K. Kapuge	R. Neupane	R. Samadi	Z. Zhang
S.F. Cooke	Kariyawasam Mudalige	M.J. Niemczyk	R. Sandhu	W. Zhong
Q.J.J. Daniel	S.K. Kapuge	A. Nirmal	D.B. Shymko	
Z.A. Dastgheib	Kariyawasam Mudalige	M. Nuruzzaman	C.R.E. Smith	

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In Memoriam

Robert Rudolph Handler
 Lawrence Arthur Buhr

The Association is changing Domains. All email addresses are now @EngGeoMB.ca. Please visit the "Contact" page on the website for the updated contact list.



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Notice to Members

Annual General Meeting

The 2017 Annual General Meeting of Engineers Geoscientists Manitoba will be held at 2:30 p.m., on Thursday, October 19, 2017 at the RBC Convention Center Winnipeg, 375 York Avenue, Winnipeg, MB.

Nominations for Election to Council

The Nominating Committee of the Association requests recommendations from members and interns for nominees who they consider to be qualified to participate in the governance of the Association and who are willing to serve the engineering and geoscience professions in Manitoba. There will be two professional engineer positions, one professional geoscientist position and one Intern position to be filled as of October 2017.

The Committee will consider recommendations received by the

secretary up to the close of business on Thursday, September 7, 2017. In the event insufficient recommendations are received, the Committee may exercise its prerogative to put forward a slate of candidates for election that is equal to the number of positions to be filled. Persons submitting a recommendation are required to obtain the consent of the professional member being recommended and to provide a curriculum vitae or biographical sketch.

Members can also be nominated directly and be on the ballot for the 2017 election by the completion of the prescribed nomination form. Nomination and resume forms may be downloaded or obtained from the Association office. Persons submitting a recommendation are required to obtain the consent of the nominee.

By-Law Changes

By-Law 17.1 prescribes that any proposal to introduce new By-laws, or to repeal or

amend existing By-Laws, must, unless initiated by the Council, be signed by not fewer than six members. Proposals must be given to the secretary at least 42 days before the meeting. In this case, the date for the receipt of a proposal is Thursday, September 7, 2017.

Resolutions

By-law 5.1.4 prescribes that resolutions put forward at an Annual General Meeting must be in writing, signed by the mover and seconder, and received by the Secretary no less than 48 hours prior to the commencement of the meeting. Either the mover or the seconder must be present in person or by distance conferencing at the meeting for the resolution to be considered.

Grant Koropatnick, P.Eng., FEC
Secretary ☎

Heritage Corner

By Heritage Committee

The Heritage Committee wiki website is a collection of significant engineering and geoscience related projects built within Manitoba, and around the world, by our members over the past 100 years. In addition, there is an archive of material containing Association historical records including past publications. Over the past year a notable amount of new content has been added to the wikisite. You are encouraged to explore the site and learn more about the engineering history of the province.

Forty Percent Increase in Membership!

"The Association of Professional Engineers of the Province of Manitoba is fast becoming one of quantity as well as quality. At the meeting of Council held on August 9th, 141 new members were admitted. At the time of publication of

the last issue of *The Manitoba Professional Engineer*, there were 677 members. At the present time membership stands at 809 ..." *Excerpt from the September 1956 edition of The Manitoba Professional Engineer, the forerunner to the Keystone Professional.* (Footnote –on the math! Although not entirely clear, there were 677 members reported in the previous issue, 809 members currently, and 141 new members this month, resulting in a 40% change to that point in time (809+141)/677).

To read further about this and other past news articles see; http://heritage.apegm.mb.ca/index.php/File:1956-09_Manitoba_Professional_Engineer.pdf.

Controversial Hudson Bay Railway Approved, 1908

"The Hudson Bay Railway is a historic rail line between Winnipeg and the

Hudson Bay, 1000 km to the north. The approval and construction of the railway in the early 1900's was a political and controversial issue at the time. The greatest issues involved the selection of the rail lines destination port at either the mouth of the Nelson River or Churchill River in Hudson Bay, and the desire to counter the Canadian Pacific Railways monopoly on grain movement out of the prairies. The rail project was finally approved by the federal government in 1908."

To find out the full story behind this controversial project see; http://heritage.apegm.mb.ca/index.php/Hudson_Bay_Railway.

The Heritage Committee Wiki website can be found at, http://heritage.apegm.mb.ca/index.php/Main_Page. ☎

Our History – Photo Contest

Can you identify the photo below? What is it? When was it taken?

If you know the answer it will put you in the same league as Dwight Kjartanson, P.Eng., and Bill Brisbin, P.Eng., who both correctly identified the photo published in the Spring 2017 issue of this publication. However, the timing of their submissions was so close (a matter of email and snail mail) that they are both declared winners.

The correct answer was the dredging of the channel that it is the part of the Winnipeg Aqueduct system which diverts Falcon River water away from Indian Bay into Snowshoe Bay, thereby isolating Shoal Lake Band 40. The photo was circa 1915. Today, the “Freedom Road” will restore Band 40’s access to the other lands of the indigenous peoples.

Now is your opportunity to be the next winner. If you can correctly identify what is in the foreground of the photo below, you too will qualify for a free lunch while attending a meeting of the Heritage Committee.



The centennial of Engineers Geoscientists Manitoba is fast approaching! As part of the planned celebration, the Heritage Committee will be assisting the CEO’s Centennial Task Group in gathering engineering and/or geoscience themed photos that highlight the contribution of the professions toward “making life work better”. The Heritage Committee asks that if members or companies have interesting historic photos to please forward them to, or contact Dave Ennis at heritage@EngGeoMB.ca.

While not all photos will be published, the Heritage Committee will preserve those judged to have historical significance in its archive of documents and photos. See http://heritage.apegm.mb.ca/index.php/Main_Page for information on the Heritage Committee’s preservation work. ☺

The Heritage Committee aims to:

- Research, recover, preserve and protect the heritage of engineering and geoscience as it relates to Manitoba
- Present our heritage to Association members and to the public of Manitoba
- Work with other groups and organizations that have common objectives
- Maintain the Heritage Wiki Site

Manitoba “Engineers are Everywhere” campaign gets noticed!

The Professional Engineers of Ontario (PEO) recognized Manitoba’s recent publicity campaign in their *Engineering Dimensions* publication. The campaign ran from October 1 to December 31, 2016 and was focused on increasing the awareness of the P. Eng. designation, and the variety of roles engineers play in improving our society. The PEO council has been exploring the possibility of implementing a similar campaign in the near future, promoting the value proposition of professional engineering.

The engineering profession, and the variety of roles that engineers play in society, has evolved over the past century to be much broader than in the past. The word *engineer* dates back



to the 1325 when the Oxford dictionary described it as “one who operates an engine”. We have come a long way from primarily operating trains, and Engineers Geoscientists Manitoba has recognized the growing need to show the public just how much engineers influence

their everyday lives. It appears the campaign is having the desired effect, but it shouldn’t stop here. How do YOU add value to society as an engineer?

#AnEngineerWasHere ⊕



New Members Luncheon



New Members in attendance at the February 7th, 2017 New Members Luncheon, where they received their official license certificates.

CHAPTER UPDATES

The Arab Members Chapter

The Arab Members Chapter was officially approved by Engineers Geoscientists Manitoba on January 19, 2017, with membership in the Chapter open to all interested engineers and geoscientists regardless of their professional status or background. Engineering and geoscience students are also welcomed.

The objectives of the Chapter are:

- To encourage and facilitate the study, discussion, and exchange of ideas and information among the members on all questions of interest as engineers or geoscientists, and as citizens.
- To promote, undertake, and/or engage in such programs, functions, and activities that will contribute to the professional growth and career development of its members.
- To establish a registry of Arab professional engineers, geoscientists, and Interns within the province.
- To support the educational aspirations of future members by granting academic scholarships to deserving Arab-educated engineering or geosciences professionals.
- To undertake and/or engage in community projects or otherwise cooperate and/or collaborate with community service oriented groups, or entities in their programs, projects, and activities.

The first Chapter event was held in March 2017 at the Université de Saint-Boniface. The event consisted of two parts: a technical presentation by Samir Hammad, P. Eng., titled "The Road to Practice Engineering," followed by networking between members and guests.

The presentation's topics included; how newcomers to Canada can get



Chapter members attending one of the Chapters professional development workshops.

their qualifications recognized in Manitoba, the registration process of Engineers Geoscientists Manitoba, some tips and recommendations on writing résumés for successful interviews, how volunteering plays a major role in approaching employers, and also information on how to gain work experience here in Manitoba.

The Arab Chapter is currently comprised of seven professional members, nine Interns, and four students. The Executive of Chapter is as follows:

- President – Mohamed Matar P.Eng., MSc., PhD., CE, PE

- Vice President – Kassem Harb P.Eng., MBA
- Treasurer – Moh'd Zeid P. Eng.
- Secretary – Youssef Mouzahem EIT, PMP, LEED GA
- Technical Advisor – Samir Hammad P. Eng.
- Councillor – Mike Toma P. Eng
- Councillor – Ahmad Kanaan P. Eng

For any inquiries, ideas, or presentation proposals, please contact us by email at egm.arab.chapter@gmail.com. ☎

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The Chinese Members Chapter

Engineer Geoscientists Manitoba Chinese Members Chapter was established by a group of enthusiastic Chinese originated registered professional engineers in 2013. One of the primary objectives of the Chapter is to assist, support, and provide mentorship for members to become registered professional engineers with the Association. The Chapter currently consists of over 110 registered members, including professionals, interns, technicians/technologists, and students in engineering related fields.

The Chapter actively organizes events and activities to encourage and facilitate the study, discussion, and exchange of ideas and information on all points of interest for engineers. The most recent event was the Annual General Meeting on January 26, 2017, with an attendance of more than 50 Chapter members. Representatives from the Filipino and India Chapters were also invited and attended the meeting. Two keynote speakers, Professor of the Department of Biosystems Engineering at University of Manitoba, Dr. Qiang Zhang, P.Eng. and Association President Lindsay Melvin, P.Eng, spoke on the topics "Communication and Engineering" and "Expectation on Engineers", respectively. Both presentations were full of inspiration and well received by the Chapter members.

In 2016, the Chapter organized a number of activities to promote learning and create networking opportunities for members. This included a 3D metal printing technical tour with Precision ADM, in October, the project management seminar with Mr. Cheng Wong, Technical Director and senior



Chapter members at Precision ADM for a 3D metal printing tour.

project manager of AECOM, in May, and the summer picnic event, which was opened to all Chapter members and families in July at St. Vital Park. In addition to those activities, five members of the Chapter participated in the Manitoba Marathon race in June to strengthen the connections between our Chapter and the community.

In addition to setting up an Internationally-Educated Engineers Qualification (IEEQ) Academic Excellence Prize at the University's Faculty of Engineering, which is a joint effort with IEEQ administration, the Filipino and India members Chapters, the Chinese Members Chapter has also established an annually funded entrance scholarship for international students entering

the Faculty of Engineering directly from high school. The Chinese Members Chapter scholarship will begin in the academic year of 2017-2018.

The Chapter will continue creating new opportunities to help members build skills, network, and give back to the community. This commitment will only be realized with the active involvement and generous support from our volunteers and sponsors. Anyone with engineering background is encouraged to become a member of the Chapter. For more information, please feel free to email us at apegmchinesechapter@gmail.com or visit the Chapter's website at www.apegm.mb.ca/ChineseChapter.html. ☎

CHAPTER UPDATES

The Filipino Members Chapter



Chapter members and families at the annual golf and family picnic event.

In March 2016, members of the Filipino Members Chapter (FMC) elected the following new set of officers for 2016-2018: President, Ethel Fernandez; VP-Technical, Nancy Santoyo; VP-Finance, Ray Sator, VP-Communications, Franz Kasala and Councillors, Jess Giba, Gladys Paciente, Joy Oserio, and Leo Aguila. They will be leading the Chapter to continuously uphold the Chapter's objectives for the next two years.

The new set of officers didn't waste time and started setting new goals and planning activities for the rest of the year.

In June, the Chapter participated in Philippine Heritage Week organized by the Philippine Heritage Council of Manitoba. The members commemorated the 118th anniversary of Philippine Independence Day through a flag-raising ceremony allowing participants to experience and share the unique Filipino culture. This week-long event provided

visibility for the Chapter within the community through interaction with other Filipino organizations.

The annual golf and family picnic event was arranged in early summer for members, families, and friends to enjoy the warm weather, great food, games, camaraderie and a round of golf.

In late October, the Chapter engaged in community service, by helping out at Winnipeg Harvest. In this same month, the Chapter saw the launching of a website (www.fmc-egm.ca) to provide members access to useful information, events, volunteer opportunities, and a link to Engineers Geoscientists Manitoba.

The first Engineering Credential Recognition Process Orientation was organized in early November. The main objective of this event was to encourage professional registration of fellow Filipino engineers and geoscientists by providing guidance and useful information on the credential recognition process. Presentations and

testimonials from six successful members was one of the highlights of the event. With almost 200 participants, the event was deemed very successful.

In early December, the Chapter's annual holiday party included a silent auction to raise funds, not only for our bursary program, but also for Winnipeg Harvest. Event highlights included awarding of bursaries to four student members, and recognition of new interns and professional members.

It was indeed a busy year for the Chapter that saw a membership growth of 24%.

For 2017, FMC will promote better interaction and engagement with Engineers Geoscientists Manitoba and with the support of our members, volunteers and peers, as well as the continuous guidance of the Association; the Chapter is looking forward to another year of productive activities and significant milestones. ☺

The India Members Chapter



The India Members Chapter of Engineers Geoscientists Manitoba is a non-profit organization, consisting of professionals and student members of Indian origin registered with the Association. Formal approval of the Chapter by the Association was received on March 30, 2016, thus creating a landmark occasion for Indian Members of the Association. Subsequently, a logo of the India Chapter was designed with the aim of capturing the essence of India within the Association's context. In addition to providing mentorship, the primary focus of the Chapter has been to undertake programs and functions that contribute to the professional growth and career development of its members. These functions have provided opportunities for its members to meet, exchange views and experiences, establish networks, and most importantly to socialize. The Chapter's current roster comprises of 51 full members, 14 student members, and five lay members.

In June, 2016, the Chapter's first dinner meeting and technical presentation event were held. In addition



Left to Right: C. Vellaichamy, P. Eng. (Councillor), A. Dey, P.Eng. (Councillor), N. Dhruve, EIT (Councillor), J. Paliwal, P.Eng. (VP Technical), R. Gupta, P.Eng. (President), K. Joshi, P.Eng. (VP Finance), V. Banthia, P.Eng. (VP Communications). Missing from photo: S.Goel, EIT (Councillor)

to the executives and guests, almost 40 members attended the event, which included "Desi" styled pizza followed by two presentations; "Competing with Quality – What Engineers Must Do" presented by Dr. Madhav Sinha, P.Eng., and "Communicating Across Culture" presented by Dr. Jitendra Paliwal, P.Eng..

Buoyed by the success of our inaugural event, the Chapter organized a picnic in St. Vital Park on August 2016. With almost 50 people (members and their families) attending on a mostly sunny afternoon, the event was perfect with great food, sports, and camaraderie. The Chapter organized

another dinner meeting and technical presentation event in March 2017. About 35 attendees listened to presentations on "Mobile Substations" presented by Krishnamurthy Vijayan, P.Eng., and "Expectations on Engineers" presented by Lindsay Melvin, M.Sc., MBA, P.Eng., FEC.

With the AGM and annual celebration event planned in the near future, please keep an eye out for us in the Association's newsletter. For further details regarding the India Members Chapter or to be on the mailing list, please feel free to contact Vaibhav Banthia at vbanthia@winnipeg.ca. ☎

The Westman Members Chapter

The Westman Chapter, which consists of eight executive members, experienced a busy 2016/17 season. The Chapter organized numerous professional lunches that have encompassed a broad range of topics for all engineering disciplines. Some of the most notable presentations were:

- "Reliability Concepts & Practices" presented by Ashish Banerji from Koch Fertilizer
- "Manitoba Flood Forecasting" presented by Peter Johnston and Erika Collet from the Hydrologic Forecasting and Water Management Division of



Left to right: S. Whaley, P.Eng., President, K. Cumming, P.Eng., Treasurer, S. Melvin, P.Eng., B. Newton, EIT, R. Johnson, P.Eng., M. Maendel, P.Eng., R. Ashwarya, EIT. Absent from photo, C. Vitt, P.Eng. Secretary, and D. Ford, P.Eng.

- "Challenges of Modern Agriculture" presented by Ron Rabe from DEKALB

- "Engineers & Professional Liability Insurance" presented by Derek Jonson from Oldfield Kirby Esau Inc.

Continued at top of next page.

CHAPTER UPDATES

Continued from previous page.

The Chapter has been active in volunteering its resources and time to community events. Again, members participated in judging the annual Westman Manitoba Science Fair held in Brandon. To help emphasize the importance of engineering to students, the committee implemented an Engineers Geoscientists Manitoba Award for this event. The recipient this year was Christopher Vauzelle with the project "Nothing is Good Without Wind".

The Chapter also setup a display booth that consisted of a spaghetti bridge building contest at this year's Brandon Career Symposium. The Westman booth is always a fan favorite, and again this year did not disappoint, even if attendance was lower than previous years due to a treacherous winter blizzard.

Recognition of Association members who have volunteered and attended the Chapter's events must be acknowledged.

Without their continued support, the Chapter would not be able to host as many professional development functions. Also, thanks are due to the executive committee that consists of Kyle Cumming (Treasurer), Cory Vitt (Secretary), David Ford (past Secretary), Michael Maendel, Ryan Johnston, Ashish Banerji, and Brad Newton for their ongoing support and striving to make Westman an active and successful Chapter. ☕

The Thompson Members Chapter

The Thompson Chapter of Engineers Geoscientists Manitoba is composed of a group of practicing professional engineers and geoscientists, Interns enrolled with the Association and lay members as identified in the By-laws of the Chapter.

The defined objectives of the Chapter are:

- To assist the Association in matters of business when and as authorized by Council,
- To encourage and facilitate the study, discussion and exchange of ideas and information among the members on all questions of interest to engineers, geoscientists, and citizens, and
- To provide a forum for members to formally recognize the voluntary contributions of its members to the Association and as citizens in the community.

The Thompson Chapter has recently been reestablished after multiple years of inactivity. The newly appointed eight members of Thompson Chapter Executive Committee have reviewed and amended the Thompson Chapter constitution and by-laws to align with the Association.



Left to right: J. Lee, P.Eng., Secretary, S. G. Ghouralal, P.Eng., Treasurer, G. Tylerbest, P.Eng., Vice-Chair, N. Handa, P.Eng., Chair, K. Derksen, P.Eng., Past Chair, C. Whitton, EIT, Member at large, H. McMillan, P.Eng., Member at large, and A. Buttner, P.Eng., Communications Officer.

The inaugural Annual General Meeting of the reestablished Thompson Chapter was held April 19, 2017, at the Vale Regional Community Centre (previously TRCC), in Thompson.

Through the initial stages of Chapter restoration, we have committed to or have contributed voluntary participation to the community of Thompson through the following events:

- The Northern Young Women's Conference
- The Northern Skilled Trades & Technology Showcase
- Thompson Elementary School Science Fairs
- Boreal Discovery Center fundraising event
- R.D. Parker Collegiate Hovercraft Team Mentorship

We are also currently working with the School Board of Mystery Lake to publicize and facilitate the annual Thompson Spaghetti Bridge Competition hosted by the Thompson Chapter on May 30, 2017.

The Chapter executive committee is currently establishing an ambitious calendar of events for 2017 in hopes of providing numerous opportunities for members to participate in professional development, mentorship, and networking.

We invite anyone interested in participation with the Thompson Chapter to reach out and inquire by contacting Thompson.chapter@gmail.com, or for more information on the Thompson Chapter, please visit, <http://www.apegm.mb.ca/ThompsonChapter>. ☕

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A photograph of three students standing in a modern building atrium. On the left is a man with dark hair and a beard, wearing a dark blue sweater. In the center is a man with a beard, wearing a dark suit and tie. On the right is a woman with long blonde hair, wearing a dark blue blazer and pants. The background shows a multi-level atrium with glass railings and people walking.

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