

# Ontario Professional Surveyor



*on the cover ...*

**200th Anniversary of the 49th Parallel**

**also in this issue ...**

Surveyor's Notes Solve a Mystery  
Lassonde School Partners with AOLS to  
Encourage Women in Engineering Research  
Building on the Framework of the  
Gordie Howe International Bridge Project

**plus our regular features**

Educational Foundation  
News from 1043  
Book Reviews  
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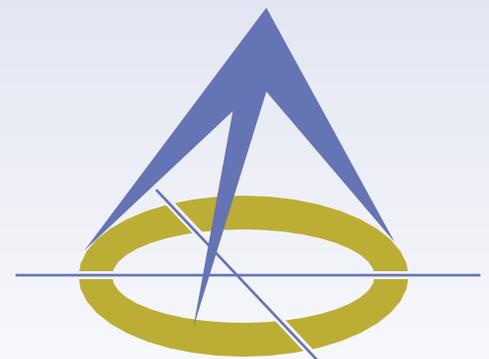
## ON THE COVER ...

The cover photo shows two monuments on the 49<sup>th</sup> Parallel that mark the International Border between the U.S.A. and Canada in Waterton-Glacier International Peace Park. The Park was designated in 1932 and is the union of Glacier National Park (U.S.A.) and Waterton Lakes National Park (Canada). One monument marks the Convention of 1818 and the other marks the formation of the International Boundary Commission in 1925. The photo was taken from the Internet and is credited to Cohen.Canada. Read the article on the 200<sup>th</sup> anniversary of the 49<sup>th</sup> Parallel in The Last Word on page 36.

*Professional  
Surveying  
in  
Ontario*

*encompasses  
the  
Disciplines of*

*Cadastral,  
Geodetic,  
Hydrographic,  
Photogrammetric  
Surveying  
&  
Geographic  
Information  
Management*





# President's Page

By Dan Dzaldov, O.L.S., O.L.I.P.



It is very hard to believe that more than half my term as President has already passed.

To date I have travelled to six Annual meetings across Canada. In June I attended the Saskatchewan AGM in Lloydminster on the border between Alberta and Saskatchewan, and in September, I attended Manitoba's AGM in Winnipeg. I have plans to complete my cross-Canada tour of Associations by travelling to Nova Scotia and New Brunswick before my term ends.

As an example of sister Associations keeping pace with the changing times, we were educated on the subject of marijuana in the workplace in Saskatchewan. This is certainly a subject that we will have to deal with here in Ontario very soon. There was also a very interesting discussion between the Saskatchewan Land Surveyors Association (SLSA) and Professional Surveyors Canada (PSC) concerning the ongoing negotiations regarding the use of the designation PSurv as both groups work towards finalizing a co-existence agreement.

In 2018, SLSA was met with some extremely serious alleged fraud issues committed by their Executive Director. I was impressed by the formative action taken by their President and I was particularly impressed by the support the members showed for both him and his Council prior to and during their AGM. The other association Presidents at the meeting were able to take away many strong financial suggestions to safeguard the assets of their respective Associations. I was comforted to a large degree by the fact that the AOLS has already put many safeguards in place, all the while recognizing that vigilance is of paramount importance.

With no AGMs scheduled over the summer, Manitoba in September provided an opportunity to catch up with other Presidents. While much smaller with just under 60 members, it was interesting to see how many issues and concerns that were similar to Ontario were raised at their meeting.

The Presidents' Forum dealt with a number of issues of national importance, some of which were raised and initiated by Ontario, in particular, the national salary study. We discussed the next steps to be taken after the processing and analysis of the results is completed later this fall.

Another topic that we discussed was collaboration on learning. Also, Alberta provided an update on serious and

crippling changes to their Association's income by the government and British Columbia spoke to a number of issues that should be of concern for all self-governing Associations.

The next meeting will be in Quebec and Al Jeraj will attend on behalf of Ontario. Then I will be travelling to Nova Scotia in the middle of October.

Council has been busy with our regularly scheduled meetings. We met in June for a day, and we held a two-day summer meeting in July, which this year was held in King at a quaint site called Kingbridge. Then we had a half day meeting in the beginning of September.

We unfortunately have had a number of discipline referrals and hearings. The results of these will follow in the normal way. This year we have discussed and intend to start new projects that required Council-approved funding. One of these projects, which we are hoping will be very successful, is "Consulting Services in Regards to Public Relations". This item has continually been flagged and one in which I fully concur is an area we must address.

This summer we had a real-time issue involving the emergence of survey monuments along an active beach that presented a real hazard to the public. While the first priority was to get this resolved, and I must say it was resolved in a matter of very few days, this is a case where a good PR process could have helped us to promote what turned out to be a positive outcome. Members of the Association, Council, government and others all worked together quickly with the survey company who had planted the monuments years ago to get the issue resolved. I would certainly like to thank all involved and single out Jeff Fee in particular for his quick actions to protect the public.

The Province Wide Survey Record Index (PWSRI) continues to develop and very soon it will be made available to members for use on a day to day basis. Council has been very involved with PWSRI at every step of the way.

I am very pleased with the two new additions at the AOLS office. You have all hopefully met, spoken to or seen Tom Packowski and Cynthia Gibson on the webinars. I cannot emphasize enough the positive feedback I have received in both their cases and how pleased I am that they have joined the fabulous staff we have at the AOLS office. We are very lucky to have had great success with recent hires and for that we owe Blain a debt of gratitude.

*cont'd on page 5*

# Executive Director's Notes

By Blain Martin



As the summer turns into fall, I have reflected on the staff's summer vacations and the impact they have had on the AOLS office. Of course it means that different people get more involved with jobs they have the skills for but are not required to do as much as the person who has that particular responsibility.

I am thinking about the Registrar's position and how the Registrar deals with the calls from the public. Bill has been in that position so long and is so good at it that he makes it appear to be easy. When he was on vacation this summer the rest of the OLS staff would field those calls.

Answering some calls myself along with talking to Maureen (Deputy Registrar) and Tom (Survey Review Manager) gave me real insight into the nature of the calls from the public. There does not seem to be a lot of calls where the member of the public thinks the location of the boundary is incorrect. The calls are predominantly from two sources. The first is the surveyor's client and the second is homeowners near or adjacent to a property being surveyed. Let's consider these sources independently.

The client calls seem to be centered on the lack of customer service skills on the surveyor's part. Many will recall Theresa Syer who was the keynote speaker at our Annual Meeting in London 2016. Her focus was customer service and the importance of it in maintaining a successful profitable business. You will recall that prior to that meeting she completed a "secret shopper" exercise where she tested the customer service of many of our firms across the province. The results were not spectacular.

From the calls over the summer, the customer service issues around the client seem to be centered on poor communication, billing problems and lack of timely service. I am certain that I do not have to explain this in detail, but I will say that clients should be contacted if there is any change in the service being provided. This includes any survey issues discovered once the job is started along with anything that would delay the project results from being delivered. Of course the client must be notified immediately about anything that could change the cost of the service being provided. In other words the client should not be surprised in any way.

Of course this all sounds so easy when I write it down and it seems to be common sense. If that were true then we would not be getting these calls. I want to conclude this discussion about customer service by looking at the impact. Certainly there is the saying that a happy client may tell one person but a dissatisfied client will tell many more. The initial impact is that poor customer service hurts the reputation of your firm and may lead to loss of future business. However there is a larger and longer term impact.

About a month ago I was involved in a mediation. I thought the process was great and that there might be some merit in using the mediation process in our own complaints or discipline procedures. With that in mind I asked the mediator if he knew anything about the surveying profession.

He said that he had "dealings" with a surveyor about 10 years ago. From his words I had a sense that something might have gone wrong and when I asked him, he said that it did. This mediator is a lawyer with a great reputation and great mediating skills. I am certain he knows how to communicate but somehow he could not get the surveyor to even return his calls. He could not recall the surveyor's name but he did recall his experience with that surveyor in a negative light. That "negative light" is exactly the image we do not want for our profession. This little story illustrates the long term impact of poor customer service, not only for you locally, but for the profession as a whole. It is every surveyor's responsibility to enhance our reputation if we are to remain a viable profession into the future.

Now let us consider the homeowners adjacent to the property being surveyed. One of the main complaints is field crews entering neighbouring properties without getting proper permission. Even though we have provided a lot of information over the years, this still seems to be a problem. Our field crews are the ambassadors of our profession and they are the people who come into contact with the public the most. They should be trained in how to deal with right of entry and how to diffuse difficult situations. Again I say that it is every surveyor's responsibility to enhance our reputation and provide proper training to the field staff.

My column this quarter feels a bit negative but there is another side to this issue. Many surveyors and survey firms provide stellar service to the public and to the profession as a whole. Unfortunately this is not noticed as readily as when problems occur. That said, I do want to give one example of great public service that reflects so well on our profession.

President Dan mentioned "Balm Beach" in his column. The issue started with a CTV news item about survey bars that were emerging just under the water at Balm Beach. These bars were planted 20 years ago when the water level was lower. When originally planted, the bars were 30 to 40 metres from the edge of the water.

The news item clearly showed the water lapping over the bars and the potential risk that people could be injured. That report concluded with a statement that said, "The Association of Ontario Land Surveyors is looking into this." As Dan said, many were involved in fixing this problem including Service Ontario, the AOLS office and WSP.

Proper permissions were obtained, the adjacent owners were notified and the bars were pulled out just prior to the Civic Holiday Weekend. Everyone was relieved that no one was injured and when I spoke to the reporter the next week, he was very happy that he had “made a difference” with his news story. That is a case where our profession had a direct impact on public safety.

This year we are trying to promote our profession with

stories like this and have hired a public relations expert as part of our strategic plan. If you have any stories that you feel would portray us in a good light please let me know.

I believe that all of us have the responsibility to ensure that our profession is portrayed well with everyone we come into contact with, regardless of whether it is clients, family, friends or members of the public.



## President's Page (cont'd from page 2)

Of course we were saddened to hear that Nancy Grozelle had to resign from her position on Council but we are very grateful to Andy Shelp for stepping in to fill the breach mid-year as our newest Junior Councillor. I look forward to his open and progressive thinking and I firmly believe he is a great addition to the team.

A final comment on the topic of “Sketches”... I would like to acknowledge, thank and express my personal appreciation for the contributions of the Standards Committee and especially Bob Halliday. The issue of sketches caused considerable debate among the members of the Standards Committee and the members of the profession generally. Throughout the process, the Committee showed immense professionalism and care towards our profession. In the end, we were fortunate to have been provided a thorough and fulsome background to the issue together with many recommendations, most of which were accepted. Council was charged with needing to move forward and make a decision. Clearly that was easier said than done.

I have witnessed the debate at the Council level over the years from my seat as Councillor, Vice-President and now as President of our Association. I watched as Council reviewed the transcripts of the discussion with members at last year's AGM. There is no question a clear consensus of the members was difficult to achieve. Furthermore, at no point in the process did Council take this matter lightly and unquestionably the debate continued at the Council level. In fact, Council struggled with its decision and we spent many hours at various meetings reviewing the issues to try to come to a consensus. Ultimately, Council felt very strongly that the combination of the requirements of our Acts and Regulations, which govern the practice of Land Surveying, coupled with an obligation to protect the public interest had to be our principal object. As such, this summer we finally passed a motion to issue the AOLS's policy which was sent out as Bulletin 2018-01 in September. As I previously mentioned, Council accepted and adopted most of the Standards Committee's recommendations. I would ask that all feedback, positive or negative, be directed to Council.

I wish everyone a safe and enjoyable fall!



# Calendar of Events

## **October 30 to November 1, 2018**

### **USC Unmanned Canada 2018 Conference**

*Vancouver, British Columbia*  
[www.unmannedsystems.ca](http://www.unmannedsystems.ca)

## **November 14 to 16, 2018**

### **Geomatics Atlantic 2018 – Oceans of Data**

*Halifax, Nova Scotia*  
<https://geomatics.one>

## **November 14, 2018**

### **GIS Day**

*Discovering the World Through GIS*  
[www.gisday.com](http://www.gisday.com)

## **November 20 to 22, 2018**

### **GIS4SmartGrid 2018**

*Amsterdam, Netherlands*  
[www.smartgrid-forums.com/forums/gis4smartgrid-2018](http://www.smartgrid-forums.com/forums/gis4smartgrid-2018)

## **January 28 to 30, 2019**

### **International LIDAR Mapping Forum**

*Denver, Colorado*  
<https://www.lidarmap.org>

## **February 27 to March 1, 2019**

### **127th AOLS Annual General Meeting**

*Toronto, Ontario*  
[www.aols.org](http://www.aols.org)

# Complaints Committee – Part 2 – Powers of the Committee – Limitations, Interim Decisions and What Happens when you are the Subject of a Complaint

By Dave Kovacs, Complaints Committee Chair

*In Part 1 of this series of articles, I described the roles and responsibilities of the Complaints Committee, which included the statutory composition of the Committee, the objectives of the Committee, and the Committee's powers as prescribed by Section 22 of the Surveyors Act.*

*In this issue, I would like to further discuss the powers of the Committee (including limitations) as they relate to Interim Decisions, and what happens if YOU are the subject of a complaint.*

## Powers of the Complaints Committee

As mentioned in the previous article, the powers of the Complaints Committee are somewhat limited.

Section 22 (4.3) of the Act states:

*(4.3) Upon consideration of the complaint, of any response received under subsection (3) and of any other information, record or document relating to the complaint that has come to the attention of the Complaints Committee in the course of its investigation, the Committee may,*

*(a) direct that the matter be referred, in whole or in part, to the Council with a recommendation that Council refer the matter to the Discipline Committee; or*

*(b) take the action that it considers appropriate in the circumstances and that is not inconsistent with this Act or the regulations or by-laws. 2009, c. 33, Sched. 22, s. 11 (20).*

There is a substantial difference in the powers of the Complaints Committee versus those of the Discipline Committee. If you compare Section 22 (4.3) with Section 26(4) of the Act you will observe that the Discipline Committee is given far more latitude in imposing disciplinary measures, and rightly so. It is important to understand that the Complaints Committee is really only exercising a screening function. They are carrying out an investigation and making a decision as to the existence of sufficient evidence to warrant a referral. A complaints meeting is not a hearing to determine what the facts were and whether punishment should be imposed; the Complaints Committee does not make findings of fact. While the Committee will primarily focus on what may have been submitted as the basis of a complaint, they may also consider other information that is relevant to a decision. This may include a pattern or period of prior complaints, Insurance claims, or Survey

Review Department reviews.

Two common complaints that demonstrate the limitations of the Complaints Committee's powers include:

**Boundary Disputes:** The Committee cannot make a decision on a boundary dispute that comes in the form of a complaint; we can only suggest that perhaps a Boundaries Act Application would be more appropriate. The Committee might however, investigate to ensure that the surveyor who is the subject of the complaint, has performed sufficient research to allow them to render an informed opinion.

**Fees:** The Committee may receive a complaint where a member of the public is upset with the cost of a survey. The Committee cannot make a ruling on fees; instead we may suggest that the Complainant make an application to our Fees Mediation Committee. This type of complaint is actually quite common, but begs the question why a final invoice would be so shocking to the Complainant. If the client was made aware of the costs for a survey, or any changes to the original agreement, and had everything in writing, it probably wouldn't come to us as a complaint. In these cases, the Committee will often suggest that the Surveyor review their estimating, client contract and invoicing process, and perhaps submit proof to the Committee that demonstrates that they have tried to improve their business practices; this is often accomplished through the Interim Decision process.

### **Interim Decisions**

As mentioned in the previous article, in cases where the Committee concludes that the evidence is not sufficient to warrant a referral to Council but that the member's actions do warrant further action, the Committee may issue an Interim Decision that requires some type of remedial action by the member.

An Interim Decision could include the following, as appropriate:

1) Soliciting a Memorandum of Understanding or

undertaking from the member that he or she will employ certain business practices in the future, such as signed work orders, change orders, or check lists in return for taking no further action on the complaint. These decisions are often accompanied by a reminder that failure to comply with the undertaking will be considered by the Committee in any future complaints of the same nature.

For example, with respect to complaints that deal with Right of Entry issues, the Committee has developed a Memorandum of Understanding letter that gets reviewed and signed off by both the Surveyor and each field crew member. The Memorandum reiterates what most of your field crews should already be aware of and commits to the following:

- A commitment to be polite and cordial to the public and their property;
- Acknowledging an understanding of Section 6 of the Surveys Act;
- A commitment that your survey vehicle displays your company signage;
- A commitment to try to contact property owners or to leave a message with them;
- A commitment to minimize damage with your survey vehicles;
- A commitment to minimize damage to gardens and trees;
- A commitment to leave fences and gates as you found them;
- A commitment to leave the work area in the same condition you found it;
- A commitment to cause no harm to livestock or animals;
- A commitment to not place monuments in areas where they may cause damage;
- A commitment to conduct yourself accordingly to promote a positive image of the surveying profession.

Memorandum of Understanding agreements are filed with the Registrar for future reference if similar complaints are lodged against the same surveyor.

- 2) Request that the member review Association policy regarding the subject of the complaint, such as Right of Entry, monumentation requirements, or requirements for research. He/she may be requested to review it with appropriate staff and report to the Committee that this has been done.

Using Right of Entry as an example again, the Committee will often request that the Surveyor and their employees review two particular Bulletins that address right-of-entry; AOLS Bulletins 1990-035 and 2005-01 are available on the AOLS website, and I encourage you to read them and review them with your staff.

Bulletin 1990-035 addresses four fundamental points

including proper identification of company vehicles, right of entry and parking of company vehicles, and avoiding vulgar language when dealing with landowners. But more importantly, it emphasizes that the right of entry does not allow for the right of anonymity.

The second bulletin from 2005 is a little more detailed but re-emphasizes the same point as the 1990 bulletin, that the right of entry does not include the right of anonymity.

- 3) Sometimes an Interim Decision may be as simple as having the member apologize to his or her client for poor behaviour. An apology from the Surveyor may also extend to someone who is not the client, such as a neighbouring landowner whose property may have sustained some damage as a result of your survey. While to some it may seem a bitter pill to swallow, perhaps an apology should have been forthcoming long before the filing of a complaint. When a complaint is legitimate and the Surveyor who is the subject of the complaint is clearly in the wrong, they are rarely reluctant to issue an apology.
- 4) The Committee may provide cautions or educational advice to remind and assist the member in avoiding behaviour that causes complaints. An example of this decision may be to recommend that the Surveyor devise and use a standardized form for taking work orders, or a standardized check list for checking plans. The Committee may also caution the member to refrain from using verbal agreements, particularly if there is a pattern of complaints stemming from this practice.
- 5) If the Complaints Committee refers a complaint to Council, their decision may recommend that Council appoint a mediator as allowed under Section 25.1 of the Surveyors Act. This section of the Act allows Council to appoint a mediator to meet with the member being complained against, and any other interested party, to facilitate a resolution of the matter or to further define the issues to be brought before the Discipline Committee. The mediator will report to Council as to whether the matter should be referred to Discipline, however Council is not required to accept the mediator's recommendation. Although not often used in an Interim Decision, the Complaints Committee has on occasion suggested that the parties may want to explore an Alternative Dispute Resolution in order to resolve their issues.
- 6) We may also suggest referral to a non-disciplinary process, such as a quality assurance program. This process is useful when a Survey Review Department referral comes before the Committee in the form of a complaint. If the Committee agrees that the member

*cont'd on page 9*

would benefit from additional monitoring rather than going to Discipline, we can recommend that a monitor be appointed to the Surveyor and the Surveyor submit to a follow up SRD review in six months to a year, or whatever timeframe is appropriate.

Interim Decisions are issued when the Committee feels that a complaint does not necessarily warrant a referral to Council for Discipline. The member should however, demonstrate to the Committee that he or she understands that the action that resulted in the complaint had some validity and guarantee that it will not be repeated.

A Final Decision is issued once the Surveyor has complied with the recommendations made in the Interim Decision within the required timeframe. If the Surveyor does not comply or does not comply within the specified timeframe, the Committee may decide to refer the complaint to Council with a recommendation that it be referred to Discipline.

Why is it so important to reply to the Committee within a certain timeframe?

The Complaints process itself can take several months depending on the severity of the complaint, the ability to determine an outcome, the timeliness of responses from both the Complainant and the respondent, and whether the decision issued is an Interim, a Final or ultimately, both.

Let's also consider the Standards of Practice found in Regulation 1026 of the Surveyors Act:

34. (2) The standards of practice of the Association require that,
- (g) every member shall comply with any written or oral request received from the Association, the Registrar, the presiding officer of any committee of the Association within the time specified in the request and shall supply such information and copies of such material, other than material concerning a member's health or financial status, as may be requested.

Failure to comply with the code of ethics or the standards of practice of professional surveying is one of the definitions of Professional Misconduct.

**You are now the subject of a Complaint. What do you do?**

If you are the subject of a complaint, you will be notified by a letter from the Registrar, and you will receive a copy of the letter of complaint, a copy of the Complaint Help Form if it accompanied the complaint and any other attachments provided by the Complainant. You will also receive a copy of the Surveyor's Complaint Help List, which is found in the Manual of Procedures for the Complaints Committee as Appendix C. It is your responsibility to submit a written response to the claim as well as to forward copies of any documents that support your defense. Supplying the Complaints Committee with the requested information, where applicable, will help to expedite the complaint process.

There are nine items on the Surveyor's Complaint Help List that you should be prepared to submit to the Committee if applicable; they are as follows:

- 1) A copy of the job order sheet, job log, and/or other documentation showing your original instructions from your client;

*Consider:*

- Written contracts hold far more weight than verbal agreements.
- Agreements are far more meaningful if documents are signed and dated by both the surveyor and the client.

- 2) A brief synopsis of your firm's usual manner of recording new projects (including estimate forms, approval letters, etc);

*Consider:*

- Surprisingly, some of the firms that we request this information from are not able to readily produce it, which leads one to suspect that they likely never had it to begin with.

- 3) Any correspondence, including faxes or emails, received or sent during the project;

*Consider:*

- Always scan and copy all correspondence and keep it in the job file.
- Chronologically organized correspondence helps to avoid a "he said, she said" situation.

- 4) Evidence that sufficient research was conducted at the Land Registry Office and in the records of other local surveyors, or other sources as appropriate;

*Consider:*

- The importance of having proof of sufficient research cannot be stressed enough as it is probably what we ask for most in the majority of our investigations.
- Even if another surveyor has no information, keep a copy of the correspondence that shows you requested it.
- If we request it and you can't produce it, we may surmise you never tried to obtain it.
- Failure to produce this information could be the basis for referring a surveyor to Council.
- Always keep a copy of all your research in the job file; you may need it as part of an SRD review at some point.

- 5) Copies of the appropriate field notes and final plans;

*Consider:*

- This refers to your own field notes and plans.
- Ensure that the field notes are complete and that they reflect proper methodology and what the final decision was on the plan.
- Field notes should be easily accessible and retrievable when requested.

- 6) Any other documents you feel may be pertinent to the case;

*Consider:*

- This may include affidavits, witness statements, photographs, police reports, diary or journal entries, invoices, and work reports.

7) Any change of orders received during the project;

*Consider:*

- It is very important that change orders or deviations from the original project scope are in writing.
- The need for a change order must be discussed with the client immediately.
- The document should indicate the reason for the change order and the anticipated amount.
- Change orders are far more meaningful if signed and dated by both the surveyor and the client.

8) A chronological summary of events leading up to the complaint;

*Consider:*

- Your journals or diaries, and/or your field crews' journals or diaries.
- E-mail correspondence between you and your client, or your staff.
- Having dates on signed agreements and work orders.
- Timestamps on documents.

9) Report on any remedial actions or steps you may have used to resolve this issue before the formal

complaint was lodged.

*Consider:*

- Did you make any effort to appease the complainant?
- Did you make a return trip to the client's property, perhaps to meet with him/her face to face to review a situation, or go over the survey or the invoice?
- Did you provide a final report?
- Did you offer a partial refund for any work not completed, or to pay for any damage your field crew may have caused?
- Did you offer an apology?
- Did you keep a record of your efforts to resolve the situation?

While the Surveyor's Complaint Help List is a fairly comprehensive indicator of what the Committee may require in consideration of a complaint against a surveyor, it is not necessarily inclusive. Note the statement at the bottom of the Surveyor's Complaint Help List:

*"Be aware that a complainant does not have to have a contractual relationship with you or your firm in order to submit a complaint. You should therefore be prepared to report on any contact outside of a contractual relationship that you have had with the complainant."*

In the next issue, I will continue the series with Part 3: Complaints Committee – Statistics & Analysis.



# Surveyor's Notes Solve a Mystery

By Joy Cohnstaedt and Mireille Macia

This year marks the 225<sup>th</sup> anniversary of the start of the construction of a new colonial road, “Dundas Street”, part of Lieutenant-Governor John Graves Simcoe’s grand plan to connect the newly created province of Upper Canada with an east-west arterial road. The original purpose, as a defensive and military road, was to link strategic locations by Lake Ontario to London. The then capital, Newark (Niagara-on-the-Lake), was considered to be too close to the American border. Simcoe’s proposal for Upper Canada’s capital to be London was not accepted and York was selected as the new capital. Over time, the road came to be used for many purposes besides military and defensive; as a settlers’ route to open up the land, for mail delivery, passenger transport, and commercial purposes. It has been and is still called by many names as it traverses the southern part of the province: “The Governor’s Road,” “Dundas Road,” “Highway 5,” “Highway 2,” “Highway 8,” to name a few. Today “Dundas Street West” signage endures across the province as this historic road makes its way from its western origins east through Prince Edward County to Kingston. In Toronto, Dundas Street was the result of linking and renaming heretofore unconnected streets in the latter half of the 19<sup>th</sup> and early part of the 20<sup>th</sup> century.



“Stagecoach at Lambton House”, circa 1907/08, from the Etobicoke Historical Society Image Library. Printed with permission from the Etobicoke Historical Society.

mounted at Lambton House on Old Dundas Street, near the east banks of the Humber River, in west Toronto. The modest exhibit includes a series of maps, images and artifacts, and traces the western development of Dundas Street from the early Indigenous trails to a formal road that began to be carved out of the forest 225 years ago. Little did we think that surveying, maps and other associated documents would engage us in following the story of the early surveyors. We opened the exhibit with a Heritage Talk by the former commanding officer of the Queen’s Rangers, Lt Col Phil Halton, who spoke on the activities the Rangers undertook, including the construction of Dundas Street, under Simcoe’s command.

Neither of us are surveyors or historians. We have diverse cultural backgrounds, however our interests include a passion for local history and hands-on experience with archaeology. We are writing this article for those who have a natural curiosity, and for our modern day surveyors. The work of the early surveyors who mapped and measured the young province has helped us to explore our past. The maps from the surveys confirm that Indigenous nations carved trails and paths following the most natural and easiest routes over the land and river crossings. Yonge Street, Kingston Road, Davenport Road and Dundas Street - to name a few - for the most part, followed Indigenous routes.

*cont’d on page 12*



“Old Dundas Street in Lambton Mills” painting circa 1854 by Henry Martin. Credit Etobicoke Historical Society.

Our introduction to the early history of surveying and road building began with an idea for an exhibition, “Dundas Street: John Graves Simcoe’s Legacy in Ontario,” to be

Many foot paths and trails linked to water access points from Montreal to the Niagara Peninsula and beyond. But Indigenous peoples used waterways, wherever possible, and portage trails to avoid rapids. “Far from being simply a collection of random paths, collectively, Aboriginal trails represented a practical network of interconnected major “roads” and arteries that joined water access points and settlements.” They knew these routes. We know contemporary roads. But what happened in the time between?

The early surveyors negotiated the Indigenous routes, to avoid difficult terrain and obstacles, as well as to keep down the expense of building new roads. In west Toronto the lands included the marshes and ponds near the lakeshore and the high land south of Bloor Street. But because the site of our exhibit is Lambton House on Old Dundas Street we hoped to confirm the locations and dates of Lower Humber River crossings and discover which ones may be associated with the early roads leading to Burlington Bay, Dundas and London. Were they all to be a source of the origins of Dundas Street?

It began to appear to us that there are several crossings, either planned or built, and identified by various names that may be associated with “Dundas Street.” The publications we consulted about Dundas Street were either silent or gave conflicting information about the historical locations and dates of the roads and Humber River crossings. Nor did any of the secondary sources we looked at clarify whether the crossing was by foot or on a horse, over a log or by a bridge, as we understand its meaning today. Bridges span a physical obstacle without closing the way underneath and that is why we considered references to crossings too.

In writing her book “Valley of the Humber River”, Kathleen Macfarlane Lizars made good use of some early surveyors’ notes and other primary sources. But the problem with this and other secondary sources listed in the book, is that Lizars failed to cite enough of the primary sources to support what we needed to know, and the chronology in her text was not always clear. We discovered that people have repeated what several anecdotal or speculative sources stated, as if they were fact, without supporting evidence. With the ease and use of new technologies, there is a great deal of self-publishing or vanity publishing, with little or no regard to fact-checking.

We decided to turn to original sources such as the early survey field notes and reports now housed at the Ontario Archives, to learn more about surveying and the early Dundas Street routes with a particular focus on the Greater Toronto Area. We wanted to find evidence of the first bridge to be built over the Humber River at Cooper’s Mills (later renamed Lambton Mills in 1847). We found many sources of secondary information including information from the Toronto Historical Society website. They state that “A road from Queen Street to Cooper’s Mills was built in 1810, and in 1811 a bridge over the Humber was built to carry the Dundas/Davenport/Kingston Road over the Humber,

although the route had been in use as a trail for centuries. Further road improvements were made by the militia during the War of 1812”. One of the two sources cited was Lizars’ book. Could the Toronto Historical Society dates of 1810/11 be supported with evidence? We turned to early surveyors.



“Lambton Mills” from the Etobicoke Historical Society Image Library. Printed with permission from the Etobicoke Historical Society.

The first surveys of Upper Canada began in 1789. Surveyors were government employees who were directed to survey new townships, townsites and roads. The Surveyor-General for the province of Upper Canada would issue instructions to individual surveyors to indicate where the exact point to begin, was based on bearings and location of previously surveyed areas. The instructions included what was to be undertaken according to how the land was to be used: dimension of lots and road allowances as well as planting boundary posts.

Detailed survey notes were recorded in pre-bound blank field notebooks – one survey notebook was used for each survey. Surveyors were expected to include the name of the location that was to be surveyed, their name and title, date of survey, names of men who were hired and how much they were paid.

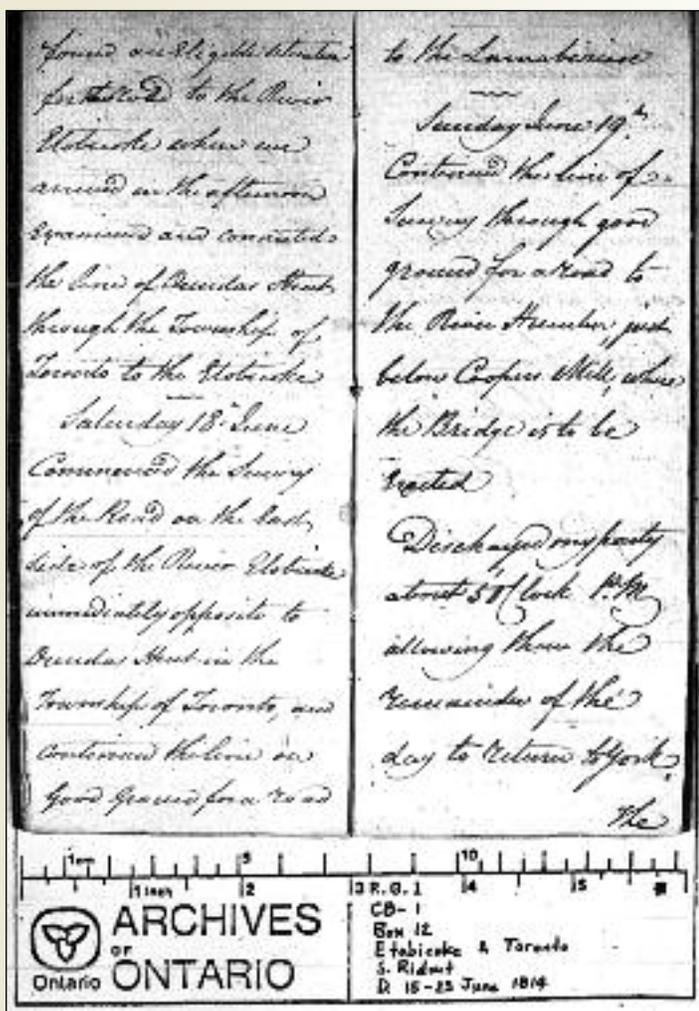
Comments in the field notes included information on the type and quality of the soil, vegetation, notes on key landmarks such as high ground, swamps, marshes, rivers and good places to either build a mill or a bridge crossing. Surveyors also recorded if there were squatters on the land. Field notes often included weather conditions and in some cases the character and quality of the men under their command. One surveyor recorded an almost mutiny because the quality of food for the trip was poor, the men demanded rations of pork or they would desert.

Once the survey was completed the surveyor returned home or visited a government office to organize their field notes and to draw a survey plan. The plan was drawn at one inch to 20 or to 40 chains. The plan along with the surveyor’s field notes, were handed over to the Surveyor-General. This involved the surveyor meeting with a local government official who wrote in the last page of the survey attesting that the surveyor standing in front of them was who

he said he was and that the information was correct to the best of his knowledge (see image of a page of Samuel Ridout's diary of Dundas Street in Etobicoke). Space was left blank on the plan so that at a later date the name of settlers who were given a land allotment could be recorded.

Some of the basic tools used by the surveyors included a surveyor's compass (circumferentor) for sighting along the surveyed line, and a Gunter's or surveyor's chain, for measuring the line (100 links in 1 chain equals 66 feet). As one can imagine, surveying in areas of uncut forests, rugged land, unseen ravines and marshes, rattlesnakes and wild animals, and poor weather conditions (think rain, ice and snow storms, black flies and mosquitoes) would be difficult enough without the added pressure to complete the surveys quickly. Judging by the quality of the field notes it becomes apparent that not all surveyors were well educated or even trained in the field of surveying. Not even a basic knowledge of mathematics was required although some did have this.

Some of the key surveyors involved in measuring Upper Canada were Asa Danforth, Augustus Jones, and William Chewett. Less well known but important to the Cooper's



A page from the diary of Samuel Ridout "S. Ridout, Road Line 1814". The relevant section pertaining to the bridge is in the right hand column. "Sunday June 19th Continue the line of survey through good ground for a road to the River Humber, just below Coopers Mill, where the bridge is to be erected". Credit: Archives of Ontario: CB-1, Box 12, Etobicoke & Toronto, S. Ridout, D. 15-23 June 1814.

Mills area is Samuel Ridout. We found "gold" in his notes! Samuel Ridout was the son of Thomas Ridout. Thomas was born in England in 1754 and later immigrated to the American colonies and by the early 1790's found himself in Newark (Niagara-on-the-Lake) as a loyalist to the crown. He began work as a surveyor's clerk and by 1810 was appointed Surveyor General for Upper Canada. His son, Samuel, followed in his footsteps and became a surveyor. Samuel was responsible for surveying the land between York and Etobicoke Townships to follow the road line for Dundas Street in 1814. His field notes are included in this exhibit.

As a result of his survey for a line of road that was to become Dundas Street, in the summer of 1814 Ridout made the recommendation for the road to be constructed from Cooper's Mills on the Humber River to the Etobicoke Creek. He also instructed that a bridge be built across the Humber at Cooper's Mills. This was to us the proof we had been looking for, the first confirmed source we found that a Humber River bridge was to be built, no earlier than 1814 but more likely 1815 at Cooper's Mills.

We also learned of early crossings over the Humber River that included the mouth of the River by either ferry or bridge, and crossing(s) near the present-day Old Mill by the Bloor Street bridge where the waterway was wider, slower-moving, and possibly shallow enough to ford. Although there are many means of crossing a waterway including straddling a log, any Humber River bridge must have been above the water. Deep and fast-moving water, especially in a swift current, was ideal for mills. Cooper's Mills proved to be an ideal location for a mill and a crossing. The water was fast moving yet the river was at its narrowest width. It is possible that a bridge existed here prior to Ridout's survey and was built by William Cooper as early as 1810, however we found no firm evidence in the archival record.

At least one bridge was built over the Humber River and



"Lambton Mills Bridge over the Humber" from the Etobicoke Historical Society Image Library. Printed with permission from the Etobicoke Historical Society.

in use at some time in the early 1800s. The Upper Canada Gazette, dated September 22, 1827, reported on the poor condition of the Humber and Don bridges. In 1829, the Lieutenant Governor of

*cont'd on page 14*

Upper Canada, Sir John Colborne, paid 1,175 pounds to repair these bridges and asked for repayment from the Assembly. But was the Humber River bridge he arranged to have repaired at Cooper's Mills on what we now know as Old Dundas Street or was it elsewhere?

The Humber River is a Canadian Heritage River, as designated by the Canadian Heritage River System in 1999, for its significant cultural and recreational contribution to the development of Toronto and surrounding area. Surveyors' records have proven to us that they are of historical importance to our understanding of the River and area's pre-history and history. We plan to continue our research into the records of early surveyors to increase our understanding of our past. Our search for primary evidence about bridge and road building in Greater Toronto and along the Lower Humber River may be in the business archives of modern surveyors' records, the City of Toronto and Ontario Archives or in private collections.

We welcome any assistance and information that our modern surveyors can provide us associated with documenting the building of bridges over the Lower Humber River and the associated road-building. We can be contacted at: **LowerHumberRiverProject@gmail.com**



**Joy Cohnstaedt and Mireille Macia**, the Curators of the "Dundas Street: John Graves Simcoe's Legacy in Ontario" Exhibit

at Lambton House, are both Members at Large of Heritage York. Lambton House operated as a hotel from its inception, c. 1848 until its closing in 1989. It was purchased by the City and is currently run by Heritage York. More information on Lambton House can be found at <http://lambtonhouse.org/home.html>

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# Augustus Jones: Surveyor of Simcoe's Vision for Upper Canada

By Phil Halton

*This article is drawn from material prepared for a talk given on 14 June 2018 at Lambton House, titled "Dundas Street and the Queen's Rangers." The author is a former Commanding Officer of the Queen's York Rangers (1st American)(RCAC), the modern day regiment descended from the Queen's Rangers. Lambton House is located on Old Dundas Street, and the talk was given in commemoration of the 225<sup>th</sup> anniversary of the start of the street's construction.*

**M**uch has been written about Upper Canada's first Lieutenant Governor, John Graves Simcoe, whose vision shaped the early province in ways that are still felt today. Less is known about one of the men who was instrumental in implementing his vision, the surveyor Augustus Jones.

Simcoe arrived in Upper Canada in 1792, starting his tenure as Lieutenant Governor with the tremendous energy that characterized his leadership throughout his life. Famous for having successfully led the Queen's Rangers during the Revolutionary War, his vision for Upper Canada was drawn in large part from this experience. Convinced that the loss of the American colonies was driven by the lack of an aristocratic class to guide society, he was determined to shape a different outcome for Upper Canada. Done well, he was certain that the example set would draw the formerly rebellious colonies to the south back under Royal control.

Ignoring what little settlement already existed in Upper Canada, Simcoe determined the best location for the capital was at the upper forks of the La Tranche River. He also envisioned settlements at other uninhabited points in the wilderness known as Toronto and Long Point. At the heart of these new settlements would be garrisons manned by his reformed Regiment, the Queen's Rangers. Perfectly straight roads, modelled after the work of the Romans, would link these settlements and form the basis for future settlement. Discharged Rangers would become the hardy settlers needed by the colony, and their officers would form the landed gentry. Simcoe envisioned an idealized version of English country life superimposed over the Canadian wilderness.

Simcoe's vision wasn't necessarily shared by the existing

citizens of Upper Canada. A prominent Kingston merchant, Richard Cartwright, wrote to a friend: **"Our good Governor is a little wild in his projects and seems to imagine that he can, in two or three years, put the country into a situation that it is impossible it can arrive at in a century..."**

Simcoe's plans required surveyors of equal energy and unconventional outlook. Although the colony would come to employ as many as twenty surveyors, one man stood out from the others due to his energy, skill and ability—Augustus Jones.



Portrait of John Graves Simcoe (1743-1808) by Jean Laurent Mosnier.  
Credit Toronto Public Library T 18042.

Jones was born in 1757 or 1758 in the Hudson River Valley of New York and trained as a surveyor in New York City. Although often referred to as a Loyalist, he was a late arrival to Upper Canada and several of his close family had fought against the King during the American Revolution. It is quite possible that Jones was an economic, rather than a loyalist, immigrant, seeking opportunities and lucrative land grants in the undeveloped British colony. Arriving in Newark in 1787, he applied for a position as a surveyor and was soon hard at work laying out the boundaries of what would become land grants. By 1789, he had been appointed as the Deputy Surveyor General of Upper Canada, a post he held until his retirement in 1799. His early work

involved surveys stretching from Lake Erie to the River Trent, essentially across almost the entire breadth of the colony. Although one of twenty surveyors employed by the Crown in Upper Canada, he was responsible for as much as a quarter of the work completed during his tenure. His energy, strong constitution and ability to survive comfortably in the wilderness made him stand out from his peers. He became not only a personal

friend of Simcoe and his wife Elizabeth, but also an indispensable resource for Simcoe's ambition.

Simcoe's initial plan was to drive a road from the head of Lake Ontario to the forks of the La Tranche River, which he had renamed the Thames, and then to begin construction of a new capital. The task fell upon Jones to survey a line along which the road would be constructed. Gathering a small party of Queen's Rangers and Indigenous guides, he set out on 16 September, 1792 from the only man-made landmark at the head of the lake, the trading post of Richard Beasley (whose foundation was later incorporated into Dundurn Castle in Hamilton).

Jones laid a line in the direction he thought would lead him to the Thames, although neither he nor any of his party had ever seen the river. They surveyed a line fifty miles into the wilderness over several waterways, until reaching what is today the Conestogo River. Jones was initially convinced that this was the Thames, though after consideration he realized that the water was flowing in the wrong direction to be the river they sought. This initial survey line would not go to waste, however—it became the base line used for

future capital, Simcoe declared it to be a location **“eminently calculated for the metropolis of all Canada,”** intending to name the new settlement Georgina, after George III.

Simcoe next set off to explore the lands around “Toronto,” (likely derived from “Taroontahuk,” the Huron word for “plenty”) which sat near the Carrying Place Trail. This route was a traditional one for fur traders, using both the Humber River and portages along it to join Lake Ontario with Lake Huron. Shortly after arriving, Simcoe renamed the site York.

Once again, Simcoe's vision was not shared by everyone around him. One of his officers, William Jarvis, wrote to a friend that **“The Colonel and his wife are to go to Toronto a city-hunting. I hope they will be successful.”** His wife's opinion was even sharper in a letter of her own: **“The Governor and his family are gone to Toronto (now York)...they live in tents...everyone is sick...but no matter, the Lady likes the place therefore everyone else must.”**

While Simcoe explored Toronto, Jones was directed to



*Survey of the River La Tranche or Thames from its entrance or confluence with Lake St. Clair, to the Upper Forks: delineated by a scale of forty Gunter's chains to one inch, collected from plans by Mr. McNiff and Mr. Jones. Credit: Library and Archives Canada, MIKAN No. 4138662. Also shown is the route of Governor Simcoe through this area during his trip to Detroit from Burlington Bay. Descriptions of Indian settlements, vegetation and topography also appear. This map is a copy of part of a larger map showing the entire length of Simcoe's itinerary.*

all future surveys in the area, and is still reflected today in the western boundary of the Halton Regional Municipality, as well as being the reason that streets in Guelph run at a 45 degree angle to North.

Undeterred by this failure, Simcoe led a reconnaissance party to find the Thames for himself in February of 1793, first travelling to the Grand River along the shore of Lake Erie, following it north to the Mohawk settlement on its banks, and then being led to the Thames by Mohawk leader Joseph Brant. Upon arriving at the planned site of the

lay a new survey line from Burlington Bay to the forks of the Thames. This time he found the river without difficulty, marking a line eighty miles long. On 23 September, 1793, a party of one hundred Queen's Rangers began to construct the road. Simcoe named it in honour of his principal benefactor in London, the Home Secretary (and later Secretary of State for War) Henry Dundas, 1<sup>st</sup> Viscount Melville. The road building effort continued, with many interruptions as the Queen's Rangers were called away for military duties, until the road was completed near the end of 1795. Despite Simcoe's desires for the site, there was no settlement

constructed there until well after he had left the colony, and it never became the capital. Because of this, Simcoe's detractors referred to Dundas Street as the “road from nowhere to nowhere.”

In February, 1794, Simcoe directed Jones to survey a road from the York town site north to the Holland Marsh, following a secondary route that ran farther east than the more commonly used Carrying Place Trail. This road would serve a dual purpose, both opening more land up for settlement as

*cont'd on page 18*

well as providing a military route to Lake Huron and then westward to Forts Michilimackinac and Detroit. This would become necessary should the Americans seize control of Lake Erie, something that Simcoe feared. Jones typically preferred to survey in the wintertime, when the ground was frozen and therefore easily traversable, and the bare trees did not interrupt his sightlines. With a party of only four Queen's Rangers, he completed the survey, starting at Holland Landing and heading south, by the middle of March. Simcoe named this road after another of his benefactors, Sir George Yonge.



Queen's Rangers under Lieut. Governor Simcoe cutting out Yonge Street, 1795. Artist: Jefferys, Charles William, 1869-1951. Credit: Library and Archives Canada, Acc. No. 1972-26-767.

Despite their friendship, Jones and Simcoe had many differences of view. Brant wryly commented that "*Simcoe has done a great deal for this province. He has changed the names of every place in it.*" Jones, by contrast, carefully recorded the Indigenous names of landmarks, as well as their meanings in his surveying notes. He became fluent in both the Mohawk and Mississauga languages, and became good friends with Joseph Brant.

Simcoe was intent on creating an English aristocracy in Upper Canada, even going so far as to cancel land grants made by the Governor General to French-Canadian merchants from Montreal who sought to profit from Upper Canadian fur trade routes. Jones was more broad minded,

and seemed as comfortable in Indigenous company as with Englishmen. He married the daughter of a Mohawk chieftain, Sarah, with whom he had eight children. He also maintained a relationship with the daughter of a Mississauga chieftain, also named Sarah, with whom he had two sons. When a chief of the Mississauga people was murdered by a Queen's Ranger in 1797, Jones became a confidant of both the rebellious Mississauga and of the colonial administration. In part due to his influence, crisis was averted.

There was considerable friction between Brant and Simcoe over whether the Mohawks could lease or sell the land granted to them by the

Crown without receiving the government's permission. Jones sided with the Mohawks in the dispute, and his surveys were instrumental in legally delineating what land they owned. At times, he acted as an agent for Mohawk interests, helping them to lease or sell land. Jones lived with a foot in both worlds, and it was his desire that the Mohawks have the same property rights as any other Loyalist grantees that likely cost him his job as a government surveyor. After Simcoe left the colony in 1796, Jones fell steadily out of favour, eventually being condemned by polite society for his adultery and a supposed lack of loyalty to the Crown. He retired to his farmland in 1799, where he lived until his death in 1836.

Although many elements of Simcoe's vision for the colony did not come to fruition, in Jones he had found a man who was up to nearly any task that could be set for him. While Simcoe ignored much of what already existed in favour of what could be, Jones took a different tack. He managed to bridge the gap between the white and Indigenous communities, combining the knowledge of both. He was as comfortable with a canoe or snowshoes as he was with a theodolite, to the benefit of all.

Dundas Street as it exists today is symbolic of Simcoe's efforts—a road cut by the Queen's Rangers, against the political and commercial will of the population, to lay the foundation for his vision for the colony. But without men such as Augustus Jones to implement his vision, Simcoe may not have left an enduring mark on Upper Canada at all.



**Phil Halton** is the author of the upcoming novel about the Taliban entitled *This Shall Be a House of Peace*. A 25-year veteran of the Canadian Armed Forces, he has worked around the globe as a soldier and security consultant and has spent time in Afghanistan. He holds a Masters of Defence Studies from the Royal Military College and publishes the literary journal *Blood & Bourbon*. He lives in Toronto.



A Grenadier of the Queen's Rangers. Credit: Library and Archives Canada, MIKAN No. 2892219.

# Survey Review Department Forum



By Tom Packowski, O.L.S., Survey Review Department Manager

It has now been a little over three months since I joined the Survey Review Department (SRD) after over thirty years in private practice. So why would I choose a position with the SRD as a segue from a modestly successful career? There is a saying that goes, ‘the worst day on the golf course is better than the best day at the office’. I can faithfully say that whoever made up that adage has never seen me golf! So besides being a poor golfer, why the SRD? Well, as the new Manager of the SRD, let me tell you a bit about myself.

I knew I wanted to be involved in surveying from the time I left high school and my enthusiasm has not diminished in the slightest since that time. It is safe to say that my path to becoming a licenced Land Surveyor was not a straight line from age 18 until when I received my commission some 16 years later, but I was always in the field in some capacity or other. My relationship with the Association of Ontario Land Surveyors goes back almost from the time I received my licence. My swearing in ceremony remains one of the proudest days of my life. Shortly after being sworn in, I became involved with the Association on various committees or other including one, unsuccessful attempt at Council. The satisfying thing is that as time passed, my career became even more interesting.

There was so much more to land surveying than the acquisition of topographic data, staking subdivisions and construction layout. Cadastral surveying became a living, breathing entity; one that had its own history, rules and language. And it got even better. The rules kept evolving. It was necessary to attend classes, courses and seminars with my peers just to maintain a level of proficiency that would meet my clients’ expectations, even without the urging of our Code of Ethics.

All this inevitably led me to the Continuing Education Committee (CEC). I have been on the CEC for twelve years either as a member or the Chair of the Committee. The mandate of the CEC, with its emphasis on following a program of continuing education and professional development, is set out in Regulation 1026 of the *Surveyors Act*, Sections 41 to 43. With the incredible improvements to remote learning platforms this has become easier and more accessible than ever before. If it has been a while and you are looking for a way to have your brain stretched and exercised, consider taking some of the courses available online through **GeoEd** or **Four Point Learning**.

The Manager of the SRD is also a member of the CEC. This makes sense. The mandate of the SRD is also set out in Reg. 1026 of the *Surveyors Act*, Sec 40 and the emphasis of the Department, according to its Terms of Reference, is education.

So, if terms like, ‘continuing professional development’ and

‘comprehensive reviews’ inspire vague feelings of dread or foreboding, fear not. Continuing Professional Development (CPD) and peer review are the hallmarks of every profession with a duty to act in the Public interest. In fact, without these two criteria, we could not call ourselves a profession in today’s modern world. Peer review and on-going education have always been two of the standard requirements for a profession, it’s just that today, the Public is no longer willing to give us the benefit of the doubt and expects to see that the members of a profession are actively pursuing these two things.

As with my predecessor, Mr. Tim Hartley, O.L.S., I will be continuing the tradition of providing a regular article with educational content from the perspective of the SRD to the Ontario Professional Surveyor (OPS). Back issues of the OPS magazine are available to the membership and the Public online at the AOLS website by going to [www.aols.org/news/ops-magazine](http://www.aols.org/news/ops-magazine). This feature began in the Fall 2016 issue Vol. 59, No. 4. In that article Tim answered some of the common questions that are asked of the SRD. If you have any questions that you would like the SRD to consider or to have a question answered in an upcoming OPS article, I would encourage you to email them to me at [tom@aols.org](mailto:tom@aols.org) or call me at the office at (416) 491-9020, ext. 34.

In the Winter 2017 issue, Vol. 60, No. 1, Al Worobec, O.L.S. outlined the field examination portion of the comprehensive reviews. Doug Reitsma, O.L.S., spoke about the comprehensive review process in the Spring 2017 issue Vol. 60., No. 2; the referral process in the Summer 2017 issue Vol. 60, No. 3; and research requirements for a survey project in the Fall 2017 issue Vol 60, No. 4. Doug’s articles provide citations to numerous reference materials that are also on the AOLS website [www.aols.org/survey-review/survey-review-helpful-documents](http://www.aols.org/survey-review/survey-review-helpful-documents). In the Spring 2018 issue, Vol. 61, No. 2, Tim discussed the topic of field notes. To me the most telling point Tim makes is that “... surveyors do not make field notes for their clients, they make them to protect themselves.” You might want to look at your field notes from that perspective. Would your field notes provide suitable evidence to support the conclusions set out on your plan and in turn protect you and your client from a court challenge, say ten years from now?

Over the next few years, I intend to write about the common problems that we see in the Department including the five items that I mentioned during my webinar of July 25, 2018 - research, field notes, field procedures, monumentation and communication. I will provide examples where appropriate

and attempt to make them as interesting as possible. All my topics will have as their basis, the templates, forms and guidelines that are available on the AOLS website.

I would suggest you consider incorporating the resource materials that are available to you from the website as standard forms for your office staff and field crews. You might also consider having regular staff meetings based on the results of previous comprehensive reviews in areas where there have

been recommendations for improvement. The educational opportunities that we provide are not exclusively for the Land Surveyor, they are also for the technical staff.

I look forward to the opportunity to use the knowledge that I have gained over the last 34 years to work with you and your staff on the matters of continuing professional development and peer review in order that the public interest may be served and protected.



## NEWS FROM 1043

### Changes to the Register

#### MEMBERS DECEASED

Wallace Robert Heinbuch	884	July 22, 2017
David B. Searles	1225	June 25, 2018
Charles Robert Morgan	876	June 29, 2018
George Glenday	875	July 16, 2018
Douglas Arthur Harrington	871	July 29, 2018
William N. Wildman	967	Aug. 12, 2018
James William Walker	960	Sept. 10, 2018
George P. McFarlane	1485	Sept. 12, 2018

#### RETIREMENTS/RESIGNATIONS

Kathryn Sam-Guindon	1544	Sept. 30, 2018
John G. Boyd	1402	Aug. 13, 2018

#### REINSTATEMENTS

Michael Macek	1605	July 23, 2018
Sophie-Rose Côté	1987	July 16, 2018

#### COFA RELINQUISHED

JEMAP Holdings Limited  
Brampton, ON, August 13, 2018

Gordon W. Harwood Ltd.  
Warton, ON, September 30, 2018

#### COFA APPROVED

exp Geomatics Inc.  
Cambridge, ON, August 1, 2018

### Surveyors in Transit

**Correction:** In the News From 1043 in our last issue, it was incorrectly stated that **Simon Kasprzak** was an employee of Fairhall Moffatt & Woodland Limited. In fact Simon is self-employed and upon request he can provide a field-crew with

an OLS on site, particularly in challenging or remote locations, and calculation/drafting services to surveying and engineering companies across Ontario.

**Dan Robinson** is now the Managing OLS at **Farley, Smith & Denis Surveying Ltd.** in Ottawa, ON.

**Gregory MacDonald** is now with **J.D. Barnes Limited** in Markham, ON.

**Michael Macek** is now with **J.D. Barnes Limited** in Toronto, ON.

**Michael Griffiths** is now with the **Ministry of Natural Resources and Forestry** in Peterborough, ON.

**Arthur J. Lise** is now the Managing OLS of **exp Geomatics Inc.** located at Unit 6, 405 Maple Grove Road, Cambridge, Ontario N3E 1B6, and Phone: 519-650-4918.

**Maaz Malek** is now with **Genesis Land Surveying Inc.** in Toronto, ON.

**Raymond Sibthorp** is now with **Black, Shoemaker, Robinson & Donaldson Limited (a division of J.D. Barnes Limited)** in Guelph, ON.

**Guy Fletcher** is no longer with **Tulloch Geomatics Inc.**

**Todd Edward William Webb** is now the managing OLS at **Tulloch Geomatics Inc.** in Sault Ste. Marie, ON.

**Coe, Fisher, Cameron Surveying (A Wholly owned Subsidiary of J.D. Barnes Limited)** is now located at 3 Commerce Place, Suite 201, Lindsay, ON, K9V 0N5.

**Eplett Worobec Raikes Surveying Ltd.** has acquired the assets of **Gordon W. Harwood Ltd.** Plans and notes will be available through the Land Survey Records website.

### THE AOLS IS PLEASED TO ANNOUNCE THAT THE FOLLOWING ONTARIO LAND SURVEYORS WERE SWORN IN:

Todd Edward William Webb	2029	July 12, 2018	Jason Kelsall	2037	July 25, 2018
Andrew Musil	2030	July 13, 2018	Nicholas Muth	2038	July 25, 2018
Pawel Bienkowski	2031	July 25, 2018	Ben Restivo	2039	July 25, 2018
Riley Chapple	2032	July 25, 2018	Ragavan Shanmugarajah	2040	July 25, 2018
Michael DeMarco	2033	July 25, 2018	Katherine Sonier	2041	July 25, 2018
Jason Elliott	2034	July 25, 2018	Surendran Sukumarsath	2042	July 25, 2018
Shan Goonewardena	2035	July 25, 2018	Michael Van Lankveld	2043	July 25, 2018
Owen Healey	2036	July 25, 2018			

# Building on the Framework of the Gordie Howe International Bridge Project

By Christopher Oyler, O.L.S.

**A**s surveyors, we understand the importance of having a solid reference framework when starting a project. A framework from which all other construction activities will build and depend on. We see it play out in our professional lives every day in the work that we do. Constantly juggling the balance of precision and accuracy with our client's budgetary requirements can leave one to question why we 'can't get no respect'. I used to be guilty of this train of thought until it finally occurred to me that it's not their fault, I just need to be able to sell myself better.

A few years ago, I was asked to sit in on a meeting for a new project that was starting up in my new hometown of Windsor, Ontario. When I was there I sat and listened as various engineers (some who were present and some who dialed in via a conference call from faraway places) talked about the project, its importance and the challenges they expected to have to overcome. The more they spoke the less I understood why I was there. I mean it all sounded great, large scale project, hundreds of millions of dollars' worth of new infrastructure and all I knew is that I wanted a part of the action but wasn't sure how I was going to be able to convince the professionals in the room to buy what I was selling.

The project was the early works contract for the new Canadian port of entry at the Gordie Howe International Bridge (GHIB). The bridge was going to be built later by

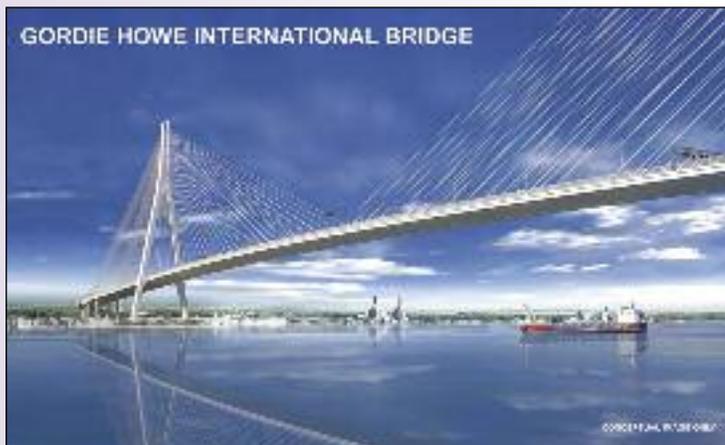


Gordie Howe International Bridge - Early Works September 2015. Credit: Front Page Media Group.

someone else but before that could happen major site upgrades needed to take place. Phase 1 of the early works design called for the relocation and installation of over 4.3 kilometres of new transmission and distribution natural gas pipeline, the construction of a new 4 km perimeter access road and all new water and sewer services, phone, fiber optic, transmission lines and hydro duct banks. Totalling over 50 million dollars, Phase 1 of the early works contract was "no small potatoes".

I understood the challenges all too well of large-scale projects such as this, my company Surveyors On Site Inc. (SOS) recently completed work on the Rt. Hon. Herb Gray Parkway, a 1.4 billion-dollar, 11 km extension of highway 401, where I was largely responsible for most of the layout of 11 of the 12 tunnels on the project. While I didn't oversee the installation and adjustment of the control point network, I relied on it heavily for the three and a half years I worked on the project. It was this intimate relationship I had with the control and the surveyors who set it that made me uniquely prepared for setting up and maintaining the control point network for the new bridge plaza. The early works site was approximately 130 acres in size and every imaginable piece of construction equipment was going to be on site to interfere with the placement of survey control points.

But before any of this was to take place, I had to give my pitch to the consultants that were hired to oversee the



The Gordie Howe International Bridge courtesy of Windsor-Detroit Bridge Authority.

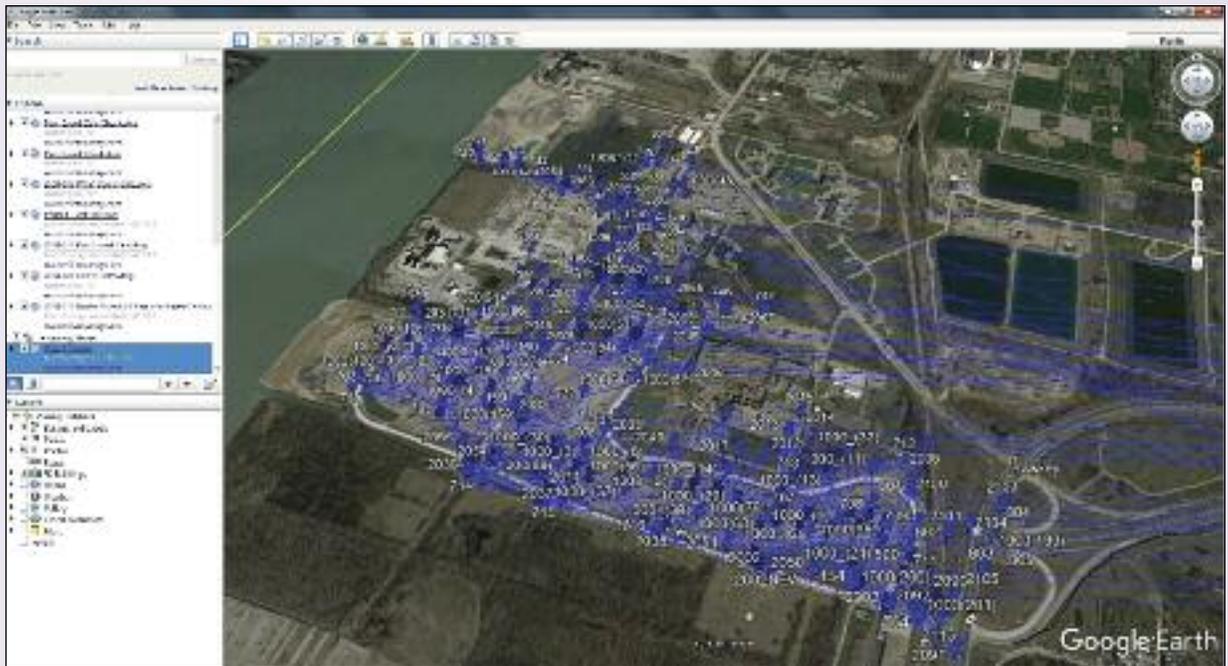
construction of the early works contract. I knew I had a couple of hurdles ahead of me; the first was to sell them on the importance of constructing a framework from which all other design and construction related activities would be built; the second was to get them to agree to the cost of this undertaking. Perhaps unconventional, I kept my pitch simple. I asked them to think of our services as an insurance policy where you actually get something for the premiums paid. The long-term benefit of having a reliable network of control points would carry through past the early works portion of the project and well into the actual construction of the span itself. I was able to provide real personal examples on the spot of instances where a lot of time and money was saved due to proper site control. In the end I was able to educate this group of professionals on my area of expertise and in turn I got the job.

To get the field work done, we used 1”

Leica robotic total stations, network RTK (Smartnet) GPS and 0.2mm Leica digital levelling equipment. Proper field procedures were strictly adhered to and all data was imported and adjusted using MicroSurvey StarNet software. In total on any given day there are approximately 150 control points spread across the 250 acre site; a number that fluctuates constantly depending on how destructive the excavators and the piling rig installers choose to be. The key ingredient in making this project a success was redundancy. Redundancy is a function of time. Redundancy is what enabled us to be confident of our calculations and field measurements. Redundancy is what enabled us to fill in the holes quickly and efficiently when areas with many control points would be removed, often without any notice.

Recently, this past June, I was asked to give a presentation on this topic at the Hexagon International Conference: HxGN Live 2018 that was held at the Venetian Hotel in Las Vegas, Nevada. Initially when I was approached, I balked at the idea of travelling so far away for a week during the height of our ‘busy season’. I didn’t think I could possibly give up so much of my time to something outside of my business and my family. But once I gave it some thought I realized something else very important and that is opportunity cost. There

is an opportunity cost associated with choosing not to go. I wondered to myself how can I not go? How can I miss an opportunity to present to and learn from the leaders in our industry? How could I miss the chance to network and grow professionally? Sure, I would likely have to work while on the trip and still answer the phone and respond to emails, but in the end I decided to go, and I am glad I made that decision. The conference had over 3000 attendees and is arguably the largest gathering of geo-minded professionals (my term not yours) in the world. People travel from all over North America, Europe and Asia to attend. I met a group of land



Windsor-Detroit Bridge Authority Early Works Site Control Map

surveyors who travelled from New Zealand to present about the challenges they have had to overcome working in the remote jungles of their country.

One of the great strengths of the HxGN Live conference is the breakout sessions. There you can listen and ask questions of the speakers on how they approach their businesses and what tools they use to get their work done. This ability to have face time with like-minded people is a big reason why as OLS’s we attend our AGM each year. We get to socialize and mingle, talk shop about what we are passionate about and learn how other people are getting the job done. The HxGN Live conference also offers training on equipment and software from the people who are developing the software and hardware that we at SOS rely on as the backbone of our company.

Since this was my first time ever at HxGN Live I didn’t know what to expect. Near the end of first day of training, 8 hours of in class instruction on how to use a new 3D scanning point cloud registration software program that had just been released, I asked my training partner, who was an American and owner of a large land surveying company in Texas who had been to the conference many times before, if

*cont’d on page 24*

the evening's keynote address was worth going to? His answer I found was interesting; his take on it was that if as a business owner I am going to invest in a particular company as the provider and developer of all of the technical tools that I am going to use as a core of my business, I may just want to see what direction that company is going to be taking in the future. Because, if it's in a direction that I don't support then perhaps it's time to find a new train to board. I took that advice and was truly inspired with the message and direction of where the leaders of Hexagon are taking the company. It opened my eyes to see my work and my place in the world as a land surveyor in a new light. We are trying to recruit new bright and talented people to our profession and I believe that technology and the way we embrace that change will define our future success.

I am happy to say that my presentation was well received,

and I got some excellent questions while on the podium. This whole experience of presenting on a world stage brought me back to my earlier epiphany of the need to be able to sell myself better. If I am going to be able to convince a room full of strangers that what I am selling is what they need then I first better know the best way to solve their problem. That only comes with taking risks and saying yes to opportunities that seem impossible to accommodate. That adds value and professionalism to the service we provide and gives us one more story to brag about to our friends and colleagues at the next AGM. 

**Christopher Oyler** B.Sc. Eng., O.L.S. is the owner of Surveyors On Site Inc. a land surveying and 3D laser scanning company with the head office in Windsor, ON and branch offices in Detroit, MI; New Liskeard, ON and Sudbury, ON.

## Sites to See

### Modernized CSRS-PPP Service

<https://webapp.geod.nrcan.gc.ca/geod/tools-outils/documentation.php>

The **Canadian Geodetic Survey of Natural Resources Canada** updated the CSRS-PPP service on Thursday, August 16, 2018 to a modern GNSS processing engine in order to fully support multi-GNSS data, generate ambiguity resolved PPP solutions (PPP-AR), and move towards faster convergence. The update included the transition to a new processing software (SPARK) which replaced the previous software (GPSPACE).

# Geomatics at the University of Waterloo – Surveying a Bright Future

By the Faculty of Environment

**M**ichel Paradis, a French-Canadian surveyor, introduced *geomatics* as a new scientific term in an article published in 1981 in the *Canadian Surveyor* and in a keynote address at the centennial congress of the Canadian Institute of Surveying in 1982. He claimed that at the end of the 20<sup>th</sup> century, the needs for geographical information would reach a scope without precedent in history and in order to address these needs, it was necessary to integrate in a new discipline both the established discipline of land surveying and the new tools and techniques of data capture, manipulation, storage and diffusion.

Today, with more than 80 per cent of the world's information having a location component, and with rapid advances in technology, Geomatics experts are helping track the incidents of disease around the globe, helping businesses determine where to expand, and plan land use and transportation routes, and much more.

The Geomatics program at Waterloo is housed in the Department of Geography and Environmental Management in the largest Faculty of Environment in Canada. The Faculty of Environment at Waterloo is a leader in the kind of transdisciplinary research and applied education that compounds the data and detail of natural science with how humans live in their environment.

According to Richard Kelly, the Chair of the Geography department at Waterloo, it's this approach, combined with the latest technology, and the option of a co-operative education that has helped establish Geomatics at Waterloo as one of the premier programs of its kind in Canada.

"When GIS, remote sensing and mapping science work began at Waterloo, it was seen as somewhat of a niche program. This was back in the 1970s. Partly by design, and partly by fortunate timing, and many exciting geotechnical innovations in computing breakthroughs happening around that time, there was increasing demand for Geomatics work," says Kelly.

With technical capacity for GIS work growing at an incredible rate, and the sophistication of human geography research, Waterloo has kept pace with the need to train exceptional Geomatics students with the skills to innovate and use the latest special technologies to their fullest. Staying on the cutting edge, Waterloo officially launched the Geomatics program in 2008, admitting 22



Dr. Richard Kelly is teaches Geomatics at the University of Waterloo and is the Chair of the Department of Geography & Environmental Management (GEM).

undergraduates in the first year. Today, the program is home to nearly 100 undergraduates. The Association of Ontario Land Surveyors has generously supported Waterloo's undergraduate Geomatics students since the beginning of the program, fueling their success through the establishment of scholarships which to date have supported 22 students.

"The Department of Geography and Environmental Management recognizes its very strong and important partnership with AOLS. Over the years, some of the brightest students in our Geomatics program have benefited from the generous and competitive scholarships provided by AOLS that have also helped them forge significant connections with the geomatics industry," says Richard Kelly.

Some key course topics in the Geomatics program include surveying, spatial analysis, computer programming, statistics, database development, unmanned aerial vehicle (UAV) use, enterprise information technology, web development, and satellite imagery. The computer science component gives graduates an advantage in the field, as students are able to go beyond the competent use of existing Geomatics tools to develop applications involving spatial database development and management, data dissemination, spatial analysis, decision support, and modeling. In the rapidly growing field of geomatics, grads are in high demand, and contribute to industry while applying their skills during co-op before graduation.

Geomatics at Waterloo has also strategically invested in its research capability by creating significant opportunities

*cont'd on page 28*



**Dr. Derek Robinson (right) is known across the Faculty of Environment for using drones in his research and teaching.**

for graduate students and increasing its faculty complement. Today, over 80 graduate students are enrolled in Geomatics, with nearly 20 percent in the Ph.D. program. Beyond the nine core dedicated faculty members, Geomatics takes advantage of the expertise of over 30 faculty members across campus, including those in the School of Planning and Waterloo's acclaimed Computer Science program.

Students in Geomatics get much more than technical skills. How information and data are gathered is balanced with how this information can be used to solve some of our toughest sustainability challenges. "Geomatics students have access to all Geography and Environmental Management courses which provide access to various relevant geography-focused topics such as climate change and environment, earth system science or economy and society," says Kelly.

A particularly good example of how students are applying their skills in a real-world context is the work Derek Robinson does with his graduate students. Robinson is probably best known at Waterloo as the "drone guy." On Waterloo's tech-savvy campus, this is a big compliment.

Robinson, an exceptional teacher, is well-known for the experiential learning opportunities his students get. In a term, Robinson will go into the field with his drone and show students first-hand how this relatively new technology is used to gather large amounts of geographic data.

Robinson, a land management expert, worked with graduate student Bogdan Caradima to help some of North America's biggest businesses fulfill that classic retail idiom: 'Location, location, location.'

Their economic geography research focuses on analyzing the suitability of divisions of land

known as parcels. Dozens of criteria are identified using spatial competition modeling and trade area statistics, and each parcel is scored, depending on a variety of retail location factors. Making the right choice requires the processing of over 4.7 million pieces of information.

Along with the relatively new field of economic geography, Waterloo has many other established GIS, remote sensing and surveying research and teaching efforts to go along with new innovative programming, that have help it carve out a reputation around the world.

Traditional areas of GIS at Waterloo include spatial analysis, GEOWEB applications, and agent-based spatial simulation. Areas of remote sensing specialization include remote sensing theory and applications of cryosphere sciences, high resolution applications and land cover change dynamics. Areas of specialization in surveying and mapping include traditional and GPS RTK survey, static and mobile laser scanning technologies, and high spatial resolution mapping applications.

As Waterloo's Faculty of Environment enters its 50th anniversary year, it is taking stock of its achievements, but also looking to the future.

Geomatics is a dynamic field, and the University of Waterloo, known around the world for technological innovation, is proving to be a fertile place to move the discipline forward.

"The University of Waterloo has been at the forefront of research in several areas of geomatics, including theory and methods innovation. This has led to innovations in the application of remote sensing to new and emerging fields," says Kelly.

In particular Geomatics at Waterloo is focusing on applications of integrated database and geographical



**Environment student Aujas Bandlish uses a total station, an electronic/optical instrument used for surveying and building construction, as part of his Geomatics fieldwork.**

**cont'd on page 30**

information science. As well as, the development and application of novel observing systems for the analysis of human and natural environments and change characterization.

How it is doing this includes unpiloted airborne systems (UAS), constellation missions, smallest/cube-sat technologies, and novel instrument system deployments (mobile laser scanners and synthetic aperture radar systems).

Kelly points to the explosion in mapping over the past ten years as an analysis of what is ahead of us.

“Today, the average person has more mapping power in

their pocket than could have ever been imagined when our program started,” says Kelly. “Geolocated data is now normalized for private citizens, commercial entities, and government organizations across the globe. Geomatics provides human capacity to manage these data sources better and to develop and apply complex, multi-dimensional analytical tools to provide context and deeper understanding of geographically-located data to improve society. There is much more innovation ahead of us, and that’s why we need to continue to innovate, and support and train the leaders of tomorrow.”



# Lassonde School Partners with AOLS to Encourage Women in Engineering Research

By Rajvi Chavada and Marisa Sterling, P.Eng, FEC

*Lassonde School of Engineering and AOLS partner to give seventy grade 11 young women relevant summer jobs in engineering and computer science through the Women in Engineering High School Research and Mentorship Program.*

**T**he Lassonde School of Engineering at York University aims to advance Canada's knowledge-based economy by creating pathways for young women and underrepresented people into engineering and computer science. This strategy is informed by data that shows companies in the top quartile for race, ethnicity and gender diversity outperform (McKinsey, 2015). In fact, seventy-five percent of diverse groups get the right answer versus close to fifty-four percent of homogenous groups. However, diverse groups perceive themselves as significantly less effective than homogenous groups and less confident in their decisions (How diversity makes us smarter, Katherine Phillips, *Scientific American*, 2014). And as early as age six, girls start to see boys as smarter than them (Gender stereotypes about intellectual ability emerge early and influence children's interests, Lin Bian, Sarah-Jane Leslie, Andrei Cimpian, *Science*, 2017). In the fields of science, technology, engineering and math (STEM), stereotypes about scientists also contribute to turning girls away. Scientists in STEM are associated with the stereotypes of selfish, solitary and brilliant and these are mismatched to the stereotypes that associate girls and women as altruistic, communal and less brilliant than boys and men. The overall result is a negative effect on the confidence and interest of girls and women towards STEM.

The Lassonde School is addressing this confidence and interest gap with its Women in Engineering High School Research and Mentorship Program. This 6-week paid summer jobs program shows young women how they can make a difference in the world with engineering and computer science careers. It also gives high school women in many cases their first part-time job and relevant job experience to advance their career aspirations. It is part of the Lassonde School's 50:50 Challenge to achieve gender parity

of female-identified students and instructors in its classrooms and foster culture change. The challenge launched in 2015 with a \$1.5-million investment from engineer and entrepreneur Pierre Lassonde, P.Eng, and hired Lassonde's first Assistant Dean, Inclusivity and Diversity, engineer Marisa Sterling, P.Eng.

The summer research and mentorship program was piloted in 2017 with the generous sponsorship of the Association of Ontario Land Surveyors (AOLS). The three students accepted into the program came from three different high schools in the Greater Toronto Area and worked very hard over their 7-week employment. Two of them, under the guidance of civil engineering professor Dr. Usman Khan, P.Eng, won the Student's Choice Poster Award at Lassonde's Undergraduate Summer Student Research Conference. The third student was Sejal Sahni, a student at North Park Secondary School, who worked under geomatics engineering professor, Dr. Mojgan Jadidi, P.Eng. She presented her geospatial data collection and analysis on the accessibility of York University's Keele Campus for people with disabilities to the 2017 GIS in Education and Research Conference. *You can read the article by Professor Mojgan Jadidi on Sejal Sahni's research in the Fall 2017 Issue of the Ontario Professional Surveyor at*

<http://publications.aols.org/OPS-Magazine/2017Fall/index.html>

In 2018, the program received over 125 applications and grew by over 2000% to welcome seventy extraordinary female students into Lassonde. The grade 11 young women came from forty-one high schools across the Greater Toronto Area and eleven different Boards of Education. They worked as Lab Assistants to seventeen Lassonde School professors and contributed to projects that are helping people in our society. Research topics included designing a cube satellite, materials for human implants, green walls, permeable pavements to reduce flooding, and medical sensors. The students also received mentorship from the office of the Assistant Dean, Inclusivity and Diversity, to build confidence, resiliency and an entrepreneurial spirit to succeed in the STEM fields.

***"The Summer Research Program at Lassonde means a lot to me - it is my first job experience!" said Christina He, high school student at John Polanyi Collegiate Institute in Toronto. "On top of that, it is a perfect opportunity for me to explore different fields of engineering and science in a post-secondary setting. It is very amazing and inspirational to be with other girls who share the same interests as me as well as the program mentors who have been very supportive."***

*cont'd on page 32*

Acclaimed reporter and anchor Pauline Chan interviewed the students for her health and wellness segment that aired on CTV NEWS AT SIX on August 14, 2018.

In partnership with AOLS, the program hosted Geomatics Day on July 31 for the young women. The students were introduced to the career opportunities in the growing fields of geomatics engineering and science. Lassonde faculty Dr. Jadidi, P.Eng. and Dr. Armenakis, P.Eng. along with graduate researcher and geomatics engineering graduate Benjamin Brunson led workshops to demonstrate 3D data capture techniques, to teach the coding language Python and to have the young women apply their knowledge in experiments using advanced cameras. The students also toured the geomatics research labs of Dr. Baoxin Hu, P.Eng, Dr. Gunho Sohn, LEL, Dr. Sunil Bisnath and Dr. Jian-Guo Wang, P.Eng. In the afternoon, the students met accomplished geomatics practitioners and Ontario Land



Graduate Student Benjamin Brunson teaches the girls how to use the scanners in the 3D Reality Capture Workshop, Geomatics Lab, Lassonde School of Engineering.

science. The students have now become Lassonde Ambassadors in their high schools this fall to share back what they learned from the summer and support other young women at their schools in engineering and science.



Maureen was presented with a "Thank You AOLS" card containing many personal messages from the girls. Pictured in the front row second from L to R: Christina He, Michèle Pearson, Maureen Mountjoy, Marisa Sterling, Mojgan Jadidi, and Erin Du on Geomatics Day, July 31, 2018 with all 70 grade 11 young women in the program.

Surveyors Michèle Pearson, Principal at Pearson & Pearson Surveying Ltd, and Maureen Mountjoy, Deputy Registrar of AOLS. These conversations, including the perspective of geomatics graduate student Erin Du, helped the young women to see themselves in the field by hearing their stories - of how Ms. Pearson and Ms. Mountjoy overcame the challenges of managing their careers, family and personal pursuits as two of the few Ontario women in the surveying profession.

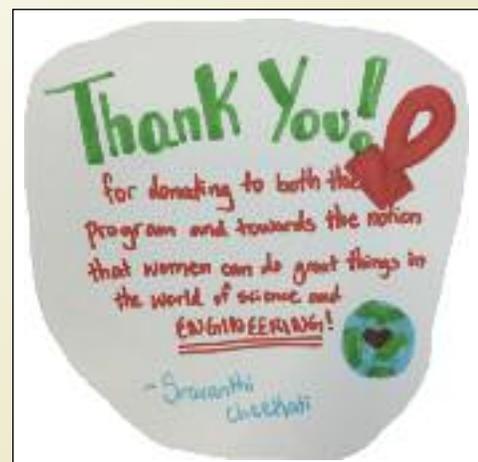
For many students, the field of geomatics was very new to them and they had not met any geomatics engineers prior to the Lassonde program. However, after Geomatics Day, some of the young women began to think about how they could incorporate geomatics fundamentals into their research projects. One group of students utilized the techniques

learned in the 3D cameras workshop to photograph their experiments and deliver a more interactive layout in their final poster presentation. After Geomatics Day, 89 percent of the young women stated that they were knowledgeable of how geomatics engineering makes a positive impact in the world, versus only 17 percent prior, a 72 percent increase.

With the help of sponsors AOLS, the Carswell Family Foundation and Lassonde computer engineering graduate Abdullah Merei, the Lassonde Summer Research and Mentorship Program is providing young women with a sense of belonging, trust and comfort that they can fully participate in careers in engineering and computer

**Rajvi Chavada** is a third-year software engineering student at the Lassonde School of Engineering and was the 2018 Summer Program Coordinator for the Women in Engineering High School Research and Mentorship Program.

**Marisa Sterling, P.Eng, FEC,** is the Assistant Dean, Inclusivity and Diversity at the Lassonde School of Engineering, York University. Her office leads the 50:50 Road Map to Inclusivity to make the Lassonde School the first gender balanced school of its kind in Canada. To partner on this goal, contact Marisa at [marisa.sterling@lassonde.yorku.ca](mailto:marisa.sterling@lassonde.yorku.ca)



One of the comments contained in the thank you card from Sravanthi Cheekati, student at John Fraser Secondary School in Mississauga.

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## EDUCATIONAL FOUNDATION NEWS

### Congratulations to our Spring Award Winners

**York University – Dawid Szeremeta** received an award for achieving the highest grade and **Emmett Ketchum** and **Sahand Shaghaghi** tied for the second highest grade in **LE/ESSE 4670 Survey Law**. The students also had to demonstrate a strong interest in cadastral surveys during the course.

### November 1<sup>st</sup> – Time to “Invest in the Future” and join or renew your membership

Since 1975 the Educational Foundation's objective has been to present awards to those students who have achieved academic excellence and shown leadership in geomatics programs at several Ontario colleges and universities with the hope that they would be inspired to become Ontario Land Surveyors. How can we measure the success of our efforts? In the past few years, the number of OLSs who are award winners has steadily increased. Currently 17 of our 91 articling students have received awards. We have also heard from some of our new OLSs that it was winning an Educational Foundation award that sparked their interest to pursue a career in land surveying. To attract more promising students such as these, we need your support. Donations to the Educational Foundation can be sent to the AOLS office or made online at <http://www.aols.org/students/efdonation>

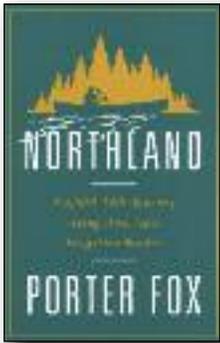
The Educational Foundation would like to recognize with thanks donations made in the memory of Jack Young, David Searles and Vivian Elsbey.

# BOOK REVIEWS

## Northland

### A 4,000-Mile Journey Along America's Forgotten Border

By Porter Fox



Published by W. W.  
Norton & Company

ISBN 978-0-393-24885-2

America's northern border is the world's longest international boundary, yet it remains obscure even to Americans. The northern border was America's primary border for centuries – much of the early history of the United States took place there – and to the tens of millions who live and work near the line, the region even has its own name: the northland.

Travel writer Porter Fox spent three years exploring the 4,000 miles of the border between Maine and Washington, travelling by canoe, freighter, car, and foot. In *Northland*, he blends a deeply reported and

beautifully written story of the region's history with a riveting account of his travels. Setting out from the eastern-most point in the mainland United States, Fox follows explorer Samuel de Champlain's adventures across the Northeast, recounts the rise and fall of the timber, iron, and rail industries, crosses the Great Lakes on a freighter; tracks America's fur traders through the Boundary Waters; and traces the forty-ninth parallel from Minnesota to the Pacific Ocean.

*Information taken from inside the front cover.*

## Regulating Professions

### The Emergence of Professional Self-Regulation in Four Canadian Provinces

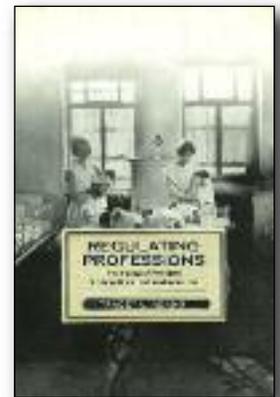
By Tracey L. Adams

Self-regulation has long been at the core of sociological understandings of what it means to be a "profession." However, the historical processes resulting in the formation of self-regulating professions have not been well understood.

In *Regulating Professions*, Tracey L. Adams explores the emergence of self-regulating professions in British Columbia, Ontario, Quebec, and Nova Scotia from Confederation to 1940. Adams' in-depth research reveals the backstory of those occupations deemed worthy to regulate, such as medicine, law, dentistry, and land surveying, and

how they were regulated. Adams evaluates sociological explanations for professionalization and its regulation by analyzing their applicability to the Canadian experience and especially the role played by the state. By considering the parts played by all those involved in creating the professional landscape in Canada, Adams provides a clear picture of the process and illuminates its importance in building Canadian institutions and society.

*Information taken from inside the front cover.*



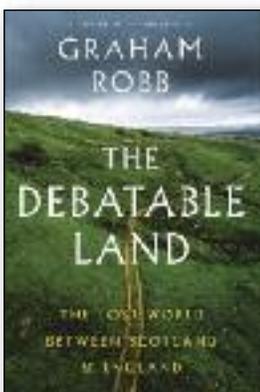
Published by University of  
Toronto Press

ISBN 978-1-4875-0249-2

## The Debatable Land

### The Lost World Between Scotland & England

By Graham Robb



Published by W. W. Norton  
& Company

ISBN 978-0-393-28532-1

When Graham Robb moved to a lonely house on the very edge of England, he discovered that the river winding around his new home had once marked the boundary of the legendary Debatable Land. The oldest detectable territorial division in Great Britain, the Debatable Land served as a buffer between Scotland and England. It was once the bloodiest region in the country, fought over by Henry VIII, Elizabeth I, and James V. After most of its population was slaughtered or deported, it became the last part of Great Britain to be brought

under control of the state. Today, it has vanished from the map and its boundaries are matters of myth and generational memories.

Under the spell of a powerful curiosity, Robb began a journey – on foot, by bicycle, and into the past – that would uncover lost towns and roads, and unlock more than one discovery of major historical significance. These personal and scholarly adventures reveal a tale that spans Roman, Medieval, and present-day Britain.

*Information taken from inside the front cover.*

# The Last Word

## 200th Anniversary of the 49<sup>th</sup> Parallel

The two monuments shown on the cover denote important years with respect to the determination and maintenance of the 49<sup>th</sup> Parallel as the Canada/U.S. border in the west.

**O**n October 20, 1818, the British and American governments signed the Convention of 1818, an agreement that set the 49<sup>th</sup> parallel as the official border between Canada and the U.S., from the Lake of the Woods (which borders Ontario, Manitoba and Minnesota) up to the Rocky Mountains. This latitude roughly approximates the northern watershed of the Mississippi-Missouri drainage system which was generally agreed upon as the boundary created by the Louisiana Purchase between the U.S. and France in 1803 and accepted as the southern limit of the Hudson's Bay Company's territories. It was very difficult to survey a watershed-based boundary so the change in 1818 to set it at the 49<sup>th</sup> parallel made sense. Among the Métis peoples, the 49<sup>th</sup> parallel was nicknamed the *Medicine Line* because of its seemingly magical ability to prevent U.S.



Cutting on the 49<sup>th</sup> Parallel, circa 1861. Credit Library and Archives Canada/C-078979.

soldiers from crossing over it. The area west of the Rocky Mountains was disputed until the Oregon Treaty of 1846 was established which extended the international border along the 49<sup>th</sup> parallel to the Strait of Georgia on the Pacific Coast.

The International Boundary Commission, which had first been established in 1794, was finally made a permanent organization in 1925. A joint commission made up of both American and Canadian members, it is responsible today for surveying and mapping the boundary between the U.S. and Canada, for maintaining the permanent boundary monuments and keeping the boundary clear of brush and vegetation for 3 metres on each side of the line. The

Commission is headed by two commissioners, one of whom is Canadian, the other American.



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### Advertising Rates:

	1 time	4 times
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2nd and 3rd Cover	Not Sold	\$715
4th Cover	Not Sold	\$825
Full page 4 Colour	\$705	\$660
1/2 page B&W	\$280	\$245
1/2 page 4 Colour	\$500	\$465
1/4 page B&W	\$190	\$165
1/4 page 4 Colour	\$410	\$385

Inserts (supplied): Page rate plus 25%.

### Mechanical Requirements:

Typed page: 48 picas wide by 63 picas deep  
Bleed size: 8.75 wide by 11.25 deep  
Non-bleed image area of a single page should be 7.5 x 10  
D.P.S.: 17.25 wide x 11.25 deep with bleed  
D.P.S.: 16 wide by 10 deep without bleed

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Supplied files should be "Press Quality" PDFs with trim and bleed marks included and with all fonts applied in the ad embedded.

**Note:** The "Marks Offset" should be set to the same value as bleed (for example .125") to avoid marks protruding into bleed area and thereby reducing bleed. Four Colour images should be in CMYK mode with a resolution of 300ppi.

Colour profile included in the file should be GRaCol\_2006\_Coated with Relative Colorimetric Intent.

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