

# Ontario Professional Surveyor



*on the cover ...*

**Ontario Parks  
Celebrating 125 Years!**

**also in this issue ...**

Where the Blazes am I?  
COGS: The Most Surveyed  
Property in Canada  
Jean Baptiste Rousseau's  
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# ONTARIO PROFESSIONAL SURVEYOR



VOLUME 61, No. 3

Summer 2018

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## ON THE COVER ...

Ontario's provincial parks are turning 125! It all started in 1893 with the creation of Canada's first provincial park, Algonquin. The photo of Algonquin Park on the cover is credited to ©Ontario Tourism Marketing Partnership Corporation. There are many special 125<sup>th</sup> anniversary events listed at <https://www.ontarioparks.com/op125>

James Dickson, O.L.S. was considered to be one of the “Fathers” of Algonquin Park. Read about how this influential surveyor played an important role in the creation of our first provincial park in The Last Word on page 36.

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# President's Page

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



It has been an extremely busy three months since our AGM and my last quarterly report. I have had the distinct

honour and privilege to represent our

Association at other provincial annual meetings in British Columbia, then ACLS also in B.C., followed by Newfoundland and Alberta. As I write this, I am getting ready to travel to Saskatchewan for their annual meeting.

At each and every meeting I have been able to reach out to other associations' members to get a national perspective on the state of our profession. There has been some very good dialogue with the Presidents and Executive Directors as well. One of the items that is now in progress on a National level, and has participation Canada-wide, is the Salary Study. I must thank those involved and especially Blain Martin for getting this completed. We hope the results will be both enlightening as well as beneficial to our outreach campaign, which includes encouragement of new membership into our esteemed profession.

We had our own AOLS Strategic Planning session in May which was coupled with a short Council meeting. The strategic plan from the previous year was enhanced and updated. This process has served Council and the Association very well to help keep us focused on our goals. Council will meet again in June and at our extended summer meeting in July on which I hope to report in the fall.

One of the questions which is of great significance to me and is perhaps of dire importance to our profession is "What does it mean to be a professional?"

A more compelling question is "What does it mean to you and me as individuals and to all of us as members of the AOLS?"

When I was 16, I got my driver's license and I thought that the passing of the requisite test was an indication of my expertise as a driver of motor vehicles.

When I got married, I assumed that this was the ultimate evidence of maturity, leaving all youthful things behind.

When I graduated from the AOLS required course of study, I thought that passing the requisite exams was the decisive indicator of my expertise as a land surveyor.

In all three instances above (and many, many more), I was clearly wrong.

The driver's license was only a grant of permission by a

governing authority to allow me to traverse the country's roads in a 3000 lb. mass of metal at speeds dangerous to pedestrians and other vehicles as well as myself. It was the years of experience and constant practice that gave me the proficiency to drive with confidence.

In all three cases above, my life was governed by a strict set of rules and obligations imposed upon me by civil and sometimes religious authorities.

The Association of Ontario Land Surveyors was established in 1892 as a self-governing association, responsible for the licensing and governance of professional land surveyors. It has a responsibility to ensure that the public interest is held paramount.

The regulations which are set out in The Surveyors Act, R.R.O. 1990 establish a required level of competence and ethical behavior, which is specifically defined in the Code of Ethics (printed on page 5). In my opinion however, there is yet more to the establishment and maintenance of professionalism than is covered by our Code of Ethics.

The Merriam-Webster dictionary defines professionalism as "the conduct, aims, or qualities that characterize or mark a profession or a professional person." I believe that when one is a member of a professional organization such as ours, receiving the OLS designation, like the driver's license, is only a beginning. It represents the granting by the governing authority to carry on the activities of the profession as set out in its guidelines.

I further believe that if we want to convey to others that we are valid professionals, it begins with our outward appearance, including our standard of dress and grooming. A first impression is a lasting impression no matter the level of competence that has yet to be proven.

Our speech and our degree of caring, together with the exhibition of patience and empathy towards our clients and peers, sets the foundation for the professional relationships we seek to build.

The willingness to share knowledge and non-confidential information makes us better professionals and assists us to mentor others both in our field of endeavor as well as those outside this area.

As members of the AOLS we are tasked with the responsibility of not only building the profession from within but also cementing the public's awareness and trust in us. We

*cont'd on page 5*



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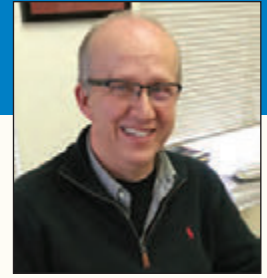
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# Executive Director's Notes



By Blain Martin

We all know that there are those moments in time that become indelibly imprinted in our minds for our whole lives. For instance, I clearly remember sitting in Mrs. Peters' Grade 9 Latin class in Orillia when the assassination of President Kennedy was announced. For those who are younger than me you will recall, as I do, where you were when the twin towers in New York City were taken down.

I mentioned one of these moments in my last column. I was sitting at Executive Director Lorraine's desk at 6070 Young Street while three surveyors questioned me during my professional exam. I particularly recall George Yates asking me to tell him what "professional" meant to me. I responded to the best of my ability and then he followed up with, "Well, what is the difference between a Surveyor and a Plumber?"

I did pass the exam but even now I do not think my answer was great. I know that I did not have a clear grasp of what it meant to be a member of a self-regulated profession. Of course, now I know that Plumbers are governed by building codes and business law, which are set up by various levels of government, and that Surveyors, at least in Canada, are licensed and governed by their own provincial professional bodies.

Self-governance includes many elements, such as a complaints and discipline process, an examination process to qualify new members, a peer review process, an insurance program to protect the public, a continuing education program and of course a governing Council which includes Lay Councillors. This list is not complete but it does give you an idea of many of the things that must be in place to sustain a self-regulated profession. The effort that it takes to maintain each one of the individual items listed above is significant in itself.

In Ontario there are only 17 non-health self-regulated professions and most of these have thousands of members. Seeing that we have always been such a small group indicates to me what an exceptional privilege it was to be granted self-regulatory status in 1892. Our governance model lets the government have control over the profession without having to maintain its own in-depth expertise that would otherwise be required and the government has entrusted each of us to put aside our own self-interest in favour of protecting the public.

I mentioned Canada earlier because many of you may not know that the regulation of surveyors is entirely different in the U.S. There each state licenses the surveyor and the professional body only offers education and networking. Each surveyor is not required to be a member of the professional body as the state does the licensing. Personally I like our model better as I believe that it provides much better protection for the public.

There is however always a risk. We saw this when the professional associations of the Real Estate Agents in British Columbia and the Engineers in Quebec were disbanded by their provincial governments. There were of course many reasons for this extreme action that do not apply to us but even

so, I believe that we should be vigilant to ensure that this does not happen to our association.

Self-Regulated professions are always watched closely. The Competition Bureau wrote a massive document on Self-Regulated Professions about ten years ago and used some of the larger organizations as case studies. More recently in March of this year, there was an article in the Toronto Star titled, "The 'radical paradigm shift' that's changing Ontario's oversight system for health professionals." There could also be fallout from this for non-medical professions.

In President Dan's article on the previous page he focused on individual professionalism and the standards and code of ethics that each one of our members must follow. My article is focused on the overall profession but I do want to reinforce what each and every one of us can do to help maintain our professional image.

As you all know we have a complaints process where the public can officially complain about our work as surveyors. Of course, on any project there are things that can go wrong that can upset people to a point where they will complain. However, what the Registrar and I do not understand at all is why every effort is not made by the member to resolve the issue, especially when an official complaint has been lodged. It is unbelievable to think that a member who is a professional would let things go so far astray that the Complaints Committee has no option but to refer the member to Council for further action.

Speaking of Complaints, the Registrar tells me that the primary reason that he receives a complaint is a lack of communication between a surveyor and a client, or a surveyor and the public. Abuse of our right of entry falls under a "lack of communication" and makes up a large number of our complaints. Field crews should thoroughly understand what they can and cannot do before arriving at the jobsite.

Clients being surprised with their final fee also falls under "lack of communication" and is another reason that we receive complaints. Both of these situations could be dealt with swiftly by the member. In some cases they are not and all of a sudden the Association is faced with huge costs to remedy the situation.

At our strategic planning session in May we talked about our risk of losing our ability to self-regulate and although that risk is low we do, as previously said, have to be vigilant. One of the potential issues is having too few members to be able to adequately serve the public's needs. Through the work of many of our committees we seem to be turning the corner on that.

In conclusion I would ask that all of you think back to that question that George Yates asked me during my Professional examination. Please consider what being a "Surveyor" means to you and how you can consistently help our profession maintain our self-regulating privilege.



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

must continue to garner respect for the work that we do and show its relevance to the society in which we live and work.

So, what can each of us do to further this concept of "professionalism"?

In the first place, we must understand that the conferring upon us of the title of OLS is only our initiation. It allows us the right to practice our calling and is not to be considered as an assertion of an all-encompassing degree of expertise.

We must continue the pursuit of maturity within the profession through professional development programs.

We must keep up to date with changes in the profession as well as the laws and by-laws of the communities within which we live and work.

We must maintain a standard of dress and good character which is beyond reproach.

We must mentor our students and associates in all manners relating to all of our goals and concepts of professionalism.

We must do all we can to promote, educate and build the public trust in our profession.

This is what I say. This is what I practice. This is who I am. Please join me.



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## ASSOCIATION OF ONTARIO LAND SURVEYORS Code of Ethics

- 33.** (1) Members shall abide by the code of ethics of the Association. R.R.O. 1990, Reg. 1026, s. 33 (1).
- (2) The code of ethics of the Association requires that every member shall,
- (a) conduct his or her professional and private affairs in such a manner as to maintain public trust and confidence in the profession;
  - (b) abide by the standards of practice prescribed herein;
  - (c) follow a program of continuing education and maintain a level of proficiency that will meet the needs of the public;
  - (d) preserve the confidence of clients and regard as privileged information obtained in respect of clients' affairs;
  - (e) ensure that clients are aware of the complexity of a project and the nature of fees for service;
  - (f) when signing a survey plan or a project, include a statement that certifies that the plan or project complies with all relevant legislative requirements and all standards of the Association; and
  - (g) not receive compensation for the same service from more than one person without the consent of the persons involved. R.R.O. 1990, Reg. 1026, sec. 33 (2); O. Reg. 327/12, s. 11



# Complaints Committee – Part 1 – Roles & Responsibilities

By Dave Kovacs, Complaints Committee Chair

## Background

Back in September 2017, our Executive Director, Blain Martin asked me if I would present a seminar on the role of the Complaints Committee at our 126<sup>th</sup> AGM in Niagara Falls. Frankly, I did not cherish the thought of having to put on a 90 minute presentation in front of my peers, some of whom may have been the subject of a past complaint. But as my presentation began to take shape, I realized that this was a great opportunity to help educate our members about the roles and powers of the committee, the types of complaints we commonly see, how the committee addresses these complaints, and what the surveyor can do to avoid being the subject of a complaint. While the presentation was fairly well attended, I couldn't help but be a bit discouraged that I was only able to connect with a fraction of our membership. For the sake of protecting the public's interests and hopefully having to deal with fewer complaints, I wondered how we could possibly reach out to more members. Our Deputy Registrar, Maureen Mountjoy suggested I submit a series of articles for our Ontario Professional Surveyor publication; the following is the first part of a restructured version of the seminar I presented at the AGM.

## The Committee

Section 21 of the Surveyors Act defines the qualifications required to become a member of the Complaints Committee:

- (1) *A person appointed to the Complaints Committee under clause (1) (c) shall have practised professional surveying in Ontario or in another jurisdiction for at least five years at the time of being appointed to the Committee.*
- (2) *No person who is a member of the Discipline Committee shall be a member of the Complaints Committee.*

Our current Complaints Committee is composed of 10 members, including 2 Lay Councilors and 2 AOLS Council liaisons. The Committee members are all volunteers who come from all geographic areas of the province and represent both the private and public sectors. The Lay Councilors, who are appointed by the Lieutenant Governor in Council, are of great benefit to both our Association and the public. They bring a unique perspective to the group and continually remind us that our primary objective as a self-governing association is to protect the public interest.

During the past 12 years of my tenure on the Complaints

Committee, over 200 official complaints have come before our Committee, lodged by both the public and by other surveyors. It should be noted that the number of official complaints that the Committee actually sees is not truly indicative of the number of enquiries that AOLS staff, primarily the Registrar, receive regarding the conduct of our members. Fortunately for our Committee, many of these complaints are resolved without an official complaint being made. While the Registrar is not a member of the Complaints Committee, he does attend the monthly meetings, prepares meeting agendas and minutes, and ensures that complaints are processed properly and in a timely manner. When the Registrar is required to declare a conflict of interest with a specific complaint, the Deputy Registrar will attend in place of the Registrar.

## Objectives of the Complaints Committee

In 2014, former Complaint's Chair, Andrew Mantha, and our Registrar, Bill Buck finalized version 2.4 of the Manual of Procedures for the Complaints Committee. The manual is a guide for the Committee members to ensure consistency, openness and fairness in the treatment of a complaint. The manual is a working document that is continually under review and subject to revision. A copy of the manual is available to members for viewing on the AOLS website.

From the Complaints Manual, I have sourced 6 key bullet points that define the main objectives of the Complaints Committee:

1. The Committee will consider and investigate in a timely manner all complaints that are presented in a form consistent with the *Surveyors Act*.
2. The Committee will maintain complete and accurate records of each complaint file.
3. The Committee will ensure that confidentiality is maintained of all files and associated committee materials used during and after its deliberations.
4. The Committee will ensure that all new committee members are provided training and sufficient materials to assist the member in serving on the committee.
5. The Committee will attempt to inform and educate members and the public of the surveyor's roles and responsibilities.
6. The Committee will strive to ensure that all parties to a complaint understand the aims, objectives and powers of the committee and the reasons for each decision.



To further expand on each of these bullet points:

**1) The Committee will consider and investigate in a timely manner all complaints that are presented in a form consistent with the Surveyors Act.**

Section 22 of the Act states that any member of the public or a member of the Association may file a complaint in writing with the Registrar. The Complaints Help Form is the preferred method of submitting a complaint. The form itself is not mandatory but provides guidance to the complainant to ensure that all necessary information is included in his/her submission. A sample of the "Complaints Help Form" is available on the AOLS website, at: [http://members2011.aols.org/sites/default/files/Complaints%20Help%20Form%20\\_2\\_.pdf](http://members2011.aols.org/sites/default/files/Complaints%20Help%20Form%20_2_.pdf).

Essentially, the Complaints Help Form assists the Committee by providing the following information:

- Information about the complainant including all of his/her contact information;
- Information about the surveyor who you are lodging a complaint against;
- What was your relationship with this surveyor ... were you the client?
- What were the services you were expecting to receive?
- What was the quote? Was it in writing?
- Did the scope of work change?
- What is the nature of this complaint?

- Have you discussed the complaint with the surveyor? What was the result?
- What do you feel is an appropriate resolution to this complaint?

**2) The Committee will maintain complete and accurate records of each complaint file.**

This should probably read, the Committee, through the Registrar, will maintain complete and accurate records of each complaint file. Although the Registrar is not a member of the Committee, it is the Registrar who:

- prepares a paper file for each complaint and ensures that a copy of all documentation relating to the complaint is kept in the file;
- ensures that an electronic file containing a copy of all documents is maintained in a secure location on the internal computer system of the Association;
- ensures that any electronic file is also posted in the secure and confidential Complaints Committee section of the AOLS website;
- prepares and circulates a draft agenda to Committee Members at least one week before the date of a meeting of the Complaints Committee;
- acts as the liaison between the parties to the complaint and the Committee. Any documentation that comes in from parties to the complaint, or that goes out from the Committee, is funneled through the Registrar.

*cont'd on page 8*

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**3) The Committee will ensure that confidentiality is maintained of all files and associated committee materials used during and after its deliberations.**

- Again, any documentation received that forms the basis of any complaint is stored both in hard copy form and electronically in a secure location in the Association's filing system.
- Any electronic file that forms the basis of a complaint is posted in the secure and confidential Complaints Committee section of the AOLS website and accessible only by members of the Complaints Committee or the Registrar.
- Committee Members must sign a conflict of interest and confidentiality statement, and that form is kept on file at the office of the Association. If there is even the potential for a perceived conflict of interest, Committee Members must refrain from participating in the discussion regarding the complaint they have declared a conflict with.

**4) The Committee will ensure that all new committee members are provided training and sufficient materials to assist them in serving on the committee.**

Our manual states that "all new Committee Members are obligated to attend the next available Administrative Law seminar hosted through the Association". Realistically, this does not occur as routinely as we would like, so it may be a couple of years before new members can attend the course. This does however, give existing members an opportunity to re-attend these seminars to stay current with existing legislation and case law. During the seminar, new members also benefit from hearing about the experiences of existing members and reviewing decisions made in past complaints.

**5) The Committee will attempt to inform and educate members and the public of the surveyor's roles and responsibilities**

In my opinion, this is definitely the most important role of the Committee. Much like the Survey Review Department, our intent is to provide a resolution that is educational in nature, not punitive. But additionally, because we are often dealing with members of the public, we are also educating the public about the roles and responsibilities of the surveyor. The surveyors on our Committee often find it a challenge to provide a response that is not too technical for the average layperson to understand; this is where our Lay Members are of great assistance in providing clarity.

**6) The Committee will strive to ensure that all parties to a complaint understand the aims, objectives and powers of the committee and the reasons for each decision.**

It is important that all parties to the complaint get their fair say. Both the Complainant and the Respondent have 2 opportunities each to provide information related to the complaint to support their position. If the Committee feels more information is required, they may request it from

either party. Both parties are privy to all information that is exchanged. After the Committee has had ample time to review and discuss the complaint submission, they will render either an Interim or a Final decision. This decision will typically include a synopsis of the complaint, a summary of the material that was submitted, the issues to be considered, the decision itself, and the reasons for arriving at that decision. The reasons will include reference to any statutes, regulations, A.O.L.S. directives or bulletins, or relevant case law that may apply.

## **Powers of the Committee**

In contrast to the Discipline Committee, the powers of the Complaints Committee are somewhat limited.

The powers of the Complaints Committee derive from Section 22 (4.3) of the Act, which 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).*

Let's consider Section a) of this portion of the Act:

*(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;*

As a Committee, one of the most difficult decisions that we have to make is referring one of our peers to Council with a recommendation to go to Discipline. In most cases, this is a last resort. Generally, this only happens when a member is a repeat offender with a pattern of prior complaints, or there is an undeniable violation of a statute or regulation, which may constitute professional misconduct. A failure to comply with the Code of Ethics or the Standards of Practice of Professional Surveying is one of the definitions of Professional Misconduct. That does not necessarily mean that if you breach one of the items in the Code of Ethics, that you are automatically going to Discipline. For example, a member of the public lodges a complaint against you alleging that you charged more for a survey than what was verbally agreed on. Is this a breach of the Code of Ethics as per Section 33 of Regulation 1026? The Code of Ethics, states:

*"ensure that clients are aware of the complexity of a project and the nature of fees for service;"*

So, how did this complaint come to be? Did the scope of the project change? When? Did you make the client aware of rising costs? If so, when? Did you put any of this in writing? The Committee can only consider information that



has been submitted in support of the complaint. If you don't have that information documented somewhere, you may be on shaky ground. Signed agreements hold far more weight than verbal agreements, particularly when it comes to complaints. If the scope of a project changes, you should advise your client immediately. Determine the costs associated with the change and have your client sign off on the new agreement. Ensure all agreements are time stamped or dated. If you can produce any of this evidence in response to the complaint against you, it's possible that you won't end up at Discipline. In fact, it's probable that you wouldn't have ended up at Complaints in the first place. You may be advised by the Complaints Committee to better communicate these changes to your client in the future, or to perhaps consider a better way of documenting your work orders. This would be an example where the objective of the Committee is to render a decision that is remedial in nature, and not punitive.

Now, let's consider Section b) of this portion of the Act:

*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.*

So what does this mean? The one thing that is clear is that the Committee cannot take any action that is within the jurisdiction of the Discipline Committee, which is specified in Section 26(4) of the Act. 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.

In the next issue, I will cover Part 2: Powers of the Committee – Limitations, Interim Decisions, and what happens when you are the subject of a complaint.

Sources:

“Complaints and How to Avoid Them” by W. D. Buck, Ontario Professional Surveyor, Spring 2015, Vol. 58, No.2.

Manual of Procedures for the Complaints Committee, version 2.4

SECTION 21 OF THE SURVEYORS ACT, R.S.O. 1990, CHAPTER S.29



## News from our Members

### Third Generation at Krcmar Surveyors Ltd.

A third generation has been welcomed to Krcmar Surveyors Ltd. Jamie Krcmar, grandson of Founder and President Vladimir Krcmar, is completing his degree at the Lassonde School of Engineering at York and will begin the articling process at the family run surveying company this

year. Jamie will be mentored by his father Tom, while also working closely with his grandfather, his uncle and his aunt.

“Congratulations Jamie, I am extremely proud of your achievements and look forward to working with you and teaching you.” Vladimir Krcmar (grandfather).



The Krcmar surveying family: Vladimir, Maja, Jamie, Tom and Saša

# Where in Blazes Am I?

By David Coombs

**W**e all wish to feel grounded. We hope to find our bearings. Yes, we sometimes take the road less travelled but at the end of the day, we breathe a sigh of relief having put our best foot forward, found our place in life and settled into the peace of mind that comes from knowing where one stands.

I recently put these thoughts to the test. My friend Wally Simpson (OLS #1518) asked me to help him survey some land. You should understand that there are several traits that distinguish me from my buddy. He is a surveyor; hence thoughtful, detailed, analytical and patient. I am a purveyor of words that frequently appear to readers as scattered and mindless. I have no patience, no analytical ability and no sense of direction. We are different folks. He is at home in the bush. I am best off at home on the couch.

Putting aside my angst and puffed with pride that he had asked for my help, I readily agreed to meet him and his son Mike at 7 a.m. the next morning. We were going to re-blaze a line last marked 23 years ago. They arrived with space-like GPS equipment, an axe, a chainsaw, oil and gas. Their knapsacks contained paint and ribbon. Their heads contained 40 years of experience. I brought a can of soda and a muffin.

We trekked to the known iron bar and the guys proceeded to set up their equipment. I offered to take the axe and walk a straight line into the bush looking to re-mark the old blazes. I was excited. They were cautious.

“Take a break and follow us once we get the line. Leave the axe.” Wally had spoken in a friendly yet forthright manner. I think I heard him mutter to Mike, “We only have the one axe.”

I was touched that they were concerned for my health but taking a break before we actually got underway appeared overly conservative.

“I’ll just saunter ahead. You keep the axe and I’ll yell when I see a blaze.” I left before they could reply, confident that I would do myself proud. This proved to be somewhat optimistic.

First, I did not saunter, at least not in the true sense of the

word. A bramble patch necessitated a detour within 100 feet of the iron bar. I clawed my way around the spiny brush and only caught one sleeve as I emerged semi-victorious on the other side. I could see the guys and waved. The chainsaw was humming. They did not respond.

Looking ahead and then back at the chainsaw I lined up two points and proceeded to walk methodically and observantly. Or so I thought. Lining up three points is a more suitable method of navigation but I had neither the skill nor patience to attempt such an exercise. Besides, I could both hear and see the fellows and I had a sixth sense that the white pine in the distance most likely would sport the tell-tale three blazes. I wanted to make the first discovery so I moved quickly toward the pine. I did not reach it immediately as a hidden root system upended my plans and I dropped like a stone, just missing a rock with my head.

Unfortunately my elbow did make contact.

I caught my breath, resisted the urge to scream and slowly stood. I tried to rub my elbow but gave up as the shooting pains suggested that it was a bad idea. My spirits were flagging but upon reaching the pine I rejoiced. I could clearly see one blaze and then perhaps a second and after careful examination convinced myself that a third was evident.

It was at this point that I made an error. It may not have been my first of the day and was certainly not the last. Rather than returning to the crew and boasting about my find I decided to forge ahead in order to discover the next set of blazes. Then I could return with a clear sense of the line and take a well-deserved break.

The way ahead suddenly suggested, even to my mind, that the plan might not unfold as conceived. A micro burst from the previous summer had created a massive windfall. Trees ahead had been uprooted. The likelihood of finding supporting blazes vanished. The mass of entangled roots, branches and trunks suggested forward progress in a straight line would be daunting if not impossible. An inner voice suggested that I turn back. My pride and desire to make a name for myself overrode that idea. I plunged ahead and within minutes was somewhere





between being under, over and pinned by a massive twin oak windfall.


I assessed my predicament. I was stuck. My elbow was throbbing. The guys were not in sight, at least from my vantage point. I could yell but the chainsaw would drown out my pleas. I decided to maintain my position. I really had no choice. I kept harbouring the comforting thought that Wally and Mike would follow the line and stumble upon me.

They did indeed follow the line but not to my destination. I had inadvertently gone not 180 degrees around the brambles but rather 270 degrees. Thus I had headed out 90 degrees off course. Yes I found a blazed pine but the second mark proved to be a natural scar and the third was in my imagination.

I learned all this about an hour later when the search party



of two found me. They got me home, assured me my experience could happen to anyone and suggested a few days of rest would cure all concerns.

My dear wife Sarah announced that I was grounded. I don't think she meant it quite the way the article began. 

**David Coombs** has a Ph.D. in Canadian history. After his retirement as a stockbroker in 2004, he began to write. His articles have appeared in *The Country Connection*, the *Toronto Star* and the *Globe and Mail*. He is also the author of "The Beckoning Land" which is an historical novel set in his home town of Barry's Bay during the Depression and WWII. A copy of his book is available for purchase at [www.lulu.com](http://www.lulu.com) (<https://bit.ly/2IpjDk1>)

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# Jean Baptiste Rousseau's Trading Posts on Lake Ontario

By Grant Karcich

**J**ean Baptiste Rousseau (1758-1812) was a fur trader and an interpreter between the Mississauga and the British administration. He was connected to some of the important figures of early Ontario history, such as Lieutenant Governor John Graves Simcoe, who needed him to smooth relations with the Mississauga and Six Nations people, and Joseph Brant with whom he had commercial dealings.

Rousseau grew up on the Island of Montreal and in subsequent years lived at Cataraqui (later becoming Kingston) in the 1780s, at the Humber in the early 1790s and finally at Ancaster, near Hamilton after 1794. He had a number of fur trading posts and houses along Lake Ontario, such as the Humber post, which is documented in some detail, and other posts which are not so well known.

## Humber River Trading Post at Toronto

Rousseau lived at a trading house on the east bank of the Humber River upstream from the Lake Ontario between the years 1791 and 1795. Although, this house was documented on old maps and mentioned in the correspondences of Governor Simcoe and Elizabeth Simcoe, its precise location was in doubt until surveyor William J. Daniels, a member of the AOLS carried out a comprehensive survey of Rousseau's house. Daniels in his 1991 report *Locating the Rousseaux Home-Site*<sup>1</sup> relied on the early surveys of 1793 and 1798 to document the precise location of the Rousseau homestead, today found north of the Queensway and Gardiner Expressway in Toronto.

Early survey records refer to Rousseau as 'St. John' because his family was distinguished from other Rousseaus in Quebec by the use of 'dit St. Jean' which English speakers often anglicized. The Rousseau house appears on Joseph Bouchette's 1792 Plan of Toronto Harbour as 'St. John's House'. Surveyor Augustus Jones' entry for July 10, 1793 records that he "Surveyed and opened the front Line to the mouth of St. John's Creek, 39 Lots" and days later Jones, in the adjacent Lot 40,

records being "on the side of a Hill near a pond which empties into the Lake by St. John's, from the rear of the first Concession and No 40... at 49 chs cross a Foot path to St. John's. At 50 chs descend to a steep ridge, to 54 chns 36 lks near a pond of St. John's – or Toronto Creek [Humber River]." In January 1798 Deputy Surveyor William Hambly did a survey "on the River Humber, betwixt St. John's (so called) and the Mills" plotting it on a scale of ten chains to an inch.

After Rousseau moved his family to Ancaster, the Humber River house lay abandoned and is last mentioned in correspondence in 1801. It disappeared some time afterwards and a hundred years later, the site appears in photographs as a vacant lot surrounded by trees. Daniels traced the ownership of the Rousseau site from its early days as a timber reserve set aside by Gov. Simcoe, to the building of a house on the site of Rousseau's by Edward Apted in 1907. This structure was later removed and in 1929 the Silver Slipper, a dance hall, took its place until it was destroyed in a fire on February 8, 1958. Subsequently, the site has been replaced by a Petro-Canada gas station. Daniels was able to identify the location from the Jones and Hambly surveys and plot it on modern municipal maps and thereby pin-point where Rousseau's home originally stood.



Students prepare a patch of field for resistivity testing, along with Puffi the dog. From left to right are Parham Adiban, Eva Zhang and Sam Edwards. Photo: Courtesy of Charly Bank.



## Trading Post at Oshawa

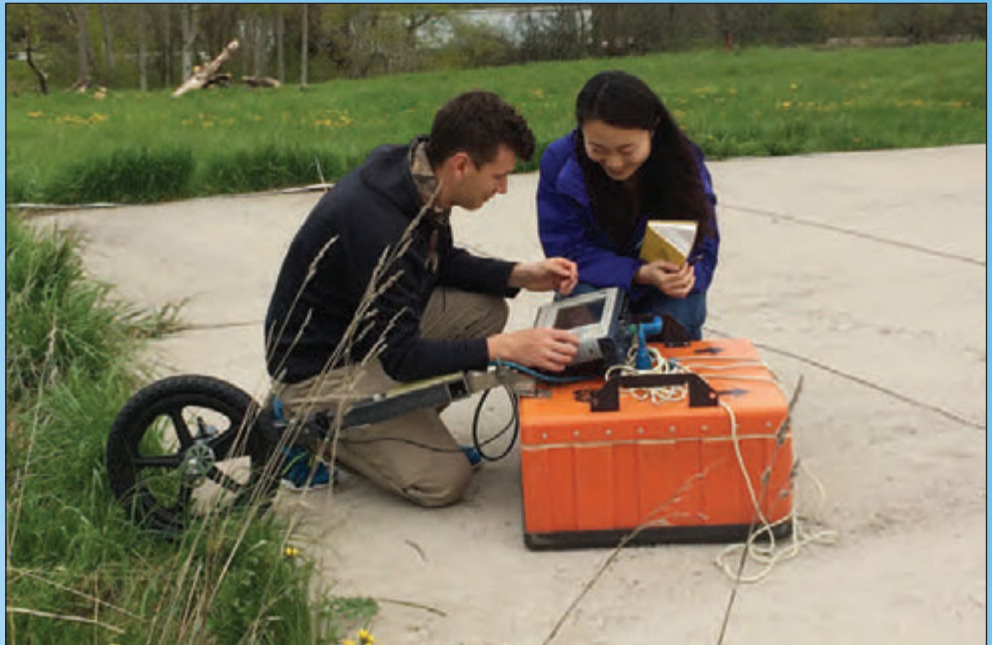
Another one of Rousseau's trading houses was located along Lake Ontario in Oshawa. Evidence on Rousseau's Oshawa (formerly Whitby Township) residence has been alluded to in local histories. Benjamin Wilson was the first in Whitby Township on Lot 4, Broken Front Concession (today in the south-eastern corner of Oshawa). In an 1875 publication, about 80 years after the Rousseau house was abandoned, Jessica Burke who lived east of Wilson mentions "an old French trading house that Wilson got in"<sup>2</sup> before he built his own house. This would have been Rousseau's trading house.

Again we go to Augustus Jones for verification, specifically his 1791 baseline survey of the townships from the Bay of Quinte to Toronto. Arriving at Lot 4 in Whitby, Jones states that "Mr. St. John lives on the front of this lot."<sup>3</sup> So Rousseau lived near where Wilson would later build his house. Wilson's place was found on Jones's 1795 map of Whitby Township, located approximately 150 feet north of Lake Ontario on Lot 4. The site was bulldozed in 2014 for the construction of a warehouse. An examination of the terrain east of Wilson's house was undertaken in 2012. The search was conducted by Charly (Carl-Georg) Bank, senior lecturer in Geophysics at the Department of Earth Sciences, University of Toronto along the banks of Farewell Creek, Oshawa which drains Harmony and Black Creeks. Dr. Bank's students conducted an above ground examination of both the eastern and western banks of the creek during September 28<sup>th</sup>, October 5<sup>th</sup> and 12<sup>th</sup>, 2012<sup>4</sup>.

The main region examined during these visits was at a location at the southwest corner of the Second Marsh, 250 feet from the lake shoreline and approximately 30 feet east of the channel in which Farewell Creek flows into the lake. The crew employed a magnetometer and a Ground Penetrating Radar (GPR) instrument. The GPR device was used to send radar waves into the ground. The readings from the GPR allowed for ground penetration to approximately 1.5 metres. The magnetometer was used to sample magnetic waves and the readings were taken every half metre, except in the north end of the site, where they were taken every 25 centimetres. GPS was used to record the location of each magnetometer reading.

The results of the 2012 GPR survey were reported to the Ministry of Culture, Tourism and Sport<sup>5</sup> but did not turn up evidence of Rousseau's habitation. Subsequent to this survey, further information came to hand from the 1793 survey notes by William Hambly for Darlington Township

(which is east of the Wilson house in Whitby Township). He mentions that "Benjamin [is] on the south west corner of the first concession which is in a Meadow on the East side of the Creek from St. John's House on No. 8 which corner is a white picket standing about a chain from the upland on the West Line of the Town<sup>6</sup>." No. 8 was the former name for



Forensic geophysics students Nathan Stoikopoulos and Jessica Liu take measurements using ground-penetrating radar.

Photo: Courtesy of Dr. Charly Bank, Earth Sciences, University of Toronto.

Whitby Township. The note suggests Rousseau's house was further east and north of where the 2012 GPR survey took place, placing it near the north end of McLaughlin Bay close to the boundary between the Municipalities of Oshawa and Clarington.



**Grant Karcich** is a professional librarian. He has an avocational archaeology licence from Ontario and is an anthropology graduate of both the Universities of Toronto at Erindale (B.A.) and Buffalo-SUNY (M.A.). He is now engaged in writing activities in anthropology, history, and genealogy and has released his latest book *The Legacy of Vanished Trails: the Archaeology, History, and Location of Portages in South-central Ontario* available through Red Handprint Press ([redhandprint.ca](http://redhandprint.ca)). He continues his research on Jean Baptiste Rousseau for a future publication and can be reached at [gkarcich@durham.net](mailto:gkarcich@durham.net)

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# Precision Equations for the UTM Projection – One TM Zone for Ontario?

By Paul C. Wyman, O.L.S. (Ret)

About 20 years ago I was involved with a project where it was necessary to compute 6° Universal Transverse Mercator (UTM) NAD83 grid coordinates from 3° Modified Transverse Mercator (MTM) NAD83 grid coordinates. The survey software available to me did not have that capability so I decided to write an Excel spreadsheet to undertake the calculations. My procedure was to first compute the Latitude and Longitude from the 3° grid coordinates, then compute the 6° grid coordinates from the Latitude and Longitude. A few years prior, my friend Tom Endleman, OLS (Ret.) had introduced me to the excellent text *Urban Surveying and Mapping* (T.J. Blachut, A. Chrzanowski & J.H. Saastamoinen) so I turned to this text for the requisite mathematics and formulae.

The mathematics required to compute UTM Latitude and Longitude from grid coordinates and the reverse process both entail the use of polynomials. The accuracy of the computations is limited by the number of polynomial terms used. While my completed Excel spreadsheet worked fine for the required purposes, further experimentation indicated that the computational accuracy was limited to one or two decimals of a millimetre. It seemed apparent to me that the computational precision of modern computers should be capable of much more, so I began a search for better formulae. Over time I learned that there are at least 2 challenges:

- Excel (like most software) uses ‘double precision floating point’ variables for most computations. Excel’s double precision numerical precision is 15 significant digits. The accuracy of final solutions is only in the 12 or 13 significant digit range for formulae that require numerous multiplication and division operations.
- The computational accuracy of the *Urban Surveying and Mapping* formulae was not only limited by the number of terms in the polynomials, but the entire mathematics are in fact an ‘approximation’. The formulae were from the pre-computer era and had traded off computation accuracy for simplification.

While I continued to use and improve my spreadsheet over the years, the lack of computational accuracy always nagged me. Given the computational speed and capacity of modern computers, why were we still using antiquated formulae? After retirement a few years ago, I undertook additional research and about 18 months ago discovered a new set of equations generally referred to as the Karney-Krueger equa-

tions. I will provide more detail later, but a bit of history puts things into better perspective.

The Mercator map projection is named for the Flemish geographer and cartographer Gerardus Mercator who developed the projection around 1569. Many other mathematicians and cartographers have contributed to its development. Johann Heinrich Lambert published a transverse Mercator projection in 1772 using the Earth’s spherical approximation. Carl Frederick Gauss developed a projection in 1822 using the ellipsoid and in 1843 using the double projection of ellipsoid and sphere. Gauss left little published material but Oskar Schreiber, who used the Gauss transverse Mercator projection for the Prussian Land Survey, published details of this projection in the late 1800’s. In 1912, Louis Krueger published ‘*Konforme Abbildung des Erdellipsoids in der Ebene*’, a definitive paper based on the Gauss-Schreiber work. The Transverse Mercator (TM) projection is closely linked to this paper, many texts refer to it as the Gauss-Krueger projection. In his paper, Krueger developed the rigorous transformation mathematics and a second set of equations that are ‘approximations’ but of more practical use with the manual computations of that time. This second set of equations was further developed by J.C.B. Redfearn (1948) and P.D. Thomas (1952).

The Redfearn-Thomas equations are in wide use today and derivations are what are often found in geodesy texts like *Urban Surveying and Mapping*.

There have been other authors of papers that have contributed to a modernization and improvement in the accuracy of the TM Geographic to Grid/Grid to Geographic computation, such as L.P. Lee (1976) and K.E. Engsager-K. Poder (2007).

Charles F.F. Karney revisited the original 1912 Krueger work along with the more recent contributions of Lee, Engsager and Poder. In 2010, Karney published a paper called *Transverse Mercator with an accuracy of a few nanometers*. The TM Geographic to Grid/Grid to Geographic equations from this paper are referred to as the Karney-Krueger equations and they provide a more rigorous and accurate computation.

Charles F.F. Karney, Ph.D. is a senior computer scientist with SRI International and previously was a professor at Princeton University. He is both a mathematician and



geodesist and has published several mathematical papers in geodesy, plasma physics, computational physics, chaos and nonlinear dynamics. According to the SRI website, Mr. Karney is currently involved in the “development of tools to process imagery and LIDAR data to create terrain models”.

Together with R.E. Deakin and M.N. Hunter, the 2010 Karney paper was ‘repackaged’ and entitled ‘*A Fresh Look at the UTM Projection: Karney-Krueger equations*’. This paper was presented at the *Surveying and Spatial Sciences Institute (SSSI) Land Surveying Commission National Conference* in Melbourne in 2012. This paper is available on the Internet at:

[https://www.researchgate.net/publication/267723012\\_A\\_FRESH\\_LOOK\\_AT\\_THE\\_UTM\\_PROJECTION\\_Karney-Krueger\\_equations](https://www.researchgate.net/publication/267723012_A_FRESH_LOOK_AT_THE_UTM_PROJECTION_Karney-Krueger_equations)

A bit of Internet research will uncover this same information in two or three different publications, but for the practical user like myself who wants a general overview and easily understandable equations, the above publication may be the best. On page 13, the authors lay out a specific calculation sequence and the formulae necessary to accurately compute grid coordinates, grid scale factor and convergence from latitude and longitude and the reverse process.

The Karney-Krueger equations are more complex than a series called the Redfearn-Thomas equations, although there are significant similarities. These new equations require the use of the hyperbolic sine, hyperbolic cosine, hyperbolic tangent functions and their reverse ‘arc’ functions. The hyperbolic functions are the analogues of the trigonometric functions used in connection with ellipsoids. For instance, in the Geographic to Grid coordinate process, to calculate the conformal latitude, it is necessary to first compute the ‘function of latitude (fl)’ with the Karney-Krueger equation which is:

$$fl = \sinh\{ e \tanh^{-1} [e \tan(Lat) / \text{SqRt}(1 + \tan^2(Lat))] \}$$

where, e = eccentricity of the ellipsoid

Lat = Latitude of the point

sinh = hyperbolic sine function

tanh<sup>-1</sup> = arc hyperbolic tangent function (inverse hyperbolic tangent function)

This paper also provides the TM projection scalar portions (numeric constants) of the polynomials to 8 terms. For those who want even more accuracy, Karney has also published these constants to 10 and 30 terms. The 5<sup>th</sup> term constants can be accommodated by standard double precision variables (15 significant digits) without loss of accuracy. The 10<sup>th</sup> term constants will provide about 29 significant digits.

More high precision geodesy software, test data and formulae (including Karney’s *Algorithms for Geodesics*), are available at: <https://geographiclib.sourceforge.io>

The authors of ‘*A Fresh Look at the UTM Projection: Karney-Krueger equations*’ point out that the Redfearn-Thomas equations, while widely used, only provide millimetre accuracy for points +/- 6° from the central

meridian (one of the reasons UTM zones are limited to +/- 3° from the central meridian). At 10° from the central meridian the Redfearn-Thomas equations err by about 3 cm and at 30° are grossly inaccurate by nearly 1 kilometre!

The Karney-Krueger equations can provide micro-metre (thousands of a millimetre) computational accuracy at 30° from the central meridian and nanometre accuracy if the calculations are done with extended precision variables.

The Redfearn-Thomas formulae served well in the pre-computer era, but it is time for surveyors and survey software providers to upgrade their computations to take advantage of modern computer capability.

## New Excel Spreadsheet

I have rewritten my Excel spreadsheet using the Karney-Krueger equations. The spreadsheet converts Latitude and Longitude to grid coordinates and vice versa. In addition, it also computes convergence and scale factors (if you input orthometric elevations & ellipsoid/geoid separation or ellipsoid height). The spreadsheet works in UTM or MTM zones using either NAD83 or WGS84 datums. You can also create your own TM zone by defining the central meridian (CM), zone width and scale factor at the CM.

You can create your own functions in Excel using Excel’s embedded version of Visual Basic. Visual Basic has a variable named ‘decimal’ which is a ‘fixed decimal point’ variable of 29 significant digits—nearly double the precision of the standard ‘double precision’ variables. Using this capability, I changed my spreadsheet by programming Excel functions that undertake the Geographic to Grid and Grid to Geographic computations at high accuracy (20 or more significant digits). To achieve this level of calculation precision, it was necessary to create new high accuracy trigonometric functions, hyperbolic functions, square root and natural logs.

It is somewhat ironic that I was finally able to create this high precision Excel spreadsheet now that I am retired and really have no use for it! As such I thought that I would make the spreadsheet available to anyone who might like to also experiment with these equations. I will provide the spreadsheet for free but without any warranty or assurance of any type. It is only for academic purposes. Use my spreadsheet at your own risk. Accompanying the spreadsheet is a ‘pdf’ document that provides instructions for using the spreadsheet plus details of my testing, equations and computer algorithms.

I have put several hundred hours into this project over the years but do not want any fee for the spreadsheet and documentation. I would ask though, in lieu of a fee, that you donate \$100 (or more) to the AOLS Educational Foundation. You can donate on-line at:

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Students are exempted from this request. Please make the donation in your own name. It is only a request. I will never know if you have donated or not. Strictly an honour system.

**cont'd on page 16**

If you wish to have a copy of the spreadsheet and documentation, send me an e-mail request at [wyman.paul.ursula@gmail.com](mailto:wyman.paul.ursula@gmail.com)

## One TM Zone for Ontario

The four Universal Transverse Mercator (UTM) zones in Ontario are Zones 15, 16, 17 and 18. Zone 15 (furthest west) stretches from Longitude 96°W near Whitemouth, Manitoba (half way between Winnipeg and Ontario border) to Longitude 90°W near Shebandowan, Ontario (west of Thunder Bay). Zone 18 (furthest east) stretches from Longitude 78°W near Grafton, Ontario (east of Cobourg) to Longitude 72°W near Deschambault, Quebec (west of Quebec City).

With the use of the Karney-Krueger equations, it might be possible to merge these four UTM zones into one large 24° wide “Ontario” zone with a Central Meridian of 84°W (just east of Sault Ste. Marie). At Latitude 45°N, this zone would be about 1900 km wide and cover the same geographic area noted above (Whitemouth, Manitoba to Deschambault, Quebec). Instead of Zone ‘Ontario’, an alternate name might be Zone 84°W:24, a more generic naming convention using the central meridian and zone width.

As with the UTM zones, I would expect that Zone “Ontario” would not extend beyond 84°N or 80°S Latitude as areas this far north or south are usually mapped using a stereographic projection. The province of Ontario only extends to about 57°N anyway.

I am not a geodesist, so there may be other issues that mitigate against using such a large zone. Scale factors would generally be larger than UTM – perhaps a central meridian scale factor in the range of 0.9950, but most survey software now already allow for the input of a scale factor. Many surveyors ‘scale up’ their coordinates for field survey purposes anyway, as even the UTM scale factor can be too large for field layout. For least squares adjustment of field measurements in the Zone Ontario TM projection, the t-T direction corrections would also get much larger, but as with scale factors, these are generally corrected in software and are transparent to the user.

A TM Zone CANADA (90° wide zone from 52°W to 142°W, Central Meridian 97°W, +/- 45° from CM) might also be possible but would need further investigation.

A TM Zone ONTARIO may be possible and is something to think about.



**Paul C. Wyman** became an Ontario Land Surveyor in 1973. He worked in private practice until 2001. From 2001 to retirement in 2014 he worked for the Geomatics Division of Public Works and Governments Services Canada. In retirement he has provided seminars through the AOLS Continuing Education program with a focus on technical measurement skills and knowledge.

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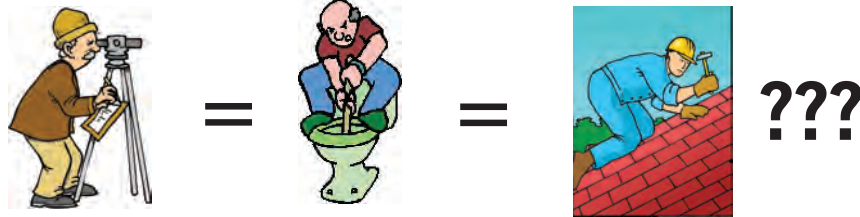
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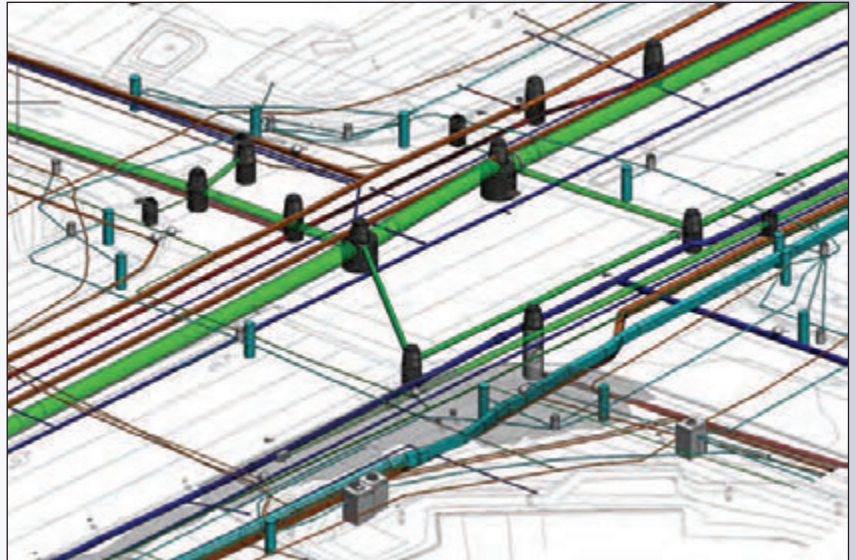
# Subsurface Utility Engineering and Utility Locating: What's the Difference?

By Ophir Wainer and Blaine Hunt

**S**ubsurface Utility Engineering (SUE) and Utility Locating may appear to be similar but each serves a different purpose. In reality, both may utilize electro-magnetic (EM) locating equipment to identify the location of underground utilities, but the similarities generally end there. The SUE investigation will provide the owner with a CAD drawing of the existing utilities (known and unknown) based on a systematic review of record information, site observations and geophysical investigations. The Utility Locate will provide the owner with physical marks (paint or flags) on the site for specific known utilities to indicate areas of excavation/construction that may encounter a buried utility and are typically only valid for 30-60 days.

If the site markings from either a SUE investigation or Utility Locate are collected into the engineering base survey it may not be clear how the markings were determined. Was the utility marking found from records or was it found through geophysical methods? The Surveyor may not be aware of the risk or certainty associated with the site markings when they are collecting the utility information in their document. When these site markings are collected, they are typically interpreted as utilities that have been surveyed in the correct geospatial location and are accurate. No matter what is contained in the legend of the drawing, the Surveyor ultimately holds the responsibility for the accuracy of the survey. This is why when collecting utility information with engineering plans and legal survey documents it should be done as a separate drawing and completed in accordance with ASCE Standard 38-02 (which is described below) using the Quality levels associated with the information conveyed to understand the true positioning and risk associated with utilities that are shown.

The practice of subsurface utility engineering was formalized with the creation of the American Society of Civil Engineers (ASCE): *Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data ASCE 38-02* in 2002. It promotes the use of field investigations and records research to determine the most likely location of underground infrastructure. Most importantly, the ASCE 38-02 provides a process to identify the quality of the results, and allows users to determine the degree of uncer-



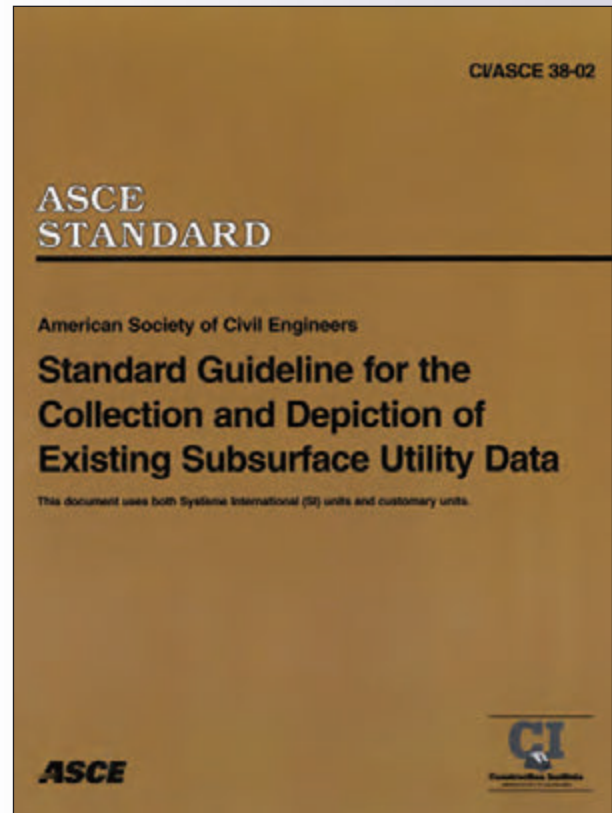
tainty of the information depicted. The standard was created to provide reliable information to engineers to aid them in the design process, plan for utility relocations, reduce overall project costs and help improve project safety during construction.

The EM locator is a “go-to” tool in both industries, but its application and end results are very different. The EM locator is actually a very sophisticated geophysical tool, but when the science of geophysics is not taught with the use of the tool, a vast majority of its usefulness is limited. When used in the damage prevention industry it is called locating, but when used in the SUE industry it is referred to as designating (as defined in ASCE 38-02). The EM locator determines the location of magnetic fields either naturally present on conductors or through induction with the use of transmitters. The location of the buried conductive plant is marked on the surface of the ground. The Utility Locator will place marks on the ground using color-coded paint specific to each utility. Sometimes the marks for a SUE investigation are placed using pink paint (temporary markings) to avoid confusion with locating markings. The interpretation of the signals and an understanding of the geophysical properties of the Earth and conductive elements are key to producing reliable data in both industries.

The SUE investigation will include the use of EM locators as well as a variety of other geophysical technologies to determine the location of known utilities and unknown signals during the designation phase. For a SUE investigation, the information collected in the field is surveyed, and



integrated using CAD software onto a utility mapping drawing. Other site investigations and field observations related to the utility infrastructure that may be present are collected from the site. The SUE investigation includes a review of the record information (construction drawings, for example) and resolves discrepancies that may be found. The SUE utility-mapping drawing includes all utilities either identified in the field or identified on records, even if they could not be determined in the field. In many projects the construction methods and sequencing may be reviewed to better understand the presence of abandoned or removed utilities. The Engineer responsible for the investigation reviews all information and makes a professional judgement as to the quality of the information and how to depict it on the drawing. The distinction between how utilities are identified is made using quality levels according to ASCE 38-02. To make this distinction the Engineer uses his/her judgment regarding the validity of the designating marks and the methods used, the survey data. He/she then compares the record drawings and checks the probability of the alignment based on known installation practices. The Engineer will also provide a SUE report which outlines the methodology used for the investigation (including geophysical equipment used), the findings of the investigation and how they may impact the project. Often, there will also be recommendations and suggestions for additional investiga-



cont'd on page 20

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is going to pay for the cost of the repair of the utility if it is damaged during construction.

Although their purposes and executions are different, both subsurface utility engineering and one-call or private utility locating provide important valuable information for their end users. One call and/or private locates are commonly mandatory and even legislated in some jurisdictions. They are required and necessary even when a SUE investigation is completed. SUE is recognized as a best practice in the Canadian Common Ground Alliance Best Practices Manual, the Transportation Association of Canada's Guideline for the Coordination of Utility Relocations and other key documents. SUE is a valuable tool for any Surveyor to manage utility risks on his/her project.

The engineering base survey, SUE investigations and one call/private locates are used to convey different information about the location of buried utilities to ensure your project's overall success when used in the right order.



tions to further identify the location of utilities in critical locations. The focus of additional investigations is specific to the project.

SUE is a design service, and is used to reduce risks during design. Once construction begins, the results of the SUE investigation may help the contractors understand the risks associated with the buried utilities prior to excavation. Private/Public locates would still be required prior to any physical excavation.

Utility locating (one-call or private locating) is primarily focused on public safety and damage prevention during construction. Utility locating allows excavators to be aware of the location of the known underground utilities in the field, which is a necessity for safe excavation. In one-call or private locating, the EM locator is used to verify alignments of known actively in service utilities shown on the utility company records. In many jurisdictions, they are performed by third-party contract locate companies. The Utility Locator places marks on the ground using color-coded paint to indicate the horizontal alignment of the known utility and creates a no-dig zone, stating that a utility lies beneath the marked area. In the damage prevention industry, the information is most commonly conveyed on a locate sheet with a sketch showing the specific utility in the target area. If a Locator is responsible for multiple utilities, multiple utilities may be shown on the same sketch. Sketches are commonly provided onsite or can be transmitted via email. Typically, once a locate is completed, there is no independent technical or practical review of the sketch that is produced prior to providing it to the end user, which is the contractor. A "locate" has no accuracy associated with it; the mark on the ground is only a statutory mechanism to determine who

**Ophir Wainer** is responsible for developing new business and leading the strategic direction for T2 Utility Engineers in major markets across Canada. He has more than 20 years of experience in utilities and subsurface utility engineering. He is a member of the CSCE, a board member of the NASTT BC chapter, a member of CATT committees and involved in CERIU. He is an experienced speaker on both subsurface utility engineering and damage prevention, and has presented and moderated at various conferences and training seminars.

**Blaine Hunt** is a Professional Engineer with more than 20 years of project management experience in the consulting engineering and industrial manufacturing sectors. He has successfully led both large and small-scale, multi-faceted projects from their initial planning, design, construction and installation phases through to launch and steady-state operations in complex, time-sensitive environments. He is a licensed engineer in the provinces of British Columbia, Alberta and Ontario.







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# NEWS FROM 1043

## Changes to the Register

MEMBERS DECEASED		
Gordon C. McRostie	632	June 9, 2018
RETIREMENTS/RESIGNATIONS		
Wayne Brubacher	994	June 30, 2018
SUSPENSION LIFTED		
Peter J. Williams	1211	May 23, 2018
REINSTATEMENTS		
Richard Dixon	1478	Mar. 26, 2018
COFA REVISED		
Was: G.A. Smith Surveying Ltd.		
Is Now: Callon Dietz Incorporated Ontario Land Surveyors, Carleton Place, Ontario, May 16, 2018		
Was: Lloyd & Purcell Ltd.		
Is Now: Lloyd & Purcell Ltd. (A Division of Schaeffer Dzaldov Bennett Ltd.), Newmarket, Ontario May 3, 2018		
MGF Surveying Services has purchased the office of Bowers & Jones Surveying Ltd. in Barrie, Ontario and it is now Bowers Jones Fournier Surveying Ltd.		
COFA RELINQUISHED		
Valard Geomatics (Ontario) Ltd.		
Edmonton, Alberta, May 1, 2018		
WDB Consulting		
New Hamburg, Ontario, June 30, 2018		
COFA SUSPENSION LIFTED		
Peter J. Williams, O.L.S.		
Shelburne, Ontario May 23, 2018		

## Surveyors in Transit

**Richard Jordan** is now retired from the **City of Mississauga**.

**Yuriy Bogdanov** is now with **WSP Geomatics** in Oakville, ON.

**W. Bruce Clark** is no longer with **Valard Geomatics Ltd.** in Edmonton, AB.

**Surveyors on Site Inc.** now has a Consultation Office at 3 Quimby Court, Sudbury, ON, P3E 5X4. Phone: 705-665-8340.

**Simon Kasprzak** is now with **Fairhall Moffatt & Woodland Limited** in Kanata, ON.

**Bowers Jones Fournier Surveying Ltd.**, formerly MGF Surveying Services, has a Consultation office at 238 Mackenzie Street, Alliston, ON, L9R 1A6. Phone: 705-434-9315.

**Adam Stephen** is now with **WSP Canada Inc.** located at 1 Spectacle Lake Drive, Dartmouth, NS, B3B 1X7.

**Topotec Inc.** is now located at 204 Olde Bayview Avenue, Richmond Hill, ON, L4E 3C9.

**Peter Moreton** is now with **Callon Dietz Incorporated Ontario Land Surveyors** in London, ON.

**Rob Pearlman** is now with **WSP Canada Inc.** located at 301-3600 Uptown Boulevard, Victoria, BC, V8Z 0B9.

**Patrick J. Woolley** is now with **MTE Ontario Land Surveyors** in Kitchener, ON.

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

Sofia Losyev	2027	May 31, 2018	Annie Fernandes	2028	May 31, 2018
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## Sites to See

### Royal Institute of Chartered Surveyors (RICS) Celebrates 150 years

<https://ww2.rics.org/north-america/news/rics-150th-anniversary/>

This year marks the 150<sup>th</sup> anniversary of the RICS. In order to celebrate this milestone, the RICS has launched some initiatives to highlight the achievement of the surveying profession and demonstrate its importance to society, both in the past and in the future. *Pride in the Profession* is an online initiative that showcases the significant and positive impact that surveyors have made to society. *Shaping the World, Building the Future* is an exhibition that was opened in the RICS headquarters on Parliament Square in London. It offers a rare opportunity to see first-hand the significant contribution that the surveying profession has made to local communities and the wider built environment over the past 150 years.



# Calendar of Events

**September 24 to 28, 2018**

**ION GNSS+ 2018**

*Miami, Florida*

[www.ion.org/gnss](http://www.ion.org/gnss)

**October 1 to 5, 2018**

**Joint Geo Delft Conferences 2018**

*Delft, The Netherlands*

[www.tudelft.nl/geodelft2018](http://www.tudelft.nl/geodelft2018)

**October 9 to 12, 2018**

**GIS-Pro & CalGIS 2018**

*Palm Springs, California*

[www.urisa.org/gis-pro](http://www.urisa.org/gis-pro)

**October 16 to 18, 2018**

**INTERGEO**

*Frankfurt, Germany*

<http://www.intergeo.de/intergeo-en>

**October 30 to November 1, 2018**

**USC Unmanned Canada 2018 Conference**

*Vancouver, British Columbia*

[www.unmannedsystems.ca](http://www.unmannedsystems.ca)

**November 14, 2018**

**GIS Day**

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construction  
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water boundaries  
Mapping shallow  
waters  
Materials loss/  
insurance claims



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# COGS: The Most Surveyed Property In Canada



By Neil Ormerod

## Lawrencetown, Nova Scotia (population 516 in 2016)

In the spring of 1946, the first Provincial Land Survey Course was started in the Village of Lawrencetown in the Annapolis Valley of Nova Scotia. The class was under the direction of Major James A. H. Church, 63, a mining engineer whose background included coal mining in Scotland and Alberta as well as tunnelling in France during World War I as part of the Canadian Expeditionary Force. The course was one year in duration and, in the beginning, a student could join at any time during the year. However, in 1947 the program was transferred from the Department of Labour to the Department of Education. As a result, in September of 1949, the program had a fixed start and end date as well as a limited quota of students and the Major was the sole instructor.

From the outside, the classroom resembled a “lean to” addition attached to the back of the Legion Hall, while from the inside, “*At the east end of the room Church had his desk and a couple of bookcases; along the south wall by the windows, mounted on saw-horses and grouped in pairs, were draughting boards for students who sat on wooden draughting stools; the wall opposite the windows held two large blackboards; at the west end near the porch were racks and hangers for transits, tripods, range poles, chains, coats, boots and whatever else was needed from time to time. An oil stove provided heat.*” (A Life Worthwhile, James F. Doig,



Dylan MacDonald using the Leica Nova M560 Multistation – Scanner/Robotic Total Station

Geographics Press, 1990, ISBN 1-895251-00-1, p.23)

The Land Survey School, better known as Major Church’s School, kept these accommodations for the most part until 1958 when the Nova Scotia Land Survey Institute was built. It became a two-year program in 1959. The following year Photogrammetry was added and then Cartography in 1961. More programs continued to be introduced such that by 1968 a larger space was required and so in 1975 the present building was constructed on 100 hectares of land. In 1986 the name was changed to the College of Geographic Sciences to better reflect the related programs dealing with mapping, planning, remote sensing and computer programming. Finally, after all vocational schools and technical institutes were consolidated under the Nova Scotia Community College banner in 1998, the facility was renamed the Centre of Geographic Sciences to avoid the confusion of having a College within a College. Currently, besides Surveying, other offerings include two-year diploma programs in Geographic Sciences with concentrations in GIS, Community and Environmental Planning, Cartography or Remote Sensing and IT Programming as well as one-year Advanced Diploma programs in GIS, Remote Sensing, Marine Geomatics and Geospatial Data Analytics.

Students come to the Centre from all across Canada and around the world. The Village of Lawrencetown grows in



The Classroom - Photo courtesy of Jack Kaulback, 1957

*cont’d on page 26*





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Centre of Geographic Sciences

the Student Council supplies a variety of sports equipment depending on their budget. Students are encouraged to organize activities themselves, some of which are floor hockey, basketball, volleyball, broomball, ice hockey, cycling, canoeing, snowshoeing and table tennis. Also, the student population varies in age and experience: some programs are direct entry from high school while others offer advanced diplomas which require previous postsecondary qualifications. Most find the workload to be heavy and intense, but because all of the programs are quite challenging and related to some degree, the inevitable interaction creates an almost family-like atmosphere. It's not unusual to see a classroom or lab filled with students at 9 o'clock on any given night of the week. Many have said that if the program was any place but here they would have never succeeded because of additional distractions.

## The Program

The current program structure is a "1 plus 1", so it's not officially a two-year program, but in fact two one-year programs: Survey Technician and Geomatics Engineering

population by 50% when classes are in session. Students rent houses and rooms in town which leads them to build bonds with the local community. Some say there is little to do, but the school has a large gym and weight room. Also,

### Survey Technician

#### Fall Semester

- Surveying I
- Survey Mathematics
- Fieldwork I
- Introduction to AutoCAD
- Communication Fundamentals
- Advanced Computer Applications

#### Winter Semester

- Surveying II
- Automated Drafting & Coordinate Geometry
- Advanced Mapping (1<sup>st</sup> half)
- Survey Law (1<sup>st</sup> half)
- Technical Writing (1<sup>st</sup> half)
- Fieldwork II (2<sup>nd</sup> half)
- Global Navigation Satellite System (2<sup>nd</sup> half)
- Intro to Geodesy & Map Projections (2<sup>nd</sup> half)

Equipment used: Total Station, Data collector, RTK, Automatic Level

Software used: AutoCAD, Carlson, Survey Pro, Magnet, Arcmap, GeoNova, GPS-H

Certifications: WHMIS, Nova Scotia OH&S, Standard First Aid & CPR Level A

Certificate granted

### Geomatics Engineering Technology

#### Fall Semester

- Geodesy and Map Projections
- Automated Drafting I
- Global Navigation Satellite System
- Applied Technology Project I
- Fieldwork I
- Terrestrial Laser Scanning & Airborne Lidar

#### Winter Semester

- Statistics and Adjustments
- Construction Surveying
- Cadastral Studies & The Survey Profession
- Applied Technology Project II
- Geographic Information Systems (1<sup>st</sup> half)
- Elective (1<sup>st</sup> half)
- Automated Drafting II (2<sup>nd</sup> half)
- Fieldwork II (2<sup>nd</sup> half)

Equipment used: Robotic Total Station, Data collector, RTK cell, Static GPS, Laser Scanner, Digital Level

Software used: Civil 3D, ArcGIS, Starnet, Blue Marble, GeoNova GPS-H, TRX, Magnet, LGO, Faro Scene, Global Mapper, Leica Captivate, Leica Infinity

Certifications: WHMIS, Nova Scotia OH&S, Standard First Aid & CPR Level A

Plan reading: Engineering and Legal plans

Diploma granted



Technology. At some point this concept was introduced in order to assist those students who could only obtain approved funding for one year. However, it has also attracted students who only wish to commit for one year and yet still receive some proof of their achievement. In the past, most students came directly from high school, but over the last 15 years there has been a shift such that now the majority have either previous postsecondary experience or have worked since graduating. All courses including math, drafting, communications or computer applications are tailored to surveying. To qualify for Geomatics Engineering Technology, a student must first complete the Survey Technician program. The students spend two full days every week (excluding January and February) in the field. Both programs are followed by a field camp in May in which all exercises are project based, in many cases for non-profit community organizations. However, if the student has a job, then five weeks of work experience is deemed equivalent to the 180-hour Field Camp. Even those students who were unable to complete the first semester academically have still been able to obtain work because of the field skills they have acquired.

Our inventory of equipment includes 34 total stations (10 Topcon GTS313, 17 Leica TS06, 7 Leica TS02), 30 levels, 8 RTK units (5 Topcon, 3 Leica), 120 tripods, 1 digital level, 5 bar finders, 10 mini-prisms and approximately 70 pucks/adapters, prisms, pogos and tribrachs. All equipment is tagged with a bar code strip, which when scanned, is automatically entered into a spreadsheet along with the student's ID number. We also rent state-of-the-art scanners and robotic total stations annually.



The Equipment Room


Each year, during the second semester, companies from across the country and the US, as well as government agencies, are invited to the campus for the Industry Expo. Tables are set up in the gymnasium for the guests to present their profiles and any hardware or software that may further promote their business. This year's event drew 39 delegations. In addition, a prearranged forum is convened during which panelists provide their insight regarding a current geomatics topic. Also, individual rooms are set aside to conduct job interviews or to permit

participants to present a more detailed review of their organizations.

At the end of April the Awards Banquet is held in the local fire hall. Typically, the entire student body attends to witness their peers receive awards/scholarships that range from subscriptions to magazines or software to 1000 dollars. Award sponsors include the Associations of Nova Scotia Land Surveyors, New Brunswick Land Surveyors and Alberta Land Surveyors, McElhanney Land Surveys, TechNova, Midwest Surveys, Cansel Canada, Leica Geosystems Ltd., the Canadian Institute of Geomatics and Brandt Positioning Technology. There are 17 surveying awards that total 6600 dollars.

## Accountability

Both programs are certified by the Canadian Technology Accreditation Board which is recognized across Canada as well as by some jurisdictions internationally. Up until 1981, this program fulfilled the academic requirements towards a commission as a Nova Scotia Land Surveyor. Now a student can receive some credits towards the Canadian Board of Examiners for Professional Surveyors and also the University of New Brunswick.

Once a year, the Program Advisory Committee meets to review the state of the program. The current committee is made up of representatives from seven private companies, five from government agencies and the Executive Director of the Association of NSLS. Geographic representation is from five different provinces and one territory. Our biggest challenge to date has been the gradual decline in enrolment much the same as most Associations are experiencing in terms of new members. As a result, we are trying to promote the profession as well as the program when and wherever possible by visiting schools, performing community work, attending conferences and staging events like open house and the Industry Expo. We are confident our efforts will pay off so we may continue to supply the survey profession with the highly qualified technicians and technologists that it demands. 

For more information, visit:

[https://www.nsc.ca/learning\\_programs/programs/ProgramListing.aspx?camp=ANNAP&cat=&grp=TR%26TE&k](https://www.nsc.ca/learning_programs/programs/ProgramListing.aspx?camp=ANNAP&cat=&grp=TR%26TE&k)

Acknowledgements: The Story of COGS by Bob Maher and Heather Stewart at [www.thestoryofcogs.ca/](http://www.thestoryofcogs.ca/)

**Neil Ormerod** graduated with a B.Sc. in Survey Science from Erindale College, University of Toronto, in 1980. He worked for Nortech Surveys specializing in Inertial Surveying until 1986 after which he began his teaching career at SAIT in Calgary. During this time, besides teaching, he worked in construction, environmental remediation and GPS surveys. After plan checking for Can-Am Geomatics, he moved to COGS in 2003. For further information about the program, Neil can be contacted at [neil.ormerod@nsc.ca](mailto:neil.ormerod@nsc.ca)

# Fifth Annual Boundary Law Conference *Waterfront Properties in Ontario: Best Practices for Resolving Title & Boundary Issues*

By Kevin Wahba

**O**n April 23, 2018, Four Point Learning held its 5<sup>th</sup> Annual Boundary Law Conference, a Continuing Professional Development event for land surveyors, and land professionals. The conference topics covered a variety of compelling issues and questions respecting the retracement of boundaries and the determination of the extent of title as they relate to waterfront properties. The conference featured a number of land surveyors and lawyers who spoke to these subject areas.

Izaak de Rijcke, OLS, lawyer and conference Chair, opened the day with a discussion on the evolution and development of the theme of the conference, being waterfront properties and the variety of complexities arising from these unique parcels of land. Mr. de Rijcke's prelude to the conference highlighted the main issue related to waterfront properties; there is no "one size fits all" answer to questions of waterfront title and boundaries.

The first presentation was provided by Scott Fairley, a lawyer whose expertise involves waterfront title. He explored how the courts have dealt with questions of title and boundaries in regards to waterfront properties. In particular, Mr. Fairley discussed the four landmark cases of *Ellard v. Township of Tiny*, 2012, *Tiny (Township) v. Battaglia*, 2013, *Lackner v. Hall*, 2012 and *Michnick v. Bass Road Beach Association*. An analysis of the four cases led to an interesting discussion on how four seemingly similar cases had fairly distinguishable results. In the opinion of Mr. Fairley, the common theme which may be discerned from the decisions of the courts in these cases was that an overarching principle of equity and reasonableness was used to reach their respective result.

The next speaker was Ronald J. Stewart, OLS. He began with a thorough discussion on the interpretation of the term "High Water Mark", and then took the audience through a variety of problems related to surveys of waterfront properties. Mr. Stewart provided an interesting commentary to the issues arising out of waterfront properties from the perspective of an Ontario Land Surveyor. In particular, he

highlighted the overriding principle of water boundary determination as being the necessity of an in-depth inquiry into the specific circumstances surrounding a particular waterfront property. He further pointed out that one of the crucial responsibilities of a land surveyor in such situations is the acquisition and interpretation of all relevant evidence. In doing so, forming an opinion on a critical component of water boundary retracement, namely, the determination of the intention of the subdivider, can be ascertained. On that same note, Ron pointed out that such an intention is not always manifested on the face of a survey plan, and surveyors should be cautious and fully informed before rendering an opinion on water boundaries which, more often than not, involves the interpretation and weighing of many ambiguous elements.

Ken Wilkinson, OLS and Examiner of Surveys, discussed issues arising in the land registration system and the factors considered by local Land Registry Offices when Plans of Survey depicting water boundaries are submitted for registration or deposit. He noted how such plans are used to prepare Block Maps which are often relied on by laypersons for determining the extent of their title and boundaries. Ken highlighted the cautious approach a surveyor should take prior to submitting a plan to the Land Registry Office and suggested involving government authorities and even the courts when dealing with certain unusual circumstances. Additionally, the discussion explained practices and policies applied by Land Registry Offices and other government agencies with respect to plans depicting waterfront properties which are submitted for deposit or registration.

The next presenter, Jeff Cowan, provided an intriguing overview of the decision in *Krull v. MacDonald and Irwin*. The case was one which addressed the issue of accreted lands along a waterfront property. In an application under the *Boundaries Act*, the Tribunal was asked to render a decision that depended on whether or not certain rock formations, once submerged at a high water level and then having emerged with the lowering of the water were, and always had



From left to right: Chester Stanton, Izaak de Rijcke and Jeff Cowan

*cont'd on page 30*



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been, part of the extent of the lands owned by the applicants. Jeff identified the fact that such a determination, while grounded in the question of boundary retracement, ultimately resulted in a ruling pertaining to title. Jeff discussed how, often times, questions of title and boundary become intertwined and convoluted with one another, and used *Krull* as a recent example to illustrate how such issues have been dealt with in the past. The discussion provided the audience with an overview of how these two issues can intertwine, and in this particular case, how it was dealt with. The applicants appealed the decision of the Tribunal to the Divisional Court. The appeal was settled by a consent Order which reversed the decision and the Applicants were granted title to the aforementioned rock formations. Jeff pointed out in his conclusion that land professionals should be wary of the intermingling of title and boundaries when issues arise with respect to waterfront properties.

Chester Stanton, OLS, next delivered an in-depth discussion on the approach which should be taken by surveyors when they are dealing with boundary retracement of waterfront Plans of Subdivision. Chester expressed the need for caution on the part of surveyors when evaluating and retracing boundaries of this nature. Understanding the difference between an opinion of boundary location and extent of title should always be at the forefront in the minds of surveyors. Chester pointed out that confusion often arises when surveyors attempt to resolve apparent issues with respect to title with boundary retracement solutions, essentially causing confusion between the two areas. Once the distinction is fully realized and separated, surveyors should then look to the *Surveys Act* to inform themselves of the guiding principles of boundary retracement when waterfront boundaries appear to be unambiguous in nature. In cases where evidence of water boundaries appears to be ambiguous, surveyors should then look to the guiding principles of retracement found in the common law. Chester suggested that legislation should be implemented to allow issues of title and boundary to be dealt with simultaneously, which may not only be a more efficient process, but one that provides more consistent results.

Virginia Tinti, a lawyer with expertise in real estate law, provided the next presentation of the afternoon on communities bounded by bodies of water, and how the potential array of rights and interests that waterfront property owners hold affects the community. Virginia highlighted a variety of the issues and concerns of beachfront property owners, and the conflicting rights and obligations of backlot owners. While discussing certain court decisions in Ontario, Virginia touched upon a variety of complex issues, such as the effect of shore road allowances, the subdivision and retracement of waterfront lots and beaches, easements and rights-of-way of backlot owners as well as riparian rights, which are attached to waterfront properties. Virginia concluded her presentation with a warning to potential purchasers of waterfront properties to not rely on a superficial review of previous listings and

marketing literature, as it may provide them with a false sense of understanding as to what rights, if any, are attached to properties bordering on or in close proximity to the waterfront.

Dr. Brian Ballantyne of the Surveyor General Branch at NRCan delivered an interesting presentation on the issues and challenges Ontario land professionals face when dealing with boundaries and title to beachfront properties. He proposed a two pronged approach to determine the answer to a fundamental question; what is the intention of the subdivider? As Brian put it, two equally valid questions should be posed when attempting to resolve ambiguity surrounding the subdivider's intention; did the subdivider intend to subdivide all that he/she possessed, and, did the subdivider intend to have the lakeside parcels bounded by the water's edge? The two questions, as discussed by Dr. Ballantyne, were posed depending on which stakeholder is asking the question and these are those who hold title to beachfront properties, or those with interests in having public access to beachfront such as backlot owners and members of the public. Brian suggested that these two questions should be asked together in order to resolve ambiguity with further impartiality and greater efficiency.

The last presenter of the day was lawyer Raymond G. Leclair. As a representative of the Lawyers Professional Indemnity Company (LAWPRO), Ray provided an intriguing perspective of how professionals, namely lawyers and Ontario Land Surveyors, protect themselves, and their clients, from the looming ambiguities and risks which inherently accompany the purchase and sale of waterfront properties. Ray began his presentation by describing to the audience what title insurance is, and its purpose in the context of waterfront properties. Ray then described specific considerations that lawyers should keep in mind if one of their clients is purchasing a waterfront property. Thereafter, he concluded with a few scenarios which illustrated various examples of when and how title insurance claims would be handled.

To wrap up the day a panel composed of Virginia Tinti, Chester Stanton and Scott Fairley were taken through an exercise by Izaak de Rijcke to further the discussion of solutions to waterfront problems. The exercise was designed to help convey the major theme of the conference, which was that title and boundary issues that arise with the ownership of waterfront properties do not have "cookie cutter" solutions. Rather they require a fact specific approach using principles and practices that have been developed through common law precedents and legislative policies throughout the years.

The *Fifth Annual Boundary Law Conference* was successful again in providing informative presentations and thought-provoking discussions on some of the most complex and difficult issues that both lawyers and surveyors have faced when dealing with the retracement of water boundaries in Ontario. Recorded conference presentations and materials for this and all previous years' events are available online at <http://fourpointlearning.ca>.





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# Loyalist College Recognizes 20 Years of AOLS Donation Support for Survey Students

Since 1999, The AOLS Educational Foundation and the Eastern Regional Group (ERG) of Ontario Land Surveyors have co-sponsored awards for students in the Survey Technician Program at Loyalist College. On May 31, Kevin R.D. Smith, an Educational Foundation Director and a member of the ERG, represented the Association of Ontario Land Surveyors at the Loyalist College Donor Recognition Reception, which was held to celebrate donors to the College during its 50-year history. The donor wall (see photo) was featured during the Reception in the area adjacent to The Parrott Centre. The Association of Ontario Land Surveyors was recognized in the



Builders category for total donations of \$25,000, made jointly by the Educational Foundation and the ERG, to the endowment fund. Over the past 20 years, the fund has provided awards to Survey Students for their scholastic achievement and leadership in the Survey Technician Program.



*Loyalist College offers the only specialized program for survey technicians in Ontario. Using instruments and computer software, survey engineering technicians conduct field measurements and analyze data which are used to determine the precise locations of natural features, structures and property boundaries.*

Photo Credit: Loyalist College

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## EDUCATIONAL FOUNDATION NEWS

### Congratulations to our Spring 2018 Award Winners

**Fleming College** – **Kristina Hutchinson** received the *GIS Award*, which is presented to the student in the GIS Applications Specialist Program who exemplifies leadership in project management. **Kirsten Noltie** received the *Kawartha-Haliburton Surveyors Scholastic Award*, which is co-sponsored by the Kawartha-Haliburton Regional Group and is presented to a student in the GIS Applications Specialist program who attended Survey Camp and exemplifies leadership in the participation of assignments, and prepared exemplary field notes. This year the award was named in memory of Doug Cogan.

**Loyalist College** – This year a new award was created to encourage students in the surveying program. **Charles Bentley** was the inaugural recipient of the *Eastern Regional Group Leadership Award*, which was presented to a graduating student in the Survey Engineering Technician program for achievement in field surveying as demonstrated in courses Geomatics 1, Field Safety, Field Techniques and Geomatics 2 and

overall leadership. *The Eastern Regional Group Achievement Award* was presented to **Ryan Shea**, a graduating student in the Survey Engineering Technician program, for achievement in computer assisted drafting as demonstrated in the course Survey Drafting. Both awards are co-sponsored by the Eastern Regional Group.

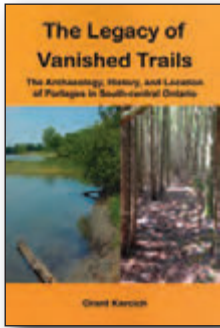
### South Central Regional Group Golf Tournament Fundraiser

On June 19, the South Central Regional Group (SCRG) held its annual golf tournament at Caledon Woods. Members purchased mulligans in support of the Educational Foundation, and thanks to everyone who participated, a total of \$400 was raised. The Grand Prize Draw of a golf weekend at Lake Joseph was won by **Rick Hayward** who donated the prize to be auctioned off with the proceeds going to the Foundation. **Larry Ertl** won the auction with his bid of \$900. The SCRG and the Educational Foundation would like to thank both Rick and Larry for their generous support.

The Educational Foundation would like to recognize with thanks another donation made in the memory of Neil Simpson.



# BOOK REVIEWS



Published by Red Handprint Press  
ISBN 978-0-9959180-0-9

## The Legacy of Vanished Trails The Archaeology, History, and Location of Portages in South-central Ontario

By Grant Karcich

The ancient Indigenous trails north of Lake Ontario date back to a prehistoric era and have left their mark on our colonial history, as well as, on our modern day roads. Over one hundred years ago, the European fascination with ancient trails was encouraged by David Boyle, a transplanted Scotsman. From Boyle's time down to the present, the same interest has driven many others to find the original routes of the trails. These trails were an integral part of Indigenous culture and transportation. *The Legacy of Vanished Trails* explores Ontario's hidden trail history

when the First Nations and Europeans started off as equals acting in mutual cooperation. *Legacy* explores the premodern use of the trails and also delves further into the past by examining the buried artifacts along trail routes. This book provides a comprehensive examination of the main portages and carrying places between the Bay of Quinte and Toronto with photographs and details of numerous trail locations.

*Information taken from the back cover.*

## Island of the Blue Foxes Disaster and Triumph on Bering's Great Voyage to Alaska

By Stephen R. Bown

Lasting nearly ten years and spanning three continents, the Great Northern Expedition was the most ambitious and well-financed scientific expedition in history. Conceived by Peter the Great in the 1730s and led by Danish mariner Vitus Bering, the enterprise involved a cavalcade of nearly three thousand scientists, secretaries, interpreters, artists, surveyors, naval officers, mariners, soldiers and labourers, all of whom had to be brought across five thousand miles of roadless forests, swamps and tundra, along with tools, supplies, libraries and scientific implements – as well as the clavichord belonging to Bering's wife, Anna.

Scientific objectives included investigating flora, fauna, and minerals as well as outlandish rumours about the Siberian peoples. After the expedition

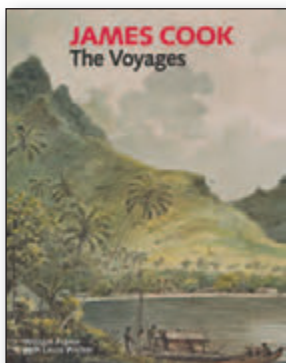
reached the eastern coast of Asia, Bering oversaw the construction of two ships, the *St. Peter* and *St. Paul*, and sailed for America with one hundred and fifty men, including the German naturalist and surgeon Georg Steller. The voyage was plagued by ill fortune – a supply ship failed to arrive, officers quarreled and the ships were separated in a storm. While *St. Paul* reached Alaska and reported back to Russia, Bering's ship *St. Peter*, was wrecked on a desolate island in the Aleutian Chain inhabited by feral foxes.

*Island of the Blue Foxes* is an incredible true-life adventure story, a story of personal and cultural animosities, unimaginable Gothic horrors and ingenuity in the face of adversity.

*Information taken from inside the front cover.*



Published by Douglas & McIntyre  
ISBN 978-1-77162-161-8



Published by McGill-Queen's University Press  
ISBN 978-0-7735-5286-9

## James Cook The Voyages

By William Frame with Laura Walker

The twenty-fifth of August 2018 marks the 250<sup>th</sup> anniversary of the departure of the *Endeavour* from Plymouth, England, and the first of three voyages by James Cook that would nearly complete the map of the world.

Interweaving accounts of scientific discovery with the personal stories of the voyages' key participants, William Frame and Laura Walker explore the charting of the Pacific and the natural world, the first encounters and exchange between Western and indigenous cultures, and the representation of the

voyages in art. The illustrations, many of which have never before been published, include drawings by all the artists employed on the voyages, including Alexander Buchan, Sydney Parkinson, William Hodges, and John Webber. It also includes the only surviving paintings by Tupaia, a Polynesian high priest and navigator who joined the first voyage at Tahiti and sailed with Cook to New Zealand and Australia.

*Information taken from inside the front cover.*

# The Last Word

## James Dickson, O.L.S. – One of the “Fathers” of Algonquin Park

**J**ames Dickson was born in Scotland in 1834 and immigrated with his family to Canada in 1841. After landing in Montreal the family moved to the Ottawa Valley where they took up farming. After trying his hand at farming and then teaching, he decided to become a land surveyor. In 1861 he signed articles with William J. McDonald, and worked as an assistant with William Bell and later with Samuel T.A. Evans. In April 1867 he passed his final exams to become a Provincial Land Surveyor and opened an office in Minden, two years later moving to Fenelon Falls. James knew the Algonquin highlands better than anyone. Between 1878 and 1885 he explored the area as a surveyor in his own practice and undertook township surveys for the Ontario government, whose original intent was to open the area for settlement. But in the course of his work, Dickson often spent months in the bush on foot or canoeing and he recognized that the real potential of the region was recreation. In 1886 he published a now classic book titled “Camping in the Muskoka Region”. It is an



James Dickson, O.L.S.  
Photo taken in 1901

account of his canoe trip from Lake of Bays up the Oxtongue River and through the chains of lakes that are now enjoyed by all.

In 1887 he was appointed Inspector of Surveys by the Provincial Government and was asked to prepare a report on the Algonquin highlands and its suitability as a park. In 1892 he was appointed to be one of the five members of the Royal Commission on Forest Reservation and National Park. As a result of the commission’s work and recommendations, an “Act to establish Algonquin National Park of Ontario” was passed on May 23, 1893. Although called a ‘national park’ it has always been under provincial jurisdiction. It was changed to Algonquin Provincial Park in 1913.

A stone monument was “Erected to the memory of Ontario Land Surveyor James Dickson” in the park at the Algonquin Park Museum. On the plaque it said, “He surveyed many of the surrounding townships and staunchly advocated maintaining this region in a state of nature.” James Dickson lived in Fenelon Falls from 1869 until his death in 1926.



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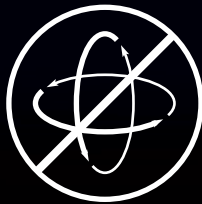
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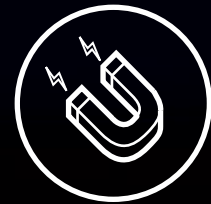
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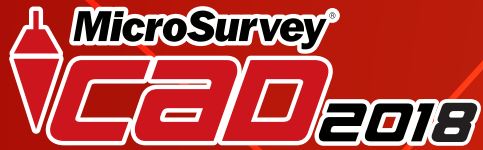


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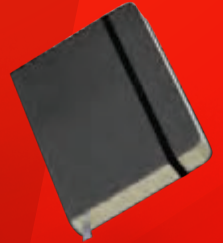
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