

# Ontario Professional Surveyor



*on the cover ...*

**Sergeant-at-Arms,  
Bruce McMurchy  
(Sir Isaac Brock)  
presided over the 122nd  
AGM in Niagara Falls, ON**

**also in this issue ...**

**122nd AGM Photos  
DATA and GIS  
Boundary principles:  
You come at the king,  
you best not miss  
Townships Named for  
Surveyors (Part 2)**

**plus our  
regular features:**

**Educational Foundation  
News from 1043  
Book Reviews  
Sites to See**

**Canadian Publications Mail Product  
Sales Agreement No. 40064685**

**Volume 57, No. 2  
Spring 2014**





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## ON THE COVER ...

Sergeant-at-Arms, Bruce McMurchy chose to depict Major-General Sir Isaac Brock because Queenston Heights and Lundy’s Lane, two of the battlefields in the War of 1812, are close to Niagara Falls and because he has a family connection. Bruce’s grandmother Ostrander was the granddaughter of Jane Ostrander whose oldest son, an aide-de-camp to Brock, assisted in removing his slain body from the battlefield at Queenston Heights. Read about Major-General Sir Isaac Brock – “The Hero of Upper Canada” in The Last Word on page 40.

*Professional  
Surveying  
in  
Ontario*

*encompasses  
the  
Disciplines of*

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





## President's Page

By Dasha Page, Hon. B.Sc., O.L.S.



First and foremost, I am both humbled and privileged to have the opportunity to serve as President of the Association of Ontario Land Surveyors. I appreciate your faith and promise to do my best to make this a successful year.

We are only as good as those around us, and I am very grateful to be working with the very dedicated Council and AOLS staff. Our successful Annual General Meeting (AGM) in Niagara Falls is a testament to their hard work and commitment.

I would like to thank all of you who joined us at our President's Luncheon on Friday at our AGM. I was quite moved and honoured by your tremendous support.

My gratitude extends also to my family as without their support and understanding, I would not be able to serve on council.

Lastly, I would like to extend my appreciation to my colleagues at Matthews, Cameron, Heywood – Kerry T. Howe Surveying Ltd. in Niagara Falls and our sister company at Coe Fisher Cameron in Lindsay. Their support makes my presidential tenure possible.

Our Past President, Eric Ansell has led our association forward by his vision, foresight, ethics and integrity. He generated the perfect momentum to continue moving this great association in the right direction. Under Eric's leadership, we successfully managed the challenges before us by making prudent decisions.

Tremendous work has taken place this year by the Academic and Experience Requirements Committee (AERC). The evaluation and articling process has been improved to encourage students to seek admission to our profession.

Our new Website has been launched and it is not only a marketing tool that is useful for promoting our profession but also includes such on-line features as membership renewal, seminar registration and social networking.

Through some struggles this year, the Ontario Digital Cadastre Corporation (ODCC) continues on the course towards the ultimate goal of being the leading authority in creating and maintaining a province-wide cadastre. ODCC's success and innovation will enhance the value and credibility of our profession throughout Ontario.

Our Survey Review Department (SRD) is undergoing changes to create a more interactive educative process in line with our ultimate goal of peer review in all disciplines of our profession.

Stepping into this role reminds me of downhill skiing, a sport that I very much enjoy. The run is exciting, challenging and satisfying but may also be too short and unforgiving should

you miss a turn. Fortunately, our direction has been set by our strategic plan, and each President must navigate carefully in that direction to achieve our goals and objectives in the short term of his or her tenure. Without this plan, we could not maintain focus, direction and purpose.

Our Annual General Meeting in Niagara Falls captured topics that will be explored at our Council meetings. We continue to struggle with changing demographics, attracting young talent and our identity as professional surveyors, while at the same time trying to adapt to the new economy. Traditional methods of running a surveying business are no longer competitive in today's marketplace. The principal object of professional land surveying under our Act and Regulations is to protect and serve the public interest. Regrettably, financially struggling companies might have a difficult time complying with evolving rules and regulations. By finding ways to promote the value, credibility and relevance of our profession in our society, we can create a thriving business model that is able to serve and protect the public interest. Our professionalism and expertise is essential in responding to the current environment of financial crunches and fewer resources available to complete the same job. This means a change in our way of thinking. We must bring our profession together and believe in the same goal. Collaborating, sharing ideas and contributing were never more important because "Tomorrow is Now".

The success of our profession relies on the involvement of all of our members. We have joint challenges that must be addressed collectively. Our profession needs to be advanced by sharing ideas, communicating, networking and professional development. Emerging opportunities for surveying applications are here and we need to take notice. We need to focus on versatility and innovation by expanding our expertise and offering new products.

A quote from Alvin Toffler, an American writer, fits well with our strategy:

**"Tomorrow's illiterate will not be the man who cannot read; he will be the man who has not learned to learn."**

Our association has flourished for 122 years, and that speaks to our resiliency, flexibility and adaptability. It also shows a clear indication that we know how to work collaboratively with each other.

This is an exciting time for all of us. Even though challenges lie before us, the opportunities are endless. I look forward to working with all of you towards a better future for our profession.

Allow me to end by sharing a very appropriate quote from Henry Ford, **"Coming together is a beginning. Keeping together is progress. Working together is success."**





# Ontario Digital Cadastre Corporation Vision and Mission



By Brian Maloney, O.L.S., O.L.I.P.

**T**he Ontario Digital Cadastre Corporation (ODCC) Board, consisting of Bruce Baker (Chair), Jeff Buisman, Barry Clarke, Terry Dietz, Gavin Lawrence and Blain Martin (non-voting member), has asked me to help them move ODCC forward. They have recognized the need for better communications with AOLS members. Those already involved would have recently seen electronic newsletters issued that will be continuing on a bi-weekly basis. This is the first of several articles that will be placed in the Ontario Professional Surveyor magazine. This article will focus on the Vision and Mission of the ODCC and will be followed by additional articles.

The Cadastre is a key component of understanding and using real-property (land) for environmental, societal and economic benefit. It allows users to understand the location and extents of properties in relationship to other properties and other attributes of interest. Ontario currently has multiple versions of what could be considered a Cadastre. The Ontario Government with Teranet and the Municipal Property Assessment Corporation (MPAC) have created and maintain the Ontario Parcel™ which contains polygons referencing parcels by ownership (Land Registration System), by assessment (used by MPAC for valuation and assessment purposes) and by the Crown (capturing parcels of interest to the Crown). Additionally some municipalities maintain their own parcel mapping and the Surveyor General of Canada has a system covering Canada Lands. With the exception of the Ontario Parcel™, the other parcel mapping systems cover only portions of the province and therefore do not meet the broader needs of society. The Ontario Parcel™ varies significantly in accuracy throughout the province and provides no accuracy estimates or assurances to users, thereby limiting its usage. As well, the processes used to maintain it are relatively labour intensive thereby limiting its currency. The limitations in currency and accuracy have been complaints of users including municipalities and utility companies. Changes are required to address these complaints and to add increased functionality. By working with surveyors, who are involved early in the creation and retracement of boundaries, processes can be significantly improved resulting in significant opportunities. This is a key premise of the ODCC.

The ODCC intends to create a more positionally accurate and timely maintained Cadastre that can be licensed and have services built upon it. This will allow them to meet market needs that cannot be addressed today and will allow them to

displace existing limited Cadastres. As well, they intend to provide related products and services that can be built upon surveyors' existing products and services. This will be particularly important during the start-up phase which is expected to last another 3 years.

ODCC has a unique opportunity to do this due to its relationship with multiple survey firms. To date 121 of 196 firms across Ontario have agreed to participate. No other organization has the ability to reach this level of cooperation.

ODCC intends to build and maintain a comprehensive coverage of the province with varying accuracy that is described by individual point/boundary metadata, allowing systems and users to understand the quality of the relationships of positions to boundaries. Its accuracy will be continually improving as new information is discovered through new surveys or by surveyors using existing records and relationships to other data such as ortho-photography. In the short-term, the Cadastre will be a surrogate for ownership extents; in the long term it will also provide extent knowledge of all rights and restrictions impacting real property.

Although surveyors have many records of surveys, very few surveyors have knitted this information together to form a comprehensive view of the parcels in their areas of practice. As such, surveyors themselves do not have a starting point and would almost have to build from scratch, which would be a very daunting task. As an example, Quebec has invested hundreds of millions of dollars to build their Cadastre over the last many years and has yet to complete it. ODCC does not intend to start from scratch. Instead, it intends to work from either MPAC's assessment fabric or Teranet's ownership fabric. Without negotiating access to one of these as a starting point, ODCC's goal is not realistic. Fortunately an opportunity exists to work with MPAC to take over the role of maintaining their assessment fabric and improving it. Preliminary discussions have been held but no details have been worked out. It may also be possible to work with Teranet, which would be ideal, but those conversations have yet to take place. Once a starting fabric has been secured, surveyors have several opportunities to improve it through their local knowledge. ODCC intends to provide web-based tools to allow surveyors to access the preliminary fabric and improve it for their areas. It may be possible to negotiate access to ortho-photography as a base that would assist in improving the accuracy of the parcel mapping. Several rules

*cont'd on page 6*

and procedures will have to be worked out to ensure orderly and well-understood development.

Obviously the Cadastre has to be based on a modern common described referencing system. Fortunately surveyors have already voted in a regulation that mandates integration of deposited and registered plans with Ontario's geodetic referencing system, making this requirement much easier to satisfy.

Since the Cadastre will be made up of varying accuracies of boundaries for several years, ODCC intends to allow users a variety of services ranging from low accuracy (like today's Ontario Parcel™) queries (e.g. distance to property; polygon overlays) to higher accuracy queries (e.g. distance to property line) in areas that it can. ODCC intends to use a variety of business models in pricing its services ranging from low cost transactional services to higher cost subscription based services. This is significantly different than the business model employed by most surveyors today where high-cost single transactions for services represent the majority of their income. This will allow ODCC to penetrate new markets that cannot be served today.

In the long run ODCC intends to meet many uses requiring knowledge of property extents (e.g. proximity alerts for equipment, distance to nearest fire hydrant, distance to utility services). ODCC does not intend to compete with its members and therefore this will limit some of the services it will offer.

Beyond the Cadastre, the ODCC is also in the business of discovering opportunities for surveyor's data that will generate immediate revenue from non-traditional clients. This is critical to provide positive cash flow until the ODCC ultimately has a surveyor-built and maintained Cadastre for the Province of Ontario. The ODCC also has a role to play in establishing an index and repository for surveyors' data, which will not only assist surveyors with research but will also provide an index back to surveyors' information that can be aggregated, repackaged and marketed.

## Vision

The Ontario Digital Cadastre Corporation (ODCC) is an Ontario Land Surveyor owned and operated company that exists to create and maintain a province-wide Cadastre, together with a survey records index and related data repository. We are in the business of discovering opportunities for surveyors' data that will generate immediate and ongoing revenue from traditional and non-traditional clients, ultimately leading to the emergence of our Cadastre. We also provide centralized intellectual property, licensing and contract management to surveyors and related industries.

ODCC has the knowledge, skill and authority to create and deliver a digital Cadastre. We are responding to a need that is not presently satisfied; namely, providing fair and wide-ranging access to, protection of, and maintenance of the Cadastral fabric of Ontario, with pricing and licensing that is attractive to all potential users, all while honouring the significant intellectual property held by individual surveyors. Surveyors have a long-standing historical professional credibility and establishing a digital Cadastre fits perfectly within surveyors' public protection mandate and preserves and expands the role that surveyors play in society.

We intend to be the authoritative source of knowledge on the spatial extent of property rights, restrictions and responsibilities, delivering sustainable social, economic and cultural benefits.

## Mission

ODCC's primary mission is to develop and maintain the first spatially accurate Ontario-wide Cadastre. Additionally it intends to create and maintain a province-wide survey record index that will serve as an index to surveyors' information that can be used by surveyors for research but additionally can be used to help market value-added products and services. ODCC will provide access to surveyor's information in convenient and innovative forms and intends to increase the real and perceived value of surveying and cadastral products and services. It will do so by engaging all surveyors in Ontario to deliver new products and services.

## Values/Principles

### General

ODCC will protect the public interest by providing transparent and reliable information for reasonable fees. It will honour intellectual property, not only from surveyors, but from anyone providing information or services. It will build trust and collaboration with clients and suppliers while building value for its members. It will work with the AOLS to build knowledge and capacity for its members to ensure the required skills are available by its suppliers.

### Suppliers

ODCC will use its members where possible. Obviously it will have to consider costs and risks, however, given similar costs and risks to outside suppliers, it will use its members. ODCC intends to provide value-added products and will not compete with its member firms. Although it may offer similar services, these will only be in circumstances where individual survey firms cannot offer these services (e.g. aggregation of products/services to meet larger client needs). ODCC intends to completely redistribute revenue to its members with sufficient retained earnings to keep it sustainable. Where options to distribute work exist, it will do so in an equitable fashion respecting local knowledge and records where possible.

It will work with its members to develop new clients and services (i.e. help extend member capabilities).

### Clients

ODCC will meet the needs of clients that cannot easily go to a single survey firm for solutions (e.g. clients requiring access to information across broad geographic areas in Ontario). Clients can range from all levels of government to industry.

Future articles will focus on the strategy to get there and the details around ownership and revenue distribution.



Your feedback is encouraged. Please contact Brian Maloney by email at [bjmsurveyor@gmail.com](mailto:bjmsurveyor@gmail.com) or any of the Board members noted above.

# Boundary principles: You come at the king, you best not miss

By Dr. Brian Ballantyne, Surveyor General Branch, NRCan

## Abstract

Intention rules, as illustrated through 16 boundary principles and two case studies.<sup>1</sup>

## So, boundary principles are important?

The boundary (or interface) between case law and case studies is the principle. The principle is the rule, guideline or technique for establishing and re-establishing boundaries.<sup>2</sup> Such principles are king, and it is the very brave (or very foolish) surveyor who rejects such principles. Indeed, if a principle is rejected and is not replaced with a better principle, then it is very likely that the boundary opinion will be wrong, the parcel will be incorrect, the client will be disgruntled, the neighbours will be bemused, and the surveyor's reputation will be tattered.<sup>3</sup> Beware the allure of republicanism; the monarchy prevails for boundaries.

Boundary principles have two sources – law or custom (also known as policy or practice).<sup>4</sup> Most principles come from the law (cases and legislation); only in their absence can a custom-centric principle fill the void. Law always supplants custom. To give but two examples, the legal principle for the location of a riparian boundary supplants any local custom to the contrary. Conversely, in the absence of a legal principle for granting islands, then a policy-centric principle carries the day. Herewith are 16 principles needed to establish and re-establish bounds (with a passing nod to the cases whence such principles derive) and two case studies in which various questions – informed by said principles - are asked.<sup>5</sup> Sadly, few are answered.

## Establishing bounds

1. Parcels are a necessary, but not a sufficient condition. Parcels are a means to an end, and not an end in themselves. They allow possession and occupation, subdivision, amalgamation, transfer, mortgage and taxation; they serve a myriad of purposes. The parcel essentially reduces transaction costs, because the location, area and bounds of the polygon of land are known.
2. Demarcating is distinct from defining. Boundaries are defined by those who have an interest in the land (typically the Crown or the landowner/developer). Sometimes the boundary comes into being simply through definition; other times the further steps of demarcating it on the ground, delineating it on a plan and then sanctioning said demarcation are required to

bring the boundary into being. For instance, the southerly part of the boundary between the provinces of British Columbia and Alberta was defined in 1871 as the watershed of the Rocky Mountains. By the 1970's, part of the boundary was uncertain so as to require survey and demarcation. However, the act of demarcating a series of chords did not alter the location of the boundary. The boundary remains the watershed, as defined in 1871, because s.43 of the *Constitution Act* sets out that the provinces retain the boundaries with which they enter Confederation:

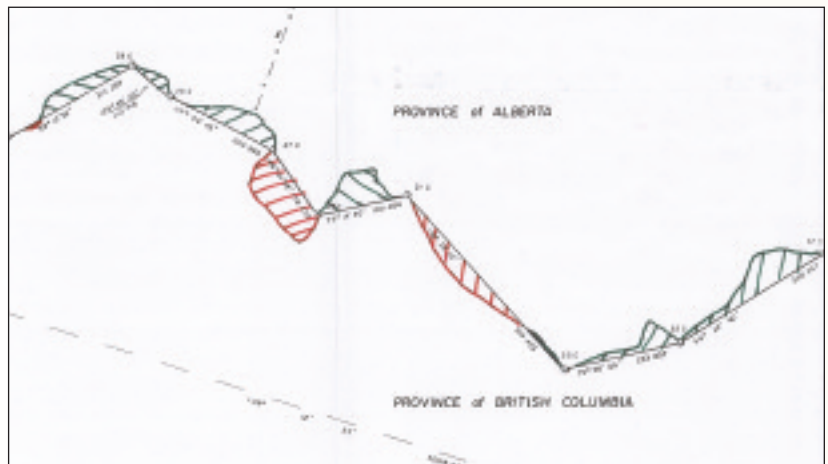


Figure 1 - Distinction between boundary (watershed) and surveyed line (series of chords)

3. Establishing is distinct from re-establishing. In establishing a boundary the intention of the Crown/landowner is easily discerned; a truism upon which the surveyor-client relationship is predicated. The surveyor offers no opinion (“I believe the boundary to be here”), only certainty (“The boundary is here”). However, in re-establishing a boundary, intent is less easily discerned, lost, as it is, in the mist of time, meaning that a surveyor supplies only an opinion as to the location of the boundary. If the opinion is principled and if all the facts are garnered, then the opinion is correct.
4. If the intent is followed, then errors in establishing a boundary are acceptable. A surveyor who is guided exclusively by the intention of the landowner/Crown (“We wish the boundary to be there”) sometimes errs in establishing the boundary owing to the vicissitudes of terrain, vegetation, weather, technology, expertise, fatigue and inebriation, such that the boundary length is too long or the parcel is too small. Such errors are irrelevant, if the boundary is demarcated under the honest but mistaken belief that the intent has been met; and if

the line as demarcated is accepted/sanctioned by the Crown/landowner.<sup>6</sup>

5. If the intent is not followed, then blunders in establishing a boundary are not acceptable.<sup>7</sup> Blunders are a result of misunderstanding the issue, carelessness or poor judgment, such as a failure to check ... the description of the parcel in question.<sup>8</sup> That is, if a parcel is to have an east-west width of  $x$  and the surveyor deliberately surveys a line at  $x/2$ , knowing that the distance is  $x/2$  and not  $x$ , then no boundary is established. For instance, a parcel of Reserve was intended to be 22.5 acres in area, with east-west and north-south dimensions of 15 ch. The subsequent survey of an eastern boundary only 6.38 ch distant (not the intended 15 ch) changes nothing; a parcel cannot be materially different from what was intended. There is no honest but mistaken belief, the intention is explicitly ignored, the boundary does not shift and the parcel does not shrink in area:



Figure 2 - A blunder of a survey that ignored intent (15 ch dimensions)

### Re-establishing bounds: Some general stuff

6. Intention rules, dude. If principle is king, then intention is first among equals. The difficult and yet fascinating exercise is teasing out the intention at the time of boundary establishment and parcel creation. Was it the intention that the parcel be riparian, bounded by the Ottawa River? Was it the intention that the parcel be separated from the waters of Lake Huron by a strip of land, to be used as a beach? Was it the intention that a two chain strip (shore road allowance) be excluded from the Reserve on Rainy Lake? To underscore the importance of ascertaining intent:
  - "The relevant elements include ... the intentions of the Crown and Ojibway and the actions ... taken by the parties to realize their intentions."<sup>9</sup>
  - "... the intention of the original developers of the land is relevant to the determination of the boundary issue ..."<sup>10</sup>
  - "The evidence ... was of some probative value about the intention of the original subdividers and was properly used by the trial judge."<sup>11</sup>

7. Sanctioning also rules. The first running of a line can sanction the location of the boundary, if lived up to for some time as the boundary. This principle pertains if the sanctioned line differs from the theoretical/hypothetical boundary. Thus, the boundary between the states of South Australia and Victoria was sanctioned in a different location than the 141<sup>st</sup> line of longitude, where it had been established a generation before; and a township lot boundary was sanctioned along a fence, because the fence was the best available evidence of the boundary.<sup>12</sup>
8. Do not easily infer that a parcel description is ambiguous. Recognize the insidious nature of confirmation bias, which means that we assess a description (graphical or metes & bounds) in a skewed manner. That is, the surveyor who presumes that a description is ambiguous will likely (and erroneously) detect such ambiguity. Only use extrinsic evidence (e.g. water level data) if there is a true disconnect between the record (plan, deed, field-notes, PIN) and the ground.<sup>13</sup>
9. Only use the hierarchy of evidence if there is a disconnect between paper and ground (i.e. a latent ambiguity). The hierarchy is merely an evidentiary principle, used to assess the relative weights to be given to boundary evidence. So, if the plan and field notes (and survey custom for that era/area) are silent as to monuments, then ignore pieces of iron and wood that litter the parcel. If no monuments were set, then the best evidence of intention from the plan is a dimension (distance/direction). Conversely, if a boundary has a plan length of 5,280 feet and a ground length of 5,700 feet, then refer to the hierarchy, dispense with the dimension and accept the monument.<sup>14</sup>

### Re-establishing bounds: The riparian way

10. The boundary is the water's edge in Ontario, not the back of beach, line of terrestrial vegetation or place of flotsam. Riparian proprietors are frontagers,<sup>15</sup> because the parcel runs to the water's edge on the day, unless it doesn't.<sup>16</sup>
11. The riparian boundary might have been established as something other than water's edge, such as mean high water (MHW) in the tidal regime or *ad medium filum* (amf - the middle thread) for a non-tidal watercourse. The location is a function of intent, presumption and legislation.<sup>17</sup> For instance, if the parcel is bounded by a non-navigable watercourse (a rare and elusive creature in Ontario, to be sure) then the boundary is presumed to be amf and not water's edge. However, such intention on a navigable watercourse can only mean water's edge, owing to the effect of the *Beds of Navigable Waters Act*.
12. If the riparian bound was established as water's edge, then avulsion (sudden encroachment or retreat of the water) means that the boundary is not at the water's edge now. It is fixed in location either distant from or submerged by the water.<sup>18</sup>

cont'd on page 10



13. If the riparian bound was established as water's edge, then accretion outside the nominal parcel (e.g. the gradual retreat of the watercourse outside the concession, across a concession road and into the next concession) means that the boundary is fixed in location at the concession line, distant from the water.<sup>19</sup>
14. If the riparian bound was established as water's edge, then it only remains at the water's edge to the extent that the water remains. If deposition (regardless of its rate) between the upland riparian parcel and an island means that the parcel no longer touches water, then it no longer has a boundary at the water's edge.<sup>20</sup>
15. The riparian boundary has the potential to shift in location. Two conditions must be met: the encroachment (erosion) or retreat (accretion) of the water must be slow, gradual and imperceptible, and it must be incremental (happening at the water's edge and not as emerging sandbars, for instance). If either of the conditions is not met, then the boundary does not shift in location.<sup>21</sup>
16. Accretion - that accrues either through gradual deposition to, or gradual retreat of the water from the riparian parcel - must be apportioned equitably. Such equity ensures that riparian proprietors continue to enjoy access to the water, and usually requires bends in the side boundaries of the parcels.<sup>22</sup>

- Did the municipality gain title to the bed of the street through the watercourse by implied dedication and acceptance from the Crown or from a third party?
- Did the municipality gain title to the bed of the street through the watercourse by adverse possession against the Crown or against a third party?
- Did the municipality gain title to the bed of the street through the watercourse by the legislative vesting of public highways (e.g. *Registry Act*, *Surveys Act* or *Municipal Act*)?



Figure 4 - 1939 registered plan; municipal street over a dam and across a watercourse

## Case study 2 – The island

A township plan dated 1880 shows concessions of lots of a nominal 320 acres (40 ch by 80 ch). Lot 6 in Concession 3 had an area of only 297 acres because a river ran through it. The river contained an island that was not surveyed. That is, there is no evidence from the plan, field notes or diary that the island was tied in or traversed, and the boundaries of the lot did not cross the island. The Patent - dated 1927 - granted the south part of broken lot 6 with an area of 148.5 acres, "excepting therefrom the land under the water" of the river. There is no mention of the island in the Patent. And yet, the PIN describes the parcel as the south half of lot 6 fronting on the east shore of the river (area of some 104 acres) and including the island in the river (area of some 2 acres). The issue is: Was it the intention of the Crown that the island be granted as part of Lot 6?

Some questions to pose:

- How was the surveyor instructed?
- Does the fabric on the township plan indicate intent to grant the island?
  - o Is the island shown on the plan?
  - o Is the island shown on a separate plan of islands?
  - o Is the island assigned a unique geographic identifier on the plan(s)?
  - o Do the lot boundaries extend across watercourses?
  - o Is the island attached to the adjacent upland by an s-hook or brace?
- Does the parcel description in the Patent indicate intent?



Figure 3 - An equitable apportioning of accretion (note the bends in the side bounds)

## Case study 1 – The dam

Two registered plans – dated 1895 and 1939, respectively - show a municipal street crossing a watercourse by running along the top of a dam. The municipality of the day signed both compiled municipal plans, prepared under *Registry Act* provisions. The issue is: Who has title to the parcel of land that appears to include road, dam and bed – the Crown or the municipality?

Some questions to pose:

- Is the watercourse navigable?
- Does the Patent include an express grant of the bed?
- What effect did the *Beds of Navigable Waters Act* have on the existing dam?
- What of successors in title to the builder/owners/operators of the dam?

cont'd on page 12

- What was the custom in that township at that time vis-à-vis granting islands?
- Has the island been created by encroaching water (e.g. a peninsula becoming an island); retreating water (e.g. a peninsula becoming an island); retreating water (e.g. a peninsula becoming an island); or deposition to the bed?

- <sup>2</sup> Of course, there are a myriad of non-boundary principles. For instance: “The best time to drink champagne is before lunch, you \*\*\*\*.” Pinter. *No Man’s Land*. 1975.
- <sup>3</sup> Thus the title reflects Omar’s warning, from *The Wire* (2002-08 tv show). This warning also pervades *American Hustle* (2013 film); Abscam was aware that “you don’t jump on a king unless you can kill him.”
- <sup>4</sup> For an excellent description of the role of custom in establishing land tenure principles, see: Cox. No tragedy on the commons. *Environmental Ethics*. v.7. p56. Spring 1985.
- <sup>5</sup> I am indebted to two contributors, henceforth to be known as “Assange” and “Snowden.”
- <sup>6</sup> *Kristiansen v Silverson*, 1929 CarswellSask 88 (CA).
- <sup>7</sup> *Richmond Hill Furriers v Clarissa Developments Inc.*, 1996 CanLII 1805 (ONSC).
- <sup>8</sup> Brinker & Wolf. *Elementary surveying*. Sixth edition. pp22 & 396. 1977.
- <sup>9</sup> *Couchiching FN et al v AG Canada et al*, 2014 ONSC 1076, at para 18.
- <sup>10</sup> *Tiny (Township) v Battaglia*, 2013 ONCA 274, at para 71.
- <sup>11</sup> *Lackner v Hall*, 2013 ONCA 631, at para 15.
- <sup>12</sup> *Nicholson v Halliday*, 2005 CanLII 259 (ONCA).
- <sup>13</sup> *Gibbs v Grand Bend (Village)*, 1995 CanLII 10662 (ONCA).
- <sup>14</sup> *Okanagan Radio Ltd v Registrar of Land Titles*, 1996 CanLII 2954 (BCSC).
- <sup>15</sup> Callis (1622). In: Sax. The accretion/avulsion puzzle. *Tulane Environmental LJ*. v23. p305. 2009.
- <sup>16</sup> *AG Ontario v Walker*, [1975] 1 SCR 78.
- <sup>17</sup> *R v Lewis*, [1996] 1 SCR 921.
- <sup>18</sup> *Gall v Rogers*, 1993 CanLII 5446 (ONSC).
- <sup>19</sup> *Johnson v Alberta*, 2005 ABCA 10.
- <sup>20</sup> *Municipality of Queens County v Cooper*, 1946 CanLII 23 (SCC).
- <sup>21</sup> *Clarke v City of Edmonton*, 1929 CanLII 38 (SCC).
- <sup>22</sup> *Andriet v Strathcona (Count)*, 2008 ABCA 27; *Andriet v Strathcona (County)*, 2010 ABQB 323.
- <sup>23</sup> *Couchiching FN et al v AG Canada et al*, 2014 ONSC 1076, at para 494.



Figure 5 - 1880 township plan; unsurveyed island in river

### Enough waffling about; what’s the bottom line?

Be thorough and skeptical, although the two are mutually exclusive. As the research advances (and the facts accrete), the skepticism erodes: “A review of survey plans, reports and field notes assists in ascertaining the intention of the grantor after the fact.”<sup>23</sup> Without a marriage of principle and facts, the boundary opinion is no better than speculating as to tree size:

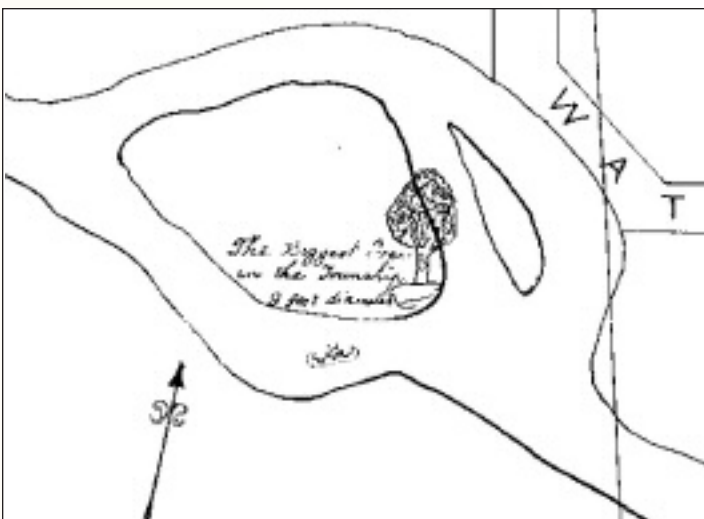


Figure 6 - Mid-19th century township plan extolling the presence of “the biggest tree in the township”



**Dr. Brian Ballantyne** advises on land tenure and boundaries for the Surveyor General Branch of Natural Resources Canada. He can be reached by email at [Brian.Ballantyne@NRCan-RNCan.gc.ca](mailto:Brian.Ballantyne@NRCan-RNCan.gc.ca) for further discussion.

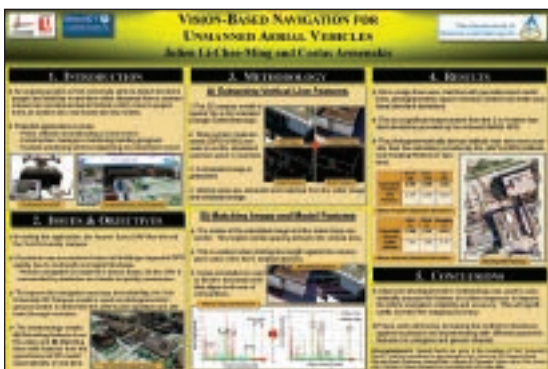
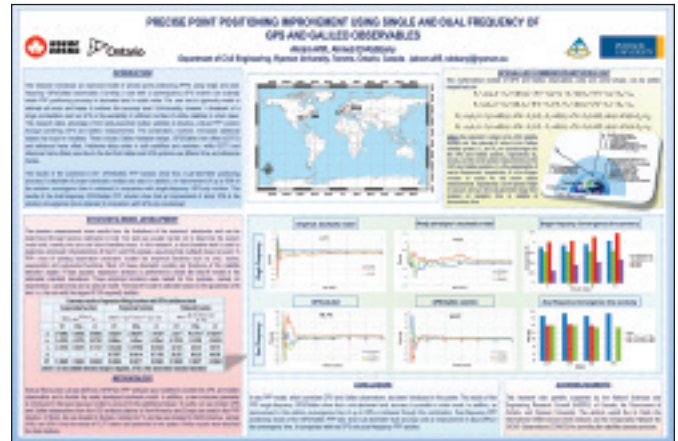
<sup>1</sup> This restates a presentation to the AOLS-AGM in Niagara Falls (February 2014) - *Keepin’ it real: Boundaries between case studies and case law.*

# EIGHTH Annual AOLS Graduate Student Geomatics Poster Session Award Winners

**FIRST PLACE:** Akram Afifi, Ph.D. Candidate in the Department of Civil Engineering, Ryerson University, supervised by Dr. Ahmed El-Rabbany.

## Precise Point Positioning Improvement Using Single and Dual Frequency of GPS and Galileo Observables.

**ABSTRACT** — This research introduces an improved model of precise point positioning (PPP) using single and dual-frequency GPS/Galileo observables. Currently, a user with a dual-frequency GPS receiver can routinely obtain PPP positioning accuracy to decimeter level in static mode. The user has to rigorously model or estimate all errors and biases to achieve this accuracy level. Unfortunately, however, a drawback of a single constellation such as GPS is the availability of sufficient number of visible satellites in urban areas. This research takes advantage of the newly-launched Galileo satellites to develop a robust PPP solution through combining GPS and Galileo measurements. This combination, however, introduces additional biases that must be modeled. These include Galileo hardware delays, GPS/Galileo time offset (GGTO) and reference frame offset. Hardware delay exists in both satellites and receivers, while GGTO and reference frame offsets exist due to the fact that Galileo and GPS systems use different time and reference frames. The results of the combined L1/E1 GPS/Galileo PPP solution show that a sub-decimeter positioning accuracy is attainable if proper stochastic models are used. In addition, an improvement of up to 30% in the solution convergence time is obtained in comparison with single-frequency GPS-only solution. The results of the dual-frequency GPS/Galileo PPP solution show that an improvement of about 25% in the solution convergence time is obtained in comparison with GPS-only counterpart. Email: akram.afifi@ryerson.ca



**SECOND PLACE (tie):** Julien Li-Chee-Ming, Ph.D. Candidate in Geomatics Engineering, GeoICT – 3D Imaging & Measurements Lab, Department of Earth and Space Science and Engineering, Lassonde School of Engineering, York University, supervised by Dr. Costas Armenakis.

## Vision-Based Navigation for Unmanned Aerial Vehicles

**ABSTRACT** — We use Unmanned Aerial Vehicle (UAV) to provide a virtual window into the life of a city, whether it is an urban planner studying how people are using city sidewalks, police mapping the scene of an accident, or monitoring the progress of a construction site and the movements of people and equipment.

The basic idea is to track objects, like people and vehicles, in real-time video streamed from a UAV camera, then to project them as avatars into 3D city models, for 3D display using a web browser.

We performed test flights at the York University campus using the Aeryon Scout quadcopter UAV and found that the GPS quality was severely degraded. At times GPS positioning was not even available, particularly when the UAV flew in between tall buildings due to signal multi-path and blockage. Obviously, accurate and reliable navigation is necessary in the dense urban environments, as the UAV is surrounded by many obstacles and may need to perform sharp maneuvers.

We propose to use the onboard video camera and a georeferenced 3D city model as ground control, to photogrammetrically determine the UAV position and attitude in near-real-time. This not only strengthens the autopilot's navigation solution, but also provides one when no GPS solution is available.

This poster paper presents the ongoing UAV research work at York University. We describe the data collected from a test UAV flight and the challenges we encountered during the mission. The methodology we used to overcome certain challenges and results are presented along with future suggested improvements to the system. Email: julienli@yorku.ca

**SECOND PLACE (tie):** Mahmoud Abd El-Rahman, Ph.D. Candidate in the Department of Civil Engineering, Ryerson University, supervised by Dr. Ahmed El-Rabbany.

## Tightly Coupled Integration of Standalone GPS and MEMS-based Inertial Systems

**ABSTRACT** — At present, most integrated GPS/INS systems use differential GPS techniques. This is mainly due to the high accuracy of differential GPS in comparison with standalone mode. Unfortunately, this involves the deployment of a base station, which limits the range of navigation area and increases the cost and complexity of the system. With the development of precise point positioning (PPP), which is capable of providing decimeter to centimeter positioning accuracy without

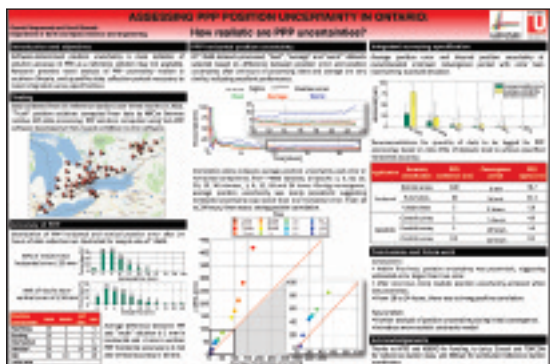
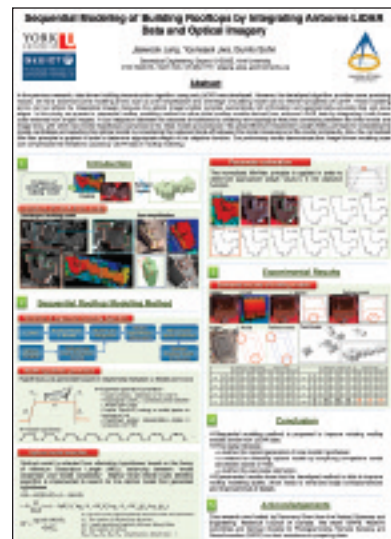


the need for a base receiver, it is possible to develop a high accuracy GPS/INS system based on one GPS receiver only. This research develops new algorithms for the integration of GPS PPP and MEMS-based IMU for precise positioning and attitude determination. Undifferenced ionosphere-free linear combination of carrier-smoothed code measurements is considered. Tropospheric delay, satellite clock, ocean loading, Earth tide, carrier-phase windup, relativity, and satellite and receiver antenna phase-center variations are accounted for using rigorous modeling. Tightly coupled mechanism is adopted, which is carried out in the raw measurements domain. Extended Kalman filter is developed to merge the GPS and inertial measurements. The performance of integrated system is analyzed using a real test scenario. Email: mahmoud.abdelrahman@ryerson.ca

**THIRD PLACE: Jaewook Jung**, Ph.D. Candidate, Geomatics Engineering, Department of Earth and Space Science and Engineering, Lassonde School of Engineering, York University, Supervised by Dr. Yoonseok Jwa and Dr. Gunho Sohn.

**Sequential Modeling of Building Rooftops by Integrating Airborne LiDAR Data and Optical Imagery**

**ABSTRACT** — In the previous research, data-driven building reconstruction algorithm using only LiDAR was developed. However, the developed algorithm provides some promising results, we have observed some modeling errors such as over-simplification and shrinkage of building model due to inherent properties of LiDAR. These modeling errors can be refined by integrating imagery because the optical imagery better provides semantically rich information and geometrically accurate step and eave edges. In this study, we present a sequential rooftop modeling method to refine initial rooftop models derived from airborne LiDAR data by integrating it with linear cues retrieved from single imagery. A cue integration between two datasets is facilitated by creating new topological features connecting between the initial model and image lines, with which new model hypotheses (variances to the initial model) are produced. We adopt Minimum Description Length (MDL) principle for competing the model candidates and selecting the optimal model by considering the balanced trade-off between the model closeness and the model complexity. Also, the normalized Min-Max principle is applied in order to determine appropriate weight of the objective function. Our preliminary results demonstrate that image-driven modeling cues can compensate the limitations caused by LiDAR data in rooftop modeling. Email: jwjung@yorku.ca



**FOURTH PLACE: Garrett Seepersad**, Ph.D. Candidate, Geomatics Engineering, Department of Earth and Space Science and Engineering, Lassonde School of Engineering, York University, supervised by Dr. Sunil Bisnath.

**Assessing the realism of position uncertainty in PPP within Ontario**

**ABSTRACT** — The Precise Point Positioning (PPP) GNSS data processing technique has developed over the past 15 years to become a standard method for growing categories of positioning and navigation applications. The technique relies on single receiver point positioning combined with precise satellite orbit and clock information, code and phase observable filtering, and additional error modelling. There have been very few studies that address this integrity monitoring in PPP to answer the questions: How accurate is my epoch PPP position? And, how realistic is the internal PPP uncertainty estimate? To investigate these questions, the PPP processing of a large sample dataset consisting of data from 55 reference stations for three months (June to August) of 2011 were processed.

The estimated user position and associated uncertainty from the filter covariance are compared against the NRCAN's SINEX station estimates. The mean horizontal position difference between the two solutions is a few millimetres. Integrity is studied by examining the correlation between the determined PPP position error and the appropriately scaled standard deviation of the estimated user position. Overall, the average position uncertainty for the horizontal and vertical components was strongly correlated. During the first hour, the position uncertainty was pessimistic, suggesting the error was worse than the true error for the horizontal and vertical components. For hours 2-6 and 12 a strong positive correlation was illustrated such that the average position uncertainty realistically depicts the magnitude of the average error in the horizontal and vertical components. While at hours 18 and 24 the average position uncertainty and errors are correlated, the uncertainty becomes optimistic, suggesting the error is smaller than it actually is. Email: GSeeper@yorku.ca

**FIFTH PLACE: Shahram Sattar**, MASc. Candidate, Department of Civil Engineering, Ryerson University, supervised by Dr. Songnian Li.

**Ice Navigation in Canadian Arctic Area**

**ABSTRACT** — Recent investigations have shown that sea ice in the Arctic Ocean has been thinned and molten as a result of global warming in recent years. This has led to substantial access to Arctic regions for marine activities. The Arctic Ice Regime Shipping System (AIRSS) which has responsibility to control all navigation activity in Canadian Arctic waters uses ice conditions and vessel class to provide safe guidelines for navigation in the ice. While the future decreases of sea ice will be predicted, prediction of proper models for ice movement and thermodynamics will be necessary to develop the ice navigation in the future. Email: shahram.sattar@ryerson.ca



# Continuing Education Committee (CEC) Update

By Paul Church, O.L.S., O.L.I.P., Chair of the Continuing Education Committee

**T**he Continuing Education Committee's program is very different today than it was before 2012.

In 1999, By-Law 99-1 implemented a continuing education fee of \$150 per year for the years 1999, 2000 and 2001. Each member was required to submit this fee along with his/her annual dues. The fee was implemented so that a program of continuing education could be provided for AOLS members. The Continuing Education Committee was responsible for developing courses, seminars and presentations that would be available and affordable to all members.

In 2002, the continuing education fee requirement was extended to 2005 by By-Law 2002-1. In 2005, By-Law 2005-2 reduced the continuing education fee to \$125 per member and the levy was extended until 2008. By 2008 the continuing education fees had built up a significant surplus and it was decided that the annual fee would not be required that year. Since 2009 the continuing education fee has not been levied.

The monies accumulated as a result of these By-Laws went into a fund and was used to pay for the development and presentation of courses and seminars for AOLS members. The CEC developed many courses that were offered at numerous places across the province, including Thunder Bay. Those who attended these courses were required to pay only \$35 per course to offset the cost of the meals and the facilities and they received great value for

their money. This system resulted in a situation where 100% of the members paid for courses that perhaps only 30% of members attended.

2012 was a seminal year for the AOLS. During this year the membership approved a regulation that would put into place a mandatory program of professional development. As of January 1, 2013, the Professional Development (PD) Program requires that every member accumulate 36 hours of Formal Activities and at least 66 hours of Professional Activities in a three-year period.

The PD Program allows any course or activity that relates to or supports the practice of professional surveying to qualify for professional development hours. This means that members are not required to acquire their Formal Activity hours only from AOLS sponsored courses, seminars or presentations. Members can earn their Formal Activity hours at courses offered by other organizations. This would include, but is not limited to, courses offered by colleges and universities, presentations hosted by local real estate boards, courses offered by the Law Society of Upper Canada, or courses offered through Four Point Learning.

The "Practice of Professional Surveying" includes not only knowledge of the legal requirements and technical aspects of professional surveying but also includes knowledge and skills in operating a business. This second aspect is quite broad and would include health and safety,

## Calendar of Events

**May 12 to 14, 2014**

**National Surveyors Conference 2014**

*St. Andrews By-the-Sea, New Brunswick*

[www.aatc.ca/en/node/69](http://www.aatc.ca/en/node/69)

**May 28 to 29, 2014**

**GEO Business 2014**

*London, England*

[www.geobusinessshow.com](http://www.geobusinessshow.com)

**June 16 to 21, 2014**

**XXV FIG International Congress**

*Engaging the Challenges, Enhancing the Relevance*

*Kuala Lumpur, Malaysia*

[www.fig.net/fig2014](http://www.fig.net/fig2014)

**July 12 to 15, 2014**

**Esri AEC Summit**

*San Diego, California*

[www.esri.com/events/aecsummit](http://www.esri.com/events/aecsummit)

**September 8 to 11, 2014**

**GIS-Pro 2014**

**URISA's 52nd Annual Conference**

*New Orleans, Louisiana*

[www.urisa.org/education-events/gis-pro-annual-conference](http://www.urisa.org/education-events/gis-pro-annual-conference)

**October 6 to 8, 2014**

**2014 ISPRS/IGU Joint Conference**

*Geospatial Theory, Processing, Modelling and Applications*

*Toronto, Ontario*

[www2.isprs.org/2014GeoTPMA/home.html](http://www2.isprs.org/2014GeoTPMA/home.html)

accounting, project management, promotion of a business, human resources issues and almost any other topics that would help a survey firm better serve the public.

CEC is establishing connections with a number of other organizations that offer courses that would benefit AOLS members and will be listing these courses in the AOLS InSight email newsletter.

Attending learning opportunities at the Annual General Meeting (AGM) provides a cost effective way for AOLS members to earn valuable Formal PD hours and Professional PD hours. The annual Geomatics Picnic is another source of Formal PD hours.

Since 2009, the CEC has used up most of the surplus funds that had been built up to satisfy its mandate to provide courses and seminars to the membership. As of 2013, the CEC has been providing seminars and courses on a cost-recovery basis. This has resulted in the price of the courses being higher than AOLS members have had to pay in the past and being offered at fewer locations.

The CEC will be developing the use of distance learning technologies to make courses, seminars and presentations available to AOLS members over the Internet. For some of our members, this represents a change in the way they learn. For all of our members, this technology represents a unique opportunity to lounge at home in our pajamas, with a coffee and bagel, and learn in comfort.

Since the Professional Development Program came into effect, the goal of the Continuing Education Committee has

been to provide at least 12 hours of Formal Activities each year. This past year, the CEC has organized the following courses:

- GIS 101
- Health and Safety for Surveyors
- Protecting the Wealth in Your Business
- 3D Laser Scanning:
  - Laser Scanning: How to Implement. How to Deliver
  - The Business Side of Laser Scanning

Discussions with Izaak de Rijcke resulted in Four Point Learning creating the Boundary Case Law Conference in October. This course was a sold-out success.

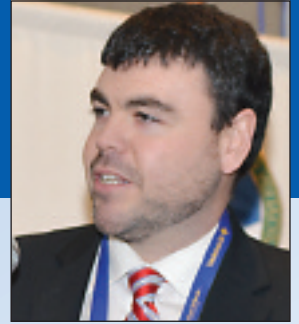
The CEC was involved in the development and testing of the PD Tracking system available on the AOLS website. This system records the activities of members and allows the AOLS to monitor members' progress and determine if the requirements of the Professional Development Program are being met.

The members of the Continuing Education Committee have worked diligently to offer interesting and beneficial seminars to AOLS members and they should be acknowledged for their contribution to continuing professional development. The members are: Martin Baya, Barry Clarke, David Horwood, Tom Packowski, Michael Griffiths, Tim Hartley, AOLS Survey Review Department Manager, Julia Savitch, AOLS Program Manager and Paul Church, Chair.



# Convocation Address – Tomorrow is Now

By Mark Tulloch, MASC, O.L.S., P.Eng



*The following is a condensed version of the charge to the new surveyors, which was delivered at the Convocation Luncheon.*

I would like to put forth three recommendations to the newly commissioned OLS' and to the younger generation as a whole, how we can collectively prepare for the transition ahead of us.

## Mentoring and Honouring

First and foremost, I would recommend to any new surveyors, or any young surveyors, to **find themselves a mentor**. We need those who have gone before us more than we can imagine. You may already have a mentor in your life and in your business, but if you don't, I would consider this a critical component to your success in this industry. Without a doubt, I can say that I would not be where I am today, if I was not standing on the shoulders of those surveyors before me. I consider myself very fortunate to have numerous people to come along side me and mentor me; many of those who are in the room today. Bret Magee, Anne Cole, and more recently, James Ferguson have all significantly impacted my career as a surveyor, and I would not be where I am today without the involvement of these three individuals in my career. Find yourself a mentor!

The reciprocal relationship to a mentor is to honour them. Andy Stanley (I'm a big Andy Stanley fan) says that "Honour publicly, results in influence privately". You show honour publicly it results in influence privately, but sadly, I'm part of a younger generation that often feels so entitled, that we often do not show honour to those who have gone before us. And it's hurting organizations...

I would argue all day long that in our businesses, because of a lack of honour, we are limiting what could happen through generations that would work together. I believe with all my heart that respect is earned but honour is given. You show honour to those who are above you. Respect is earned but honour is given.

So I would urge the newly commissioned surveyors, **find a mentor**, and create specific mentoring monuments.

## The Business of Surveying

My second recommendation to the younger generation is to **LEARN THE BUSINESS OF SURVEYING**. We have a very unique profession, whereby half of the membership of the Association are business owners, and other half are senior leaders and managers within the firms and organizations. To my knowledge there are only a handful of other professions that exist like this. To be a surveyor, by default means you will also interact in the business sector. However,

we generally do not have an education background in business, and we are licensed based on our technical and professional abilities, not our business aptitude. It would also be my observation that as an industry as a whole, we can improve our business acumen. My challenge to the newly commissioned surveyors is to understand the business sector, just as well as you understand the technical aspects of surveying and the interpretation of the law. Whether you are in private practice or a government organization, understanding the business side of surveying is critical to your success in this industry.

Let me also point out that I think there are three aspects of business that are equally important to consider; the numbers behind the business, generating new work, and the leadership of the business. It is critical to understand all three. As a newly commissioned surveyor, if you don't know the accounting aspect of your firm, I would suggest you make it a point to learn it. It is critical to understand labour costs, overhead costs, payroll burden; to understand what a target labour multiplier is for our industry and to establish rates that reflect that; to understand the true cost of projects, from proposal preparation, negotiation, project execution, and closeout, and to price projects accordingly; to understand cash flow and how the management of payables and receivables are critical to the health of a business; and to understand debt, and how it can both further, or cripple, an organization. I hope this is all old hat for you, but if not, I would urge to become familiar with the accounting cycle within the survey industry.

In my book, when we are talking about the business of surveying, there is nothing more important than business development. However, it would be my observation that most of the engineering, architectural, planning, and surveying firms in Ontario have a business development plan that consists of answering the phone and responding to quotations. And although both of these tasks are necessary, I would challenge the newly commissioned surveyors to have a full understanding of the business development pipeline. It is amazing to see the work you are able to generate when you intentionally meet new potential clients, when you identify and track a project through the BD pipeline process, when you are way out in front of a project before others know about it, when you send in an unsolicited proposal for a project, or when you offer to help write the

specifications of a project you will be bidding. If these are not techniques you are currently using to generate work, I would suggest you take training on how to effectively do business development. There is a direct correlation between increased sales and increased business development. Understand the business development process.

So again, I would encourage you to know the **BUSINESS OF SURVEYING**; understand the finances, push business development, and lead within your organization.

### Look Beyond the Boundaries

My final recommendation to the younger generation in the room is to **LOOK BEYOND THE BOUNDARIES**. A few years ago, a well-respected and fellow colleague to many people in the room (including myself), George Wortman, was at this very stage delivering the convocation speech, and he spoke on this topic that completely resonated with myself. As George mentioned, this is likely a controversial subject. As a surveying community we have opportunities in front of us that go far beyond cadastral surveying. George indicated to us that there is a need in industry for firms and organizations like ours to provide expertise in the collection and management of large volumes of highly accurate, geospatial data, and he urged firms in the Association to look at this avenue for diversifying our service offerings. George used a couple of examples that I will not forget. The first was the requirement to manage spatial data for all of the renewable energy projects that were recently awarded in Ontario. Renewable Energy Development teams would benefit from having surveyors involved to assist in managing all the spatial data required for the project, including environmental constraints, design constraints, project setbacks, and many other requirements. George was absolutely right. I know for certain that some firms have been very successful in assisting development teams and contractors in managing all of their geospatial requirements for these large scale developments.

The second example that George gave was the use of LiDAR data. At the time this was very much an emerging technology, but George could see how this would change the engineering and development process for so many sectors.

Once again you were right George. Many more engineering and surveying firms are making use of LiDAR data, especially terrestrial scanning, and this technology has evolved from an emerging technology into the mainstream. Many architects and engineering companies are using and requiring LiDAR data for their design process. Since George spoke, many more software companies have included a point cloud module onto their CAD platform, including Bentley, Autodesk, and MicroSurvey. Many companies within this room have started terrestrial scanning and have seen the business case for doing so.

I would like to echo George's challenge, especially to the newly commissioned surveyors. Cadastral Surveying was the foundation for this Association, and continues to be a very integral part of the AOLS. We are the only group in Ontario that can provide an opinion on the boundary of a property, and that has been our bread and butter for over 100 years. However, I would challenge the younger generation to keep on diversifying our sphere of influence and market share in the geospatial community. Continue to manage geospatial information on development projects. Continue to expand into terrestrial scanning, because if we don't, others will. Continue to let technology enhance our service offerings, whether it is with the addition of Unmanned Aerial Systems or another technology that emerges. Continue to diversify and **LOOK BEYOND THE BOUNDARIES**.

### The Charge

To our newly commissioned surveyors, I leave you with this; these recommendations and challenges are not coming from the old grey surveyors in the room, they are not coming from the President, the Executive Director, or the Registrar (all of whom are old and grey), this is at a peer to peer level; entitled Gen Y to entitled Gen Y. You are entering the profession at a very opportune time, as this profession will go through tremendous transition in the next 5-10 years. Make the most of this opportunity; get a mentor, learn the business of surveying, and think beyond the boundaries. Welcome to the team. We are expecting you to stand on our shoulders. Good luck!



## Sites to See

### LIO Data Warehouse

<http://www.giscopeapp.lrc.gov.on.ca/web/mnr/gib/dds/viewer/viewer.html>

The new *LIO Data Warehouse* powered by Land Information Ontario was launched to Ontario Geospatial Data Exchange (OGDE) members in December 2013. The warehouse allows access to current, authoritative Ontario Government data.



# 122<sup>nd</sup> Annual General Meeting



David O'Toole, Deputy Minister of the Ontario Ministry of Natural Resources was the Keynote Speaker at the Opening Ceremonies.



Mark Tulloch, MASC, OLS, P.Eng, Chief Operating Officer for Tulloch Geomatics Inc. delivered the charge to the new surveyors at the Convocation Luncheon. A condensed version of his speech can be found on page 18.

The 122<sup>nd</sup> Annual General Meeting was called to order as the Sergeant-at-Arms, Bruce McMurchy laid down the Standard Measure which historically was used to control the accuracy of surveys in Upper Canada.



Incoming President Dasha Page (right) presented the Past President's gavel to Eric Ansell.



Members Commissioned in the Last Year

Front left: Haron Afzalzada, John Yuen, Piratheepan Ramachandran, Yuriy Bogdanov, Andrew Broxham



Eric Ansell (right) presented a Fellowship Award to Crystal Cranch for her outstanding commitment as a member of the Academic and Experience Requirements Committee and for spearheading the changes to the articling process.



Eric Ansell (right) presented a Fellowship Award to Bob Halliday for his outstanding commitment as a member of the Academic and Experience Requirements Committee and for his leadership as Chair of the committee.

# “Tomorrow is Now”



The Honourable Mr. Justice Edward F. Ormston was the Keynote Speaker at the President's Luncheon. Justice Ormston was the principal organizer of the Mental Health Court which opened in 1988. He is currently the Chair of the Consent and Capacity Board of the Ministry of Health and Long-Term Care.



Back left:  
Djordje Petrovic,  
Boney Cherian,  
Adam King,  
Ron Querubin,  
Reuben Mc Rae,  
Arthur Lise, missing  
from photo  
Ganesh Sundar



Debbie Ansell (right) presented the AOLS medallion to Steve Page.



Ken Wilkinson (right) presented a special Citation to Articling Student Sophie-Rose Coté for her outstanding commitment on the Website Committee and for her assistance in developing content for the new AOLS website.



Eric Ansell (right) presented the inaugural President's Award to Real Estate Lawyer Bob Aaron in appreciation of his many years of promoting the benefits of an up-to-date survey in his biweekly column in the Toronto Star.

## Event Sponsor



The CG&B Group and Novex Insurance Company represented by Mark Sampson

## Platinum Sponsors



Cansel



The Connectors Insurance Group Ltd. represented by Bob Morrow and his wife Leslie



GeoShack Canada



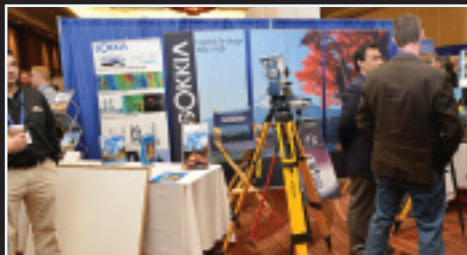
Krcmar Surveyors Ltd. represented by Tom, Maya and Saša Krcmar



Sani International Technology Advisors Inc. represented by Tony Sani



Leica Geosystems Ltd.



Sokkia Corporation Canada



Tulloch Mapping Solutions

Thanks also to  
Land Survey Records Inc.  
and  
Teranet



Mel Truchon (left) and Master of Ceremonies David Raithby at the Welcoming Party.



Mel Truchon (left) and the Scavenger Hunt winners (left to right): Philip Robbins, Alec Mantha and Duy Tran.



## Hockey at the AGM!

Thanks to all who laced 'em up in this year's hockey game and a special thanks to Harry Kalantzakos for pulling double duty, alternating as goalie for both teams! Thanks also to Pat Hills from Cansel for organizing the game again this year. It has become a real tradition at the AGM. See you all next year in Huntsville!



AGM Parliamentarian Jack Young was the Master of Ceremonies at the Veterans' Dinner

# Veterans' Dinner



Front left: Des Rasch, Gord Good, Ardon Blackburn, Doug Culbert - Back left: Murray LeGris, Paul Wyman, Tony Roberts, Jim Hill



Front left: Ron Dore, Rob Stirling, Bob Clipsham, Rodney Reynolds  
Back left: Gary Phillips, Kerry Hillis, Daniel Kreze, Duncan Ashworth



Front left: Rick Miller, Gary Auer, Maureen Mountjoy, Marvin McNabb  
Back left: Dave Urso, Doug Culham, Eric Ansell, Blain Martin



Front left: Ron Stewart, Adam Kasprzak, Dave Dorland, Ed Grenkie  
Back left: Bill Buck, Alex Wilson, Kim Husted, Bob Hawkins



Front left: Tim Hartley, Ron Jason, Wally Kowalenko, Dave Horwood  
Back left: Bruce McMurchy, Don Roberts, Russ Jones, Ralph Benedict



Front left: Brent England, Ivan Wallace, Tom Bunker, Tom Glassford  
Back left: John Gutri, John Kennedy, Rob Harris, Scott McKay



Front left: Paul Church, Talson Rody, Al Worobec, John Vinklers  
Back left: Dave Searles, Paul Torrance, Doug Hunt, Peter Moreton



Front left: Ed Herweyer, Lorraine Petzold, Andrea Tieman, Anne Cole  
Back left: Dan Dolliver, Paul Forth, Paul Riddell, Brian Maloney



Front left: Colin Bogue, Brent Collett, Bill Bennett, Al Roccaforte  
Back left: Geoff Aldworth, Steve Balaban, Ernie Gacser, Rod Finnie



Front left: Jack Monteith, Jack Young, Norm Sutherland, Drew Annable  
Back left: Ross Clarke, Dan Vollebakk

# DATA and GIS

By Barry Costello, O.L.S., O.L.I.P.

## Introduction

Geographic information systems technology has generally been ignored or misunderstood by the cadastral surveyor. There has been significant growth in this sector in the past decades. In most cases this growth has significantly outpaced the growth of the cadastral surveying sector.

The following is a brief description of some of the changes in the GIS sector that are converging to create GIS related growth opportunities that surveyors could consider.

## Open Government/Open Data

There is an almost universal drive by governments in Canada to be more open and transparent. It is hoped that open government will stimulate job creation and economic growth. The government hopes to engage its citizens in 3 key areas:

- open data
- open dialogue (citizen engagement)
- open information (processes, policies, services, etc.)

The Ontario government has almost completed a project to catalogue and inventory its data holdings. The government is also determining what data will be readily available and how to provide access to it. The emerging policy position is that all data should be open. Data custodians will have to provide a business case to justify restricting data from being made available. The key criteria for restricting data from the open category are that the data has personal and sensitive information in it.

The Ontario government terms<sup>1</sup> of use are very liberal. Essentially, it grants users the right to use the data in any way, subject to the following:

- the use must be lawful
- there must be an acknowledgement of the source of the data
- the user must not imply any official status or that the government endorses your use of the data
- the user assumes all risk in its use of the data (as is)

The municipal and federal open data usage terms and conditions are similar in intent. Note that, in some cases, there may be additional restrictions/terms on data where the data is encumbered by sharing agreements with other parties.

There is already significant spatial data available. The Ontario government open data website (<https://www.ontario.ca/government/government-ontario-open-data>) lists the available data. This data includes the traditional topographic and related data such as the following from MNR:

- Cosine
- Ontario Road Network (ORN)

- Ontario Parcel (has 3rd party IP conditions)
- Orthophotography and Imagery
- Basemap (OBM) and Related Data

In addition to the above, there are data from other ministries that may be used by cadastral surveyors to expand their services to their clients. Below are just a few examples of provincial data:

- water well database locations (Ministry of Environment)
- meat plants and farmers markets (Ministry of Agriculture)
- construction projects, traffic cameras (Ministry of Transportation)

Similar data inventory directories are available at the municipal level. For instance the following link lists the City of Hamilton open data <http://www.hamilton.ca/ProjectsInitiatives/OpenData/>. A simple search of other municipal web sites should reveal the data that is currently available and what the conditions of use are.

## Data Standards

There is a significant change underway in all areas of information technology. GIS technology is no exception. There are several data standards initiatives under way in Canada/Ontario that surveyors should be aware of. A few of these are briefly listed below:

- Geofoundation Exchange (GFX)
  - topographic basemap data assembled from the authoritative source (e.g.: municipality) then automatically rolled up to other levels of government (scales)
  - technology independent data exchange workflow
  - expandable to other data themes (e.g. parcel)
  - sponsored by NRCan
- Canadian Municipal Data Model (promoted by Esri Canada)
  - harmonized information model of GIS data sets common to local municipalities
  - common workflow (requirements, inputs, functions and outputs)
  - systems/applications built using the model
  - includes parcel information
  - parcel maintenance workflow in place
- Community Maps (Esri Canada initiative)
  - Esri program to publish authoritative (municipal) large scale source data in a graphic basemap for public use
  - IP for the data remains with the source agency

<sup>1</sup> the official text of the Ontario data license is found at: <https://www.ontario.ca/government/open-government-licence-ontario>

- agreed to update/maintenance cycle
- frees the municipality from distributing data and ensures all parties are working on a common base
- relies on the Canadian Municipal Data Model

The initiatives above are making data easier to use. Also, the data conversion time has been significantly reduced. This makes adding and using a variety of data less costly for the surveyor and his/her clients. More services can be offered at attractive prices.

## Technology

The biggest obvious impact on GIS has been apps and GIS type applications on the smartphone and tablet. An example is Esri's ArcGIS Online Collector application. With Collector, field data collection forms can be very easily designed built and deployed on phones and tablets. This technology can significantly reduce the cost of one off inspection type field data collection projects.

Hosted services are a new trend. A simple explanation of hosted services is the 3<sup>rd</sup> party operation of an organization's GIS servers and data management activities. Hosted services have also expanded to include specialized applications. Hosted services are becoming an attractive alternative for organizations wishing to free themselves of the activities associated with infrastructure, software and data management.

An example of hosted services as an application is their Automatic Vehicle Location (AVL) system Esri operates for municipalities in southeastern Ontario. The only technology the municipality has is sensors in the vehicles. The vehicle tracking, usage reporting, data management software and the data itself is housed on Esri's infrastructure. The client has a simple web interface to view and query the data.

Cloud computing takes hosted services to a higher level of sophistication. In a cloud computing environment the technology (hardware and software) is distributed on a ubiquitous network of computers. The same is true for the data. With cloud computing, economies of scale reduce the cost of technology and data significantly. Google Maps and Esri's ArcGIS Online are examples of GIS cloud computing. Private cloud is a variant of the above where the network of server farms are limited to specific regions and/or to specific clients.

## Bundle Data and Technology

Software suppliers are bundling spatial and other data with their technologies. This activity comes from the traditional geomatics community as well as newcomers to the sector. What is interesting is the rapid rise in the consumerization of spatial data.

We now assume to have maps and applications on our smartphones and tablets. Geofencing is one GIS technology that we can expect to see having a significant presence. Geofencing monitors a smartphone or tablet location then transmits a custom message to that phone when it crosses a geo-fence. Building and managing geo-fences may be an emerging line of business for GIS data consulting firms.

We will see many new developments in the smartphone and tablet markets. Firms like Geoloki, Geofeedia, Hotstop (recently bought by Apple), etc. are new entrants into the consumer spatial technology industry. There is room for the surveyor to develop similar applications for his/her traditional customer base.

Google, Microsoft and Apple all provide mapping and location based maps and services on their technology platforms. Esri has gone a step further and bundled socio-economic, business, demographic and lifestyle information into its ArcGIS Online product. This data used to be somewhat difficult for small firms to acquire and use. Now it is there as part of your subscription. This data is simply there, on-line, and available to use by just turning on the layer.

So now for a small cost, a surveyor can perform location analytic queries such as "find me the count of male/females, in 10-year gradients, within a 5 minute drive time of a specific location (point, line or polygon)". Furthermore, the user interfaces have improved to the point that this type of query can be taught in about 15 minutes.

## Opportunities for Surveyors

The following factors are converging and creating a period of disruption:

- open data/government
- data and technology standards
- social media and the consumerization of mapping
- cloud technology and hosted services are reducing spatial data management costs
- fiscal constraint

Through this change, new opportunities for the professional surveyor are emerging.

For a variety of reasons, the cadastral surveying profession is focused on asserting its copyright on the plans and other documents produced by a survey. As a GIS professional, I think there are at least 3 other or additional areas that the surveyor should also examine. These are access provision, custodianship and spatial data expertise. These three areas offer opportunities for significant business growth.

**Access providers** are those who make data readily available. The business models for access are subscriptions or usage charges. Data is stored in a secure server environment with secure access (portal) controls. Instead of sending data to a client/customer, an access key is provided along with basic query functionality. Providing an access portal can be positioned as a value-added service while at the same time creating a non-labour revenue mechanism.

A **spatial data custodian** is the individual who manages data for others. Organizations are embracing hosted and cloud technologies as cost saving alternatives to managing in-house systems. Examples of these technologies are Gmail, blogs, Office 365, etc. We will likely see more demand for 3<sup>rd</sup> party management of technology, applications and spatial data.

The surveying community is well positioned to assume the role of **subject matter expert**. In this opportunity area,

there is a role to play for establishing spatial data standards, ensuring quality for data that is collected from a variety of sources and providing strategic advice to clients on spatial data management and use.



**Barry Costello** holds a C of R in Photogrammetry and Geographic Information Management. He is Manager, Ontario Government at Esri Canada. He can be reached by email at [bcostello@esri.ca](mailto:bcostello@esri.ca) for further information.

## NEWS FROM 1043

### Changes to the Register

#### MEMBERS DECEASED

William D. McConnell	CR51	Jan. 7, 2014
John "Jack" Gray	684	Jan. 30, 2014
Roger Tomlinson	Honorary Member	Feb. 7, 2014
Edward A. Graham	963	Mar. 24, 2014

#### RETIREMENTS/RESIGNATIONS

Darko I. Poletto	CR172	Dec. 26, 2013
Malcolm R. Elms	1364	Dec. 27, 2013
Robert Naraine	CR71	Dec. 31, 2013
R. John Halsall	1503	Dec. 31, 2013
Michael T. Franey	CR77	Dec. 31, 2013
Anil Agnihotri	1772	Dec. 31, 2013
B. Roger Pickard	1363	Dec. 31, 2013
Andrew Lyszkiewicz	CR56	Jan. 1, 2014
James M. Secord	1418	Jan. 1, 2014
Stivell Ramchuram	CR10	Jan. 1, 2014

Walter Kowalenko	1488	Jan. 1, 2014
Richard Larocque	1257	Jan. 1, 2014
David N. Churchmuck	1265	Jan. 1, 2014
Brian J. Maloney	1549	Jan. 1, 2014
John A. Stanton	1143	Jan. 1, 2014
Denis D. Blais	1594	Jan. 1, 2014
R. Dean Dunlop	1726	Jan. 1, 2014
Timothy Rowe	1362	Jan. 1, 2014
Talson Rody	1096	Jan. 1, 2014
Thomas H. Brooks	1268	Jan. 1, 2014
David B. Searles	1225	Jan. 1, 2014
Paul F. Mrstik	CR45	Jan. 1, 2014
Robert J. C. Gaspirc	1545	Jan. 1, 2014
Sarah J. Cornett	1691	Jan. 1, 2014
Margo L. McGeorge	1707	Jan. 1, 2014
Bruce I. McMurchy	1109	Jan. 31, 2014
Adam King	1972	Mar. 11, 2014

*cont'd on page 34*

# Townships Named For Surveyors

## (Part 2)

By Allan Day

**HELP WANTED** If I'm missing any townships I would appreciate an e-mail telling me about the township. Thank you.

**Parke Township** named for *Thomas Parke*. Parke was an architect, builder, journalist and political figure in Upper Canada. He worked with John Ewart as a master carpenter on a number of construction projects, including the new parliament buildings at York. In 1834, he was elected to the Legislative Assembly of Upper Canada for Middlesex and he was re-elected in 1836. In 1839 he was a co-founder of the *Canada Inquirer*, later the *London Inquirer* and a reform-oriented newspaper. He was appointed justice of the peace in the London District in 1840. In 1841, he was appointed as Surveyor General serving until 1845 when the office was abolished and was later revived in 1845. (8 Victoria ch. 11, sec. 1)

**Peterson Township** named for *Peter Alexander Peterson*. Peterson was articled to Thomas C Keefer, PLS and was appointed as a Land Surveyor on July 10, 1863. His professional activities were not directed to surveying but along waterworks railway engineering lines. Between 1863 and 1865 he was working on various engineering jobs with Thomas Keefer. In 1865 he went into private practice and between 1885 and 1886 was in charge of large re-constructions of dams on the Grand River<sup>46</sup>. In 1867 he made surveys, plans and estimates for the Petrolia branch of the Great Western Railway. In the autumn of the same year he was appointed as Resident Engineer of the Northern Division of the New York and Oswego Midland Railway. In March 1868 he was appointed as Resident Engineer of the Bathurst Division of the Intercolonial Railway in New Brunswick and remained there until 1872 when he resigned and became Chief Engineer of the Toronto Water Works. By the end of 1875 he left the Toronto Water Works after being appointed by the Quebec Government to be the Chief Engineer of the Montreal and Ottawa section of the Quebec, Montreal, Ottawa and Occidental Railway.

**Ridout Township** was named in honour of *Thomas Ridout*. Ridout is a distinguished Toronto family name. Ridout started work in 1793 as clerk for the Surveyor General. In 1810, he was appointed to the post of Surveyor General for Upper Canada. He had also been named Registrar for York County in 1796. He and William Chewett acted jointly as Surveyors General in 1799, 1802, and 1807. He became a justice of the peace in the Home District in 1806 and Chairman of the Home District Council from 1811 to 1829. In 1812, he was elected to the Legislative Assembly of Upper Canada representing East York and Simcoe. He served on the board set up to deal with claims for compensation for losses sustained during the War of 1812. In 1825 he was named to the Legislative Council. In 1827 he was appointed to the first board of King's College.

**Smith Township**<sup>47</sup> may have been named for *Sir David William Smith*. He was a soldier and political figure in Upper Canada. He joined his father's regiment, the 5th Regiment of Foot, as an Ensign in 1779 and became a Captain in 1790. He served on the land board in the Hesse District<sup>48</sup> in 1791 and 1792. Lieutenant Governor John Graves Simcoe made him Acting Deputy Surveyor General in 1792 and he was appointed Surveyor General of Upper Canada in 1798. In 1792, he was elected to the 1st Parliament of Upper Canada representing Suffolk & Essex. In 1796 he was elected in the 3rd riding of Lincoln. He became a member of the Executive Council of Upper Canada in 1796. In 1800, he was elected again to the Legislative Assembly representing Norfolk, Oxford & Middlesex. Smith was speaker for the Legislative Assembly from 1796 to 1801. In 1802 he returned to England and, in 1804 resigned from his appointments in Upper Canada. He began a second career as property manager for the Duke of Northumberland. He was made a baronet on August 30, 1821. Smith received 61 different appointments<sup>49</sup> during his public career between September 8, 1779 and November 1836.

**Smith Township**<sup>47</sup> is quite possibly named for *The Honourable Samuel Smith*. He was a Loyalist British Army officer and politician. He was appointed to the Executive Council of Upper Canada and appointed Administrator of Upper Canada. In 1777, he joined the Queen's Rangers during the American Revolutionary War. He rose to the rank of Captain. He was promoted to the position of Lieutenant-Colonel of his regiment in 1801. Smith was appointed November 30, 1813 to the Executive Council of Upper Canada. In 1817 he was sworn in as Administrator of Upper Canada in the absence of Lieutenant Governor Francis Gore and served until 1818. He acted again as Administrator in the absence of Lieutenant Governor Sir Peregrine Maitland for three months in 1820. As Administrator, Smith was advised not to grant land to American immigrants until they had taken the oath of allegiance and resided in Upper Canada for seven years. He decided to follow the advice of his Executive Council and not remove title to the land from those who did not qualify. Smith retired from the Executive Council in October 1825.

**Speight Township** named for *Thomas Bailey Speight*. In 1877 he secured a position with Silas James who was a Dominion and Provincial Land Surveyor. Speight successfully passed the necessary preliminary examinations and was articled to Silas James who was the Superintendent of York roads. In 1881 he passed the examinations and became an Ontario Land Surveyor and formed a partnership with James. The partnership lasted four years under the name of "James

*cont'd on page 30*



& Speight". In November 1882 he successfully wrote his examinations to become a Dominion Land Surveyor. In 1885 Speight and Colonel Arthur Jabel Van Nostrand entered into partnership. The firm was very active in opening up lands in both northern and southern Ontario. Over thirty Township Base Line and Meridian Surveys were performed by the firm by 1911. Some of the survey work that was performed included Township Outlines in 1897 and Base and Meridian Lines in Algoma in 1897. Speight was in charge of Exploration Part #1 in 1900, Base and Meridian Lines in the Districts of Algoma and Nipissing from 1903 – 1905 and Base and Meridian Lines in Algoma and Thunder Bay Districts. He was involved in the incorporation of the Association of Ontario Land Surveyors in 1892.

**Staunton Township** named for *Francis Hardwick Lynch-Staunton*. He was offered a professorship in chemistry at Trinity College in Dublin, Ireland. For three years he worked on the Ordinance Survey of Ireland. He immigrated to Canada in 1854. He articulated to John Lindsay and became a Land Surveyor on October 11, 1856. In 1860 he was a Lieutenant-Colonel of the first Battalion of the Militia for Bruce County. Lynch-Staunton practiced land surveying and civil engineering for 10 years for the County of Bruce. He was also a Dominion Land Surveyor.

**Strange Township** named for *Henry Strange*<sup>50</sup> (General) OLS #1. Strange was born in Demerara<sup>51</sup> in the West Indies. He and his sister were sent to England to live with his grandmother where he received his classical education. He understood seven languages and was an excellent mathematician and musician. At the age of twenty he came to Canada and settled first in Guelph. For a short time he went to the United States and upon his return he went to Rockwood<sup>52</sup> and acquired about 1,200 acres of land<sup>53</sup>. He studied surveying under Peter Carroll, Deputy Provincial Surveyor<sup>54</sup> and qualified as a Deputy Provincial Surveyor on November 30, 1838. He worked on surveys for the Grand Truck Railway between Toronto and Sarnia, Great Western Railway from Niagara Falls to Windsor and the Guelph and Galt Railways. He also surveyed the Town of Rockwood and part of the City of Guelph. He served in the Canadian Forces and for Sir Allan Napier McNab<sup>55</sup> in the Rebellion of 1837 – 38<sup>56</sup> and was taken prisoner at Detroit.

**Sutcliffe Township** named for *Homer Wilson Sutcliffe*. After graduating from high school he attended the University of Toronto obtaining his B.A.Sc.<sup>57</sup> in 1907. He then apprenticed to J H Smith of the firm of Sinclair & Smith of New Liskeard. He was granted his certificate as an Ontario Land Surveyor on May 11, 1908. Later in 1908 he formed a partnership with Ernest Wesley Neelands under the name of "Sutcliffe and Neelands". The firm carried out extensive surveys in Northern Ontario.

**Tiernan Township**<sup>58</sup> named for *Joseph Martin Tiernan*. He was articulated to Augustus MacDonell for three years. He was appointed as a Land Surveyor on January 6, 1886. His survey work as a Land Surveyor and Municipal Engineer was in the Tilbury area. He also did work for the Ontario Government in Nipissing, Algoma, Thunder Bay and Rainy River Districts. Tiernan surveyed the townships of Dack, Tolten, Porter, Hanmer, Archibald, Tupper, Aubrey, Southworth, Melgund and Mutrie. He was also in charge of Party #6 of the Exploration Survey in 1900<sup>59</sup>. Shortly after completing the exploration survey he passed

away of typhoid fever on December 15, 1900.

**van Nostrand Township** named for *Arthur Jabel van Nostrand*. (Lieutenant-Colonel) He was educated in Public and High School in Newmarket. In 1879 he passed his preliminary examination for land surveying and was articulated for three years to P S Gibson, PLS. In May 1881 he transferred his articles to Major A C Webb acting as an assistant on Dominion Land Surveys. Later in November 1881 he transferred back to P S Gibson. In October 1882 he passed his examination to become an Ontario Land Surveyor and in November of the same year he became a Dominion Land Surveyor. In 1883 and 1884 he was engaged with Major A C Webb and Joseph Doupe on surveys for the Dominion government. In 1885 Thomas Bailey Speight and he entered into partnership. The firm was very active in opening up lands in both northern and southern Ontario. Over thirty Township Base Line and Meridian Surveys were performed by the firm by 1911. Some of the survey work that was performed included Township Outlines in 1897, Base and Meridian Lines in Algoma 1897, Base and Meridian Lines in the Districts of Algoma and Nipissing from 1903 – 1905 and Base and Meridian Lines in Algoma and Thunder Bay Districts. In 1893 he entered the Corps of Guides as a Lieutenant and was later promoted to the ranks of Captain, Major and Lieutenant-Colonel in 1911. He also acted as an Intelligence Officer from 1896 to 1911.

**Weaver Township** named for **William Frederick (Fred) Weaver**. He and his family emigrated from England in 1908 and settled in the Toronto beaches area. He attended Earl Grey Public School and Riverdale Collegiate to Grade 10. Due to family finances he went to night school to finish his schooling to Grade 12. He was engaged by the firm of Speight and van Nostrand in 1923. He qualified as an Ontario Land Surveyor on May 22, 1926 under the direction of Ralph M Anderson, OLS. In 1930 he had the opportunity to join the Surveys Branch of the Department of Lands and Forests and became Surveyor and Chief Draftsman working his way up to Chief Inspector of Surveys and Assistant to the Surveyor General. During his years with the government he was responsible for the annulment of non-essential Crown Township subdivisions where the original survey monuments and lines had become obliterated. He also prepared contracts for the restoration of original survey monuments and original and retracement Crown surveys.

**Wiggins Township**<sup>60</sup> named for *Thomas Henry Wiggins*. Wiggins was a combination of surveyor/geologist. He became an Ontario Land Surveyor on November 10, 1891 and studied surveying with Willis Chipman. He spent the first years of his career in Ontario with an office in Cornwall. He spent two years in the Lake Superior and Rainy River area doing geological work and surveying mining claims. When he worked with Willis Chipman they did mainly municipal surveys<sup>61</sup> and drainage work. Between 1904 and 1920 he was in Saskatoon, Saskatchewan doing surveying and later worked most extensively in real estate. After 1920 he divided his time between Saskatoon and Napanee. He and Bryce Johnson Saunders formed a partnership in Brockville.

**Wilmot Township**<sup>47</sup> may have been named for *Samuel Street Wilmot*. He was born in New York State and was the son of Major Samuel Wilmot, who came to New Brunswick with his

family after the American Revolution. In 1796, Wilmot moved to Upper Canada and lived in Markham Township. His name is on the official list of Deputy Surveyors of Upper Canada in 1811. He served as a major in the militia during the War of 1812. Wilmot represented the Newcastle District in the Provincial Parliament. He was also selected by the Government to inspect and value the Crown and Clergy lands.

**Wilmot Township**<sup>47</sup> may have been named in honour of **R J Wilmot**. Wilmot entered Parliament when the Secretary for the Colonies introduced a bill into the Commons to carry out the sale of Clergy Reserve lands to the Canada Company. He succeeded Mr Goulbourn (unknown person) in office. He was in office when this township was named in honour of the Colonial Secretary instead of the surveyor.



**Allan Day** worked in the Office of the Surveyor General, Ministry of Natural Resources for 28 years as a Survey Records Information Officer. He now owns a survey and research business in Peterborough. E-Mail [surveyresearch@cogeco.ca](mailto:surveyresearch@cogeco.ca)

<sup>46</sup> Not known which Grand River.

<sup>47</sup> There appears to be a question on how Smith Township was named. According to Herbert F Gardiner's book "*Nothing But Names*" on page 183 it states "Smith Township may have been named for Sir David William Smith the Surveyor General". On page 184 of the same book it states "it is quite possible that the township was named for the Honourable Samuel Smith. The naming of Wilmot Township the same question comes up to the naming of the township. Gardiner's book on page 258 states "may have been named for Major Samuel Street Wilmot, son of Captain Samuel Wilmot, a United Empire Loyalist who settled in New Brunswick". On page 259 of Gardiner's book he is suggesting that the township was named in honour of R J Wilmot, Private Secretary to Lord Liverpool. I was unable to find out what the initials stood for. I talked to Jeff Ball at the MNR, Geographic Names office and they have no records that show who the townships were "officially" named after.

<sup>48</sup> Western District was one of four districts of the Province of Quebec created in 1788 in the western reaches of the Montreal District and partitioned in 1791 to create the new colony of Upper Canada. Known as Hesse District (from Hesse in Germany) until 1792, it was abolished in 1849. The district originally consisted of that part of Upper Canada west of a line running north from Long Point on Lake Erie.

<sup>49</sup> See the 1894 Annual Report for the appointments.

<sup>50</sup> He was the first surveyor to be commissioned by the newly formed Association of Ontario Land Surveyors in 1892.

<sup>51</sup> Demerara is a historical region in the Guianas on the north coast of South America which is now part of the country of Guyana. It was a Dutch colony until 1815 and a county of British Guiana from 1838 to 1958. The name "Demerara" comes from a variant of the Arawak word "Immenary" or "Dumaruni" which means "river of the letter wood".

<sup>52</sup> Rockwood is the largest community within Eramosa Township on the banks of the Speed River northeast of Guelph.

<sup>53</sup> Henry Strange received the following property in Eramosa Township Lots 4 and 5, Concession 4 and Lots 4, 5 and 6 Concession 5.

<sup>54</sup> Carroll studied under Mahlon Burwell and qualified as a DPS on October 14, 1828.

<sup>55</sup> Sir Allan Napier McNab, 1st Baronet was a Canadian political leader and Premier of the Province of Canada before Canadian Confederation from 1854 to 1856.

<sup>56</sup> The Rebellions of 1837-38 were two armed uprisings that took place in Lower and Upper Canada in 1837 and 1838. Both rebellions were motivated by frustrations with political reform. A key shared goal was responsible government, which was eventually achieved in the incidents' aftermath. The rebellions led directly to Lord Durham's Report on the Affairs of British North America and to *The British North America Act, 1840* which partially reformed the British provinces into a unitary system.

<sup>57</sup> The Bachelor of Applied Science is an undergraduate degree awarded for a course of study that generally lasts three to four years in the United Kingdom and Australia, and four to six years in Canada, the Netherlands and the United States.

<sup>58</sup> Formerly known as Township 30 Range 20. The name was changed in 1974.

<sup>59</sup> Party # 6 was to survey from Ombabika Bay at the north east of Lake Nepigon by Ombabika River and canoe routes to Albany River and down the Albany River to the mouth of Kenogami. Ombabika River and canoe routes to be explored 20 miles on each side and the Albany by streams flowing into it from the south.

<sup>60</sup> Formerly known as Township 88. The name was changed in 1974.

<sup>61</sup> I found one municipal survey that was surveyed by Wiggins in the MNR Survey Records office here in Peterborough. Cumberland Township #767 the Road Allowance between Concessions 10 and 11 across Lots 12 to 28.

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## EDUCATIONAL FOUNDATION NEWS

### Report from the Annual General Meeting

The Board of Directors of the Educational Foundation decided this year not to hold the auction of the Charles Potter Circumferentor during the Open Forum because of waning interest and perceived discomfort from the members. However in the past few years, the auction was a catalyst for many of the members to step forward and pledge their donations. Last year \$8,875 was collected through pledges; this year we received \$1,050. We are hoping that more members will send in their donations. Our goal is to raise \$35,000 this year and with your support we can make this happen.

The Board of Directors would like to thank all of the Exhibitors who provided a prize for the Welcoming Party Exhibitor Draw. Thanks to our ticket sellers, Lena Kassabian, Penny Castillo, Julia Savitch, Shawn Hodgson, and the Master of Ceremonies David Raithby, the Foundation raised \$2,285.

The 8<sup>th</sup> Annual Graduate Student Geomatics Poster Session attracted 11 entries from Ryerson University and York University. The poster competition gives the surveying community an opportunity to see what type of research the graduate students are working on and reward them for their hard work. The Foundation sponsored \$1500 for 1<sup>st</sup> place, \$1,000 for 2<sup>nd</sup> place, \$750 for 3<sup>rd</sup> place, \$500 for 4<sup>th</sup> place and \$350 for 5<sup>th</sup> place. The winning posters can be found on page 14. Thanks to our judges, Boney Cherian, Reuben Mc Rae and Wally Kowalenko.



*First place Geomatics Poster Session winner Akram Afifi, PhD Candidate from Ryerson University with Executive Director Blain Martin (right).*

*The Educational Foundation would like to recognize with thanks donations made in the memory of Ken Matthews, Harold Macklin, William McConnell, Jack Gray and Roger Tomlinson.*

## COFA'S RELINQUISHED

Jordan & Wiseman Surveying Ltd. Dec. 31, 2013  
 T.H. Brooks Surveying Ltd. Dec. 31, 2013  
 Farncomb Kirkpatrick & Stirling Ltd. Jan. 1, 2014

## COFA'S ISSUED

Rugged Geomatics  
 Dinorwich, Ontario, January 28, 2014

Surveyors On Site Inc.  
 Harrow, Ontario, March 11, 2014

## COFA'S REVISED

Was: R.G. Bennett Surveying Ltd.  
 Is: Jordan – Bennett Geomatics Inc.  
 Brockville - January 1, 2014

Was: T.H. Brooks Surveying Ltd.  
 Is: Brooks & Muir Surveying  
 Woodstock - January 1, 2014

Was: Ashenhurst Nouwens Limited  
 Is: Ashenhurst Nouwens & Associates Inc.  
 Hamilton - February 18, 2014

## Surveyors in Transit

**Amy Li** is now with **Public Works and Government Services Canada** in Toronto. Phone: 416-512-5593.

**Al Worobec** is now with the **Association of Ontario Land Surveyors**.

**James Silburn** is no longer with **MMM Group Limited** and is now with the **Region of Peel**.

**Robert Jordan** and **Grant R. Bennett** are now with **Jordan - Bennett Geomatics Inc.**, P.O. Box 485, 33 Perth Street, Brockville, ON, K6V 5V7.

**Douglas Jordens** is no longer with **exp Geomatics Ltd.**

**Kenneth J. Ketchum** is now the managing OLS at **Brooks & Muir Surveying (Div. of Macaulay White & Muir Ltd.)**, 592 Adelaide St., Woodstock, ON, N4S 4B8. Phone: 519-539-8089.

**Monteith & Sutherland Ltd.** has moved to 801 Upper Canada Drive, Sarnia, ON, N7W 1A3.

**J.D. Barnes Limited** has acquired **MacDonald Tambllyn Lord Surveying Ltd.** and the firm is operating as **MacDonald Tambllyn Lord Surveying Ltd. (A Division of J.D. Barnes Limited)** located at 50 Fleming Drive, Unit 2, Cambridge, ON, N1T 2B1.

**Archibald Gray & McKay Ltd.** has acquired **Farncomb Kirkpatrick & Stirling Ltd.** and **Robert Stirling** is now with **Archibald Gray & McKay Ltd.**

**Harry Kalantzakos** is now with **Ashenhurst Nouwens and Associates Inc.**, 201 - 315 York Blvd., Hamilton, ON, L8R 3K5.

**Michael Marlatt** has moved his office location to **Ministry of Government Services - Regulatory Services Branch**, 447 McKeown Ave., Suite 111, North Bay, ON, P1B 9S9.

**Alfonso Roccaforte** has retired from **J.D. Barnes Limited**.

**Stephen Vollick** is now with **CAP Geomatics Ltd.**, P.O. Box 847, Sexsmith, AB, T0H 3C0.

**Ronald H. Smith Ltd.** has moved to 183 Sydenham Street, Gananoque, ON, K7C 1C1.

**James W. Bowman** is now the managing OLS at **Rugged Geomatics Inc.**, 276 Moate Road, P.O. Box 53, Dinorwich, ON, P0V 1P0. Phone: 807-938-5439.

**Christopher Oyler** is now the managing OLS at **Surveyors On Site Inc.**, P.O. Box 581 Sinasac St. W., Harrow, ON, N0R 1G0. Phone: 519-890-4219.

**Mitsche & Aziz Inc.** has moved to 120 Newkirk Rd., Unit #31, Richmond Hill, ON, L5C 9S7. Phone: 905-237-8224. Fax: 416-477-5465.

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

Ron Querubin	1965	January 22, 2014
Reuben Mc Rae	1966	January 22, 2014
Yuriy Bogdanov	1967	January 22, 2014
Piratheepan Ramachandran	1968	January 22, 2014
Ganesh Sundar	1969	January 22, 2014
Djordje Petrovic	1970	January 22, 2014
Andrew Broxham	1971	February 27, 2014
Adam King	1972	February 27, 2014

# Ontario One Call: Working to protect our underground infrastructure



Land surveyors recognize better than most Canadians just how critical underground infrastructure is to everyone's daily lives. This complex, subterranean maze of lines, wires, pipes and cables provides everything from heat, water, power, online banking, 911 services and Internet access to millions.

Each day across Canada, however, an average of 35 major utility lines sustain damage due to digging-related incidents. That translates into nearly 13,000 incidents or 'strikes' per year. The financial and societal impacts associated with these incidents (e.g. disruption of essential services, environmental contamination, lawsuits, repairs, evacuations, injuries and deaths) can be enormous.

By working in concert with Ontario One Call (ON1Call), however, organizations such as the Association of Ontario Land Surveyors are helping to make Ontario a safer province by getting locates prior to breaking ground and through safe digging practices. The objective, of course, is to prevent costly utility damage, frustrating service disruptions and even injury or death. ON1Call remains committed to working with our members and other stakeholders to continuously improve our effectiveness.

## In the making

ON1Call was created in 1996 by three founding members: Bell Canada, Enbridge Gas and Union Gas. The idea was to create an efficient 'One Call' system that would help reduce costs and make it easier for companies to receive timely, accurate responses to their locate requests. In 2011, ON1Call became a not-for-profit organization with an open, transparent structure that enables and encourages members to have a say on the organization's major policies. The organization is collectively owned by its members, in other words, the companies and municipalities that own Ontario's buried infrastructure.

The organization has a Board of Directors that consists of members, as well as an Operations Committee which is responsible for making decisions on day-to-day activities, while incoming locate requests are handled by the call centre.

## How it works

ON1Call is in the business of providing peace of mind, one phone call (or online request) at a time. They are the people you call before you dig. The organization provides a free service that connects homeowners, landscapers and professional contractors with the critical information they need about what's beneath them before they break ground. ON1Call processes this information – quickly and with an incredible degree of precision – and provides it directly to the companies and utilities that own the pipes, cables and power lines beneath the ground so that they may provide a locate.

Under new legislation, the *Ontario Underground Infrastructure Notification System Act, 2012*, contractors are required to request a locate from ON1Call and to provide an accurate overview of the information involved in the request.

When a locate request comes in, ON1Call records the contact information, the specifics of the location and other important details, for instance, details regarding excavation specifications and the scope of work that is to occur. Callers receive a ticket with a reference number that can be used to track progress. The standard response time for a locate request is five business days.

While some land surveyors will likely have had situations in the past in which locates took longer than expected, ON1Call understands the frustration this can cause and continues to do everything in its power to expedite the completion of these requests. The industry is optimistic that the new regulatory changes will serve to further streamline the process and result in more predictable and reliable completion times going forward.

ON1Call also offers a series of 'filters' to help members better manage incoming requests. For example, there can be filters related to geographic location, the type of property involved in the request, the type of activity being undertaken, the depth of excavation, class of excavator and more.

Members also have the option to take advantage of a service known as secondary screening. This allows ON1Call to have a closer look at the underground infrastructure on a particular property and provide an overview and potential clearance for the locate in question. Secondary screening requests can help save time, compared with the alternative of having to dispatch a locate truck to the scene.

## How to get the most out of ON1Call

One of the best ways to ensure a smooth, efficient experience with ON1Call is to provide the most accurate, detailed information possible. The more information ON1Call has about a locate request, the more efficient the process and the more accurate the locate can be.

In order to simplify the process, when contacting ON1Call, land surveyors should ensure the request is referenced as a 'Design and Planning' request if the ground is not being broken. Some ON1Call members will provide mapping and/or drawings so that a physical locate is only required when actual excavation is going to occur. This process is intended to help surveyors, contractors and all other excavators to effectively plan the location of an excavation while not having to wait for physical locates to be completed until digging will commence.

*cont'd on page 38*

ON1Call also provides a long-term suspend function that can be used for large projects expected to extend over a long period of time. For instance, an entire year's worth of locates can be entered at once if the work schedule is known in advance.

### Legislative changes

Under the *Ontario Underground Infrastructure Notification System Act, 2012*, several important changes are taking place, aimed at streamlining the request process for excavators to obtain the location of buried infrastructure from underground infrastructure owners or operators. The new legislation means that all infrastructure owners or operators are members of ON1Call and are required to provide information about their underground infrastructure to our organization.

### Regulations

Once the terms and conditions are passed, ON1Call will become more actively involved in its regulatory role. These terms and conditions will help clarify which situations constitute an emergency, a priority and a standard locate request. They will also provide greater detail about enforcement principles and procedures and emphasize the importance of understanding and respecting the definition of a proper emergency request.


In the near future, users will have the ability to submit official complaints via the ON1Call website ([www.on1call.com](http://www.on1call.com)). All such complaints will be investigated and referred to the Compliance Committee, which will make decisions about education, guidelines and potential penalties.

### Enforcement

ON1Call is committed to delivering a risk-based, proportionate response that's tailored to each situation that arises. The organization continues to support the principles of transparency, professionalism and neutrality. ON1Call is also focused on delivering for its members and other stakeholders and working to resolve problems and finding collaborative solutions that work over the long term.

### Looking ahead

Calling ON1Call before you dig is the law. It also makes good business sense. Anyone that is in violation of the law could stand to incur penalties and consequences by means of being investigated by regulatory bodies.

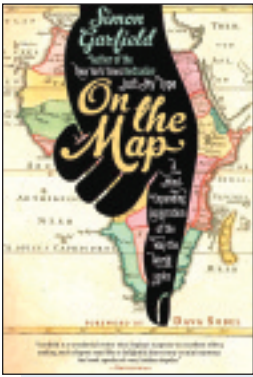
ON1Call remains focused on providing Ontario's land surveyors with the timely, accurate responses they need to conduct business as effectively as possible. Many of the changes that continue to unfold with respect to legislation and regulation will help to further streamline our working relationship, protect the health and well-being of excavators and reduce the occurrence of damage to underground utilities. 

For any questions or for further information, contact **Elena Pilavakis**, Ontario One Call's Marketing Officer, pictured in the title block on page 36, by email at [epilavakis@on1call.com](mailto:epilavakis@on1call.com)

# BOOK REVIEWS

## On the Map

By Simon Garfield



Published by Gotham Books,  
a member of Penguin Group  
ISBN 978-1-592-40780-4

In *On the Map* Simon Garfield leads us on a stimulating journey grounded in the idea that maps hold a key to what makes us human – and tells our stories. Scientists have even argued that mapping, more than the development of language, is what boosted our prehistoric ancestors over the critical threshold in evolution. Garfield weaves a rich narrative tapestry ranging from the quest to create the perfect globe to the challenges of mapping Africa and Antarctica, from spellbinding treasure maps to the naming of

America, from the Ordnance Survey to the mapping of Monopoly. With delightful digressions along the way, it is an exploration of the unique way that maps both relate and realign our history from the early sketches of philosophers to Google Maps and beyond. *On the Map* is a witty and irrepressible examination of where we've been, how we got there, and where we're going.

*Information taken from the back cover.*

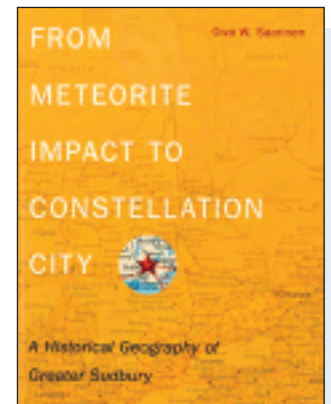
## From Meteorite Impact to Constellation City A Historical Geography of Greater Sudbury

By Oiva W. Saarinen

From *Meteorite Impact to Constellation City* tells a story that began billions of years ago and encompasses dramatic physical and human events. Among them are volcanic eruptions, two meteorite impacts, the ebb and flow of continental glaciers, Aboriginal occupancy, exploration and mapping by Europeans, exploitation by fur traders and Canadian lumbermen and American entrepreneurs, the rise of global mining giants, unionism, pollution and re-greening, and the creation of a unique constellation city of 160,000.

The title posits the book's two main themes, one physical in nature and the other human: the great meteorite impact of some 1.85 billion years ago and the development of Sudbury from its inception in 1883. Unlike other large centres in Canada that exhibit a metropolitan form of development with a core and surrounding suburbs, Sudbury developed in a pattern resembling a cluster of stars in differing sizes.

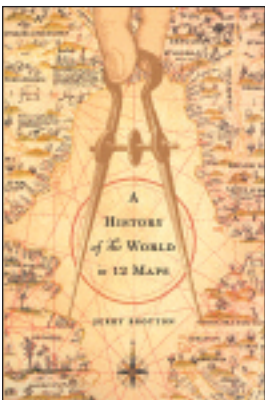
*Information taken from the back cover.*



Published by Wilfred Laurier  
University Press  
ISBN 978-1-55458-837-4

## A History of the World in 12 Maps

By Jerry Brotton



Published by the Penguin  
Group  
ISBN 978-0-670-02339-4

The urge to map, to consciously orient ourselves within a larger context, is a basic human instinct. The graphic representation of land and space, whether it is etched into an ancient clay tablet or illuminated on a computer screen, says something very deep to us. In this masterful study, historian and cartography expert Jerry Brotton argues that far from being purely objective documents maps are inevitably subjective expressions of the people who created them, intimately tied to the views and agendas of particular times and places. In *A History of the World in 12 Maps*, he examines a dozen world maps from around the globe and through

the centuries to trace the long road to our present geographical reality.

Today, technology and access to unprecedented amounts of information are dramatically changing the way we map our surroundings. Yet, Brotton argues, contemporary maps are no more definitive or objective than those of the past and will continue to reflect and influence our own ideas about the world we live in. Readers of *A History of the World in 12 Maps* will never look at a map in quite the same way again.

*Information taken from inside the front and back covers.*

# The Last Word

## Major-General Sir Isaac Brock – “The Hero of Upper Canada”

“Isaac Brock was one of the people to whom it is given to change the course of history. But for the presence in Upper Canada in the summer of 1812 of this able and magnetic general officer (and a single battalion of British regular infantry) the province would certainly have fallen to the United States; whether or not it was recovered would have depended on the determination of the British government.”<sup>1</sup>

“Brock was born on the British Channel Island of Guernsey, the eighth son of a middle-class family. Despite his lack of extensive formal education, Brock appreciated its importance. It’s said that as an adult he often spent his leisure time sequestered in his room, reading books to improve his education. He read many works on military tactics and science, but ancient history and other topics also interested him.

When he was 15, he followed three of his older brothers into service in the British

Army, and advanced in rank mainly by purchasing promotions. He served in a number of locations before settling in Canada in 1802. In 1811, Brock attained the rank of major-general and took command of all British forces in Upper Canada. He became the administrator of the province the same year.

When the Americans invaded Upper Canada on July 12, 1812, Brock was ready. He’d already recruited a force of citizens and forged First Nations alliances. Fort Detroit fell to the British army and Brock was hailed as a hero. After Detroit, the main American threat existed in Niagara, and it was here that Brock would fight his final battle. The British were victorious at Queenston Heights, but Brock lost his life while leading his soldiers in a charge. A limestone monument that contains the remains of Brock is located at Queenston Heights Park in Niagara Falls.”<sup>2</sup>



Sir Isaac Brock, 1769-1812  
Photo credit: Library and Archives Canada,  
Acc. No. 1991-30-1, e010767950, e010767951

<sup>1</sup> [http://www.biographi.ca/en/bio/brock\\_isaac\\_5E.html](http://www.biographi.ca/en/bio/brock_isaac_5E.html)  
<sup>2</sup> <http://www.brocku.ca/about/sir-isaac-brock>

### Published by:

The Association of Ontario Land Surveyors  
(Established 1892)  
1043 McNicoll Avenue  
Toronto, Ontario, Canada M1W 3W6  
Phone: 416-491-9020 FAX: 416-491-2576  
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Unless otherwise stated, material which originates from our membership may be re-printed with acknowledgment.

Printed by Colour Systems Incorporated  
Original graphics design by Uniq Graphics and Design, Toronto, Ontario  
Computer implementation by nu Vision Images Inc., Toronto, Ontario

**Views and opinions in editorials and articles are not official expressions of the Association's policies unless so stated. The Ontario Professional Surveyor Magazine and its publisher accept no responsibility for these views and opinions.**

### Advertising Rates:

	1 time	4 times
1st Cover	Not Sold	Not Sold
2nd and 3rd Cover	Not Sold	\$650
4th Cover	Not Sold	\$750
Full page 4 Colour	\$640	\$600
1 page B&W	\$440	\$400
1/2 page B&W	\$255	\$225
1/4 page B&W	\$175	\$150

Colour ads: Add \$50 for each colour up to 4 colours  
Inserts (supplied): Page rate plus 25%.  
(overleaf blank): plus 50%

### Mechanical Requirements:

Printed Offset  
Typed Page: 48 picas wide x 63 picas deep  
Bleed Size: 8-3/4" wide x 11-1/4" deep  
D.P.S.: 17" wide x 11" deep with bleed  
D.P.S.: 16" wide x 10" deep without bleed

### Material Requirements:

Four colour: Colour separations supplied, type assembly and progressive proofs with colour bars.  
Black, black and one or two colours: Either film or art supplied with layout and copy; or complete assembly.

### Circulation (This Printing)

Ont. Land Surveyors & Associates	973
Other Professional Affiliations	317
Advertisers	20

The *Ontario Professional Surveyor Magazine* is published quarterly as a medium of communication between the Association and its members. Readers are invited to comment and express their opinions on relevant subjects.

The *Ontario Professional Surveyor Magazine* is distributed to all members of the Association.

Subscription Rates to others: \$40.00 per year or \$10.00 per copy. All rates to us - no provision for commissions or discounts.

Canadian Publication Sales Agreement  
# 40064685  
Postage paid Mississauga / Gateway

**Published Quarterly:  
next publication deadline:  
May 15, 2014**

ALL PRICES LISTED ARE SUBJECT TO  
13% H.S.T.



