

Ontario Professional Surveyor



on the cover ...

Ottawa, Ontario
Site of the 120th AGM
February 22-24, 2012

also in this issue ...

Mapping and Coordinates
Survey of Mulberry B
Looking for your dream job?
A New Day is Dawning on
the Survey Records Index
Self-Governance simplified using
CloverPoint's Land Registry System, Insight

plus our regular features:

Educational Foundation
News from 1043
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ON THE COVER ...

The photo on the cover titled "Rideau Canal Skateway and Parliament Hill" is credited to Ottawa Tourism. The 120th AOLS Annual Meeting will be held at the Ottawa Marriott Hotel from February 22 to 24, 2012. To guarantee the AOLS group rate, reservations must be made by January 21, 2012. The link to the hotel can be found on the Events Calendar at www.aols.org.

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President's Page

By David Brubacher, O.L.S., O.L.I.P.



For the final President's Report of my term I'd like to review the year and make some observations that will set the stage for the 2012 AGM and beyond.

The AOLS strategic plan drives our short and long term objectives. Knowing this, I imagined a year with a clear set of goals and reasonably well defined strategies to get there. The truth was somewhat different; not because we deviated from the plan but because the plan is so broad, far reaching and ambitious. There were many times I wished I could just do Association work because it was so interesting and satisfying, but that doesn't pay the mortgage; more on that in a moment.

Here are some important highlights of what your volunteers and staff made happen this year;

Cadastral Fabric Initiative: I can only describe this as a year of epiphanies. We started by trying to move far too quickly into some type of arrangement with Teranet. When this bogged down we looked elsewhere and realized we had a simple solution that improves your bottom line with new income and cost savings, broadens our collective services, improves our ability to meet our public protection mandate, and much more. By now you will have seen background material, had preliminary discussions at Regional Group meetings and are anticipating the AGM. The bottom line is that we **must work together** to achieve the future. If we can't do that we will miss one of the best opportunities imaginable.

Survey Records Index: The South Central SRI had been around for quite a while and lacked many of the user-friendly features we have come to expect from modern online websites. A totally new and far more capable SRI was launched last fall to replace the legacy system. This new system will also provide the backbone of the functionality we need for the cadastral fabric initiative. A key feature of the new system is its ability to aggregate data from other existing SRI's like the one in Ottawa or perhaps your own private index.

Position in Keatley vs. Teranet: As the regulator we really had no choice but to apply for status as 'friend of the court' to ensure the judge is fully informed in survey matters that can, at times, be quite esoteric. We will keep you posted as matters progress.

Website Improvements: I've used the new website in a number of beta iterations. Functionality and services have been drastically improved. We can add, remove and change content ourselves with no need to go through our hosting service and most importantly, it is the single location where we maintain and manage member information. The actual look of the site is set by a standard 'theme' which is easily changed without altering the functionality in any way.

Committee Simplification: The new committee structure was approved by Council last fall. We followed that up with meetings of Chairs so they could understand their roles and responsibilities. It will take some getting used to, but we will attempt to make the

change as painless as possible with additional communications and training. Components of our cadastral fabric initiative make use of a number of committees and the new structure has made communications between the various entities logical and straightforward. I have high expectations that the new structure will invigorate the Association and allow us to quickly and easily meet our strategic plan goals.

Salary Survey: The Association embarked on a salary survey in cooperation with Professional Surveyors Canada. I believe the results of this survey will give us a very good indication of what a competitive salary is, leading to an improvement in our ability to attract students and staff into surveying.

Executive Directors Meetings: Blain hosted a meeting of Executive Directors from across the country. This has led to continued communication to assist in developing systems and processes. We've been missing an opportunity to improve our collective situations, so expect these meetings to continue.

Communications: You've seen communications from the Association office improve substantially over the last year. We started with a 'weekly' email that Blain and I shared but instead of weekly we were lucky to get something out monthly. We've now switched to a new format, a new schedule, and handed the responsibility over to Julia. She's doing well holding our feet to the fire and pulling content from more people. Communication had been one of our biggest gaps and now it's slowly but surely becoming one of our biggest strengths.

I could talk about much more but I only have so much space. I also promised you an observation.

Being your President has been challenging and hectic for sure, but it's also been a fantastic opportunity for personal growth. I feel like I'm only now getting my head around the job and getting things moving. I would love to do another year.

And therein lies my recommendation. I believe we should consider changing the governance structure of the Association so that;

- There are 2-year terms at the Vice-President and President level,
- The President attend half as many out-of-province AGMs per year, thus saving money, but with a 2-year term, still visiting them all
- We use the money we save on travel and apply it to a stipend for the Vice-President and President.
- We encourage elections for the Vice-President and President instead of the normal run-off between two Councilors that we have now.

As I said before, this job is a lot of work but it's hugely rewarding. By 'going to the well' for volunteers half as often, we could have a larger slate of candidates and give you a real choice. By providing a stipend, we acknowledge the importance of the role and the time commitment while remaining revenue neutral.

The idea needs work and an Act change, but let's at least have a serious discussion about it.

Thank-you for this amazing experience!



A New Day is Dawning on the Survey Records Index (SRI)

By Mike Power, O.L.S., O.L.I.P.

Almost a quarter of a century has passed since the Survey Records Index Committee of the South Central Regional Group first started administering an index for the region. As most of us can recite By-Law 88-5 from memory, you'll know that it enshrined the ability for any group of at least 75% of the Certificate of Authorization holders in a region to designate itself as an SRI area and submit survey records in a prescribed fashion into the index on a regular basis. As one of the early groups to recognize the benefit to themselves, and to the public, the South Central Regional Group has progressed through several iterations of a tabular index.

But technology has changed dramatically in the years following the most recent version of a survey records index, and not without attracting the attention of the Association. In late 2008, a new committee was struck with the objective to, among other things, investigate the merits of establishing an index that went beyond the principles of a tabular file and encompassed more than a local group of surveyors.

One of the primary recommendations in their 2010 report was that there was merit in a central index managed by the AOLS which;

"...focuses on the notion that the textual survey index, with or without a map overlay, will be administered by the Association. The index would contain no plans or field notes but simply the lot, plan, concession, township, city, surveyor ID, date of survey and centroid coordinate of the survey and other similar attributes. Each record in the central index would also contain hot links to the other systems which would distribute the survey records and collect any fees for such service. Surveyors would be responsible to input each survey record into this system and copies of that central index would be made available to each survey record distribution vendor."

"The Task Force has [further] concluded that a Province-wide Survey Records Management System is feasible and would result in many benefits to the public, practicing land surveyors and the AOLS..."

But just as the journey of

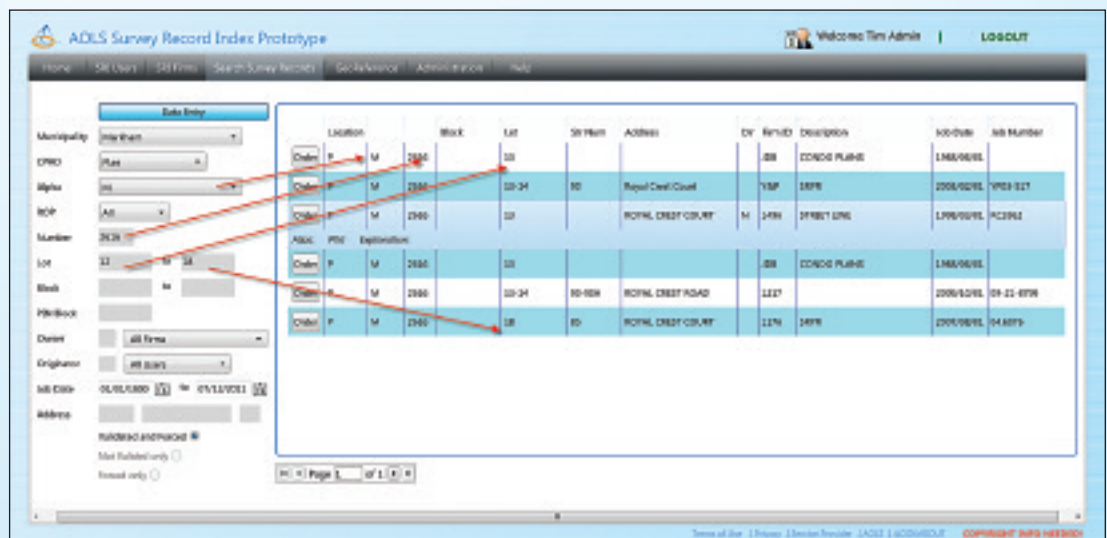
a thousand miles begins with a single step, so must there be a beginning for a Provincial Survey Records Index - enter a new and improved SRI for the South Central Group.

This records index is not just a replacement for the existing one, but rather an extensible platform that takes advantage of current technology, is deployed quickly, iterates rapidly and is easily enhanced with a geo-referencing capability that provides a greater contextual reference to the index.

On the surface, the new SRI is deceptively similar to the old one. Registered users have the ability to search for records, add new ones and edit their own existing survey records. However, as the technology stack is updated, it allows the application to head to the Cloud where more than 500,000 records sit right now.

Going to the Cloud has several advantages as the system is entirely virtual – no physical server, database or hardware of any sort to manage. The 'virtual' system is patched and maintained by the service provider and provides scalability, redundancy and availability without the necessity of procuring hardware or software to provide these basic system functions. Secondly, within different Cloud-based services, a significant amount of 'custom' code which used to exist in the old system to support functions such as account management, database administration, systems auditing and hosted storage is now migrated to 'off the shelf' or 'subscribed services' reducing costs and maintenance for the future.

A new set of search functionality is embedded in this SRI. As the screen image below depicts, the user can search for plans by a variety of parameters and use filters to reduce the



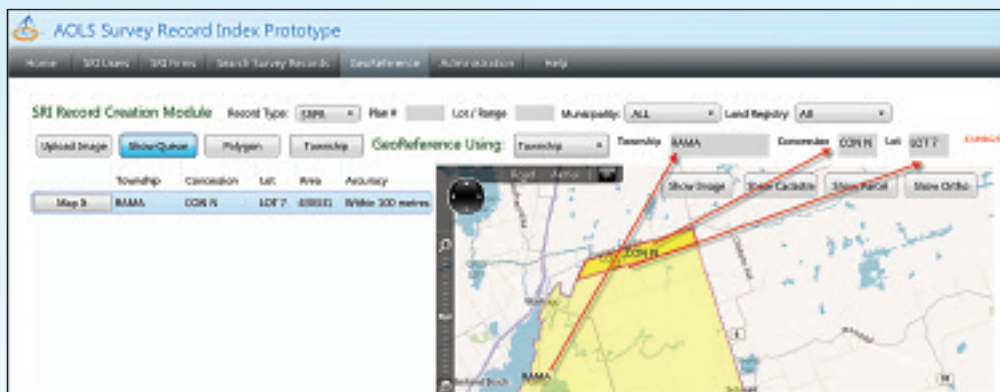
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returned set to just the plans in which the surveyor has interest. By selecting the 'order' button associated with each plan of interest, an email request is sent to the surveyor holding the record requesting that it be sent to the requestor. Where the plan sits within an existing commercial database, the request is redirected accordingly and fulfilled with the associated commerce transaction from the distributor of the plans.

This capability that has been developed within the SRI, that allows the surveyor to map the index of the plan to the repository wherein the plan is stored, is completely in keeping with the Provincial SRI Committee's recommendation. But what of those plans that are not currently tied to a repository? Well, the new SRI is flexible enough to be able to handle the Plan Images and their subsequent distribution. When a new survey record is added to the system, an optional upload capability exists to save a copy of the Survey Plan image (JPEG, PNG, PDF or TIFF) to the SRI system. If the plan image is uploaded – it gets stored on a secure 'cloud drive' in a specialized structure organized by and dedicated to the Survey Firm. Only users within your firm will have access to the plan image by default, no other user within the SRI has access to these 'images'. This allows for no-cost sharing or e-commerce distribution of the actual plan images from within the SRI should this be a capability that the Association chooses to make available.


To demonstrate the ease with which the SRI can be geospatially enabled, Microsoft has provided the Association with an evaluation license to its Bing road network and aerial imagery. A core capability of the new technology stack is the ease with which additional geospatial datasets can be integrated, correlated to the index, and/or the plan and made available to the SRI user. The following example utilizes a combination of the NAVTEQ-based point features from Microsoft in combination with the Land Information Ontario township boundaries to facilitate a graphical lot and concession search and generation of a buffer zone. Imagine a day, in the not too distant future, when you might enter a lot and concession where you're about to perform a survey, enter a buffer zone of 500 metres and have the SRI display to you an aerial or street level map with a series of pushpins identifying all the surveys registered in your area of interest. Hovering over each pushpin identifies the plan type, number and surveyor. Double-clicking sends off an email request for the plan. Alternatively, a simple request to receive them all results in a set of pdfs arriving on your desktop moments later, with a fee debited to your credit card for those surveyors with whom you have a commerce relationship and a no-

charge receipt from those with whom you share plans. No one exercised their staff to find, copy, and courier plans; no phone calls were made, and you didn't spend days waiting for plans to complete your research.

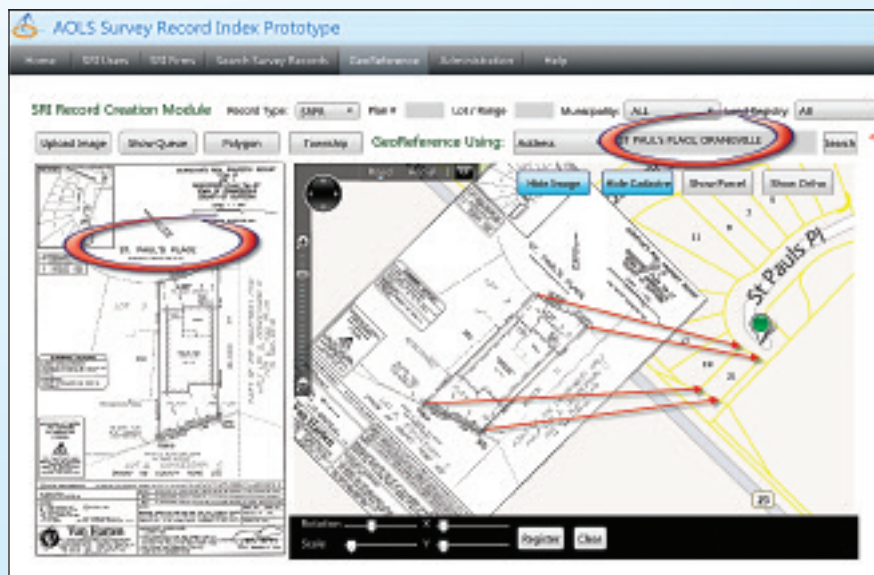


Geocoding services, data from the Land Information Ontario Warehouse, Bing or Google Maps as a licensed underlay and a network of other available spatial point and thematic data provide the surveyor with the opportunity to leverage tools and capabilities to manage plans without trying to invest in and manage a solution on their own. It facilitates data distribution, with or without a fee, to aid and abet the practice of research.

Also, with available cadastre from partnering municipalities or the survey community itself, the plans can be readily indexed, oriented and accessed via web services from the various repositories that currently exist and overlaid against the appropriate lot or aerial image.

There's an old saying, "the best way to predict the future is to help create it." 

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Self-Governance Simplified Using CloverPoint's Land Registry System, Insight

By Tanya Charles and Bart Konings, PMP

Each and every one of us is affected by government. From the traffic signs we pass as we drive down the road, the water that flows when we turn on the kitchen faucet, to the property taxes many of us face each year, government is embedded in our lives at a fundamental level. Despite this (some might say over) exposure, very few of us actually know how to go about running a government. And while there may have been one or two occasions where I've pontificated on how things would change if I were running things, I confess that I'd be hard pressed to explain just how to go about starting a new government. Yet this was exactly the challenge that the Huu-ay-aht First Nation faced as they made the exciting move to self-governance in April of 2011.

The path to self-governance is neither a short nor an easy one. There are many requirements that need to be met before a First Nation can be deemed self-governing. One of these is the ability to demonstrate an effective method of managing the lands within its borders. Traditionally, this has been a labour-intensive task. Even Liechtenstein, a country just over 160 square kilometers in area, maintains a multi-staffed land registry office to manage its territory.

The Huu-ay-aht found themselves in a position where rather than being saddled with an evolutionary process, they were able to step back and reflect on what they required from a land registry. Being able to keep the amount of overhead to a minimum was essential in their eyes, while still being able to provide timely access and ensuring the accuracy and integrity of the information stored within the land registry. After a period of evaluation, CloverPoint's geospatially enabled Insight framework was selected as the platform to support the Huu-ay-aht's vision of an online, automated land registry.

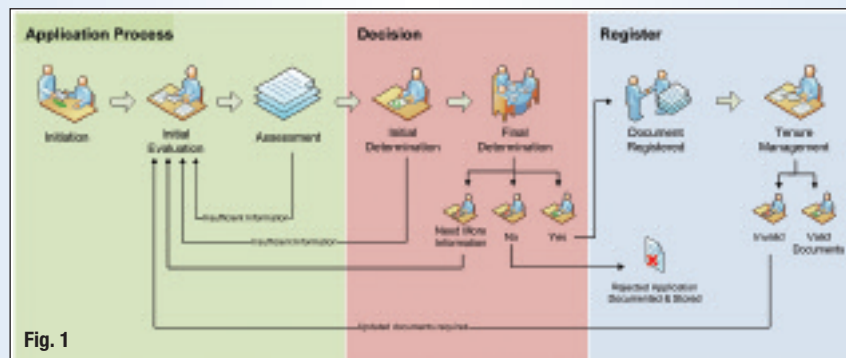
Most of us have run smack into evolutionary processes. Telltale signs are paper forms (multiple copies), waiting in offices, and considerable back-and-forth. These systems have resulted from the challenges of accurately recording, referencing, storing and tracking physical records.

In the case of land use applications, this has most often involved an applicant completing and submitting the initial

paperwork. That paperwork is then reviewed by an administrator and either moved forward or returned to the applicant for additional information.

While the Insight Land Registry system doesn't automate everything (it still requires an application after all), it does

take several steps to reduce the time spent evaluating land use applications, and much of the back and forth that results from incomplete information. The key operational components that facilitate the ease-of-use of the system are:



- Integrated Workflow = Less Rework:

By building checks into the application process, no land use application can proceed until all mandatory steps within a stage have been completed. This greatly reduces the amount of time and rework that results from processing and reprocessing incomplete applications.

- One Database = Faster Approvals:

By keeping all land use records in a single database, administrators can directly compare land use applications with existing tenancies and assignments. A process that used to take hours (or even days) can now be completed in minutes.

- GIS Integration = The Power of Visualization:

Not only do administrators have all the advantages that come with a single database, but through the built in mapping functionality of Insight, they have the ability to see these changes on a geographically accurate representation of the area. Boundaries for land use proposals can be quickly added to the map and immediately assessed against existing tenures, further reducing the time required to process applications.

- Secure Scalability = Data Integrity & Business Continuity:

Insight's integrated security ensures that users of the system are only able to see what they have permission to access. A complete audit log is maintained of all transactions, with the ability for administrators to edit entries where required. The Insight Cloud capability provides applicants and administrators with the capability to login anywhere and complete or review applications at any time. Alternatively, the system can be restricted to office use only, or anything in between.

based organizations who desire a holistic view of their capital assets in real space and time.

Almost one year after the effective date, the HUU-ay-aht First Nation is successfully managing land titles using the Insight Land Registry. The system is operated by one staff member who updates the registry when changes are needed. The ease of use and amount of centralized information available make it a continuing success. CloverPoint continues to work with the HUU-ay-aht to enhance functionality and ensure updates are applied to the system as necessary.

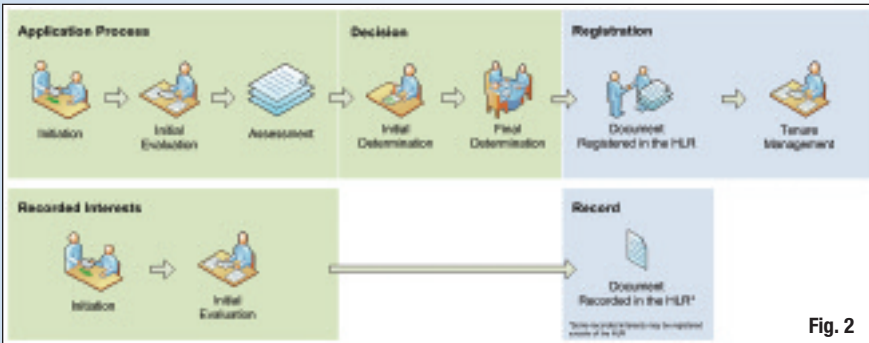


Fig. 2

Introducing a new process often creates a period of anxiety. To ease the transition to this new system, CloverPoint provided a multi-tiered support network to provide guidance to walk users through the system as well as monitoring to guarantee the system performed as expected.

The Land Registry uses an elegant Silverlight interface, Esri ArcGIS Server and Microsoft SQL server. At its core is CloverPoint's Insight™ software which provides a unique and reliable solution for Asset, Land and Environmental

Tanya Charles is CloverPoint's GIS Project Manager and Practice lead. She has been an integral component to the company through its evolution from a GIS analysis and Cartography Shop to a cutting edge software development company that integrates the importance of spatial relevance with slick programming and solid databases. You can reach her by email at tcharles@cloverpoint.com.

Bart Konings, PMP, is a solutions architect combining project management skills with business analysis to deliver products and services providing real business value. Bart has a history of identifying opportunities for improvement and then leading cross-disciplinary teams to achieve those improvements. He has been creating and managing innovative solutions for over 20 years, and has been a driving force in CloverPoint's development since joining the team. For more information on CloverPoint visit www.cloverpoint.com.



Survey of Mulberry B

By Chris Howlett

Between September 24 and October 8 an international team, led by the UK Hydrographic Office, conducted a detailed bathymetric survey of Mulberry B located off shore near Arromanches in Normandy, France.

Background

When the allies started to plan the invasion to liberate Europe during World War II, it was clear that to ensure that the necessarily massive quantities of stores and reinforcements could always be landed, a port was essential. Unfortunately the Germans also knew this and a major part of their defensive strategy was to turn all ports into fortresses that were capable of holding out until the allied invasion force exhausted its supplies and ground to a halt. The wisdom of this strategy had been confirmed when, on 19 August 1942, the Allies attempted to temporarily capture the small French port of Dieppe. Although not defended as well as the major ports, the defenders easily beat off the attack and forced the attacking force to withdraw after only 6 hours without achieving any of its major objectives. This debacle convinced the allied planners that to attempt to take a fortified port with a sea borne force would be disastrous and an alternative method had to be found.

The alternative method eventually selected was as spectacular as it was technically difficult to achieve. Instead of capturing a French port, the allied invasion force would take one with them. In fact, the allies took two ports with them, each the area of the port of Dover and composed of hundreds of prefabricated segments. They were built in Britain and then towed the 100 miles across the English Channel to Normandy where they were put together like a giant jigsaw puzzle to form the harbours. The two ports were code named Mulberry A, built off Omaha beach for use by the Americans and Mulberry B (though nicknamed Port Winston), built off Arromanches for use by the British and Canadians and, when fully operational, each was able to handle 7,000 tons of stores per day.

Both ports consisted of an outer screen of floating breakwaters called Bombardons. Fourteen of these 200 ft long cruciform-shaped steel structures were moored end to end to provide a one mile long breakwater. Inshore of these was a more permanent breakwater made from giant concrete caissons, which was termed Phoenix. Various sizes of caissons were used to suit the expected water depths, the largest being 200 ft long by 60 ft wide and 60 ft tall and weighing

6000 tons. To extend the breakwaters, block ships (code named Corncocks) were also used with about 12 ships being incorporated into each Mulberry harbour. Within the sheltered water formed by the breakwaters, steel pier heads were built connected to the land by floating roadways. Collectively the pier heads and their roads were code named Whale.

Although the American harbour (Mulberry A) was largely destroyed during the great storm of 19 – 22 June and all the Bombardons were smashed, the British harbour (Mulberry B) was repaired and operated until late November contributing greatly to the smooth supply of reinforcements and stores to the troops at the front. After November, with sufficient permanent ports captured and back in service, Mulberry B was abandoned. The metal components were largely removed for scrap or reuse while the block ships and giant concrete caissons remained as silent sentinels to their previous activity.

Regardless of whether you consider the Mulberry harbours to have been worthwhile or not, as a war time civil engineering project they are probably unsurpassed. The concept was audacious and to have designed and built sufficient prefabricated components to make two harbours, each the size of the port of Dover, in a mere nine months and then tow these 100 miles across the English Channel before constructing them in a couple of weeks on a previously empty shore, is little short of miraculous. Their existence gave the allied planners the confidence to mount the invasion and, in one fell swoop, they negated the German policy of stymieing any invasion by fortifying all significant ports.

Over time the weather took its toll and the once numerous caissons began to crumble beneath the waves. In the 1960s and 70s the French government decided that the debris from the D-Day invasion needed to be cleared and numerous salvage contracts were let. These saw many of the block ships raised or scrapped in situ, the metal feeding the smelters in Caen. Although most of the metal vanished, numerous smaller artefacts were preserved and can be viewed in the Musée des Epaves located near Port en Bessin.

In spite of the weather and the attentions of the scrap men, much of the harbour still remains and can easily be seen from the beach and cliffs near Arromanches where their presence attracts many thousands of visitors each year. Despite this, no systematic survey of the remains had ever been undertaken. SHOM, the French Hydrographic Office, conducted a survey of Mulberry B in late 1993 prior to the 50th anniversary celebrations but, although this was system-

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atic, it was carried out using single beam echo sounders with the aim of ensuring safe passage for the ships, including HMY Britannia, which were due to enter the harbour during the celebrations and did not attempt to discover all that remained or its state of preservation. In 2001 the US Navy Historical Centre led a survey of the remains of Mulberry A and other US wreckage and this survey showed what modern systems (now multibeam echo sounders) were capable of. The 2011 survey of Mulberry B, led by a team from the UK Hydrographic Office, sought to map the remains of the British harbour while also providing a platform to test new survey methods and techniques.

The Survey

The survey began on Saturday 24 September when the various parties deployed to Port en Bessin, the port chosen to berth the survey boat “Xplorer”. The weather was glorious, no wind and clear sunny skies and, even more encouragingly,



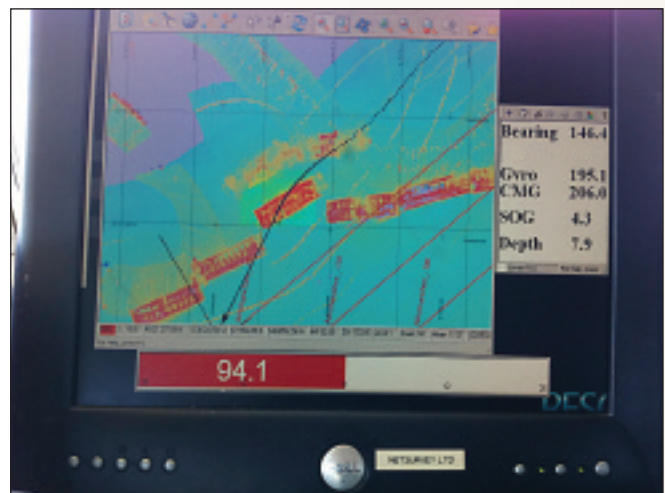
The survey boat ‘Xplorer’ alongside the pier in Port en Bessin. The multi beam echo sounder, now attached to the boat and in its deployed position, is checked for the accuracy of the fit.

this was set to remain for the whole first week at least.

Sunday was spent mobilising the boat – fitting the multi-beam echo sounder (Reson 7125), GPS, motion sensor (Applanix POS Mv) and other equipment needed to run a modern bathymetric survey. Although this went fairly well, not all was working before gathering darkness forced the team to stop work. It had been hoped to complete the mobilisation during the day and then exit the harbour during the afternoon high tide (the ports on the Normandy coast can only be entered or exited at high water) to conduct the calibration. Unfortunately the uncooperative equipment prevented this and saw the team arrive at the boat at dawn on Monday to try and get everything working for the morning tide.

Alas, Monday’s morning tide came and went with the equipment still not working, which meant that Monday’s survey work had to be abandoned which left all frustrated as the perfect weather was wasted. Fortunately, by mid afternoon all was working well and the boat left port on the evening tide to conduct the calibration, returning home at about 21:30 ready for a full day’s survey on Tuesday.

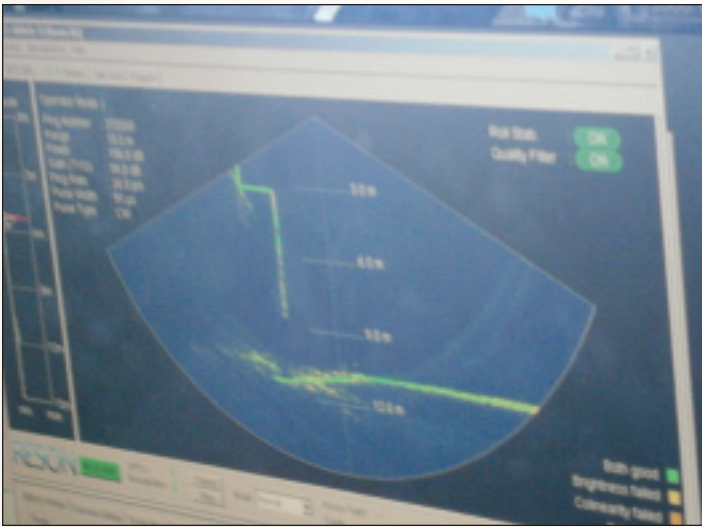
Tuesday saw the boat depart as soon as the lock gates opened and transiting to Mulberry B, where survey operations commenced. With the expectation that debris would be lying around the caissons, the first sounding line was run some 200m seaward from the caissons at the western breakwater. The multibeam maps a swath of seafloor below and either side of the vessel. This swath is approximately four times as wide as the water is deep which, in the depths found, allowed it to map the seafloor about 30 metres either side of the boat. This allowed the boat to reverse its course and run back, keeping just in the previously mapped swath and so it could advance towards the line of caissons at about 25m steps in safety. This cautious approach was quickly found to be justified as huge amounts of debris soon began to appear in the multibeam images. This debris was identi-



An image of the real-time navigation display. Colour coding is by depth (red is shallow, blue is deep) and the submerged remains of several Phoenix caissons are clearly visible (red).

fied as collapsed caissons; the jagged walls of which posed a real danger to the vessel as they rose vertically, giving no warning of their presence. As the skipper tried to follow the edge of the previous swath the surveyor kept up a commentary on what was visible in the real time display “debris appearing to port; moving nearer ship’s centre line; least depth 3m. Debris across full swath, least depth 5m. Vertical wall to port 8m from boat.” Although encouraging having confirmation of what was below, this was the picture under the transducer, mounted near the boat’s middle and hence, if a danger existed, the bow would hit it before the multi beam ever knew! As another safeguard two people were posted to the bow to keep a lookout, although the dark waters offered little opportunity to see submerged concrete walls. This kept progress slow. However, eventually the boat was manoeuvred to within about 10m of the visible caissons allowing the multibeam to sample their vertical walls.

With the tide falling and having got as close as possible to the seaward side of the western breakwater, the boat withdrew into deeper and safer water. By now jagged concrete blocks were emerging from the falling sea which made the area a very unpleasant place to be in a boat! Off shore the survey covered the locations of the wrecks of the



The real-time sonar display showing what is being detected by the multi beam. Clearly shown is the vertical wall of a nearby caisson to port with a flat and featureless sea floor below.

Bombardons before meandering back home across a number of charted wrecks enabling it to enter Port en Bessin when the gates were open that evening, some 14 or so hours after having left that morning.

Wednesday saw the boat again exit Port en Bessin as soon as the gates opened before making a rapid run to Mulberry B, where the multibeam head was deployed. Work continued on the landward side of the western breakwater - not much debris on the sea floor - and the western shore arm - masses of debris, one piece of which was only avoided when the bow lookout shouted "STOP!" causing the skipper to rapidly reverse the engines and back away (this manoeuvre resulted in a rebuke from the surveyor who, being unaware of the near grounding, chastised the skipper for "messing up his survey line!"). As the tide fell the boat moved away from the dangers of the caissons to survey an area around where the Whale pier heads and floating roadways would have been. This was to ensure that the area was clear of obstructions allowing a magnetometer to be towed later on in an attempt to locate any remaining kite anchors, which were used to moor the floating roadways, lying below the sand. As a precaution for future forays into the caissons, at low water, the boat's dinghy was launched allowing two people to move into the exposed caissons and map out areas of potential danger. With no portable survey equipment available, the mapping was done with a navigation 'app' on the Skipper's iPad. When darkness fell the dinghy was recovered and the boat left the harbour to continue surveying in the deeper water offshore.

Thursday saw the boat again encroach on the caissons of the eastern breakwater and extend the coverage of the western shore arm before filling in more of the area where the roadways would have been.

Friday was a disappointing day with a data logging problem forcing the survey to be abandoned after only 3 hours of surveying. It was decided to return home and get this fixed rather than spend time gathering potentially unusable data. The 3 hours did however allow a large wreck in



Navigating close to nearly submerged caissons at low water. These caissons are the large AX type, which are 200 feet long, 60 feet wide and 60 feet high. The boat is about 20 feet off the caisson. Only the extremely calm conditions allowed the boat to be this close.

the harbour to be covered (this turned out to be a concrete intermediate buffer pontoon) and the seaward side of the eastern breakwater to be started.

Saturday was a crew change day and also saw the arrival of a laser scanner which was fitted to the vessel to scan the above-water remains of the caissons.

Sunday allowed the new team to settle in with the boat leaving Port en Bessin at noon to survey Mulberry B with the laser. Due to an equipment failure (one of the motion sensors stopped working) the boat could not run the multi-beam and laser at the same time. Hence no multibeam work was done. Upon returning to Port en Bessin the laser was used to survey the inner harbour.

Monday saw the boat leave Port en Bessin at 04:00 to catch the morning tide for a full day's survey in Mulberry B. While transiting, the laser was used to scan the coastline before additional scans were gathered over the caissons. With the laser work complete, the multibeam was deployed and work carried out at the entrance channel as well as towards the eastern end of the harbour. Rougher seas prevented any close in work to the caissons.

Tuesday was again fully utilised, although by now the



Some of the dangers that remained submerged at high tide but became exposed at low water. The vertical concrete structures and extruding rebar constituted a very real danger for the survey boat.

cont'd on page 14

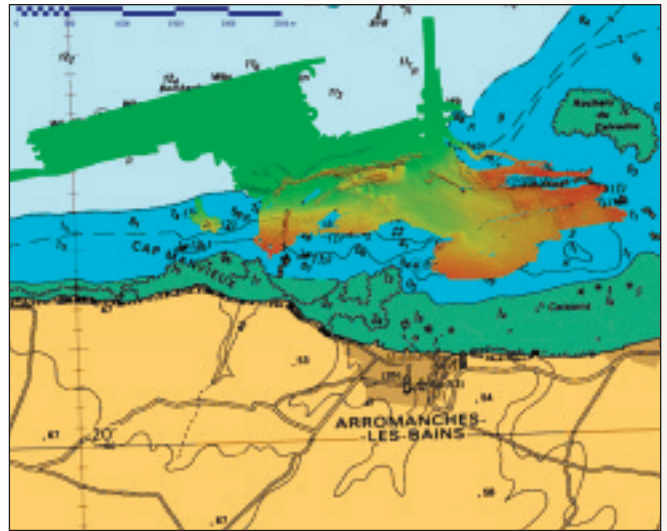
excellent weather experienced during week one was failing with the increasingly rougher seas making work hard and too dangerous to approach the main caisson walls. The magnetometer was deployed around where the roadways would have been to look for possible locations for the anchors, and the multibeam was run to gather data over wrecks outside the confines of the harbour. With the weather worsening, it was decided to stop the survey early and release the boat to return home, so upon return to Port en Bessin the boat was de-mobbed allowing it to return home on the Wednesday. Although it was disappointing that the survey was ended early, the weather had become quite rough and the decision to allow the boat to leave early proved justified as it took the crew three days to return home to Falmouth. The outward journey had been accomplished in a single passage.

The data is currently being processed and it is expected that final images of the submerged debris will be available early in the New Year.

Progress was slower than originally expected due to the area being far more challenging. However, a large portion of Mulberry B was mapped to a modern standard providing a base line for the state of preservation of the remains.



Chris Howlett is the Head of the Seabed Data Centre at the UK Hydrographic Office (UKHO). While working at UKHO he has held various posts in the Geodesy section, IT, Defence,



Coverage diagram showing extent of the multi beam survey overlaid on a UKHO chart. The colours denote depth (red is shallow, green is deep) and the various caissons are clearly visible. This is raw data and still has much noise to be removed but shows the area covered. The large green section to the top left is the area within which the wrecks of the Bombardons lie.

Technical Development and Marketing before heading up the Seabed Data Centre which confirms that all bathymetric survey data that arrives at UKHO is fit for purpose and hence suitable for use within the navigational charts. The Mulberry survey was a training event to enhance the Seabed Data Centre's expertise and to test new data processing methods. More information can be found at the following website: www.mulberrysurvey.co.uk.

Sympathy for the Devil: Revisiting the Situation of the Alleged Culprit in Professional Disciplinary Processes

By Dr. Bruce Ally and Khaleel Khan

The mere thought of being subjected to a disciplinary process can intimidate even the most hard-working regulated professionals among us. However, the fact is that there are such things as difficult clients and assignments from you-know-where, and dealing with them may bring about reactions that are neither flattering nor acceptable, given the cold reality of regulation in the public interest *vis à vis* accepted standards of practice. Further, it has been observed that, in order to minimize the impact on their personal and professional lives, those subjected to discipline by their regulatory association may tend to agree to consequences and conditions flowing from investigation of the subject of the complaint which they would otherwise challenge were they not subject to personal constraint in some manner. Based on anecdotal experience the authors discuss, in a cursory fashion, one of the underlying complications found in modern workplaces that may be at the root of disciplinary matters, and suggest a positive orientation

towards crafting mutually acceptable outcomes of professional disciplinary processes.

The fast pace and intense competition of today's society brings ever-increasing demands on everyone in the workforce. We attempt to shed light on worker performance by examining the possible effects of communications technology as but one aspect of the modern workplace. Based on observation of numerous workplace mediations and disciplinary cases, the reality experienced by many is that technological change has inserted an additional layer of stress in the guise of supposed time- and labour-saving processes intended to make life, and work, simpler. The concept of the "paperless office" spoken of thirty years ago has not been realized in many workplaces.

Current communications technology has produced increased demands in the workplace generally, and on the management and coordination side in particular. For example, emails often arrive at rapid-fire pace, both from

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outside and within the organization; the communication of sudden changes in project requirements compels instant response in terms of addressing the sender's immediate concerns, re-scheduling staff, optimally deploying field equipment and office resources, dealing with the weather and its impact on deliverables, etc. The "job board" in a typical land survey office is rarely static, as work teams are continually shifted to match the clients' demands with available resources. In addition, unanticipated and unpredictable effects occur when messages (electronic and otherwise) are either missed in the shuffle by the actual recipient, or lost entirely in cyberspace or through inadvertent human error.

From the individual worker's perspective, attempting to keep pace with the demands of clients and superiors often entails stretching one's capacity to untenable limits, in which case task congestion and sub-optimal work output become the norm; the quality of communication and relationships with colleagues may deteriorate; work-life balance is upset; and the sense of job satisfaction plummets. A recent study of workload in the Italian legal system concluded that "the spreading of effort across too many active projects decreases the performance of workers, raising the chances of low throughput, long duration of projects and exploding backlogs."¹

Collateral effects on health and well-being may also be observed – in one's emotional disposition, blood pressure, sleeping patterns; and the time available for - and the quality of - family and social interaction. For a myriad of reasons, faced with the type of demands placed on modern professionals, even the most diligent among us may fall behind the accepted standard of practice. As inappropriate and undesired as this is, there is clearly a need for a tool to resolve the conflicting demands on workers that is acceptable to all stakeholders at all stages, and particularly when a situation escalates to the level of a professional disciplinary procedure.

In terms of dealing with the stressed-out worker performing below acceptable standards, the mediator's mantra, 'mitigate before you litigate' comes to mind. In other words, invest in techniques to reduce the harm before resorting to harsher measures. Having observed numerous cases of dysfunction in commercial and professional standards matters, what often appears to be missing is a spirit of cooperation in getting to the root of the matter. An *interest-based* approach to conflict requires that the parties examine their underlying needs, fears and concerns – along with those of the other side; and to courageously address the factors that have brought them to the point of non-conformity with the standards. Based on experience in mediating professional disciplinary matters in dental, legal, medical and engineering spheres, the following suggestions are offered:

1. From the regulator's perspective, while the obligation to protect the public interest is paramount, one must attempt to find an amicable resolution of the issues. Given an understanding of the underlying forces affecting the

member, it is suggested that a remedial, rather than strictly punitive, approach be taken. Prosecuting disciplinary matters within such a framework enables the member to be restored to the required standard of practice, thus maintaining the number of qualified practitioners which ultimately assists in ensuring the protection of the public interest.

2. As with mediation, the disciplinary process itself must be transparent and unimpeachable. Any lesser approach would fail to ensure the perception that the standards of practice are respected, and that the disciplinary process itself is truly fair. The mere perception of falling short in either respect;
 - may reflect, or be interpreted as, a lack of understanding of the underlying interests and motivations of the subject member;
 - decreases the perceived legitimacy of the process, thus reducing buy-in;
 - makes it more difficult to come to a mutually acceptable joint submission and to ensure adherence to the final resolution.
 3. The resulting process should be marked by an intention to mitigate the past and present harm and to foster a cooperative spirit so that, should problems occur (e.g. of misunderstanding or non-compliance), the parties are more disposed to resolution of the matter based on an understanding of motivating interests.
 4. Care should be taken to develop consequences that are reasonable, binding, likely to be complied with within a realistic timeframe, and based on an understanding of the member's personal and professional life. While this may add another layer to the process for already taxed committee members, it is likely to produce a greater level of trust in the process, thus enhancing cooperation and compliance.
 5. It is prudent to anticipate the worst case scenario by developing a process to deal with the possibility of breakdown of the original agreement. Such a process may include close monitoring of the subject practice.
 6. Outside of the context of disciplinary process, develop a peer support structure that may be consulted confidentially to field concerns and to offer advice within specified guidelines. Such a network may be extremely valuable when, for instance, members encounter difficulty due to health issues (including both physical and mental aspects), something which may be especially relevant where the predominant demographic is that of an aging professional group. This type of mechanism is available within the medical, legal and engineering professions, and may extend to including the provision of a *locum tenens* (L. "place-holder," meaning a person who stands in temporarily for another of the same profession).
- It is certainly not the case that every member subject to

¹ Coviello, Decio, Andrea Ichino and Nicola Persico. Don't Spread Yourself Too Thin: The Impact of Task Juggling on Workers' Speed of Job Completion. Centre for Economic and International Studies. Research Paper Series. Volume 9, Issue 2, No. 185. January 2011.

disciplinary procedures is a 'bad' person or a failure professionally; in fact, and somewhat bizarrely, some practitioners view disciplinary proceedings as something of a rite of passage in their professional development. Being human, we are all susceptible to falling behind the heavy demands of industry. Being human, when conflicting demands become overwhelming, rather than "tackle the problem head-on" – i.e. by reaching out for help, or through "down time" / stress leave, exercise, meditation, prayer, seeking the support of loved ones or professional help – it is commonplace for many of us to adopt some of the easily accessible unhealthy remedies. A negative reaction to stress may thus exacerbate our drink, drug and prescription use, and negatively impact family life and social activity; in the process, we end up depleting the amount of productive time available in an already pressurized existence.

As elements of a key industry segment that are contributing to the built environment, how do land survey companies address the issue of work / life balance? What is the role of the professional association in establishing awareness and desirable norms in this area? As individual employers, we must question whether we are doing enough *at source* to head off potential crises in a given worker's case-load, in terms of –

- the organization of tasks, work relationships and accountabilities;
- the clarity of definition of individual worker responsibilities;
- the way in which we instil and reinforce a supportive workplace culture; and
- how well the operating environment itself is resourced and sustained.

From the regulator's perspective, the professional organization must always appear to be approachable, thus encouraging members to discuss concerns before

complaints have crystallized, and permitting the adoption of preventative measures and the opportunity for early resolution. Developing a stellar protocol for discipline that acknowledges the stresses of professional practice would engender confidence in the process. Discussion of these two basic changes may well be the initial steps toward enhancing the current approach to conflict resolution and promoting a greater level of cooperation among associations, their members and the public at large.



Resources:

Spira, Jonathan. *Overload! How Too Much Information is Hazardous to your Organization*. John Wiley & Sons. 2011.

Dr. Bruce Ally, PhD, LLM, DRE is the founder of A Place for Mediation, the largest mediation practice in Toronto and, since 1985, has conducted over 3000 mediations. Bruce has acted as mediator and arbitrator in a wide range of matters before the courts and as an adjunct to professional associations (engineering, law, dentistry and medicine) in Ontario. Dr. Ally has been a member of the Property Standards Committee (North York) for the past four years, appointed under the Line Fences Act. He is also an educator in the Dispute Resolution and Graduate Dispute Resolution Programs; and a supervisor in the Small Claims Court Practicum, York University. He can be reached at bruceally@aplaceformediation.ca.

Khaleel Khan, MSc, CLS is a Roster Mediator with the Ontario Mandatory Mediation Program and principal of Katalyst Conflict Management Solutions. He mediates employment, personal injury, real estate and a wide range of other matters before Superior Court in Toronto, Ottawa and Windsor, as well as condominium matters under section 137 of the Condominium Act. Khaleel has a background in research, teaching and regulatory aspects of land surveying, and can be reached at kkhan@katalystcms.com.

Looking for your dream job?

By Richard Barry


Searching for a job today looks very different than it did even 10 years ago. Standing out in the crowd of the thousands of other job seekers just like you, means knowing the trends and using them to your advantage.

Over the past 20 years the world of job hunting has evolved tremendously as a result of the introduction of the Internet. With the rise of online job boards, online newspapers and the explosion of social media, job-seekers do not have to hit the pavement to find opportunities; the opportunities come to them. Hard copy tools like newspaper ads have all but disappeared and most companies will not even accept phone calls or even mailed and faxed resumes, as it is too labour intensive to scan them into their databases.

Job-seekers have taken to using social media to showcase their skills and work experience. Firstly, they access job boards to find the opportunities and then connect to the hiring directors or others within the company through various social media outlets. In doing this they are hoping to be recruited into the available positions. Another trend is to “connect” with as many people as possible through LinkedIn with the hope of making a connection, no matter how distant, with the company that is recruiting.

The number of jobs that have been posted over the last five years has been up and down like a rollercoaster to say the least. The unemployment rate has fluctuated from an

average of 6% in 2008, jumping to an average of 8.5% in 2009 and now in 2011, it has fallen to an average of 7.5%. While the unemployment rate has been slowly decreasing there has been a steady increase of job postings to the Geomatics Canada job board. There was an increase of 41% in 2011, compared to the previous year. The greatest number of job opportunities has been posted in the provinces of Alberta and British Columbia with the average salaries being around \$60,000. Even though the unemployment rate continues to fluctuate the increase of postings to Geomatics Canada proves that there are jobs available and will likely continue to grow over the coming months.

Geomatics Canada was established in 1999 after it was recognized how useful an online job board could be in finding employment. A gap was identified as there were no Canadian geomatics job boards available at that time. Since then Geomatics Canada has remained the biggest online job board in Canada, with small business to Fortune 500 companies posting their employment opportunities. Job-seekers can browse through the posted opportunities or post their resumes with the thousands of others in hope of finding their dream job! 

Richard Barry is the Owner/Developer of Geomatics Canada. For more information, he can be reached by email at rbarry@geomaticscanada.com.

NEWS FROM 1043

Changes to the Register

MEMBERS DECEASED

Jonathan "Jon" Rowland Lancaster	956	Sept. 22, 2011
Allen "Al" Russell Burgham	813	Nov. 10, 2011
William "Bill" James Keatley	1298	Nov. 29, 2011

MEMBERS REINSTATED

Ralph T. Bode	1738	Nov. 1, 2011
John Boyd	1402	Nov. 4, 2011

RETIREMENTS/RESIGNATIONS

Henry Gerrits	1450	Nov. 15, 2011
Cynthia Tsai-Liang	1590	Dec. 31, 2011
Doug Simmonds	1473	Dec. 31, 2011

COFA'S ISSUED

Tulloch Mapping Solutions Inc., Ottawa, October 18, 2011
Mandarin Surveyors Limited, Toronto, October 18, 2011
Rudy Mak Surveying Ltd., Barrie, October 18, 2011

COFA'S RELINQUISHED

David Anschuetz, Ontario Land Surveyor
Zephyr, October 11, 2011
CDN Land Surveyors Inc., Barrie, October 31, 2011
Henry J. Gerrits, OLS, November 15, 2011

COFA'S REVISED

Was: B. Roger Pickard Surveying Ltd.
Is: B. Roger Pickard OLS (a division of Ivan B. Wallace Ontario Land Surveyor Ltd.) Picton, October 31, 2011

Surveyors in Transit

James Ferguson is the OLS in charge of the new CofA for **Tulloch Mapping Solutions Inc.** The company's address is as follows: 900 Morrison Drive, Suite 208, Ottawa, ON, K2M 8K7. Phone number is 613-979-8039.

Rudy Mak is no longer with CDN Land Surveyors Inc. He is the OLS in charge of **Rudy Mak Surveying Ltd.** The company is located at 89 Big Bay Point Road, Barrie, ON, L4N 8M5. The phone number is 705-722-3845.

Peter Raikes is now with **Eplett & Worobec Surveying Ltd.** in Barrie.

Zhiqiang Zeng is the OLS in charge of the new company named **Mandarin Surveyors Limited.** The company is located at 42 Ravenscliff Crescent, Toronto, ON, M1T 1R8. The

phone number is 647-430-1366.

David Anschuetz has relinquished his CofA but has retained his notes and plans. He has cancelled his company phone so his notes will only be available through email at a2zols@hotmail.com.

Viorel Mares is now the Assistant City Surveyor with the **City of Mississauga.**

David Green is now employed with the **City of Greater Sudbury** as the Coordinator of Surveying and Mapping Services.

Walid Belal is now employed with **AECOM** in Mississauga as a Senior GIS Analyst.

Land Registry Office #41 has relocated to 480 Peel Street, Woodstock, ON, N4S 1K2.

Rouse Surveyors Inc. has relocated to 478 King Street West, Suite 1107, Toronto, ON, M5V 1L7. All other contact information remains the same.

Articling students, **Nath Segaran** and **Mahmoud Dahesh** have changed employers. They are both now working for **J.D. Barnes Ltd.** in their Milton office.

The Richmond Hill office of **Mitsche & Aziz Inc.** has been relocated to 56 Wright Street, Richmond Hill, ON, L4C 4A1. All other contact information remains the same.

Ivan B. Wallace Ontario Land Surveyor Ltd., has acquired **B. Roger Pickard Surveying Ltd.** Roger Pickard is now an employee and manager of **B. Roger Pickard OLS (a division of Ivan B. Wallace Ontario Land Surveyor Ltd.)** Phone and fax remains unchanged.

Anil Agnihotri has left Teranet Inc., and is now employed with the **Region of Peel** in Brampton.

Harry Kalantzakos is now employed with **David B. Searles Surveying Ltd.**

Drew Annable has retired from **Archibald, Gray & McKay Ltd.** after 46 years with the company. He will still retain his licence. The new managing OLS for Archibald, Gray & McKay Ltd. is **Bruce Baker.**

Miller & Urso Surveying Inc. has a new postal code: P1A 0C5.

Glenn Giddy has retired from **A.T. McLaren Ltd.**

P.J. Williams, O.L.S. has a new office address. The firm is now located at 431 First Avenue East, Shelburne, ON, L0N 1S2.

The notes and records of **Henry J. Gerrits, OLS** have been sold to **Krcmar Surveyors Ltd.**

THE AOLS IS PLEASED TO ANNOUNCE THAT ANOTHER ONTARIO LAND SURVEYOR WAS SWORN IN:

Christopher David Bunker

#1947

October 6, 2011

Revitalized Toronto Branch of the Canadian Institute of Geomatics (CIG)

By Dr. Songnian Li, Chair of CIG Toronto Branch

The Canadian Institute of Geomatics (CIG) is the Canadian association that represents the interests of all groups in the geomatics community and is the Canadian official representative to the three major international societies in Geomatics: International Cartographic Association (ICA), International Federation of Surveyors (FIG), and International Society for Photogrammetry and Remote Sensing (ISPRS).

The CIG Toronto Branch represents the members of CIG in Toronto and its surrounding areas. The current Branch Directors are from universities, government agencies and private industry. The Branch currently has 104 active members. The objectives of the Branch are in line with those of the CIG National association, as stipulated in its bylaw, and include:



Photo taken at GIS Day at York University.

- To advance the development of the geomatics sciences and engineering in Toronto and its surrounding areas;
- To enhance and demonstrate the public usefulness of geomatics;
- To further the professional development of its members;
- To foster cooperation between, and promote unity of purpose and action among Toronto geomatics organizations; and
- To represent and promote the Branch members' interests in geomatics nationally.

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At the recent CIG Toronto Branch Directors' meeting held on the York University campus on October 2011, several future activities were discussed, such as sponsoring geomatics-related events at universities and colleges, promoting CIG student memberships in Ontario universities and colleges, creating branch newsletters, developing a new branch website, and organizing seminars and conferences. The Branch will co-organize the fourth International Conference on Earth Observation of Global Changes in May 2013. An annual meeting for the whole membership is planned for the spring of 2012.

The recent 2011 GIS Day events held at both the University of Waterloo and York University campuses, which were sponsored by the Branch, were very successful. The events featured students' presentations, a chance to exchange ideas and projects, live demos of GIS and mapping, poster displays, a GIS 'play' table, GIS roving experts and opportunities for networking. For more information about the events, visit:

<http://www.environment.uwaterloo.ca/gisday/2011/> and
<http://www.library.yorku.ca/ccm/Map/gisday2011/> or

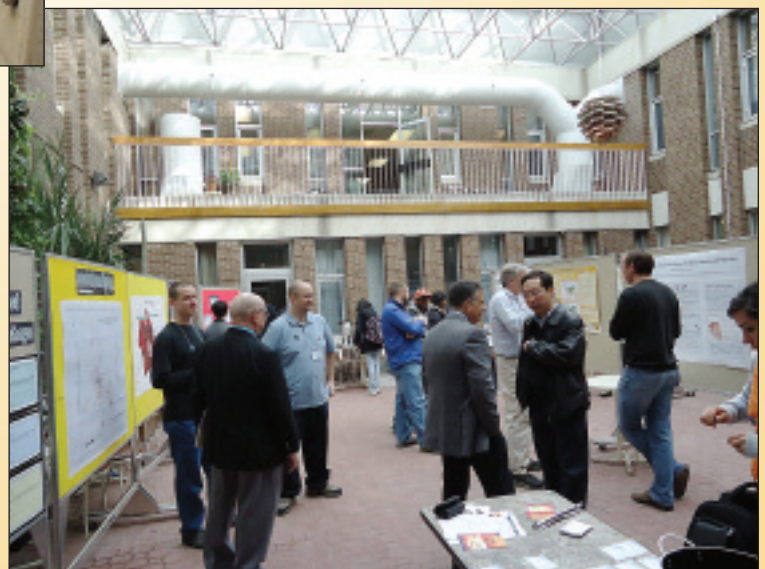


Photo taken at GIS Day at the University of Waterloo.

<http://www.yorku.ca/yfile/archive/index.asp?Article=17954>.

The Branch welcomes new members and volunteers from all areas of geomatics in Toronto and its surrounding areas. We count on our members and volunteers to work together on various initiatives and branch committees to fill its objectives. AOLS members have long been playing an important role in the Branch. We hope to continue this tradition by calling on AOLS members to join CIG and become part of the Toronto Branch, and to work with us to build a stronger geomatics community.

For more information about the Branch and its activities

and for contact information, please visit the branch website:

<http://www.cig-acsg.ca/cigtoronto/default.html>.

For information about the CIG and its activities, please visit: <http://www.cig-acsg.ca>.



The author would like to thank Dr. Costas Armenakis from York University and Dr. Jonathan Li from the University of Waterloo for their help in preparing this article.

Songnian Li can be reached by email at snli@ryerson.ca.

Sites to See

Geography Network Canada

<http://geographynetwork.ca/index.html>

The *Geography Network Canada* is an online resource for finding and sharing geographic content, including maps and data, from many of Canada's leading providers.

It provides the infrastructure needed to enable the sharing of geographic information between data providers, service providers, and users around the world. Through the Geography Network Canada, you can access content including live maps, downloadable data, and more advanced services.

REPORT FROM THE AOLS ARCHIVES AND HISTORICAL COMMITTEE

By Gordon Good, O.L.S. (Ret.), Chair

The Archives and Historical Committee would like to tell you that we are not just a group of pretty faces and we do accomplish a few items of note.

It is best that the whole committee be identified as reference to their names shall be made throughout this presentation. They are: Gordon Good, O.L.S. Retired, Chair; Jim Hill, O.L.S. Retired, Past Chair; W. John Quinsey, O.L.S. Retired, Past Chair; Douglas Culbert, O.L.S.; Douglas Sutherland, CST., CET.; Donald Anderson, CST.; Dr. Lorraine Petzold O.L.S. Retired; Ross Burton, O.L.S. Retired, Past Chair. Vicky Culbert is a committee member by a motion of the committee in recognition of her contributions to our AGM displays.

The most active and continuing project undertaken by your committee has been the W.C. Yates project. It was started by William (Bill) Yates, as he was curious to see if he was somehow related to the Yates brothers from the former surveying firm, Yates & Yates Ltd. This was not to be proven. However, his interest grew and he wondered if there might be some value in developing an Ontario Land Surveyor's genealogy file. In the early seventies the source of the project was pretty much restricted to the list of practising and retired surveyors that were printed in the Annual Reports.

I volunteered to serve on the Committee and my role was to display the results of the project. To assist in finding names and store them in a convenient form, a file was started in Microsoft Excel. Well the file grew and grew. All the names of our active and retired members were added and then all the past members were added, starting with number one. Besides me, John has been the next most important member of the project as he has been able to verify the accuracy of dates, names, and sources of information. When you get a chance to review the file you will appreciate the hours of work that John has contributed.

It is interesting to realize that the numbering process, which was begun by Wilmot Baird while acting as Secretary of the Association, has changed from a system of numerical order, for ease of tracking surveyors, to one of identifying monuments planted by surveyors. Indeed it would appear that the numbering system is now just as important as the surveyor's name. It is rumoured that the original numbering was created by the order in which Land Surveyors registered for the first Annual Meeting in 1892. Progression of the system thereafter and into the 1920s and 1930s was by the chronological order of each surveyor's

commission, which is still the present day custom.

Well the database grew some more as all of the Provincial Land Surveyors were added as well as the Deputy Land Surveyors. Our present records indicate that Lt. Lewis Kotte, James Peachy, Capt. René Hypolite Pepin and Lt. William Tinling were commissioned as Deputy Land Surveyors in the year 1783 for the Province of Canada. We have restricted our recording of commissions to the area known as Ontario. As more evidence is found we hope to add older dates to our records. It also became evident from our records that plans and surveys were completed by men who we cannot identify as being commissioned. An additional page with a list of their names was created to be kept until we can determine their official status.

One of the benefits of computer-based data is the ease of identifying search criteria. The initial shock was to find that over three hundred surveyors were "lost". That is to say, we had lost all office contact with them. Many active and retired surveyors knew where they lived but the AOLS office did not have their contact information.

A report of these findings to those attending the Veterans' dinner in 2009 sure had positive results. Lorraine quickly came to our aid, on a temporary basis, in order to get the numbers reduced. She has been a relentless researcher and I am pleased to report that her effort combined with the work of others has reduced the missing members to only two.

Well the committee couldn't leave the database in its present size. Gord suggested that "links" could be inserted into Excel and all the biographical sketches could be connected. Also any photos that have already been scanned could also be "linked." The process revealed that over one hundred sketches had been overlooked and had to be scanned. Of course it must be realized that present technical knowledge has advanced since the first sketches were scanned and the files are ten times larger when they have enhanced images attached.

The committee is attempting to have the file ready for the new website. This will give every surveyor the opportunity to read the early biographical sketches of some very remarkable surveyors without having to get copies of early Annual Reports.

At the present time our links have been to archives stored only on our premises at 1043 McNicoll Avenue. I recently

cont'd on page 26

obtained a digital copy of a Provincial Land Surveyors' 1857 journal written by A.B. Scott. This was loaded into the database and a "link" was connected to the file. Now surveyors in Ontario may view and read the daily journal. To continue this concept of linking to journals only naturally leads to "links" to original Township survey notes and will create a file, of incomprehensible size to me, and may be too large for our website.

In June of last year our Committee visited Archives Ontario where we saw some very impressive records, namely the original David Thompson map of the Province of Canada. We intend, with Council's approval, to enter into negotiations with Archives Ontario to gain permission to have "links" to their database to access archived surveyors' journals, notes, plans and any other pertinent data concerning surveyors.

One very important detail that was pointed out by Lorraine is that it is important for every surveyor to understand how not to become lost. A retired surveyor, who is in good standing at the time of his/her retirement, is a member of the profession for the rest of his/her life, unless directed to the contrary by the surveyor and is entitled to use the term "Ontario Land Surveyor (Retired)" or "O.L.S. (Ret.)" after his/her name. A recorded member may use the title Ontario Land Surveyor on a memorial marker bearing his/her name. The current payment of sixty dollars for a retired membership is not a professional payment for the use of the title but is primarily a subsidy for copies of the Annual Report, the Ontario Professional Surveyor, and any other information forwarded to the membership.

The loss of personal contact in the past few years, since Lorraine retired from the office of the Association, has been an oversight and we need to develop a format that will enable each surveyor to be contacted annually to maintain updates on his/her well being and place of residence.

Don Anderson and Doug Sutherland have become the custodians of our antique items. Don takes pictures of any new antiques and maintains the pictures of past surveyors. Don solicited help from Vicky to re-mount the photos in our albums onto acid free paper to maintain their quality. Doug handles all of the lending of the antiques and the evaluation of the inventory. We have been advised by our museum contacts that some of our antiques should not be loaned out for any occasion unless they are under the supervision of a registered surveyor. Doug is pretty busy throughout the year as he is sent out to review and evaluate donated items, always keeping in mind that we have very limited space for storage in our present facilities.

I hope that the members and visitors who have attended the last few Annual Meetings and visited our committee's booth have been impressed with our displays. Vicky brings a new level of presentation. Her ideas are fresh and inspiring. She is a member of the museum in Goderich and applies her museum experience to the presentation of our booth. Vicky is always happy to assist in any project even

though the booth at the AGM is really now her personal project. I have to admit that she does have some flair in soliciting major help from her husband Doug, who just happens to be close by and very handy.

Inspired by our first woman Surveyor General, Susan F. MacGregor, Vicky is appropriately developing a history of "Women in Surveying" for release in 2012. Now this subject is just not about female registered surveyors but includes office help, field help, and surveyors' wives. I am fairly sure that some seminars are going to be presented at the AGM. These are going to be very popular and I am not sure how you may guarantee a seat.

I have no idea how our committee could continue without the input of John and Jim, who are both Past Chairs. Their willingness to assist in almost any project brings an added range of scope and integrity. John maintains his passion for accurate research which was generated as a young surveyor when tracing land registry grants back to the Crown. He will hate me for saying this but I am going to quote him anyway. "Young people (surveyors) just don't know how to do proper research." (He is referring to property titles I am sure.) Over the years John has produced several papers and Volumes One, Two and Three of the "Research Index of the Early Days of Land Surveying in Canada" which were published by our Association and are a result of his work. Many references to these volumes can be found in the W.C. Yates Project.

Jim is our buoyant historian. As he cleans out his old cubbyhole files at home he finds articles of astounding interest which he shares with the committee. This usually generates many laughs with much jovial repartee. Jim does proclaim to be a "luddite" (his definition "Not wanting to use or understand a computer"). I must warn you however, that if you have been an associate of Jim Hill or even a casual friend, you should start looking over your shoulder, as it appears he has made it his life's vocation to find some tale about everyone he has met and even those he has not.

Ross Burton is back in the fold. In his semi-retirement he undertook some research of some older pieces of survey equipment that were found about six years ago by a Mr. Mark Hart while scuba diving with his daughter. They were found at the bottom, near the north shore, of Lower Beverly Lake (about 30 kilometers south of Smith Falls.) It turns out that they were manufactured in the late 1800s and if anyone has some knowledge of how they ended up being where they were discovered then please get in touch with Ross so he can complete his report. The committee was not interested in purchasing these pieces as we already have better preserved artifacts in our possession.

I would propose that Ross's relentless research is but a testimony to the various contributions made by every other committee member of your Association.

Many thanks to Maureen who generously edited my original proposal and helped turn it into a readable submission.



Mapping and Coordinates

By David M. Horwood, O.L.S.

With the great interest generated from the Accurate Ontario Digital Cadastre project, the concepts of mapping and coordinates have come to centre stage. However, I believe there is a general misconception of what these terms really mean when put into practice. As a registered Geographic Information Manager (GIM) with 25 years of experience implementing parcel data management systems, I can provide some insight into the meanings of these terms from the land information professional's perspective and the issues created by the misapplication of these concepts.

When I think about mapping, I'm reminded of a story that a colleague told me many years ago that has remained vivid in my mind. It concerns a king and a wizard ...



There was a king and a wizard in an ancient kingdom. The king was obsessed with maps and the wizard was charged as the king's map maker. As time went on, the wizard would present to the king more and more detailed maps of the kingdom. However the king was never satisfied and would send the wizard back to produce an even more detailed map. This strife between the king and wizard escalated over the years until one day the king exclaimed to the wizard; "I've had enough of these approximations. I order to you to produce a one to one map." The wizard paused for a moment, looking at the king with an air of reflection. He then took the king by the hand, led him to the outside balcony overlooking the kingdom, pointed at the countryside and said: "Your majesty, it is already done."

There are many definitions of the word map. A map is normally defined as a diagrammatic representation of the Earth's surface (or part of it). However the moral of the story is that the usefulness of the map is based on how well it abstracts reality. The real world is already out there, so making the map too detailed not only increases the cost to create the map, but it can also decrease its utility. Therefore a working definition of a map is a useful abstraction of reality.

So from a practical standpoint, it is important to decide what the map will represent. As it becomes more detailed, there is a point of diminishing returns. Moreover, the cost to keep the map maintained increases exponentially the more frequently it is updated and the more detailed and accurate the representation. Generally there is a "sweet spot" where the beneficiaries gain the most from the detail, accuracy and timeliness of the map. Beyond this, little more benefit is realized and customers will generally not pay for the increased cost.

With regard to coordinates, I perceive a similar misconception. A vast majority see coordinates as absolute, representing an unchanging position for an object. Coordinates are now required by regulation to appear on registered and deposited plans, however, even before this many municipalities required coordinates on plans. There was a study commissioned by the Canadian Council on Geomatics (CCOG) in 2002 ("Coordinates in Context") which looked at the viability of elevating coordinates in the hierarchy of evidence for boundary determination. The study found that there was no legal impediment to this. In fact existing legislation, e.g., for deferred monumentation in Alberta, could be used as a model by essentially extending the monument deferral period to the end of time, in which case the coordinates themselves become the evidence.

However, I believe that elevating the status of coordinates is unwise. A coordinate is simply a measurement along arbitrary X and Y (and Z) axes from an origin, no different in concept than a bearing and a distance (i.e., a polar coordinate). In planar coordinate systems, like Universal Transverse Mercator (UTM) or Modified Transverse Mercator (MTM), a coordinate usually is defined by both a projection and a datum (origin), e.g., UTM Zone 17 North American Datum 1983 (NAD83). Coordinates are rarely directly measured but computed from other observations, even in the case of Global Navigation Satellite Systems (GNSS) where the coordinate is calculated from a multiple distance intersection from satellites and generally also using another known point.


As GNSS improved, it was found that coordinates even in the same datum and projection were not fixed. The Earth is dynamic with both gradual (tectonic plate movement) and dramatic (earthquake) changes over time. The earthquake in

March 2011 moved some areas of the coast of Japan by 4 metres (<http://www.bbc.co.uk/news/science-environment-12732335>). Moreover, the basis for our GNSS positioning relies on a three dimensional Earth-Centred, Earth-Fixed (ECEF) coordinate system, since the GNSS satellites are orbiting around the Earth's centre of gravity. This centre of gravity also changes over time and is one of the reasons that current realizations of the World Geodetic System 1984 (WGS84) do not match current realizations of NAD83, since the Earth's centre was updated based on the more accurate Earth Gravitational Model 1996 (EGM96) for WGS84 but not for NAD83. This also means that there is a datum transformation between NAD83/Canadian Spatial Reference System (CSRS) and the equivalent WGS84/International Terrestrial Reference Frame (ITRF) coordinate system of the same epoch, resulting in between a one to two metre shift (http://www.geod.nrcan.gc.ca/faq_e.php#27). This shift is apparent when comparing mapping in Ontario (which uses NAD83) with online mapping systems such as Bing, Google or ArcGIS (which all use WGS84). As Albert Einstein discovered one hundred years ago, there is no absolute frame of reference.

This highlights the importance of permanent physical reference points on the ground which can be used to re-establish positions over time. Granted these reference points need not be on every corner, but they need to be local to a set of corners so that the movement of the reference point is likely to be related to the movement of related corners. A

few strategically placed permanent reference points (ideally inter-visible and accessible using both terrestrial and GNSS methods) could serve one or more subdivision plans and/or a number of reference plans. Moreover, errors in application of a scale factor in local measurements will be less severe than those applied to a coordinate, which is essentially a measurement from the equator. Which would you trust more: a tie from an original building or a measurement from Ecuador?

From a practical standpoint it is important to remember that a coordinate is not absolute but a computed relative measurement and when comparing coordinates it is critical to take projection, datum and epoch into consideration. Common coordinate systems are useful, and required in order to construct land information systems. However these coordinate systems are necessarily a snapshot in time and need to be periodically updated to keep pace with the continual changes of the real world.

Proper consideration of the concepts of mapping and coordinates can help build land information systems that are useful, timely and accurate. The real world changes continually as time passes and map and coordinate based information systems need to be designed from the beginning to capture the essential information (and no more) and to embrace and reflect changes over time. 

David M. Horwood, O.L.S. is a Geographic Information Manager. He is President of S.E.A. Graphics Inc. He can be reached by email at dhorwood@interlog.com.

Calendar of Events

January 23 to 25, 2012

International LiDAR Mapping Forum

Denver, Colorado

www.lidarmap.org/ILMF.aspx

February 7 to 9, 2012

9th Annual ORCGA Damage Prevention Symposium

Collingwood, Ontario

www.orcga.com

February 22 to 24, 2012

120th AOLS Annual Meeting

The Spatial Profession – A Life Without Limits

Ottawa, Ontario

www.aols.org

May 6 to 10, 2012

FIG Working Week 2012

Rome, Italy

www.fig.net/fig2012

May 14 to 17, 2012

Global Geospatial Conference 2012

Spatially Enabling Government, Industry and Citizens

Quebec City, Quebec

www.gsdi.org/gsdiconf/gsdi13

May 15 to 17, 2012

2012 Canadian Hydrographic Conference

The Arctic – Old Challenges, New Approaches

Niagara Falls, Ontario

<http://chc2012.ca>

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EDUCATIONAL FOUNDATION NEWS

Loyalist College Fall Award Winner

Alyssa Cummings (left) is shown receiving the Eastern Regional Group Award, which is co-sponsored by the Educational Foundation, from Keith Watson, OLS at his office in Belleville. She was unable to attend the award ceremonies at the college on November 16. Alyssa is a second year student in the Survey Technician Program at Loyalist College, which is the only college level program dedicated to surveying in Ontario. The curriculum combines classroom instruction, practical field exercises, and the opportunity to process data using the latest computer software. Graduates are eligible to become certified members of the Ontario Association of Certified Engineering Technicians and Technologists (OACETT).



Four New \$1000 Survey Law Awards

The Board of Directors of the Educational Foundation is pleased to announce that two new academic achievement awards have been created for students enrolled in *Eng4160 Cadastral Surveys and Land Registration Systems* at York University. The awards will be presented to two students who have obtained the highest marks in the course and have each demonstrated an interest in cadastral surveys and pursuing a career as an OLS. The instructor of the course is Graham Bowden.

Two additional academic excellence awards will be presented to students enrolled in Izaak de Rijcke's *Survey Law I* course, which is being offered through the AOLS. One of these awards will be named the David W. Lambden Award, which is sponsored by the South Central Regional Group. This award was traditionally presented to a student in the Geomatics Option of Civil Engineering at Ryerson University, but due to a lack of enrollment, it was re-allocated this year.

The Educational Foundation would like to recognize with thanks a donation made in the memory of William Keatley.

BOOK REVIEWS

100 More Canadian Heroines Famous and Forgotten Faces

By Merna Forster



Published by Dundurn
ISBN 978-1554889709

In *100 More Canadians*, Forster presents a collection of short and lively biographies that celebrate the talent and achievements of women from all walks of life. Their stories range from the time before the European conquest to the present, touching the worlds of science, health, sports, politics, war and peace, exploration, business, social reform, arts, entertainment, and public service. Some of these women are well-known, but most are not. Some were affluent, born or married into privilege, but many were poor or faced other unfavourable odds.

This pool of trailblazers is impressive. Meet journalists, artists, entrepreneurs, settlers, civil rights advocates, war veterans, scientists, Olympic athletes, and a Native Chief. Despite their varied backgrounds, it is striking to see how much these women have in common in their determination and fortitude. Stubborn, resourceful, creative and courageous, all are very inspiring. After reading their tales, it is humbling to realize how little we know about the women who have contributed to Canada's development.

Information taken from the foreword by Julie Payette.

A Country So Interesting

The Hudson's Bay Company and Two Centuries of Mapping, 1670-1870

By Richard I. Ruggles

Maps were an essential tool for the Hudson's Bay Company and during the two centuries before Confederation the Company became the main mapping agency in British North America for the immense territory extending from Ungava Bay to the Pacific Ocean.

In *A Country So Interesting* Richard Ruggles describes and analyses the mapping activities of more than 160 Company servants and surveyors as well as the contributions of more than 50 Indians and Inuit who drew sketches and

provided original configurations. Also included are annotated catalogues of all the maps known to have been produced by the Hudson's Bay Company and sixty-six reproductions of the most important maps and sketches.

The Hudson's Bay Company was responsible for the largest collection in North America of manuscript charts and maps related to the fur trade and Ruggles has produced the first and most comprehensive study of this unique and rich body of material.

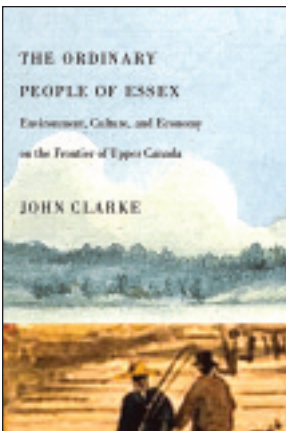
Information taken from the back cover.



Published by McGill-Queen's University Press
ISBN 978-0-7735-3885-6

The Ordinary People of Essex Environment, Culture, and Economy on the Frontier of Upper Canada

By John Clarke



Published by McGill-Queen's
University Press
ISBN 978-0-7735-3777-4

How great a role does the environment play in shaping the history of a region? *The Ordinary People of Essex* provides a systematic analysis of the use of land in Upper Canada, particularly the influence of agricultural activity. Presenting the findings of an impressive collection of statistical data, John Clarke creates a detailed map and rich history of the region by tracking the successes and failures of land practices commonly employed by settlers in Essex County.

Clarke covers a remarkable number of topics, including geographic factors in the choice of agricultural land, land acquisition and clearance,

energy expended in clearing and planting the land, and selection of specific crops and their extent and yields in particular combinations of soils. He also investigates the geographic parameters for wheat production – which drove the local economy – and the cultural origins of farmers as it relates to their use of intensive and extensive agriculture. Filled with detail and expert analysis, *The Ordinary People of Essex* is an illuminating study of settler life and the conditions that make it possible to found a community, complimenting the author's award winning *Land, Power and Economics*.

Information taken from the publisher.

The Last Word

Dr. Roger Tomlinson Receives his AOLS Honorary Membership Certificate at the ESRI User Conference in Ottawa

Dr. Roger Tomlinson changed the face of geography as a discipline when he conceived and developed geographic information system (GIS) technology in the late 1960s. Dr. Tomlinson, who is generally recognized as the “Father of GIS” was presented, in absentia, with an Honorary Membership in the Association of Ontario Land Surveyors (AOLS) during the President’s Luncheon at the 2011 AOLS Annual General Meeting in London, Ontario in February. Alex Miller, the President and founder of ESRI Canada, accepted the award on his behalf. In October, AOLS President David Brubacher was invited by Alex Miller to join him to officially present Roger with his AOLS Honorary Membership Certificate at the ESRI User Conference in Ottawa.



David Brubacher (left) congratulates Dr. Tomlinson.



Left to Right: Alex Miller, Dr. Roger Tomlinson and David Brubacher on the stage at the ESRI User Conference in Ottawa.

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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

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