

SASKATCHEWAN LAND SURVEYORS' ASSOCIATION

# Newsletter

## President's Message to the Membership

By R. A. Webster, SLS, P. Surv., President

I remember back to the days when I used star shots for position, looked for monuments with a compass, measured distances with a chain, surveyed lines with a theodolite, calculated closures with a Curta, and hand drafted plans for registration on linen. The phone and mail were our means of communication. For the benefit of the 10% of the membership that is younger than I am, a Curta was the portable version of the Munroe.

Today we rarely leave the office for the field without fully charged batteries for the GPS receivers, laptop computer, cell phone, total station, magnetic locator and radios. We E-mail the data and use the Internet on a daily basis. Our linen plans are replaced with AutoCAD drawings and compiled into a GIS database. We can look into the near future and see digital plan submissions and graphic representations of property without monuments. These changes have all happened in the first half of my surveying career. What concerns me is that sixty-three out of seventy-five members in this association are older than I am and have witnessed even greater changes.

The only constant that we can count on is change. As a profession, we have generally embraced the new technology as it became available. Our only choice was limited to adapt or become uncompetitive and watch our business disappear. We may



wish to go back to the "good old days" when things were simpler, but that option is unavailable. We must embrace change and accept it for what it is, remain educated and pursue any actions that will improve our efficiency in the delivery of our services to be ready for the new millennium. We are now living in a global economy and the next competition to provide survey services will not be from the firm across the street.

In the words of Dr. John McLaughlin at the Geomatics Futures Discussions Forum held on September 19, 1998 in Winnipeg, the Land Survey community in Canada were world leaders that were

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**Special Thanks to Our Advertisers:  
The Fall Advertisement Special Edition  
begins on page 825!**

# Council Highlights

by A. Carl Shiels, Executive Director



The Saskatchewan Land Surveyors' Association Newsletter is published by the Saskatchewan Land Surveyors' Association for circulation to its members.

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**Office hours are from 9:00 a.m. to 5:00 p.m. on all regular business days.**

## **1996/97 Council**

President	Rob A. Webster
Vice President	Roy J. Pominville
Past President	Pat M. Maloney
Councillors	Wayne J. Adams Thomas W. Sansom Jim A. Boyd Robert J. Morrison
Executive Director	A. Carl Shiels
Executive Assistant	Candy Shiels
Newsletter Editor	Doug A. Bouck

## **98/99 - Meeting #3 - Sept. 8, 1998**

All members were present when the president convened the meeting at 10:05 a.m. He explained that there had been no travel since the last meeting and that the summer had been fairly quiet. His next travel was to be to Winnipeg for the AMLS Annual General Meeting.

### **Geomatics Future Meeting (Report from M. E. Putnam and T. R. Webb)**

M. E. Putnam described the discussions that occurred at the Geomatics Future Meeting that took place in Ottawa on June 12. The meeting did not arrive at any conclusions but it appeared that there was a strong willingness on the parts of CIG and GIC to endorse a single umbrella organization. Although CCLS was one of the sponsors of the meeting, they were much more hesitant to proceed in that direction.

Although no one at the meeting was prepared to commit to the model that had been presented, it was agreed that a task force should be struck to obtain input from all of the stake holders and report back to the organizations represented.

### **CCLS Board of Directors Meeting**

T. R. Webb (who joined the meeting to address this issue) outlined the general direction that CCLS is proposing to go with regard to the development and implementation of public information and promotional materials. The plan includes a variety of media including T. V., audio visual and print materials which could be readily adapted for provincial, regional or national use. The main advantage of this approach was a much better quality of product and significantly reduced cost, particularly for the smaller provincial associations.

While some of the funding for the development and implementation of the program may come from CCLS reserves, some funding may also be required from provincial associations. It was agreed that the SLSA would support the principal of a joint public education and promotional program as described and would be prepared to consider any reasonable proposal that emanates from the Winnipeg meeting.

T. R. Webb also invited suggestions, comments or concerns from Council related to any other past or proposed CCLS activities.

T. R. Webb noted that some of the criticism from the last Annual Meeting could have been minimized if there was greater opportunity for liaison between the SLSA representative and Council. Options in that regard included having a member of Council as the SLSA representative or having the SLSA representative attend more of the meetings of Council. No decision was taken in this regard.

Council broke for lunch at 12:10 p.m., and reconvened at 1:00 p.m.

They were joined for lunch by T. R. Webb.

At this point, M. A. Marien joined Council to review the 1998/99 work plan for the Practice Committee. Details of this discussion are presented later in the Council Highlights.

#### **SASTT Act**

A meeting had been set with the three professional associations and Minister Sonntag for Monday Sept. 14.

In the mean time, a letter had been sent from SASTT to the Minister, with copies to all parties involved, once again outlining their expectations for their Act. It was agreed that the SASTT letter contained misinformation that should be challenged and that a letter should be sent to the minister by the President, refuting SASTT's allegation that they had not been given an opportunity to provide input to the SLSA Act before it was proclaimed.

#### **Draft Amendment to Bylaws Setting Maximum Period for Land Surveyors in Training**

Council approved a draft amendment to the bylaws that would limit the period of articles for a Land Surveyor in Training to five years with an additional year of 'grace' subject to certain conditions.

The amendment will be presented to the membership at the next annual meeting.

#### **SARM - Response to Proposed Working Committee**

A letter had been received from SARM confirming their support for a working group to review future

options for grid road surveys and the potential use of GPS in reducing costs.

M. A. Marien, has agreed to accept the lead role in the SLSA representation on the working group and that L. W. McLeod and D. V. Franko will also participate.

#### **Meeting with Dr. LaChapelle - November 30, 1998**

Dr. LaChapelle from the University of Calgary was invited to attend the meeting of Council on November 30, 1998.

#### **Sask. Association of Community Planners SACP (Proposed New Act) - Update on Meeting to Discuss Issues For New Community Planners Act**

The Executive Director reported on a meeting that was held with the SACP regarding their new act. Also in attendance were representatives of APEGS and SAA. Although SASTT had been invited, they had not been able to send a representative.

Much of the discussion centered around the problems that had been encountered with the SASTT Act and that, if the Community Planners did not have a scope of practice in their new act, the exemptions that currently exist in the APEGS and SLSA Acts would have to be eliminated or the same problem would occur.

SACP will be having their new Act reviewed by legal council and, unless Justice was prepared to consider allowing a scope of practice in their act, they may elect to stay with their existing act.

#### **Auditors**

W. J. Schoenfeld and R. P. Pattison have accepted their nominations as auditors for 1998 but have requested financing for outside professional assistance.

The auditors have been invited to solicit price quotations from accounting firms and provide Council with a proposed budget for consideration when planning the 1999 budget.

#### **SLSA Handbook - Table of Contents**

Council reviewed a proposed new table of contents for the SLSA Handbook submitted by A. I. Jensen. The proposal included the deletion of some of the

Acts and Regulations currently contained in the Handbook.

It was agreed that the proposed new table of contents be referred to the Board of Examiners for comment before any final decision is made on its implementation.

#### **Amendment to the Oil and Gas Conservation Regulations**

A letter was received from Saskatchewan Energy and Mines which explained recent amendments to the Oil and Gas Conservation Regulations. It was agreed that copies of the letter should be distributed to all those who subscribe to the SLSA Handbook update service and that an article should be included in the next issue of the SLSA Newsletter.

#### **Other**

The president reported on the activities of the LAND Project Committee and a discussion he had with SaskTel regarding their efforts to increase their level of service related to locating their lines and facilities.

#### **L. A. Andersen/W. L. Jamieson - Form P - Practical Experience Report**

Council approved a Practical Experience Report from L. A. Andersen, supported by W. L. Jamieson.

Mr. Andersen was to be advised to prepare to write his professional examinations at the April, 1999 sitting.

#### **Alberta Brochure re: Subdivision Process**

A new brochure was received from ALSA entitled "Alberta's Subdivision Process".

#### **Certified General Accountants (CGA) - Proposed Meeting re: Professional Corporations**

The Association has been invited to participate in a meeting being organized by CGA to review the possibility of having legislation amended to allow incorporation of professionals. President Webster agreed to attend the Sept. 14th meeting on behalf of the SLSA.

#### **Inquiry from Geomatics Canada Regarding the Use of Spikes to Demarcate Pipelines**

A telephone inquiry had been received from a representative of Geomatics Canada regarding this province's requirements for monumentation of reg-

istered pipeline rights-of-way. The individual from Geomatics Canada had been provided with conflicting information from two different SLS's, one of whom suggested that spikes were acceptable. The Executive Director had provided copies of the relevant sections of the Land Surveyors Act and the SLSA Bylaws which confirm that standard steel pins were required.

#### **CACS/CSRS Seminar in Regina or Saskatoon**

Council was advised that planning is underway for a Canadian Active Control System/Canadian Spatial Reference System (CACS/CSRS) seminar to be held during the winter in either Regina or Saskatoon the seminar is to be sponsored by the Geomatics Industry Association of Canada.

#### **ICA - Ottawa 1999**

A package of informational materials that had been received from International Cartographic Association (ICA) regarding an international conference to be held in Ottawa in August of 1999.

#### **Convention Committee Report**

The President reported on planning for the 1999 annual meeting and noted that there was growing support for a change in format whereby the business portion of the meeting would occur during a single day and would be wound up by the President's Ball that evening. Other events such as educational seminars, President's Forum, the golf tournament, and Council meetings could then be added before and after the business meeting as required. There was general agreement that this format should be tried, at least for one year, to determine member reaction.

#### **Education Committee Report**

Council reviewed proposed changes to the Mandatory Continuing Education provisions of the Bylaws that had been drafted by the Education Committee. The changes would remove the specific point values from the bylaws leaving them to the discretion of the Education Committee, and it would eliminate the automatic suspension of licences in favour of the normal discipline process that can be implemented following any violation of the provisions of the Act or Bylaws. It was agreed that the Education Committee should continue pursuing the proposed amendments by soliciting input from the provincial government before placing the proposed

amendments before the membership at an annual or special general meeting. It was also agreed that the Chairman of the Education Committee should be invited to meet with Council at the next meeting of Council.

### **Practice Committee**

M. A. Marien reviewed some of the planned activities of the Practice Committee for the coming months. A major priority would be undertaking the type of analysis that was required by the resolution from the Annual Meeting regarding the Suggested Schedule of Fees. Mr. Marien explained that he had submitted a tentative proposal to the U. of S. College of Commerce for a graduate student project related to this matter and that the cost of such a project could be as much as \$2500.00. Council agreed that, in the event that the U. of S. accepts the proposal, the Practice Committee be empowered to commit to an expense of not more than \$2500.00 to do all or part of a study related to the development of a more reliable Suggested Schedule of Fees.

The second priority for the Practice Committee was responding to the motion from the Annual Meeting dealing with the concern about future membership numbers.

### **Public Relations Committee**

The P. R. Committee expects his committee to begin working on at least four new pamphlets during the coming winter. These will deal with such topics as subdivisions, survey monuments, surveying in general, and the requirements for becoming a Saskatchewan Land Surveyor.

### **Next Meeting**

The dates for the next meetings were set as Friday, October 16 in Regina; and Monday, November 30 in Regina.

The meeting adjourned at 4:45 p.m. ☺

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## **President's Message**

*continued from page 801*

flexible, creative and instrumental in the building of the country during the post war era until the 1970's. By the late 1970's the basic infrastructure was in place and our role in society had changed. The reduced demand for our services and technological advances have reduced the positioning, collection and provision of spacial information to commodity items. Our traditional roles and our world leadership status have eroded. We may still have a chance to regain our leadership role in geomatics before it is lost to competing groups.

The business models that served us well during this period are now in need of review and possible revision. The three national survey groups that represent the Land Survey and Geomatics community are addressing this concern. CIG, GEAC and CCLS are currently studying the possible merger of the three organizations to better serve the member organizations, reduce overlaps in services provided and build for the future. A task force has been created and proposed a preliminary model for this new organization, Alliance Geomatics

Canada. The CCLS was the first group to view the proposed model in Winnipeg on September 19<sup>th</sup> 1998.

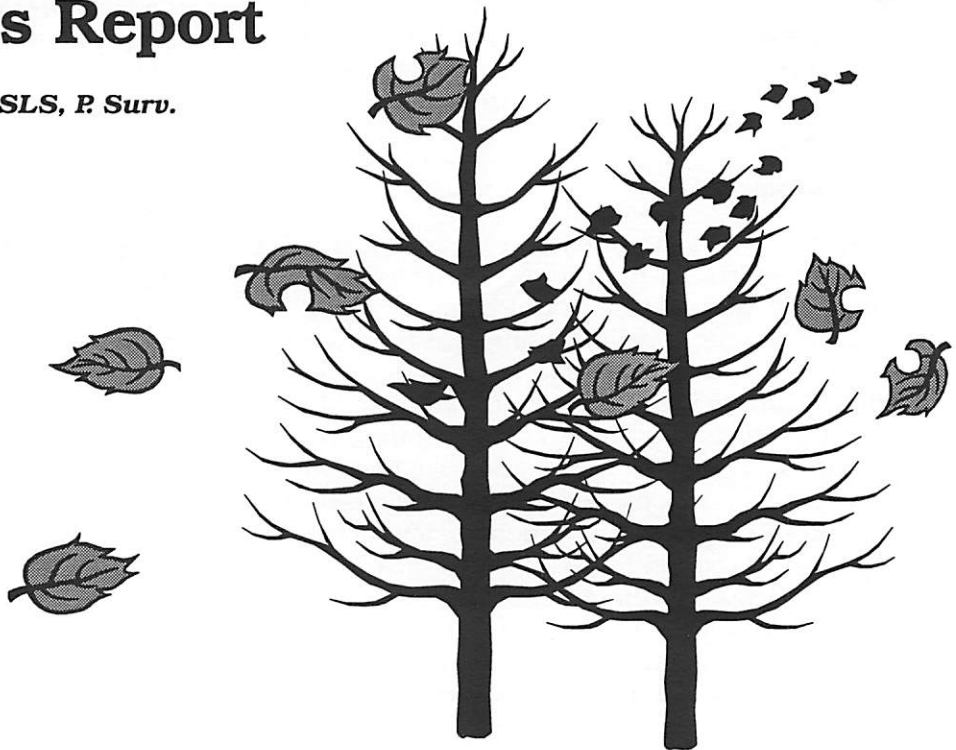
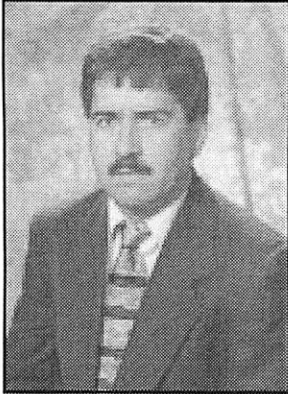
The CCLS was in favour of the general direction that the initiative proposed, but had a number of concerns about the proposed model. These concerns were communicated to the Task Force along with the need to further communicate with the provincial survey associations, and is expecting the Task Force to return with a modified model that will serve the three organizations into the future.

We have to ask ourselves if a new national organization is in the best interests of the survey profession and if it is, what would be the best model for that organization to fulfill its' many mandates. In Saskatchewan, we had the vision to expand our profession with the Professional Surveyor designation, recognizing the overlap and convergence of the Land Survey and Geomatics community into one.

Do we have enough vision to support the creation of this Geomatic Alliance on a national scale? ☺

# Councillor's Report

By Thomas W. Sansom, SLS, P. Surv.



As usual I am writing this report on the night before it has to be submitted so that it can be included in the current newsletter.

Due to the incredibly nice weather we have had and a large and successful garden at our new/old country home, I have found it difficult to force myself to sit down and compose this article. As well I have not come up with any one interesting and enlightening subject so once again I will ramble.

First of all I would like to congratulate Bob Webster on his coronation as president at our annual meeting in May and to welcome Jim Boyd, Rob Morrison and Roy Pominville to council.

Our last council meeting was held at the beautiful Willows Golf and Country Club in Saskatoon in early September. I suggest to President Bob that if he continues to arrange council meetings at this facility, he could at least treat us to a round of golf.

At our last council meeting Mr. Tom Webb our CCLS representative gave us an update on CCLS's proposed public information program. This initiative involves several television commercials dealing with Land Surveying and our professional role in the community. Although this may require some funding from our association, I believe it is an initiative that we all should support.

There was also discussion of the motion passed at the annual meeting.

"That the SLSA seek professional assistance in preparing a cost analysis and suggested fee schedule \_\_\_\_\_"

I am a little uneasy about our association spending money to produce a fee schedule which very few members use and which could result in charges of price fixing if we did use it. I suggest members read the article "Avoiding Anti-Trust Problems" in the last issue of the newsletter. I believe the publication of this schedule on a yearly basis should be something that we should think about very carefully.

Thanks to Wayne Adams for his timely and informative report on the "LAND Project" in the last issue of the newsletter. As this major project will affect the way we all do business in the province it is imperative that we are kept abreast of the progress of this initiative. Hopefully an educational seminar will be held concerning the "LAND Project" sometime in the next few months.

In closing, I would like to wish all members a great fall, let's hope that La Nina finishes before it starts, and may none of you catch the Asian Flu. ☺

# What's Happening

**Next Council Meeting:** Monday, November 30, at 10:00 a.m., at SLSA office.

**Don't Miss It!** The Ottawa 1999 International Cartographic Conference and 11th General Assembly of ICA. Touch the Past, Visualize the Future. From August 14 to 21, 1999, in Ottawa. A technical program, guest speakers, cartographic exhibits, workshops, and technical exhibits are just a small part of this conference. Visit the Website: <http://www.ccrs.nrcan.gc.ca/ica1999>.

**National Seminar Series on the Canadian Spatial Reference System and Canadian Active Control System** This GIAC sponsored seminar series will be taking place on Tuesday, October 20, 1998 in Saskatoon, at the Radisson Hotel, in the Venice Room. SLSA is one of the sponsors of this seminar.

The following books are available from SLSA office for the cost of mailing them (take as many as you like):

- The Elements of Style Third Edition
- Errors in Composition Revised Edition
- Professionals Changing Urban Patterns
- Writing a Technical Paper
- Technical Writing Second Edition

A fourth volume of Men and Meridians entitled, *Mapping a Northern Land: The Surveying of Canada, 1947 to 1994* can now be ordered for delivery in February of 1999. This volume is available to Land Surveyors for a cost of \$60.00 plus \$4.20 GST and \$6.00 shipping & handling, **if purchased through CIG before November 15, 1998**. Regular price is \$75.00, plus tax and shipping & handling. Contact SLSA office for the order form.

## SLSA Welcomes New SLSIT's



**Wade Pennell** was born in Kamsack, Saskatchewan, and is employed with Can-Am Surveys Ltd., in Calgary, Alberta. He has obtained his Bachelor of Science degree in Geomatics Engineering from the U of C. Wade resides in Swift Current, Saskatchewan with his wife Loriane.

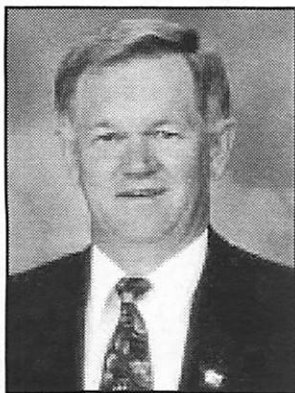
**Arthur Mark Miller**, of Saskatoon was born in Kipling, Saskatchewan, and is employed at Webb Surveys. He has obtained his Bachelor of Science in Geomatics Engineering from the U of C and received his diploma in Surveying Engineering at SIAST Palliser Campus in Moose Jaw. Art has been employed by survey firms since 1988 in Alberta, Manitoba and Saskatchewan.



**Leland Lyle Petterson** was born in Estevan, Saskatchewan, and is currently employed at SESL Geomatics (Sask.) Ltd. He obtained a diploma and degree in Surveying Engineering, after attending at STI (Now SIAST Palliser Institute), U of S and U of C. His background experience includes having been an Instructor at SIAST, and the Vice President of Keplerian Positioning Systems. He is married and has two daughters.

# News From FIG

*The following news articles from FIG were submitted by G. K. Allred.*



## **FIG XXI Congress held in Brighton**

A one day symposium and one week art exhibit were held in conjunction with the XXI Congress of FIG in Brighton, UK from July 19 to 25. The Symposium and art exhibit were entitled 2000 years of measurement and featured historical displays and presentations related to the art and history of the surveying profession.

The Symposium featured 11 papers dealing with such topics as "Applying Euclid", "The Linkage of Paris and Greenwich Observatories", "The Mason Dixon Line", and The Development of EDM." One very interesting presentation entitled "The Duke was a Surveyor...and So Was God!", featured a one hour video of film clips from full length movies that showed surveyors, presented by John Brock from Australia.

The Art and History display ran for the full week at the University of Brighton and featured a set of Military Maps donated to FIG by the Institute of Surveyors of Australia. Illustrations of survey activity in society dating back to the Egyptian pyramids were on display in a series of 43 well prepared display panels for casual viewing. With the exception of the Military Maps, the art exhibit did

not feature any original works of art but rather exhibited photographic reproductions of pieces of survey art that are located in various exhibits around the world. The panels featured different themes such as "Land Surveying has Never Been an Office Job", "...It Can be Difficult...", "...By Boundary Stones or...", and "There is always a lighter side."

Exhibits from Canada included a photo reproduction of a stained glass window in the Christ Church Cathedral in Victoria, British Columbia, a water color sketch of David Thompson, and other pieces supplied by the Corporation of Land Surveyors of the Province of British Columbia; several cartoons by Bill Brookes of the Geodetic Survey of Canada; and a depiction of the early Egyptian Rope Stretchers on papyrus from Ken Allred.

During the business sessions, the FIG General Assembly created a new Permanent Institution for the History of Surveying. This institution will be located at the Museum of History of Science, Oxford, UK and will be directed by Jan de Graeve of Belgium. Mr. Jan de Graeve is the former chair of the ad hoc committee on the History of Surveying and

## FIG Adopts Charter for Quality

The International Federation of Surveyors (FIG) recently adopted a Charter for Quality as a guideline for member associations to use to develop Total Quality Management principles within their organizations. Recognizing that the role of the surveyor is to provide certainty, it is important for all surveyors to recognize the importance of quality and ensure that the product of their services is a quality product. Many of the surveyors services and plans provide the legal cadastral framework for future generations of land records, and are relied on by governmental and private land management agencies as well as the public at large.

The seven principles in the charter are:

- To commit our respective organizations and member associations to quality, service and client/customer satisfaction.
- To develop a total quality culture through management commitment and leadership within our organizations.

- To develop a continuous improvement approach to all our activities.
- To work towards achieving recognition of our respective organizations to internationally recognized standards for quality systems.
- To encourage suppliers of products and services to surveyors to embrace the principles of the quality movement.
- To train surveyors through a total quality approach.
- To share and participate in bench marking and performance measurement.

It is the intention of FIG Commission 1 to have the Charter for quality printed in a format for framing and display in the offices of professional practitioners.

## New Ethical Code Adopted by FIG

The International Federation of Surveyors (FIG) recently adopted a new code of Ethics and Model Code of Professional Conduct at the XXI Congress in Brighton, United Kingdom from July 19 to 25, 1998. Ken Allred, chair of Commission 1(1994-98) is introducing the proposed new code to the FIG General Assembly remarked that "This new code is put forward after considerable in-depth research into the basic tenets of ethical principles in all regions of the world. The very basis of the code is the Golden Rule, the Silver Rule and Green Rule. The Golden Rule: Do unto others as you'd have others do unto you, the Silver Rule is basically the Hippocratic Oath - to do no harm, and the Green Rule is: Is it Sustainable?"

Allred was pleased that the FIG Bureau adopted the code after four years of research, study, comment and formatting. The new code will replace an ethical code that was originally adopted in 1981, but was considered to only deal with surveyors in private practice, and did not address ethical principles of public and academic survey practice. Recognizing that the scope of practice has broadened in environmental, technological and a global

perspective the new code attempts to deal with the basics of ethical practice from a global point of view and specifically addresses environmental concerns.

The code is based on four underlying principles: integrity, independence, care and competence, and duty. It fully recognizes the public interest as an integral recipient of the services that a surveyor may provide even though the client may be a private individual or corporation. As the code spells out: "The work of surveyors has cumulative and long term effects on future generations. Many of the functions of surveyors, even those performed for private clients, are by their nature functions that have a lasting impact on society."

The Code of Ethics and Model Code of Professional Practice will be printed in an FIG publication for distribution to all member associations and individual practitioners. The Code will also be used in conjunction with another recent FIG publication entitled Constituting Professional Associations, as an educational tool to promote FIG and the profession in developing countries. ☺

# Location Surveys Vital

By Douglas Buchmayer

Building location surveys should be an integral part of any real estate transaction. Now referred to as Real Property Reports, surveys outline the extent of a property by reflecting the location of all structures on a two-dimensional drawing, complete with measurements and notes.

Only Ontario Land Surveyors are qualified to perform this task, and like everything else, their services come at a cost.

The need for a new survey is often questioned, but few home buyers recognize the risk they inherit when they compromise for something less. The degree of risk can be measured from best to worst on the following scale:

**Brand new survey:** When a home buyer commissions a new survey of a residential property, the price rarely exceeds \$1000. The cost depends on the level of research required and whether the property has been surveyed before. It will also depend on such factors as the lot shape and size, number of buildings or features, and the age and topography of the land.

Aside from the drawing, the buyer gets the professional opinion of a qualified surveyor. If there are any errors or omissions on the survey, the surveyors will be responsible for the loss suffered if he or she is at fault. There is no risk to the home buyer.

Most builders of new homes will supply a survey. However, builder-supplied surveys normally only outline the property just after the foundations have been poured. There is no indication of decks, fences, pools, etc.

**Seller provides original survey:** In many transactions, a seller will provide the original copy of the survey obtained when he or she bought the property. The surveyor's signature and seal verifies it's the original. This is an attractive selling feature.

All the home buyer gets is a drawing. The surveyor's opinion does not transfer from owner to owner. Although in most cases you can be confident of the accuracy of the surveyor's work, any errors or omissions will be your responsibility.

Getting a survey without an opinion is like owning a purebred dog without any papers.

Any changes that have occurred to the property since the date of the survey (which could create problems if they are not apparent) will not be on the survey. Thus the risk to the home buyer increases, albeit minimally, depending on the amount of change.

A prudent home buyer will ask the original surveyor for an update of the opinion, which will come with a new drawing. If there have been no or few changes, the cost is a fraction of that for a whole new survey. The home buyer then returns to a position of bearing no risk.

**Seller provides a copy of the original survey:** Too often, a seller only has a photocopy of the original survey. In many cases, depending on how many times it has been copied, this is nearly worthless. Not only does the home buyer have no opinion to rely on, he or she also has no way of knowing whether the original has been tampered with or amended before being copied; the risk to the home buyer increases accordingly.

Again, a prudent home buyer should contact the original surveyor for a fee quote for updating. However, usually where only a copy is available, the survey is quite old and many changes may have occurred since it was drawn. The cost of an update may come close to that of a whole new survey.

**No survey at all:** Few home buyers will proceed with a transaction in the total absence of a survey. Even should they wish to do so and absorb completely the tremendous risk involved, where mortgage financing is involved, virtually all lending institutions will insist on one.

The only compromise available if a home buyer chooses not to buy a survey is title insurance. Although a fraction of the cost of a survey, title insurance only addresses the risk of loss.

Without a drawing of the land and buildings, the home buyer has no way of knowing whether the property complies with municipal bylaws or whether other buildings are encroaching on the

land. There may also be rights of way or other easements traversing the property. In fact, without a survey there is no way of knowing that the house you'll own is actually on the land you think you're buying.

Without a survey, a home buyer also lacks the ability to take issue with the seller before a transaction closes. There is no ability to walk away from the deal or negotiate a reduction in the purchase price if a problem is discovered after the deal has closed.

Admittedly, many buyers of resale homes do not purchase a new survey. More times than not, they rely on an affidavit given by the seller that to "the best of their knowledge and belief, there have been no changes to the property since the date of the survey."

A home buyer should seriously scrutinize the wisdom of accepting declarations made by the party most likely to conceal a problem. And yet buyers,

their lawyers and their lenders all seem to accept these affidavits, even where they refer to mere photocopies. I have even seen affidavits where the seller has pencilled in additions or deletions and then sworn to their accuracy.

Although this method may avoid the cost of buying a new survey, it will not decrease the risk to the home buyer. It's difficult to sue a seller after the deal has closed when what you relied on was a statement of his or her knowledge and belief. But most residential real-estate transactions close without a hitch, whether or not a new survey is obtained. It all comes down to the level of risk you're prepared to accept. When it comes to your home, is it a risk worth taking?

*Douglas Buchmayer is an Ottawa lawyer. This article appeared in his "On The House" column in The Ottawa Citizen on February 28, 1998. ☺*

## Memorandum of Understanding

*Reprinted as seen in the Ontario Land Surveyor Quarterly, Summer, 1998.*

### BETWEEN

The Board of Examiners for Canada Lands Surveyors (BECLS), the Western Canadian Board of Examiners for Land Surveyors (WCBELS), the Atlantic Provinces Board of Examiners for Land Surveyors (APBELS) and the Association of Ontario Land Surveyors (AOLS) together known as the parties.

### OBJECTIVE

The objective of this Memorandum of Understanding is to promote cooperation amongst the parties by adopting a common core syllabus for use by the parties based on the Canadian Council of Land Surveyors *Board of Examiners Co-ordinating Committee policy Accreditation and Reciprocity for Land Surveyors in Canada - A Proposal for Change* approved May 1996.

### SCOPE

The Memorandum of Understanding covers a common core syllabus being Schedules I, II and parts of Schedule III as listed in the attached "Annex A" and identified in the aforementioned policy. These schedules may be amended from time to time to reflect the needs of the profession upon agreement

by all the parties.

### AGREEMENT

Under this Memorandum of Understanding, the parties agree to the following areas of co-operation. Representatives of the parties will on a yearly or more frequent basis as necessary, consult to:

1. Identify and adopt common rules and criteria for the assessment of qualifications and granting of exemptions for candidates of the parties.
2. Make any changes to Schedules I, II, and III course descriptions, textbooks and reference books; which changes will be agreed upon by the parties.
3. Select, as needed, suitable persons to act as Special Examiners. A guiding principle will be to select Special Examiners to achieve equal regional representation by the parties. The selected persons will then be recommended by the BECLS for appointment as Special Examiners by the Minister of the Department of Natural Resources Canada.

The WCBELS and the APBELS will:

Direct all their candidates to write the BECLS examinations at the regular BECLS examination sittings in February of each year.

Pay to the BECLS (Receiver General of Canada) the fees as indicated on the attached "Annex B".

The AOLS will:

1. Inform their applicants (candidates) with a post-secondary degree that they may write the BECLS examinations, in the required subject areas as identified by the AOLS, at the regular BECLS examination sitting in February of each year.
2. Direct their applicants (candidates) to pay to the BECLS (*receiver General of Canada*) the fees as indicated on the attached "Annex B".
3. Recognize that the successful completion of the appropriate BECLS examinations will satisfy the AOLS academic requirements in that subject area.

The BECLS will:

1. Accommodate all candidates of WCBELS, APBELS and the AOLS at the BECLS examination centres.
2. Maintain at least one examination centre in each province governed by the WCBELS, APBELS and the AOLS and in any other centre deemed necessary by consensus of the parties.
3. Arrange for the marking of all examinations written by the WCBELS, APBELS and AOLS candidates. The marks of their respective candidates will be sent to the appropriate Board for comments and/or approval. The marks will then be released by each party to its respective candidates (applicants).

#### **TERMINATION OF THE AGREEMENT**

This Memorandum of Understanding may be terminated by:

1. Any of the parties giving notice at least ten months prior to the commencement of joint annual examinations, or
2. Mutual agreement by the parties to terminate the Memorandum of Understanding.

#### **ANNEX "A" SCHEDULE I**

Technical Fundamentals

1. Mathematics
2. Physics
3. Probability and Statistics
4. Computer Science
5. Effective Communication

#### **SCHEDULE II**

Geomatics Fundamentals

1. Principles of Geomatics
2. Data Analysis and Estimation
3. Data Base Management
4. Cadastral Studies
5. Land Information Systems

#### **SCHEDULE III**

Electives

1. Advanced Surveying
2. Remote Sensing
3. Geodetic Positioning
4. Survey Law
5. Business: Law, Administration and Economics
6. Professional Affairs and Ethics
7. Land Economy and Administration
8. Earth Sciences
9. Photogrammetry
10. Cartography and Map Projections
11. Hydrography
12. Land Planning
13. Land Management/GIS
14. Municipal Engineering
15. Survey Applications

#### **ANNEX "B"**

Fees to be paid to the BECLS for the purpose of writing the BECLS examinations:

1. Each examination \$ 50.00
2. Each appeal \$ 50.00

#### **BECLS INTERIM STRATEGY**

Until the new Canada Lands Surveyors Act and Regulations are passed:

The APBELS, the WCBELS and the AOLS agree to direct their candidates (applicants) to write the BECLS examination in the subjects as described in the current regulations (1990 syllabus). The BECLS agrees to enter into contract with examiners approved by all the parties to send and mark as required all the other examinations as shown in Annex "A" which are not included in the 1990 syllabus. ☺

# Educational Corner "Stones" Fences...

*By John Middleton, OLS, Consultant, Survey Review Department. Reprinted with acknowledgement to the author, and to the Ontario Land Surveyor Quarterly, Summer, 1998.*

A Comprehensive Review can be viewed as an audit, similar to a financial audit, which compares a practice's work with pertinent regulations and accepted common practice. As you can imagine, the style and content of the plans and field notes examined by the Survey Review Department, during Comprehensive Reviews, vary considerably. Data collector output, total station surveys with manually recorded measurements, and conventional field notes showing parallel offsets and closed figures are all encountered regularly. Despite these differences in format, there are often issues common to many surveys.

**There are instances where railway fences are held as the best evidence of railway boundaries...**

One such issue relates to fences and how they are dealt with or ignored by surveyors. Railway fences are a good example of the diversity of views held by surveyors about fences as evidence of boundaries. There are instances where railway fences are held as the best evidence of railway boundaries and other instances where railway boundaries are set at deed width from centreline. The latter method is based on the view that many railway fences are fences of convenience, built by the railways entirely on railway lands, to preclude cattle wandering on the lands, and to allow the railways to maintain the fences at their discretion. Additionally, officials of some railways have insisted, when reviewing CTA and LTO First Application reference plans of adja-

cent lands, that the railways should be given deed width from centreline of track, regardless of the position of the fences. They rely on a provision of the Railway Act which prohibited the alienation of railway operative right-of-way except with the consent of the Privy Council, although that section of the Act appears to have been intended to prevent the disposal of unprofitable branch lines rather than to control the retracement of boundaries. Regardless of the interpretation of the Act, many surveyors now accept the railways' position and re-establish railway boundaries at deed distance from centreline of track, except in the case of extra lands such as borrow pits and old station grounds. In those cases fences are often adopted as the best evidence of the original limits of the lands.

Railway fences are not the only examples of fences of convenience. Another example is an incident where a surveyor, in the process of monumenting a fence between two lots in a single front township, was stopped by the owner of the lands with the statement that the fence was not on the lot line. It appears that the owner and his neighbour had undertaken to renew an earlier fence and had agreed, due to the trees, shrubs and underbrush along the fence, to rebuild at one side of the tree line. Over time the new fence had become overgrown and gave every impression of being reliable evidence of the original location of the lot line. Only by careful examination of the older trees for wire marks and scars was the location of the earlier fence determined, work that would not have been undertaken without the input of a knowledgeable resident.

The manner in which surveyors evaluate and record the details of fences, hedges and retaining walls is also a common issue noted during Comprehensive Reviews. In discussing this matter, it should be noted that O.Reg. 42/96, S.21 (1)(a) and (b) requires that all topography that forms, controls or marks a boundary, that may indicate an interest in title,

or that indicates an encroachment, shall be shown on a plan, and that sur-

**...few surveyors' reports or field notes adequately detail...**

vey data necessary to define the position of the feature is to be shown. As de-

defined by S.16 of the Interpretive Guide to O.Reg. 42/96, this section of the Regulation means that all fences, hedges and retaining walls, other than those dividing the interior of a parcel, are to be shown on every plan with ties from the feature to the limits of the parcel or with a note indicating the feature is on line, if such is the case. This does not preclude showing the full details of a fence enclosing a pool on a Surveyor's Real Property Report, as that information may be important to show compliance with municipal bylaws.

**...the extent of research made, or persons interviewed...**

**Fences, etc., whether they are accepted or rejected, need to be researched to ascertain their status...**

Occasionally there is confusion regarding the illustration of topographic information on plans to be deposited or registered in a Land Registry Office. Files under review often include a Surveyor's Real Property Report and a reference plan of a site, the SRPR showing fences not illustrated on the reference plan. This variance in presentation of salient features may stem from an incorrect interpretation of O.Reg. 42/96, S.21(2), which states that topographic information not required under clause (1)(a) of the regulation shall not be shown on plans to be deposited or registered. Here it is necessary to make a distinction between extraneous topographic information and information about features that control a boundary, indicate an interest in title or may indicate an encroachment. The latter features need to be clearly shown on every plan of survey, including their dimensional relationship to the boundary.

Another circumstance in which the significance of the position of a fence could be misconstrued is in old town plots or subdivisions where there are long-standing fences and little remaining evidence of the original survey. In those cases considerable research is often undertaken, coupled with good local knowledge, to determine whether the fence is

evidence of the original limit or just an old fence. Unfortunately, few surveyors' reports or field notes adequately detail the extent of research made, or persons interviewed, in connection with such old fences or other conflicting long-standing occupation. This information, which directly relates to the evidence used to retrace the boundary, should be recorded for future reference.

It should also be mentioned that occasionally surveyors adopt old fences as boundaries simply because they are old. The assumption here, and it is a dangerous assumption, is that adverse occupation has established a boundary in the location of the fence and that the extent of title is the fence, regardless of the extent of paper title. An example of the erroneous adoption of a fence as a boundary occurred where a ten acre parcel, severed sometime around 1975 by metes and bounds from a farm, was surveyed. The sidelines appeared to be fenced in conformance with title, but the rear fence, adopted by the surveyor as the best evidence of the rear of the property, was significantly less than deed distance from the front of the property. Subsequent investigation of the fence at the rear of the property revealed that it was a preexisting farm fence left in place after the severance. Effectively, the fence had no significance as evidence, despite the fact that the adjacent owner, the vendor of the ten acre parcel, continued to cultivate the lands beyond the fence. In this case, the plan of survey should have shown the boundaries as described in the deed as well as the position of the rear fence and extent of cultivation. The fact that the owner of the ten acre parcel did not use the land beyond the fence near the rear of the property did not mean the fence was evidence of the original position of the rear limit of the property. Further, the cultivation of the land beyond the fence by the adjoiner, possibly for an extended period of time, did not automatically convey title to the adjoiner.

Fences etc., whether they are accepted or rejected, need to be researched to ascertain their status and how they came to exist, and to determine their significance to the retracement. These research efforts and survey decisions should be well documented, while the relative location of the feature is fully illustrated on the resultant plan. ☺

## Changes to Regulations

Amendments have recently been made to *The Oil and Gas Conservation Regulations, 1985* and *The Petroleum and Natural Gas Regulations, 1969*. These amendments provide a number of fee changes that benefit industry, require industry to report some minor additional information, and clarify certain existing policies in the regulations. The fee changes are part of the government's 1998-99 Budget.

The Canadian Association of Petroleum Producers, the Small Explorers and Producers Association of Canada and the SLSA indicated that they had no outstanding concerns with respect to the proposed changes.

A copy of the amendments were mailed out on September 11, 1998, to all SLSA Handbook Update recipients. If you require a copy and did not receive one, please contact the SLSA office, and a copy will be mailed to you.

Of particular interest to Land Surveyors are sections 4 and 5 of the amendment regulations:

4 Section 10 is amended:

(a) by adding the following subclause after subclause 10(a)(vii):

“(vii.1) having an entry in its legend stating the latitude and longitude of the well site”; and

(b) by repealing subclause 10(a)(viii) and substituting the following:

“(viii) showing for any directionally drilled, slant drilled or horizontally drilled well:

(A) the proposed casing point and the proposed bottom-hole location:

(I) in relation to the boundaries of the section; and

(II) in relation to the well site by rectangular co-ordinates and

(B) the proposed trajectory”.

Section 31 amended

5 The following subsections are added after subsection 31(4):

“(5) Every as drilled survey plan must:

(a) include all the information for a plan of lands as required pursuant to subclauses 10(a)(i) to (vii) and (ix);

(b) show the actual casing point and the actual bottom-hole location:

(i) in relation to the boundaries of the section; and

(ii) in relation to the well site by rectangular co-ordinates; and

(c) show the actual trajectory for any directionally drilled, slant drilled or horizontally drilled well.

“(6) Every survey report or survey plan submitted pursuant to this section must be accurately labelled with the official well name and licence number of the well”.

# Electronic Commerce

by Rick Pabst, Reprinted with permission from *Law Now*, April/May 1998, as seen in *ALS News*, June, 1998. Vol. XXVII-2.

Commerce is increasingly being conducted via electronic communications. Businesses routinely send correspondence by e-mail. However, most agreements which are intended to be legally binding are still generally prepared in the form of paper documents. Are there any good legal or business reasons why contracts cannot be entered into by electronic communications? For most businesses, the movement to electronic contracts makes sense in many circumstances.

## Formation of Contracts

Can a contract be legally created by electronic communications between two parties' computers? The answer is probably yes, even if there is only an offer sent by e-mail and an acceptance of that offer returned in the same manner. There is no reason to believe that the courts will not enforce such a contract unless the original offer stipulates that it cannot be accepted by electronic communication. There are, however, several important legal issues in this scenario.

## When is a binding contract made?

When will an acceptance of an offer have been made if the acceptance is sent by e-mail? This is critical because an offer can be revoked only until the point at which it has been accepted (i.e., until the contract is formed). The courts have not yet stated a general rule as to when e-mail acceptances are considered received. This illustrates the importance of specifying limits on how and when your offer can be accepted. These limits must be specified when you are initially making an offer. For example, if you are sending an offer by e-mail, in the offer you should state if it can be accepted only by e-mail to a specified e-mail address, and by what date and time you must have received the acceptance for it to be effective. It is also important to know where the offer is made and what country's laws will apply.

## What about contracts that must be signed and in writing?

Some oral contracts can be legally valid. Actually proving the existence of the contract or its terms may be more difficult. It is therefore, useful to have some permanent record of the contract and its terms. In addition, some contracts are *not* enforceable unless they are signed and in writing. In particular, the *Statute of Frauds* (an old English law from 1677 still in effect in Alberta and some other provinces) requires some contracts to be *in writing*. Such contracts include those which will take more than one year to complete, guarantees, and contracts relating to land. There are also writing requirements under most provincial *Sale of Goods Acts*. For example in Alberta, sales of goods for more than \$50 must be in writing unless there has been a deposit paid or the buyer has accepted the goods.

But what do *signed* and *in writing* mean? The Alberta and federal *Interpretation Acts* State that "writing" includes words "represented" or reproduced by any mode of representing or reproducing words in visible form." Computer communications are little more than electrons pulsing through conductive matter. However, when they are conducted through the appropriate circuitry, they are then reproduced in a visible form—on a computer screen or on a printer's paper. Accordingly, it would appear that such electronic communications are in writing for the purpose of the *Statute of Frauds* and the *Sale of Goods Acts*.

The *Statute of Frauds* and the *Sale of Goods Acts* also require that the contract be "signed by the party" to the contract. How can an e-mail be "signed by the party" sending it? The technology exists for individuals to actually sign their signature with something akin to an electronic pen and the signature is then reproduced in the same form so as to appear on the receiving computer's screen looking like a true *signature*.

However, most computer communications do not use that technology. Usually only a typed name, not a signature, is possible. If the name of the *signing* party is only typed at the bottom of the communication is the contract signed for the purposes of the *Statute of Frauds* or the *Sale of Goods Acts*?

In order to guess how the courts will analyse this issue, one must understand the underlying reasons for the signature requirement. One purpose of the requirement for a signature on a contract is to establish that the party who signed the document was aware of its contents. Second, the signature itself is a personal mark, being somewhat difficult to imitate. It authenticates the document. A computer communication can similarly be personalized. The technology for authentication of computer messages is apparently developing rapidly. E-mail messages can be encrypted giving them a high degree of authenticity. There will always be a risk of inauthentic e-mail communications. However, the lack of authenticity is also a risk with written signed paper documents (i.e., forgeries).

Furthermore, the courts have been very flexible in their approach to the *signature* requirement. The cases suggest that a typed name at the bottom of a paper contract will probably suffice. For these reasons, the courts may well accept a typed name on a e-mail as a signature if the appropriate authentication safeguards can be shown. If a party wants to remove this doubt for computer generated contracts, then the appropriate hardware and software can be purchased so that a true computer-displayed signature can be produced. The risk is that once such a signature is transmitted by computer communication without appropriate confidentiality safeguards, the signature is available to a large number of potential forgers. This emphasizes the importance of confidentiality.

### **Notices Under Contracts**

What about notices given under an existing contract? Can these notices be given by e-mail? The issue is really what the parties to that particular contract intended. Did they intend that an e-mail communication would be sufficient notice? This has to be determined by looking at what the contract itself says, and if that is ambiguous, then looking at all of the surrounding circumstances. If the parties expressly state that e-mail communications will not suffice for notices then the courts should enforce that choice.

Difficulties will arise where the contract is silent on the point. To the extent that the court can reasonably interpret the parties' intention as being that e-mail notices are acceptable, then the court will likely find those methods of communicating notices to be legally effective. As e-mail communications become more a part of everyday commercial communications, the courts will likely find those communications to be effective as well. The most important thing you can do is to expressly address the issue in your contracts.

### **Electronic Data Interchange**

The legal issues outlined above make it clear that if you want to conduct commerce electronically, you and your trading partners should put in place some rules for how it will work for you. This can be done in an agreement with each of those other parties with whom you want to do business in this manner. Most likely, you will want to do this with your most frequent trading partners first. The agreement should deal with how and when orders will be taken or places, and how orders will be acknowledged. It should include payment terms and all the other terms and conditions applying to the orders. It should provide for what laws will apply and what will be the mechanism for resolving disputes. This can all be done by the parties themselves.

Alternatively, Electronic Data Interchange (EDI) is an existing formalized structure that the parties can use to deal with many of these issues. It is essentially a set of mechanisms and rules for conducting business without using paper. Until recently, it required acquiring standardized software and establishing what was essentially an intra-net between participants. In October 1997, IBM announced that it is now offering EDI forms and access via the world wide web. There may be other services offering the same access. In short, EDI is becoming easier to use and more accessible for businesses of all sizes. It is probably a good time to look ahead to see how much of your business can and should be done electronically.

### **Other concerns**

The foregoing highlights some of the legal issues surrounding electronic communications in the commercial context. The bigger issues will be practical business concerns. One concern is whether an electronic communication can provide as perma-

nent a record of what was agreed to as a paper does. There is no reason why it cannot. Paper can be shredded or burned. Electronic communications can be stored in magnetic form on disks. These can be easily destroyed as well, but as long as the communications are in fact stored in magnetic form, the electronic communications can provide as permanent a record as paper.

Another concern is how the authority of a person purporting to enter into a contract by electronic communication can be verified. Is the person typing the terms authorized to legally bind the company they work for, or is there a *box* you need to be communicating with. The recipient of the communication never knows for certain, but the same question arises with respect to paper communications. How can a recipient of a letter or agreement know that the person signing it is authorized to bind their company? The legal issues are really no different for electronic communications.

A third concern is forged communications. A rogue with some technical expertise can send an e-mail message to a person via the internet and make it look like the message came from someone else. Yet this is also a concern with paper communications. How difficult would it be to obtain or create the letterhead of your company and then sign it to make it look like it came from your company? Fraud and forgery are a real concern in both cases. There is little to suggest that it is necessarily a larger problem with electronic communications.

A fourth concern is the confidentiality of computer communications. When messages are sent electronically, it is possible that unauthorized persons can intercept and even revise the messages. Messages sent on the internet can be relatively easily intercepted and reviewed by anyone. Accordingly, the internet may not be the best electronic medium for sending communications intended to create extremely confidential commercial agreements. This may be partly overcome by encryption of communications, but it is possible for a determined hacker to intercept and read even encrypted communications. There is no guarantee of confidentiality in such communications. However, is that better or worse than other forms of communication? Faxes can go to the wrong number or be intercepted. Letters and paper documents can also be intercepted and copied before they reach their destination. It remains to be seen whether com-

mercial contracts formed via e-mail can be kept as confidential as paper documents.

A fifth concern is that if you already have standardized contract terms with your major business partners, will you now have to revisit all of those terms and the related issues if you want to set up an electronic contract structure? There are, of course, some new issues and concerns that will have to be addressed as discussed above. However, there is no reason why your basic contractual terms cannot still apply in your relationships with the same parties. On the other hand, if there is something about your existing *standard terms* that you find inadequate, the move to an electronic format may be an opportunity for you to rectify that.

### Summary

The courts will likely adapt the law to accommodate the commercial reality of electronic contracts and communications. There remain some practical concerns in conducting business with other parties electronically. However, it is likely that in the near future, even the most significant and confidential of commercial arrangements will be concluded by electronic communications.

*Rick Pabst is a lawyer with the firm of Field Atkinson Perraton in Edmonton, Alberta. ☺*

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# Vice President Gore Announces

## Enhancements to the Global Positioning System That Will Benefit Civilian Users Worldwide

*Source: the internet, reprinted as seen in the ALS NEWS, June 1998 issue.*

United States Vice President Gore announced that a second civilian signal will be provided by the US Global Positioning System.

This new civilian signal will mean significant improvements in navigation, positioning and timing services to millions of users world wide.

The addition of a second civil signal represents a strong commitment by the United States to civil GPS users worldwide and is a major step in the evolution of GPS as a global information utility. GPS is becoming increasingly indispensable for navigation, positioning, and timing by users around the world. GPS has become an engine of economic growth and efficiency as businesses and consumers continue to develop new and creative applications of this technology.

The addition of a second frequency will greatly enhance the accuracy, reliability and robustness of civilian GPS receivers by enabling them to make more effective corrections for the distorting effects of the Earth's atmosphere on the signals from space. GPS has always provided signals on two frequencies for military users for this purpose. This announcement marks a new era in which civilians will have access to the same type of capability.

The decision demonstrates a balance between the needs of civilian users and the demands of national security. GPS civil signals are, and will continue to be, provided free of charge to consumers, businesses, and scientists around the world. The US will continue to do everything they can to protect these GPS signals and to promote GPS Applications for commercial, public safety, and national security purposes.

The addition of a second civil signal has been recommended by a number of expert panels, the most recent of which was the White House Commission on Aviation Safety and Security, chaired by the Vice President. The announcement fulfils a pledge made last March by the Departments of Defence and Transportation to reach a decision on a second civil

frequency within a year. The Departments of Defence and Transportation co-chair an Inter-agency GPS Executive Board, created by President Clinton in 1996 to manage GPS and its US government augmentations.

### **Additional Facts:**

The new civilian signal will mean significant improvements in navigation, positioning and timing services to millions of users worldwide--from backpackers and fishermen, to farmers, airline pilots, and scientists.

The NAVSTAR Global Positioning System (GPS) is a constellation of twenty-four satellites developed, launched, and maintained by the US Air Force that provides positioning, timing, and navigation signals free-of-charge to both military and civilian users worldwide.

A second civil frequency will allow receivers to measure the time of arrival for two signals that have passed throughout the Earth's atmosphere and correct for the distortion introduced by passage from space to earth.

An improved location calculation will allow safety-critical users requiring dynamic, reliable capability to be more reliant on the GPS signal, improve the overall accuracy of the system for the average user, and allow the high-accuracy users (surveying, geodesy, weather forecasters, etc.) to determine their data in a faster more reliable manner. In addition, the second civil signal will allow the safety-critical users to have a backup signal in the event of inadvertent disruption of the current civil signal.

The Inter-agency GPS Executive Board (IGEB) has selected the 1227.6 MHz band (currently known as the L2 signal) for the addition of new civil capability. A third civil signal will also be added with a decision on the frequency to be made in August of this year. The decision on which of these two new signals the Government will pursue to become the "safety-of-life" service signal will also be made in August.

One of the key factors in deciding which frequency to pursue a "safety-of-life" signal is a commitment by all members of the IGEB to have a safety-of-life service signal available by 2005.

The new signals are intended to be added to the GPS Block IIF satellites.

The new signals will be available to all civil users worldwide. Internationally, interest has been expressed via the International Civil Aviation Organization (ICAO)—in the use of a second GPS civil sig-

nal in conjunction with the Japanese MSAS and the European EGNOS augmentation programs.

Currently the GPS system is used by a wide range of users: from cars and trucks on the nation's highways, to ships at sea and on inland waterways; from civil aviation to satellites in space, from earthquake monitoring equipment to surveyors to backpackers; new industries such as precision farming; and the electrical power companies and long-distance phone systems which derive timing and synchronization from the signals. ☺

## Why Choose Surveying as a Career?

*By Trevor Cray, reprinted as seen in the Evergreen State Surveyor, Summer, 1998.*



The opportunities for graduates holding a four-year degree in Surveying reach beyond the traditional lines of the profession. Among them, urban planning, global positioning systems and industrial quality control careers. What makes Professional Land Surveying so attractive as a career choice is the diversity of the activities one engages in under

the single heading of Professional Land Surveyor. At one moment, the land surveyor is a poet in his efforts to integrate all the parts of the land: its limitations, environmental concerns and conditions; the next, a historian when researching notes or deeds. No successful or major civil project can be accurately designed or built without the assistance of the survey engineer, though little is known by architects and engineers about modern surveying and its relationship to the advancement of civilization throughout the ages. A knowledge of boundary law, writing of legal descriptions, and a necessary knowledge of environmental conditions in the field are just a few of the responsibilities and challenges facing the land surveyor. These lesser known responsibilities augment the more obvious scientific duties.

With technological breakthroughs occurring daily in the surveying and mapping field, today's surveying engineer must be trained in a broader field of science. A background in higher mathematics, calculus-based physics, computer programming, geo-

detic science, and electronics is a necessity for the survey engineer to understand and compete in the rapidly expanding discipline of surveying engineering.

Surveying is also a career of great historical significance. From early Babylon to the Greek and Roman Empires, to explorations of Lewis and Clark, surveying has proven itself as a timeless art. Contrary to its name, Land Surveying is not bounded by gravity. It is still making important contributions in the course of history. Global Positioning Satellites have become an everyday instrument as surveying enters into the 21st century. Just as geodetic science, also known as advanced surveying, was used to calculate humankind's path to the moon, deep space is being mapped and surveyed by NASA probes relaying this information back to earth. A testimony to the continuing importance of surveying technology is NASA's recent deep space probe, aptly named Surveyor.

Unlike most careers, surveying offers opportunity for adventure and discovery, indoors and out. It is the scientific challenges of the surveying discipline and the opportunities that present themselves to the four-year, Bachelor of Science graduate that make Professional Surveying a career of choice.

*The above appeared in the vol. 3, no. 2 New Mexico State University Department of Surveying Fall 1997 Newsletter; Trevor's father is Bob Cray, PLS, Northwest Chapter. Trevor Cray is a senior in the surveying program at New Mexico State University) ☺*

# Crooked Border

By Larry Pynn, reprinted with permission seen in *The Link*, July 1998 issue.

To Larry Pynn  
Vancouver Sun  
Suite 1-200  
Granville St  
Vancouver  
V6C 3N3

March 14, 1998 issue, as

## Modern Canada Shortchanged by Erroneous Border Surveys

Nations are defined by their borders. And Canada's border - as every kid in school knows - is the 49th parallel.

The longest undefended border in the world. The political line in the sand that dictates the costs of everything from housing to health care. The mysterious linguistic border crossing at which the American "uh-huh" yields to the Canadian "eh".

Or so we always thought. But in many places, it turns out, the 49th parallel is not our border after all. If it were, chunks of territory now officially part of the US would belong to Canada. And vice versa.

The border is, in fact, a line of bronze monuments that weave back and forth across the true 49th parallel like a swaggering drunk.

Blame it on surveyors from both countries, who, in 1857-76, long before the age of satellite technology, were forced to use less-than-accurate surveying methods.

But the fact is, Canada's southern border, running 2,100 kilometres from the Pacific Ocean east to Ontario-Manitoba-Minnesota, is not where our forebears intended it to be.

So, exactly where is it?

That's what *The Vancouver Sun* set out to discover when it asked the International Boundary Commission in Ottawa to provide a series of new border calculations based on updated technology, including satellite global positioning.

The results show that Canada's gains and losses, - both on the 49th parallel as well as on the Yukon and Quebec borders - depend on exactly where you are standing.

For example, where the 49th parallel runs along BC's southern border in Greater Vancouver - home to Canada's costliest real estate - the boundary greatly favours the US.

In the 60 kilometre section of international border between Tsawwassen and Sumas, the officially recognized boundary is up to 267 metres north of the true 49th parallel.

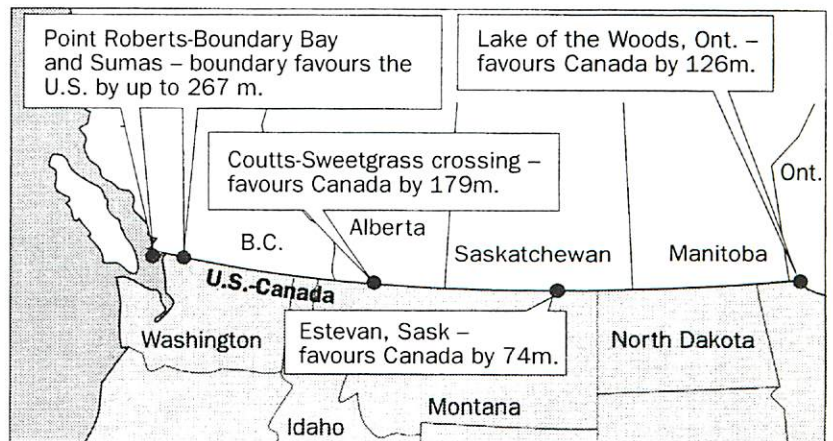
That's right, America on Canadian soil. Oceanside cottages in sleepy Point Roberts, duty-free shops at Pacific Highway, prime farmland in Lynden and three blocks of business and residential homes in Sumas.

No matter how you slice it - metres or feet, hectares or acres - all that land would be Canada's, if only the surveyors had got it right.

"I guess in another part of the world they'd be doing battle over it," said Delta Reform MP John Cummins, whose constituency extends to the Boundary Bay-Point Roberts border crossing. "It's just one of those curious things of history."

Cummins said he isn't about to lead an armed rebellion to retake the tiny US peninsula of Point Roberts - a popular place for Canadians to drink beer and fill up with cheap milk and cheese.

He doubts that the Americans are interested in stirring up trouble, either.



"What's there is there, it's best to leave well enough alone. On the American side, I don't think there's too many who want to come and enjoy our tax regime."

As the 49th parallel moves east across the prairies to Lake of the Woods, Canada makes up for its losses in southwestern BC.

The greatest discrepancy in Canada's favour is a bronze monument 363 metres off kilter, about 30 kilometres east of the border crossing at Coutts, Alberta - Sweetgrass, Montana. Canada is 74 metres to the good at Estevan, Saskatchewan and 126 metres at Lake of the Woods.

Tally up all the inconsistencies in the border - as did Carl Gustafson, the commissions senior engineer in Ottawa - and Canada comes out ahead of America by 67.2 square kilometres of land.

Officials in the US were as surprised as anybody to hear that.

In Montana, which shares its northern border with BC, Alberta and Saskatchewan, the assistant attorney-general was unaware the boundary discrepancy existed at all, much less in Canada's favour.

"You might not want to write this article," warned Harley Harris from the state capital of Helena. "You'll get yourself in trouble."

Harris questioned what would happen if huge deposits of natural resources were discovered in the zone between where the border is and where it should have been.

"It's interesting," he said. "The pertinent question is - if there were valuable minerals - oil or gas and the state had a plausible claim to it - whether we might need to look at it more carefully."

The origin of the boundary discrepancies - not just on the 49th parallel, but in Quebec and Yukon - dates back to a number of old treaties, and surveyor's best efforts to follow them.

The 45th parallel boundary on Quebec's southern border was confirmed by the Treaty of Paris in 1783, the first such parallel boundary between two sovereign nations.

Britain and the US established the 49th parallel as the boundary east of the Rocky Mountains in the Treaty of London in 1818, and west of the Rockies in the Oregon Treaty of 1846.

And the interior Alaska-Yukon border was established by Britain and Russia along the 141st meridian in 1825.

In every case, surveyors failed to draw the boundary accurately because they were limited by the technology of the era.

So, how does Canada fare on these other borders?

Along the 141st meridian, running 1,035 kilometres along the Yukon-Alaska border from the Beaufort Sea south to Mt. St. Elias, Canada earns another 65.3 square kilometres.

Add to that our gains on the 49th parallel, and Canada comes ahead by a total of 132.5 square kilometres.

But there's just one problem. Canada loses it all and more along the 45th parallel between rural farming Quebec and the states of New York and Vermont, a distance of 250 kilometres from the St. Lawrence River east to the Connecticut River.

There, surveyors were especially unkind to Canada, granting the US a whopping 170.1 square kilometres of Canadian territory.

Tally all the discrepancies along these three areas where the border is drawn along straight geographic lines, and the US wins by 37.6 square kilometres, an area 10 times the size of Stanley Park.

"That's probably typical," Gustafson joked. "They always come out ahead."

But he is equally quick to dismiss the notion of Canada fighting new battles to regain old territory. It's all history at this point.

Britain and the US signed a treaty in 1908 stipulating that "the line so laid down and defined shall be taken and deemed to be in the international boundary." In other words, wherever the two countries have placed their border monuments is deemed to be the official border.

In yet another treaty, signed in 1925, Canada and the US agreed to "move the boundary monuments to new sites and establish such additional monuments and buoys as they shall deem desirable."

Although Gustafson said the purpose of that treaty was to "maintain the boundary in a state of demarcation," he added it is within the commission's jurisdiction to install new monuments.

"It could be, in my opinion, places anywhere that the commission deems to be correct," he said. "And the commission deems it to be correct where it was placed originally."

In Washington, DC, US deputy boundary commissioner Clyde Moore agreed. "There is no interred on the part of the commission in revisiting treaties that have served both countries quite well."

Moore also praised the original surveyors for doing the best job possible. "When you consider the circumstances, the conditions they worked under, everyone did a remarkable job."

None of this affects southern Ontario, where Canada's 3,000 kilometre boundary with the US is marked by the Great Lakes.

However, Canada did win a boundary dispute over treaty language in 1980, when the US relinquished a claim to 44 square kilometres of Lake Ontario and, in a lesser dispute, 15 hectares of Lake Erie.

It was done very quietly," Gustafson said. "They didn't want people to get uptight about it."

---

**EDITOR'S NOTE:**

*The International Boundary Commission, in response to the article "Crooked Border" authored by Mr. Larry Pynn of the Vancouver Sun, has prepared the following letter to clarify some of the statements found in the article.*

Dear Mr. Pynn:

We would like to use this opportunity to point out that while we agree with your data, it is not correct to imply that the 49th Parallel is inaccurate or improperly established. In 1856 the 49th Parallel west of the Rocky Mountains was surveyed in accordance with the terms of the Oregon Treaty (1846) when there was no system of survey points covering the continent of North America from east to west and from the Gulf of Mexico to the high Arctic and no Global Positioning System (GPS) such as there is today.

The most precise means then available for locating the boundary was by astronomic observations for latitude. The methods employed and the in-

struments used were precise even by today's standards. The location of the 49th Parallel on the west side of Point Roberts was carefully determined through independent astronomic observations by British and American astronomers. Observations were then made at intervals eastward as far as the summit of the Rocky Mountains. The line was then run between these points and marked periodically by rock cairns.

East of the summit of the Rocky Mountains the line was similarly run and marked by sod mounds using astronomic stations observed at 20-mile intervals alternately by the British and the Americans. Maps were made and the boundary as established by astronomic methods was agreed to and accepted by both countries. The 49th Parallel is where our forebears intended it to be.

Astronomical latitudes and longitudes are positions on the Geoid, which is the irregular surface of the earth corresponding to mean sea level. The astronomical co-ordinates of a point are affected by local variations in the direction of gravity caused by variations in the density of rocks in the vicinity of the place of observation as well as the presence or absence of mass in the area (mountains or valleys). Astronomic instruments which rely upon alignment with the vertical at the point of observation are influenced by these slight deflections or variations. This in turn impacts upon the resulting astronomic coordinates of the point of observation. This fact was well known at the time of the survey, and accepted by both parties.

With the extension of networks of triangulation across North America in the early 1900's a coherent continental system of geodetic positions computed on an ellipsoid was adopted based on a single astronomic point in the State of Kansas called Meades Ranch. This was known as the 1927 North American Datum and re-computation of the international boundary monument positions on the NAD27 changed the latitude value of the initial monument (at Point Roberts) from exactly 49(00'00" to 49(00'08" with the longitude increasing by over one minute. Varying changes were noted in the co-ordinates for the other 924 monuments.

The use of satellite geodesy in more recent times has resulted in a new, earth-centered, 1983 North American Datum which has been adopted for the international boundary. Re-computation of boundary monument positions based upon the latter,

show a latitude for the initial monument closer to 49°00'07" while the longitude of this monument increased 4 seconds. Further refinements to the knowledge of the size and shape of the earth as well as the location of the earth's centre of mass are being made through new satellite work and through scale determination from radio signals emitted by distant quasars. From this information another new datum is being proposed. Should this new datum be adopted, all monuments and survey points would again assume new addresses (co-ordinates) with respect to the new datum, even though they have not physically moved from their original positions. These new positions would presumably give a more precise measure of the relative positions of all of the points of the boundary since they will be based on a more complete understanding of the true size and shape of the earth.

In summary, the 49th Parallel was determined by astronomic observations which were subject to the influence of gravity anomalies (deflection of the vertical). The astronomic parallel was agreed to by international treaty and is the legally accepted boundary. Later geodetic surveys give geodetic positions based upon a mathematical configura-

tion of surveyed points controlled in scale and direction upon an assumed datum surface (ellipsoid). The datum has changed twice since the original determination of the international boundary and could be changed once again, resulting in changed figures (co-ordinates) for the original surveyed positions. However, one should be clear that the process is similar to that of re-numbering the houses on a street. If this is done the houses remain in the same position they have always occupied and you wouldn't expect people to start moving into different houses just to keep the same address. The international boundary is, and will always remain, where it was originally surveyed and monumented by those skilled and brave surveyors of that time.

Michael O'Sullivan  
International Boundary Commissioner<sup>©</sup>

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of what you hear. Brilliant is when  
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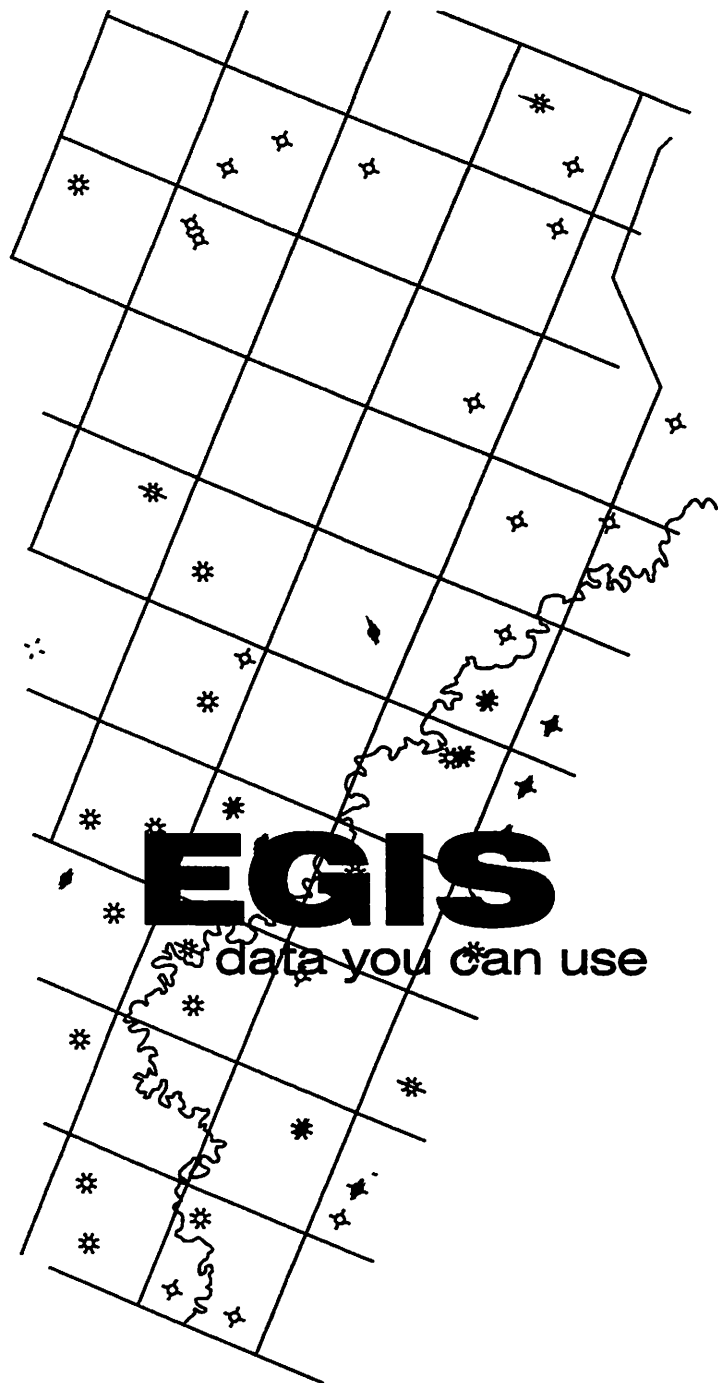


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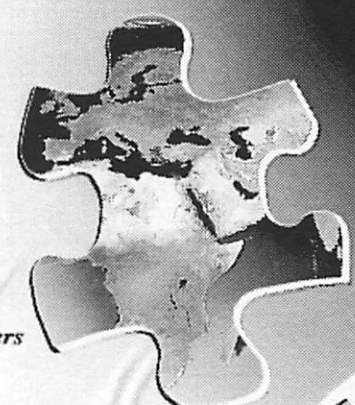
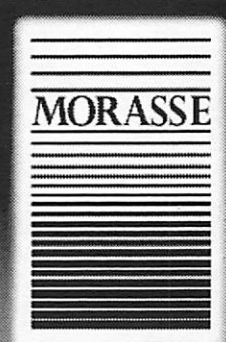
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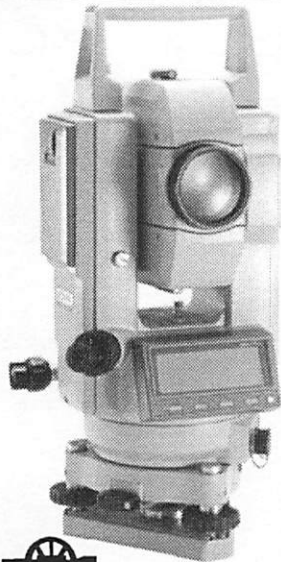
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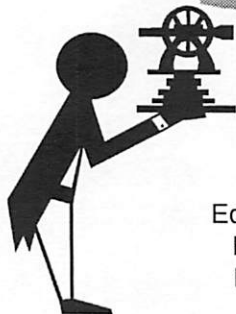
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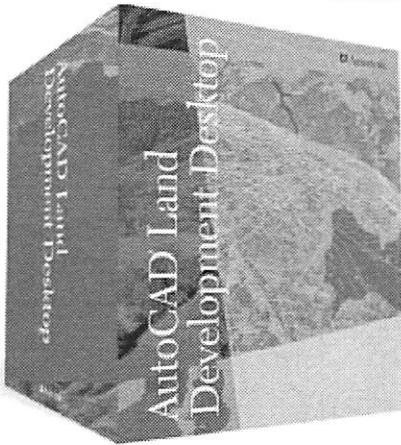
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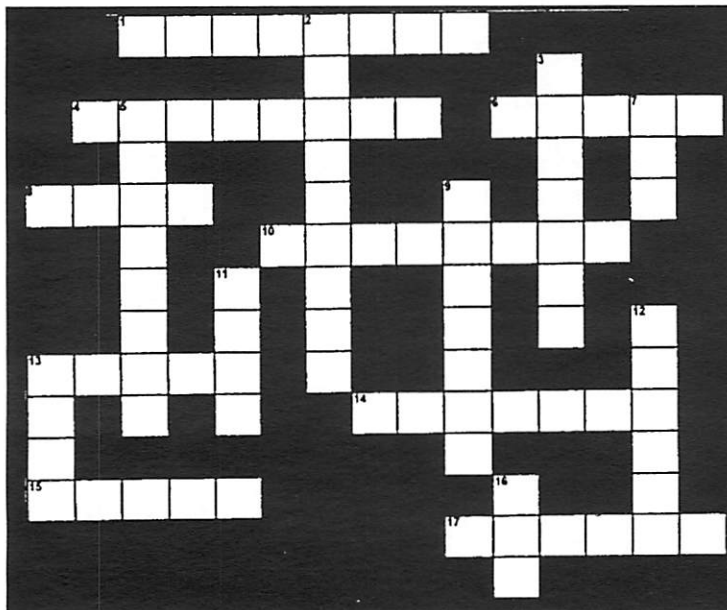


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This crossword puzzle is reprinted as seen in *The Empire State Surveyor*, May 1998 issue.



## ACROSS

1. voluntary conveyance
4. apparent displacement
6. weight of lead
8. river bed; river
10. servitude
13. inch
14. mistake
15. about 6.4 English feet
17. annul; set aside

## DOWN

2. allowable variation
3. periodical publication
5. gravel, sand, silt
7. representation
9. a going around
11. feet
12. written permission
13. diagram to scale
16. right of passage



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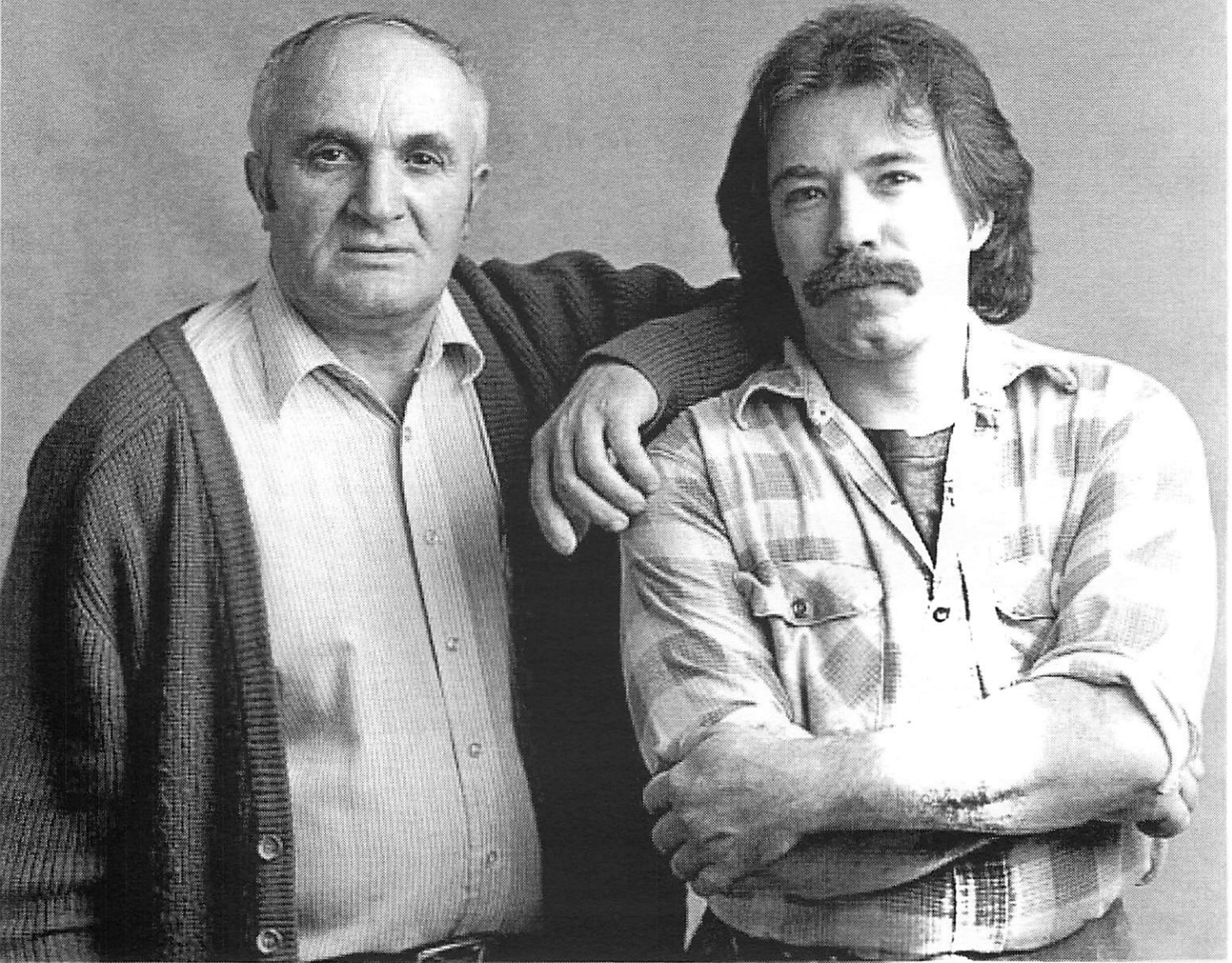


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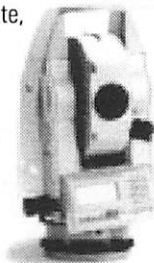
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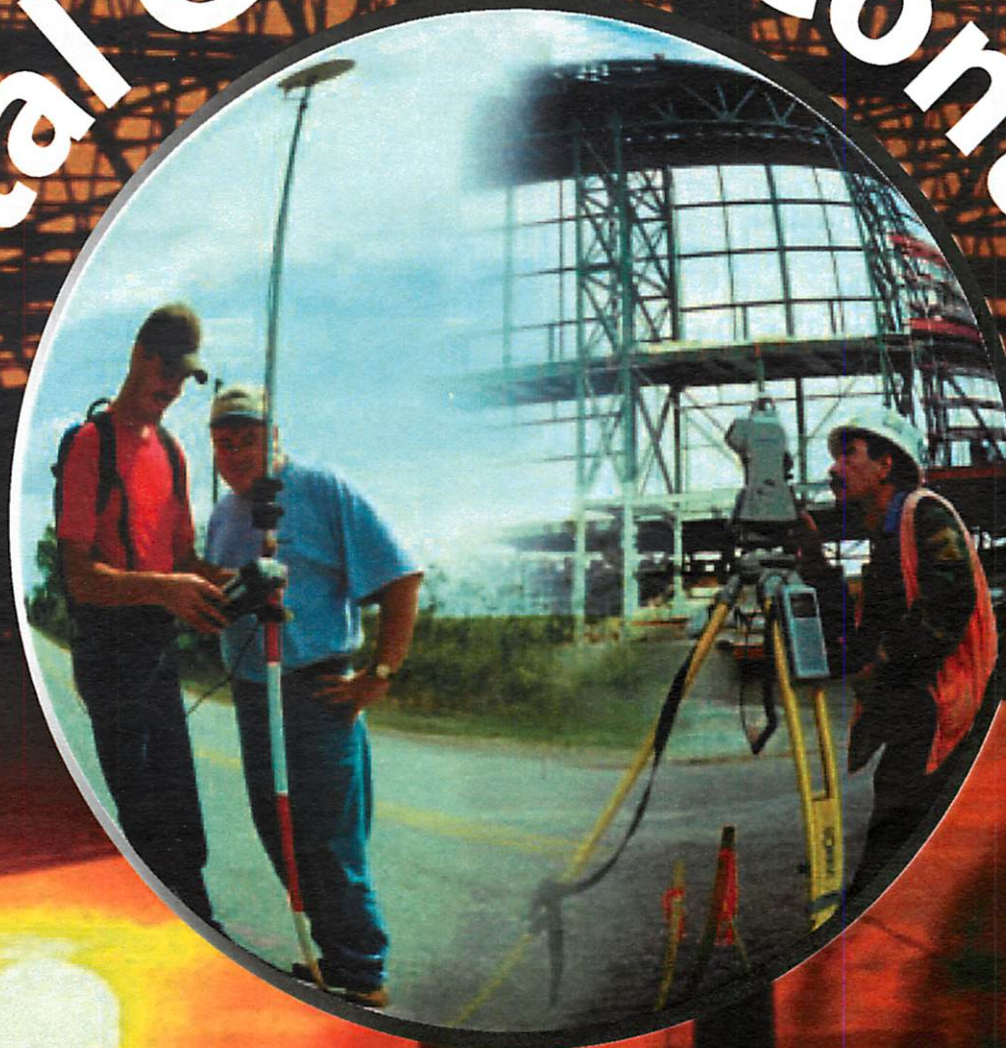
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## October 1998 - March 1999

### OCTOBER

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31									

12 Thanksgiving Day  
 13 CSRS & CACS National Seminar Series  
 15 Council Meeting #4 Regina  
 21 Newsletter Advertisement Special  
 29 ANSLs 48th AGM Halifax, NS

### NOVEMBER

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
1	2	3	4	5	6	7	8	9	10

11 Remembrance Day  
 2 Council Meeting #5 Regina

### DECEMBER

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31									

25 Christmas Day  
 26 Boxing Day

### JANUARY

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31									

15 Fees Due  
 22 BCLs AGM Kelowna, BC



### FEBRUARY

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
1	2	3	4	5	6	7	8	9	10

16 AOLS AGM Toronto, ON

### MARCH

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31									

