The Driving Force

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TABLE OF CONTENTS

5 President’s Message
7 Councillor’s Forum
9 Editor’s Notes
11 Letters to the Editor
15 Association Notes
18 Enhancing Survey Plans in Alberta: Digital Watermarking and Georeferenced Images
21 What Does the New Health Professions Legislation Mean to You?
25 SPR Director’s Message
27 SPR Corner
30 Guardpost
33 Public Relations
35 PDC Corner
37 U of C News
39 ASSMT Notes

Responding to Public Concerns about Oil and Gas in Alberta

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ON THE COVER

Don Brestler lives and paints in Twin Butte, Alberta. His experience as a cowboy on the Milk River Ridge provides the inspiration for his art.

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CANADA POST PUBLICATION #1473965
Spectra Precision
(new)
As I write this article, there is less than a month to Christmas and slightly over a month to the end of one millennium and the start of a new one. Time surely does fly!

On September 16th to 18th, Linda and I attended the 119th Annual General Meeting of the Association of Manitoba Land Surveyors held in Gimli, Manitoba. While driving from the airport in Winnipeg, we had the good fortune to observe one of the most vivid and colorful sunsets that we had ever seen. I had almost forgot what a prairie sunset really looked like.

Gimli is a quaint small town located on the west shore of Lake Winnipeg. It is essentially a summer resort town, but can lay claim to a fairly active community life year round. Linda’s ancestors came from Iceland in the late 1890s and during a visit to the Icelandic Cemetery, she was surprised to see the many grave markers that bore the same Icelandic name that she has for her second name.

President Peter Isaac held his Presidential Forum on September 16th.

President Dave Urso from the Association of Ontario Land Surveyors said that they had to replace their Registrar, and had a hard time filling the position. Also Carl Rooth, the Executive Director, will retire after their 2000 AGM. Ontario has passed a Continuing Education By-law. It is not mandatory, but each member must contribute $150 per year to the Association. Their objective is to have all land surveyors able to access the registry within one to three years. Their recent AGM passed a by-law requiring the attendance by a land surveyor in the field for all location certificates. However, the land surveyor signing the certificate does not necessarily have to be the one in the field.

President John Freemyer of the Saskatchewan Land Surveyors’ Association spoke on their study to examine the cost of doing business. The results of this study are due in the spring of 2000. They have prepared a draft guide called “A Guide for Investigation of Public Complaints and Member Discipline.”

President Roy Pominville of the Minnesota Society of Professional Surveyors said that the big item they are dealing with is the self-rule licensing concept, which is similar to our Association. The model law has been introduced to their state government. Since the introduction, controversy has broken out amongst the members and they are addressing the root of the problem. Minnesota has a four year degree program for geomatics. It is structured so that the first two years can be taken at various community colleges that are participating in the program with the last two years at St. Cloud State University. The State of Minnesota has now passed a Mandatory Continuing Education By-law where all land surveyors will have to obtain credits by various means. Ensuring compliance will be by a random 10% audit of members.

President Yvon Sanfacon of L’Ordre des arpenteurs-géomètres du Québec then gave his report. Their Association has embarked on a three year program in five components to emphasize communications and promote pride in the Association. They are facing one very large ongoing discipline case which has cost around $400,000. Electronic title searching is now underway and the objective is to have all land surveyors able to access the registry within one to three years. Their recent AGM passed a by-law requiring the attendance by a land surveyor in the field for all location certificates. However, the land surveyor signing the certificate does not necessarily have to be the one in the field.

President Gerald Pottier of the Nova Scotia Land Surveyors Association then gave his report. Their Association approved a mandatory
Continuing Education Program last year and they would be discussing it further at their AGM in October, 1999. Complaints have taken up a lot of the Executive Director’s time and they are now looking at alternative methods to resolve disputes between land surveyors.

The Manitoba AGM held a panel discussion on continuing education. Members on the panel represented those sister associations presently having some type of a continuing education program. The Manitoba Association is going ahead with mandatory continuing education. They are planning to have a special meeting in December 1999 to “fine tune” their program. Red River Community College recently obtained WCBE accreditation.

Dr. Brian Ballantyne gave a very interesting talk on “Natural Boundaries.”

On October 21st to 23rd, Linda and I attended the 49th AGM of the Association of Nova Scotia Land Surveyors in Yarmouth. President Gerald Pottier held his presidential forum on the 21st and, for the first time, all ten provinces were represented as well as CIG, CCLS, ACLS, and the State of Maine.

The New Brunswick Association has had their mandatory continuing education program challenged by a member who had not acquired the required point total. This challenge could become costly to the Association’s quality insurance program. It should be noted that this program is funded by a “sticker fee” for each plan registered. New Brunswick is now going to a land titles system and will eventually comprise digital submissions. They are also keeping an eye on what is going on in Alberta.

The Association of Prince Edward Island Land Surveyors’ President Serge Bernard then gave his report. Prince Edward Island is also moving to a land titles system. Title insurance is making inroads. The government is in the process of integrating older survey control monuments into the new control system. The system will be maintained by the government.

The Association of Newfoundland Land Surveyors’ President Dave Vallis reported that they are having problems with getting some members to actively participate in their voluntary Continuing Education Program. Lawyers in that Province, as in ours, are still not accepting the land surveyors’ copyright.

The Maine Society of Professional Surveyors’ President Ken Muir then gave his report. Their Continuing Education Program is mandatory and is controlled by the state. Their Association is lobbying the politicians to have their statutes of limitations reduced from the present twenty years.

The Manitoba Association has great concerns as to the WCBE curriculum and the Geomatics program at the U of C.

The Association of Manitoba Land Surveyors’ President Doug Pratt then gave his report. They have rewritten their new act with the government. They are in the process of setting up a Practice Review Committee. The Manitoba Association has great concerns as to the WCBE curriculum and the Geomatics program at the U of C. They are, unfortunately not having the graduates from the U of C program returning to Manitoba.

Yarmouth itself has its own characteristics — scenic, historical and neighbourly. While we were there, the native vs. commercial fishing rights led to a large protest gathering. Over 600 fishing boats were gathered in the harbour. Tensions were high, but restrained.

President Gerald Pottier’s program consisted of a seminar on the Nova Scotia Co-ordinate Referencing System, a talk by Nova Scotia Power as to old and new rights-of-way. One new life membership was granted to W. S. Crooker. The new Council was elected by acclamation with Dave Wedlock as the new President and Les Berrigan as Vice-President.

Considerable discussion took place on their Mandatory Continuing Education Program. They decided to continue the development of the program and come back to the 2000 AGM with the program in place and membership endorsement.

Since my last column in ALS News, Council has been busy with the ongoing digital plan submission saga. Our consultant, Dick Bassil, continues to discuss draft licencing agreements with AltaLIS.

We have had a presentation by Drs. Brian Ballantyne and Mike Chapman as to the results of his project on digital watermarks on plans. They will now look at creating software to be made available to the membership. This project was funded by our Association.

The Coordinate Based Cadastre Committee reported to Council and they have asked for Council’s approval to proceed further. That was done and the Committee was instructed to proceed further and report back to the 2000 AGM.

Systematic Practice Review presented its semi-annual report to Council. The majority of Council agree that SPR had indeed moved to a more proactive educational format and were continuing to move in that direction to comprise up to one-third of their time on education.

Finally, our Registration Committee is in the process of contacting our three western sister associations’ registration committees for a teleconference meeting to discuss reciprocity with the four western associations.

On behalf of Council, and my wife Linda, I wish you all the best in the forthcoming Christmas season and wish you all prosperity in the new millenium.
Your Council has been active in many areas, three of which I have been more active in:

**Pipeline Posting After Construction**

A seemingly harmless motion was raised at the last AGM asking Council to investigate the practice of posting pipelines after construction and this seems an appropriate place to summarize the discussions to date.

A meeting of the Oil and Gas Ad Hoc Committee was held in the fall and it became apparent that there are two distinctive mindsets here. One group never has, and never will, complete the legal survey after construction. The other group has, and would prefer to continue placing the legal pins after construction is completed. The origin of posting after construction is a 1991 memorandum from Public Lands which stated, essentially, that one could apply for a pipeline right-of-way at the Crown with a sketch plan as long as an as-built plan was submitted within 90 days of the issuance of the license. Many surveyors found that you could send a crew out to flag the right-of-way, mark out the foreign lines, build the line, and then complete the legal survey within this 90 day period and life was good. What many were unaware of was that, on the EUB side, the pipeline regulations state that the pipeline must be surveyed in accordance with the Surveys Act prior to the commencement of construction unless an exemption is applied for. In a court of law, of course, a regulation under an Act will lay a whipping on a memo any day, and while the discussions continue, surveyors must comply with the Pipeline Act.

**Bulk Pullings at the EUB**

As we are all aware, the EUB has limited the number of plans that a person can request at one time. Councillor Stephens and myself attended a meeting at the Board office and discovered that this was done as a result of some members dominating the line-up and creating delays for others. The results of this meeting are documented in the most recent Council Report and elsewhere in ALS News. It should be noted that the Board is presently contemplating whether or not they want to be in the plan distribution business. We attempted to point out that, at present, they are in the business, they are also the only source of the data, and the limits imposed will not change the fact that the surveyors require all the plans requested and that we will simply have to continue working our way through the lines until we have obtained the necessary documentation. I believe we were successful in relaying the opinion that now is the time for them to decide on the plan distribution issue and, if they choose to remain in the business, they should begin an immediate plan to go digital. The line-ups would disappear shortly thereafter.

The Board members present also indicated that there have been cases of verbal abuse against their staff by some of our members and I would like to ask that we remind our staffs to remain professional during these transitional times.

**Digital Plans**

Firstly, the following comments are mine, and not a Council position. The whole digital plans process continues to aggravate me to no end. We, as a profession which prepares the plans, have had little input in the formulation of the system and have, as long as I have been involved, been forced to react to the contents of the latest “thou shall” bulletin. Some time ago, Council hired Mr. Dick Bassil to liaise with Council, Registries and Spatial Data Warehouse, which has been a very positive move in that we are made more aware of the direction of all concerned and are provided with some practical discussion to keep the system workable.

What continues to aggravate me is that _who_ and _why_ we prepare the...
MicroSurvey

(new)
The rural landowner seems to be much more keenly aware and interested in all the goings-on on their property.

Sometimes, not only is the landowner upset that a survey crew came onto their property, but also that a hole was left unfilled or a post was left exposed. In these cases, we assure the landowner that the survey crew will come back and repair the damage. We also encourage the landowner to try to find out if a neighbouring property has been up for sale recently and to talk to them to find out who might have done the survey work. In some cases, the Association has resorted to hiring someone to fix the damage. It seems like in these cases, the landowner calls the city or town first as they assume that the land surveyor is working on behalf of the city. The city usually then instructs the landowner to call the Alberta Land Surveyors’ Association. In these cases, the profession gets a black eye in the opinion of the landowner and the municipality. Naturally, it may very well be a non-land surveyor who has left the property in a state of disrepair. However, the public assumes that it is the land surveyor who has caused the damage. It is critical, therefore, that the property is left in its original condition as best as possible, or in the winter months, the landowner is made aware very clearly when the survey crew will return to repair the damage.

When I first started here, these types of calls were restricted to urban settings. However, I have started to
receive a number of calls from rural landowners who are questioning surveyors coming onto their property. The rural landowner seems to be much more keenly aware and interested in all the goings-on on their property. Alberta Land Surveyors who are practicing in rural areas should take as much care as those working in urban settings when it comes to dealings with the public.

Recently, I have received a number of calls which cannot fit into either category. In these situations, the client and the land surveyor are disputing the fee for the work done. It is not the Association’s role to mediate a fee dispute or to say what the price for a job should have been. As a self-governing professional association, we want to ensure that the work was done properly regardless of the price.

It is not the Association’s role to mediate a fee dispute or to say what the price for a job should have been.

It appears in many of these situations the problem is a result of a lack of communication between the two parties. The general public does not understand all that goes into preparing a plan of survey as they may only see the field crew on their property for a matter of minutes. I am not suggesting that the surveyor is at fault, but all of us tend to take for granted what goes into what we do when we do it day after day. The general public does not understand.

Lest you think I am being a Scrooge handing out meagre chunks of coal at this time of year, that is not the case. I do simply want to point out the importance of good communication between you, your field crew and the general public. Some time ago, I attended a meeting of the CCLS Public Relations Committee which, for the most part, is made up of the executive directors from across the country. One of my colleagues indicated that he might spend up to one-third of his time dealing with queries and complaints from the public. Collectively, the Alberta Land Surveyors’ Association does not spend nearly that amount of time handling calls from the Alberta public. That is a tremendous credit to the profession and I strongly encourage the members to continue, if not improve, their good PR efforts.
Bulk Pulling

Mr. A.P. Chare, Manager
Production & Well Data Services
Alberta Energy and Utilities Board

Thank you very much for allowing the Alberta Land Surveyors’ Association to meet with you and your colleagues to discuss the EUB’s new bulk pullings policy.

As you are aware, effective September 27, 1999, the EUB instituted a new policy for all walk-in customers at the customer counter. Only six items will be completed for a customer who uses the counter service. Once the order has been filled, the bill will then be closed. Additional (up to six) items will be handled in the same manner. Association members were concerned when this new policy was instituted as it has led to longer lines, more frustration, and a longer turn-around time for surveyors to provide the service and product demanded from their oil and gas clients. In the spirit of cooperation, we wanted to meet with you to understand the limitations and roadblocks you face in order to provide the service that you would like to be able to offer. It was our hope that by meeting with you we would have a better understanding of your situation and that, collectively, we could develop both a short term and longer term solution.

In our meeting, you identified several bottlenecks. The EUB only has so many printers and microfiche machines. You also indicated to us that, even if funds were available to obtain new equipment, the counter service has neither the manpower nor the physical space. We also discussed the logic in spending money on new equipment that utilizes old technology. The Alberta Land Surveyors’ Association heartily agrees with you that the EUB should invest in new technology.

In our meeting, everyone agreed that limiting the orders to six items, is a bandaid solution to a much larger problem. As an Association, we identified that the process would be smoother for everyone concerned if individual Alberta Land Surveyors could identify, in advance, which wellsite they need a print of. The Association recommended that a digital well license list would alleviate the congestion. You indicated to us that a well license list is already available on the web but that it only shows wells that have been licensed within the last seven days. Because of this limitation, the current form of the digital well license list is of minimal value. The Association respectfully recommends that the digital well license list show wells that have been licensed within the last thirty days. At that time, Alberta Land Surveyors would obtain the CD which would identify all the wells licensed including those wells licensed the previous month.

We understand that, although the CD is not currently available, it is your intent to distribute CDs possibly as early as January 2000. The basic information we would like to see in this well license list are the well’s location, the licensee, the operator, and status.

The bottom line, of course, is that land surveyors need the plans we need, and have, at present, no choice but to continue to work our way through the lineup until the required plans are obtained. The very presence of a lineup indicates that the demand is greater than the ability to supply. Limiting the supply will only increase the line, congestion and frustration. The use of an up-to-date well license list would allow us to be more selective in printing only the wells we really need which would relieve some of the pressure on your staff.

Nevertheless, even this solution is a short term one.

In our meeting with you, we indicated that Alberta Land Surveyors are now able to access registered plans of survey via the web through Alberta Land Titles SPIN System. Similarly IHS Energy provides digital information on Crown Lands to their clients via the web. The Alberta Land Surveyors’ Association strongly feels that a long term solution for the EUB being able to provide greater service to its most significant revenue producer is to make your information available online in a digital format. Although there is a cost attached to this, others have already blazed the trail and developed the systems and standards that Alberta Land Surveyors are already using. With the price of oil continuing to climb and activity expected to continue at a record pace, this problem will only be exacerbated if nothing is done.

The Association wishes to reiterate its commitment to work with the EUB, open the lines of communication, and work together to find a solution that will benefit everyone.

We look forward to your response.

BRIAN E. MUNDAY
EXECUTIVE DIRECTOR

EUB’s Policies and Procedures

Thank you for your letter of November 26, which outlined the concerns of the Alberta Land Surveyors’ Association and its members with regard to the EUB’s policies and procedures when dealing with customer requests for information, as discussed at our meeting on November 17, 1999.

As discussed at the meeting and documented in your letter, there are several areas of concern to your
I would like to thank you for your support and understanding as we progress to build a better and more efficient process to serve our customers.

members regarding access to information at the EUB. I believe that through the process of open dialogue, we can all understand the concerns of each other and the limitations that EUB staff is working under. From that point of view, I believe that the meeting was very successful in identifying issues and possible solutions. I would encourage your Association to continue to meet and discuss issues with our staff, as such issues arise.

I would like to take this opportunity to advise you of some limited progress that we have been able to make so far:

1. **Daily Well Licence List**
   We have met with the EUB’s web administrator and relayed your comments regarding the present practice of posting the daily well licence list for seven days. Presently, our website is in the process of being upgraded to increase its functionality. Notwithstanding that, however, the web administrator indicated that it should be possible to extend the daily list to contain a complete month of information relatively easily, and was going to proceed to do so as soon as possible.

2. **Technology Issues**
   We have solicited a proposal from an external vendor to identify options and associated costs to implement scanning of documents for digital storage rather than microfiche storage. This proposal is currently being evaluated by the EUB.

   It would be the intent, initially, to provide digital copies of well information (i.e. well site plans) via compact disc (CD) technology, prior to making that same information available on the web site at some future time.

   We have engaged the services of an internal systems analyst to identify “quick hits” areas of our business. As these areas are identified, we will attempt to respond by implementing technological solutions as budgets permit.

   I would like to thank you for your support and understanding as we progress to build a better and more efficient process to serve our customers. If you have any further concerns you wish to discuss or potential solutions to offer, please feel free to contact me.

   **A.P. CHARE, MANAGER**
   **PRODUCTION AND WELL DATA SERVICES GROUP**
   **ALBERTA ENERGY AND UTILITIES BOARD**

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**New EUB Brochure Addresses Public Concerns About Oil and Gas in Alberta**

The Alberta Energy and Utilities Board (EUB) acknowledges the increasing profile of public concerns about Alberta’s petroleum industry. In response, we have prepared a free brochure entitled **Responding to Public Concerns About Oil and Gas in Alberta (Guide 62).**

The brochure summarizes key concerns that people have expressed to our staff...

Our objective is to improve public awareness of the many existing and new ways available to communities and individuals to address issues that may arise between themselves and industry. The Board encourages people with concerns to take advantage of these measures, and urges oil and gas operators to provide this information to landowners.

The brochure summarizes key concerns that people have expressed to our staff and provides a list of additional information related to each issue. Topics include:

- the EUB public complaint response process;
- expectations for public consultation;
- new options to resolve landowner-industry;
- our commitment to surveillance and enforcement;
- new requirements to significantly reduce flaring;
- new animal health investigation process.

The brochure is available on the EUB website at www.eub.gov.ab.ca with direct electronic links to other supporting documents. Paper copies are available free of charge form EUB field centres or from:

**EUB Information Services**
640 - 5 Avenue SW
Calgary, AB   T2P 3G4
Tel: (403) 297-8190
Fax: (403) 297-7040
E-mail: eub.info_services@eub.gov.ab.ca

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*Is the Name Land Surveyor Like the Y2K Bug?*  
Is it time to rename the profession of land surveying? Regardless of the efforts of the land surveyors to change the public perception of their profession, the image the name gives to Albertans is that of a “poorly dressed tradesman with a minimal amount of education—probably two years or less, operating an unsophisticated piece of survey equipment.”

Historically, the land surveyor was one of the most important figures in the community. When the Dominion Land Surveyor arrived, he was accorded the greatest honour and privilege. Today, except in a limited circle, no one really knows who the land surveyor is.
NAIT, SAIT, and the University of Calgary were among the first to realize the problem. Students just didn’t visualize their future as “standing behind a tripod on the side of the road.” Wisely, the course names were changed to GEOMATICS. Suddenly, enrolment increased and courses were over-subscribed. Students are interested in pursuing careers that have a high-tech future.

Even more telling are the reasons today’s students choose Geomatics. The top responses are high-income potential, outdoor work, and high technology. Many long time land surveyors said they chose their career because: land surveying was a profession; it involved outdoor work, and it involved mathematics. During recent research, a student responded that he would not choose land surveying because it was a ‘step down’ from geomatics engineering.

Perhaps, it is time for the Alberta Land Surveyors’ Association to take another look at their profession and consider calling it what it really is.

Perhaps, it is time for the Alberta Land Surveyors’ Association to take another look at their profession and consider calling it what it really is. No longer is it chains, and tripods. It is an exciting world of high technology involving GIS and GPS and other emerging technologies. A name such as Association of Geomatics Professionals may more appropriately represent today’s profession.

For those concerned with the past and tradition, change does not mean a denial of history but rather, progress and building upon the past. We can look to the past with admiration and respect and to the future with hope and excitement.

BRIAN M. STECYK
ROSE COUNTRY COMMUNICATIONS

Mathias Wuhr

I apologize for taking so long to thank the Association for the donation to the J.H. Holloway Scholarship Foundation in Matt’s memory. It’s a memorial that stood out and struck a sensitive spot in our minds and hearts.

Matt’s commission to the Alberta Association was his first provincial commission after the Dominion Land Surveyor’s. I know he had a special feeling for this certificate as he had for the Alberta Regional Office.

We were also very appreciative of the visit of Les Frederick. He is a very pleasant person. His visit was a real “tonic” for Matt in those final weeks. Les was here on July 8th; Matt died July 21st. I hope your plans for the history book becomes a reality and that it will be successful.

Thank you so much.

YVONNE WUHR AND SONS
(MATT JR. AND KONRAD)

J.H. Holloway Scholarship Foundation Celebrates 25th Anniversary

Twenty-five years ago, a scholarship foundation was formed in memory of J.H. Holloway who was Secretary Treasurer of the ALSA from 1946 to 1967. Over the years, through the generosity of many donors, sponsors, and volunteers, the Foundation has been able to provide over fifty scholarships to students at the University of Calgary, NAIT, SAIT and formerly, the University of Alberta.

Today, the Foundation continues to provide a number of scholarships and has increased the value of those scholarships to reflect the increased cost of education.

On October 20, 2000, the Foundation will hold a 25th Anniversary Celebration Dinner at the Red & White Club in Calgary. Everyone will be invited. More details to follow.

J. DEYHOLOS, A.L.S. — PRESIDENT
J.H. HOLLOWAY SCHOLARSHIP FOUNDATION

Company Logos on Plans

The Standards Committee of the Association wishes to remind the membership of Part D: General Requirements for Plans, Section 1.4.5 of the Manual of Standard Practice which reads:

Each plan must bear a heading preferably on the top right hand side, stating:

.5 Company logos shall not be shown.

VINCE ZIEGLER, A.L.S.
CHAIRMAN, STANDARDS COMMITTEE

ALSA Bursary Recipient

I just wanted to let you know that the recipient for the ALSA Bursary is Jason Paziuk.

Editor’s Note: See page 37 for a description of the bursary.

MARGUERITE ANDERSON
UNIVERSITY OF CALGARY
Land Measurement Systems
(new)
#663

EICHEL, Ronald J.

Ron was born in Craik, Saskatchewan on April 5, 1968. He graduated from Weyburn Comprehensive High School in 1986. In the fall of 1986, he attended the University of Saskatchewan for a year. For the next 2 years, SIAST Palliser Campus in Moose Jaw was home, where Ron was enrolled in the Survey Technologist Program.

Upon completion of the technology course, he was employed by Webb Surveys in Saskatoon for over a year. Ron then attended University of Calgary, where he received a Bachelor of Science in Geomatic Engineering. Ron worked for Loeppky, Matthyssen & Associates for three years after graduation from U of C, under the principal J.J. Matthyssen, A.L.S. In the late fall of 1996, Ron joined Can-Am Surveys Ltd., where he is currently employed. Articles were served under Blaine L. Benson until he received his commission on November 12, 1999.

Ron’s technical report was titled “Wellsite Coordinate Determination in Unsurveyed Territory.”

Ron has worked in all aspects of land surveying in Alberta and Saskatchewan.

Ron and his wife Leanne reside in Fort McMurray. His hobbies include fishing, snowmobiling, hockey and golf.

Corrections/Changes to the Register

A.C.S. Surveying Services Corp.
(P 194) registered as a surveyor’s corporation on November 1, 1999 under the direct supervision and control of Gunter Hohn, A.L.S. Address: 10012A - 79 Ave., Edmonton T6R 1R5; Tel: (780) 439-2707; Fax: (780) 439-2846.

Ram Achal, A.L.S. — E-mail address: ram-achal@home.com

Warren Barlow, A.L.S. is acting as a sole practitioner at 720 - 15 Ave., Suite 601, Westbury House, Calgary T2R 0R6; Tel: (403) 288-7656.

Rick Beaumont, A.L.S. has a new E-mail address: rbeaumon@nrcan.gc.ca.

Can-Am Surveys Ltd.
Fort McMurray — E-mail address: canam.survey@home.com
Edmonton — E-mail address: canamsur@telusplanet.net

Cridland & Associates Ltd. in Fort McMurray has moved to 402, 10003 Biggs Ave. T9H 1T6.

Sandra Davies, A.L.S. is employed with Can-Am Surveys Ltd. of Calgary effective November 1, 1999.

Roy Devlin, A.L.S. — E-mail address: rdevlin@precision-gvf.com

Brian Doyle, A.L.S. — E-mail address: bdoyle@telusplanet.net.

The Focus Corporation Ltd. in Edmonton has moved to 9925 - 109 Street, Suite 1000 T5K 2J8.

HIW Surveys Ltd. has moved to 10550 - 117 Ave., Grande Prairie T8V 7N7.

Hal Janes, A.L.S. has a new E-mail address: haljanes@connect.ab.ca.

Peter Lapainis, A.L.S. works for Stantec Geomatics Ltd. of Calgary. Direct Tel: (403) 716-8254; E-mail: plapainis@stantec.com.

David Marquardt, A.L.S. has been employed with Midwest Surveys Inc. of Calgary since November 1, 1999. New E-mail address: davidm@midwestsurveys.com.

Matrix Land Surveys (P 204) registered as a surveyor’s corporation under the direct supervision and control of Curtis Henrie, A.L.S. Address: 4603 Varsity Drive NW, Suite 205, Calgary T3A 2V7; Tel: (403) 259-4367; E-mail: chenrie@sprint.ca.

Bill Mintz, A.L.S. has been employed with Can-Am Surveys in Edmonton since September 1, 1999.

Pals Surveys and Associates Ltd., Calgary: Telephone numbers were reported in error in the last issue of ALS News. The correct numbers are (403) 319-2391 or (877) 319-2391.

Brian Ross, A.L.S. has a new address: PO Box EE 15201, Nassau, Bahamas. Tel: (242) 324-2865 / Fax: (242) 364-2701; E-mail: bross@batelnet.bs.

Scott Geomatics Ltd. (P 205) and Rob Scott, A.L.S. are at 434 - 7 St., Suite 202, Lethbridge T1J 2G7; Tel: ((403) 328-9323; Fax: (403) 380-6088; E-mail: scottgeo@telusplanet.net.

Stewart, Weir & Co. Ltd. has opened a new branch office in Fort McMurray. Three Alberta Land Surveyors man the branch office on a rotational basis, with Ron McGaffin, A.L.S. responsible for the direct supervision, direction, and control effective October 6, 1999. Address: 8302 Fraser Av-
plans in the first place, is becoming more and more lost and almost secondary to standardizing the whole plan preparation process for the ease of the technicians at the database end. A recent example of this involves a company who uses Ausfont as a text package in AutoCad. They were told that, as Registries does not have that package, the text does not translate properly and they would not be allowed to use it anymore in their submissions.

It becomes more and more apparent that the primary purpose of the digital plans system is the formation of the ultimate GIS baseframe, which in its own right is a fine and noble objective, but why not just say that. What Land Titles requires is a digital picture or TIFF file of the plan we are submitting, and anything beyond that serves no purpose other than to assist in the maintenance of a cadastral base mapping frame which is the ground layer of a GIS. The costs for our clients, meanwhile, continue to mount. All poor old Joe wanted was a subdivision—four pins in the ground. But because he was unfortunate enough to live beside two ASCMs, he needed an integrated survey with bearings referred to grid, scale factors, the control monuments shown on the plan with broken lines (but to scale in the digital version), everything placed on its proper layer, and because Joe lives in Calgary, we will now require one file to City of Calgary standards and one file to LTO standards please. Add a hundred bucks for the integration fee (the bulk of the work having been completed by the surveyor) and we’re all done, until you want a copy of your own plan back. If you want a paper print, that will be three bucks. A digital version of the compiled area? Well, that’ll be more, depending on which license agreement you want to sign. Is it just me, or is something not right here?!

The Digital Plans Committee will be meeting again soon to discuss where we, the Association, believe we should be steering in the digital plans environment, and what position the members should strive for. I would welcome your thoughts.

Wishing you a Merry Christmas and a Happy New Year!
ENHANCING SURVEY PLANS IN ALBERTA:
Digital Watermarking and Georeferenced Images

by G. T. Williston, M.A. Chapman and B. A. Ballantyne
Department of Geomatics Engineering, The University of Calgary

Abstract:
A digital survey plan can be watermarked for security purposes by taking a digital image and embedding it into the digital survey plan in such a manner that it cannot be easily detected or removed. The image that becomes the watermark is often a recognizable logo. Using variable parameters input by the user, the logo is mixed using a watermark algorithm until it appears as no more than random black spots. These spots can be inserted into the survey plan as background noise, and just as easily removed if the input parameters are known. If the watermark is removed and the logo is not intact, then it suggests that the survey plan has been altered from its original state.

Georeferenced images as a backdrop for a survey plan are valuable in that they allow the user to clearly see the relationship of property boundaries to the physical assets on the parcel. The georeferencing process coregisters digitized aerial images and survey plans which permits image mosaicing and integration with other geocoded geographic features.

Introduction:
This paper presents the results of research performed with respect to digital watermarking and imbedding georeferenced images in digital survey plans. The two issues to be addressed may be viewed separately, except that they both serve as possible new additions to the digital format for survey plans in Alberta. They are tied together in this article because they were researched together under a single research grant supported by ALSA.

This paper presents as a primary focus the results of the research done on digital watermarking. Georeferencing is mentioned and discussed. Both watermarking and georeferencing are additions that, if implemented in digital survey plans, serve to enhance the product being offered to users.

Background for Digital Watermarks:
The Government of Alberta, through the Land Titles Office, has mandated that digital survey plans be the official document of record as of December 1, 1999. Survey plans that are stored digitally are the same plans as would be stored on paper, but the storage medium is now an electronic disk rather than mylar. Digital images on disk are computer files with a specific graphical format. A difficulty that exists in using computer files as official documents, as for example survey plans, is that a computer file’s content can be easily altered. Consequently, there must be a security procedure that offers protection for copyright and that prevents unofficial alteration of digital files.

This topic of image security was discussed by Broadus (1999), who describes the use of digital signatures for protecting the integrity of digital plans. Digital signatures are a more general definition of digital watermarking, with the same objective, of securing the image against manipulation. Mr. Broadus reviews the trends in different US states towards use of digital signatures in all electronic communications. From conversations with land surveyors, Mr. Broadus states that very few have adopted the habit of adding a digital signature to their electronic correspondence, when there is no reason preventing them from doing so. The most likely result will be that the procedure will be mandated by legislation.

Watermarking computer images is a new area of research but it has roots in older disciplines. Hiding messages inside other messages, commonly used during times of war, is known as steganography, which is derived from the Greek word meaning “covered writing.” Marking an image such that the human eye cannot notice the additional marks requires comprehension about visual perceptibility limits. Digital image processing techniques and information transmission methods are also required. And to construct a mathematical algorithm that is secure, meaning that it cannot be easily deciphered, the watermark inventor must possess understanding of advanced mathematics and statistical probabilities.

Digital Survey Plans and Watermarks:
Different watermarking methods perform better when certain assumptions are made about the format of the document to be watermarked. Digital representations of paintings, for example, are usually in a colour format, with one or two bytes representing each pixel. Therefore, there is high variability between pixels. Watermarking algorithms for colour images usually operate by applying subtle variances to pixel colours that cannot be discerned by the human eye. These general watermarking techniques fail when applied to the restricted formatting of survey plans. (Note: A graphics file can be saved as a black and white image, a greyscale image, or as a colour image, thus requiring 1 bit, 1 byte, or multiple bytes, respectively to store each image pixel.) Survey plans in Alberta are in black and white, which requires only one bit per pixel. Plans
are often uniformly white through much of the background of the image, making survey plans extremely simple images from a graphical viewpoint. It is much more difficult to hide a watermark within a survey plan because, in a sense, there is nothing to hide behind. Most watermarking schemes are, therefore, not applicable to survey plans.

A watermarking method that is applicable to digital survey plans in Alberta must apply to the graphics format used in registering survey plans and must include consideration of the procedures of registration. All survey plans in Alberta, when registered as the official document of record by the Land Titles Office (LTO), are converted to and saved as TIFF (Tagged Image File Format) files. It is this TIFF file then that is the document to be watermarked, as this is the official document. The version of the survey plan prepared by the surveyors, whether Autocad, Microstation, or another software package is used, never becomes the official registered version. It is always a TIFF file converted from these original versions that becomes the official document.

TIFF images can be used on all major platforms (Windows, Macintosh, UNIX, etc.). It allows storage of multiple bitmap images in one file and supports multiple compression algorithms. The latest release (TIFF 6.0) supports 12 different data types that may be best represented as bits, bytes, integers, unsigned integers or even strings of indeterminate length. TIFF is one of the most versatile graphics file formats currently available.

However, LTO constrains survey plans to the black and white format mentioned above. The plans are also compressed each time in a consistent format. The versatility of the TIFF graphics format then is not important in this area. The watermarking technique now to be discussed below was chosen because it was possible to adjust the technique so that it was applicable to the specific format of survey plans submitted in Alberta.

**The Digital Watermark:**

This section discusses the watermark that was developed to work with land survey plans in Alberta. In 1998, Voyatzis and Pitas presented an algorithm for watermarking an image and the watermarking technique for land survey plans was derived from this algorithm.

The Mixing System method presented by Voyatzis and Pitas is applicable to either greyscale or colour images. Their method is more specific than the method currently used. In discussion of the method used to watermark survey plans, the spirit of the Mixing System method is visible and any major deviations from their system will be noted.

To demonstrate the successful application of the mixing method a program was written that performs the mixing procedure. The discussion written here uses outputted images from that program. In the example to be presented, the logo of the Alberta Land Surveyors Association (Figure 1) will be used to generate the watermark to be inserted into a document or survey plan.

**Figure 1 – ALSA logo**

The procedure of watermarking a survey plan requires that the identifiable image be transformed and resized into a watermark that can be hidden appropriately within the plan.

As a first step, a logo image is taken, and by using a mixing equation, all pixels in that logo are uniquely relocated. Every pixel is located in an image by (x, y) or (column, row) coordinate values. To relocate these pixels and, thereby, mix the image, each pixel is repositioned by multiplying the original x and y by a 2x2 matrix which produces new x and y values, as seen in the following equation:

\[
\begin{bmatrix}
X_{\text{NEW}} \\
Y_{\text{NEW}}
\end{bmatrix} = \begin{bmatrix}
1 & 1 \\
K & K + 1
\end{bmatrix} \begin{bmatrix}
X_{\text{ORIGINAL}} \\
Y_{\text{ORIGINAL}}
\end{bmatrix}
\]

The mathematical foundation for the Mixing System method is the 2x2 matrix that conforms to the condition that the matrix determinant is equal to one \((K + 1) - K = 1\). The parameter \(K\) in the equation is the mixing parameter. \(K\) can be any positive integer value chosen and entered by the user.

Applying the above equation without further constraints would result in a new mixed image of larger dimensions than the original. In the x-direction, the dimensions would increase by \((X_{\text{max}} + Y_{\text{max}})\). In the y-direction, the dimensions would increase by \((K \times X_{\text{max}} + (K + 1) \times Y_{\text{max}})\). To regulate the image size, the equation above must be multiplied by a modulus of the maximum desired dimension of the image. The outputted result will be a square matrix of size ‘Dimension’, adding to the equation as follows:

\[
\begin{bmatrix}
X_{\text{NEW}} \\
Y_{\text{NEW}}
\end{bmatrix} = \begin{bmatrix}
1 & 1 \\
K & K + 1
\end{bmatrix} \begin{bmatrix}
X_{\text{ORIGINAL}} \\
Y_{\text{ORIGINAL}}
\end{bmatrix} \mod \text{Dimension}
\]

To mix the watermark extensively, the above equation can be reapplied to the resultant mixed logo, allowing an iteration procedure to develop. In the program written, the size of each mix result was maintained as a square matrix of size \(M\), the maximum dimension of the logo. Every successive iteration serves to more extensively mix the original logo pattern, and each iteration produces a new \(M \times M\) matrix. The number of iterations ‘\(r\)’ is an integer parameter chosen by the user.

Figure 2 shows the original logo and the results of the first few mixes (iterations). When the iteration procedure is complete, a final mix is performed in which the dimension parameter is changed from \(M\), the maximum dimension of the logo, to \(N\), the minimum dimension of the
survey plan or image to be watermarked. N must always be significantly larger than M.

The final overlay involves two steps (see Figure 3). During Step #1, the mixed logo is resized to the larger NxN dimensions. The watermark is now in the form required for application. A final parameter ‘s’, the shift parameter, is chosen to displace the watermark coordinates relative to the image. A second shift parameter applied in an orthogonal direction could also be used although this option was not used here. The mixed logo is overlaid onto the survey plan during Step #2, shifted by the amount ‘s’, and the plan is then watermarked.

In summary, the mixing of the logo is achieved by randomly choosing the set of mixing parameters discussed above: K - the mixing parameter, r - the iteration parameter, and s - the shift parameter. The dimension parameters, M from the logo size, and N from the survey plan size, should also be noted in case the watermark must later be removed.

Dewatermarking:

If the parameters above are known, the logo can be removed as easily as it was attached. In the program, the user chooses the Dewatermark routine and the five parameters, K, r, s, M and N are requested as input. With the parameters available, the program then replicates the steps of watermarking the image, following the entire mixing procedure. The program copies the value found in the survey plan instead of inserting a value, and inserts this value into its original position in the logo. In this manner, the entire logo is rebuilt. If the plan has not been altered the logo will be intact in the rebuilt file.

Assessment of the extracted logo then determines if the plan has been altered.

Imbedding Georeferenced Images:

As a value-added feature, it is proposed to use large-scale digitized aerial images as a background for survey plans. This idea is based on the premise that many of the end-users would find survey plans more useful if they had recognizable features available when viewing the line-work on the plans.

Georeferencing of digital images with survey plans is a feasible concept irrespective of whether the plans are recorded in a digital or mylar format. With current processing power and storage, it is now a relatively simple addition to survey plans to ensure that the background images are georeferenced. The process of georeferencing has been enhanced with the use of orthorectification, which is a process that employs the topography expressed in a digital form. The image displacement caused by the topography can then be removed during processing. However, certain residual discrepancies may

**Figure 2 – Original Logo and Iteration Results**

**Figure 3 – Mixed logo expanded and inlaid into survey plan**
persist due to the presence of artificial features.

The point to be emphasized is that an imbedded georeferenced image would represent an enhanced product relative to that currently being offered as survey plans. Survey plans should imbed if they are to remain current with other mapping now being produced by other spatial producers. A complete discussion of georeferencing is found in the paper by Cosandier and Chapman, 1995.

**Conclusions:**
Watermarking of digital survey plans is simply a next step in the process of converting from paper to digital format that has been ongoing in all areas since the computer revolution began. Broadus noted that, “digital signature technology does a better job of protecting the integrity of a document than does a paper signature.” (Broadus, 1999, p 68). Digital watermarking is better than traditional watermarking and the stamp of a surveyor or engineer.

The method demonstrated here is applicable to digital survey plans in Alberta. The research identified no other watermarking algorithm or technique that appeared applicable to Alberta’s format for digital survey plans. The method demonstrated could be implemented by LTO under the current format for registering survey plans. If the registration format were to change and Alberta Land Surveyors are required to submit surveys in TIFF format, then surveyors could easily watermark their own plans using the method discussed.

**References:**

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Conversations with different people made comprehension of the system easier. Thanks to Akram Din at the Land Titles Office in Calgary, Jim Chorel at QC Data and Spatial Data Warehouse, Duane Haub at Midwest Surveys in Calgary, Steve Fediow at the City of Calgary, for contributing through discussions. Bill Elliot at the Land Titles Office in Edmonton, and Dr. Christoph Busch, the Head of the Department of Security Technology for Graphics and Communications Systems of the Fraunhofer Institute in Germany, also contributed advice.

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What Does the New Health Professions Legislation Mean to You?

by William W. Shores

Editor’s Note: This article, by the Association’s solicitor, is an edited summary of a verbal presentation he gave to the ALSA’s Legislation Committee. Council has asked the Legislation Committee to provide its comments and recommendations back to Council on the potential impact of this legislation to Alberta Land Surveyors.

In addition to my general interest in professional legislation, I also act on behalf of a health care profession. In this context I have had an opportunity to consider the likely impact of the new Health Professions Act on an established, respected profession. Although this Act governs only the health professions, it is the new model for professional governance in Alberta. Land surveyors may well see an effort to apply the model to their profession.

The Health Professions Act came into effect on May 19, 1999 although no part is operative yet. It covers twenty-two professions; essentially all of the health professions, from ambulance drivers to doctors. As each health care profession establishes its new regulations, it will be brought under the Act. That means that these professions will continue to work under their old legislation until their new regulations are ready.

Informally, the expected timeline for all health care professions to come under the Health Professions Act is five years. It will be a very complex and time consuming process because in some cases, long and proud histories of professions are being reformulated. The newer professions will come in more quickly because they don’t have the history. Additionally, these newer professions are generally not structured under “stand alone” professional legislation.

The Health Professions Act is the model of choice for government. From the government’s perspective, they say it increases the protection of the public and consumer choice. On the other hand, this legislation (similar to Ontario’s model) has been described as the single greatest threat to the independence of the professions in Canada.

From my perspective, the legislation has some positive elements and some opportunities. It also has some significant downsides for professions that have been around for a long time and have a clearly established mandate. This legislation is not necessarily in the best interest of the professions or the public.

From the public perspective, the legislation will undoubtedly increase the choice available to consumers...

From the public perspective, the legislation will undoubtedly increase the choice available to consumers as they will be able to choose from a greater variety of service providers to meet their health care needs. However, it may well decrease the level of protection afforded to the public. In my opinion, unless the consumer is very well informed, the consumer is likely to have a hard time selecting the appropriately qualified professional for highly complex and technical tasks. For example in the medical field, the new Act allows anyone to engage in diagnosis, an area that was previously reserved to doctors. Are members of the public able to assess the risks of relying on an unqualified person to diagnose? By extension, in the area in which you practice, are members of the public able to assess the risks of relying on an unqualified person to express an opinion on the location of a boundary. The consumer may well believe that it is a simple matter of identifying or drawing a line on a map. Does the public have the capacity to make an informed choice about the use of professional services? The old model of legislation proceeds on the assumption that in the complex areas handled by professions, the public is at risk unless all individuals offering a particular service are registered in the professional governing body. This ensures that there is a base level of competence and that all offering the service are subject to a code of ethics, practice review and professional discipline. The new model assumes that the public are highly sophisticated users of professional services and will be able to distinguish the qualified from the unqualified. The issue of course is whether the public is sufficiently informed to know what goes into the delivery of medical services (or in your case, the delivery of land surveying services) in order to be able to choose between the professional supplier and the amateur or commercial supplier.

Thus the most significant change wrought by this model of legislation is that it removes “exclusive scopes of practice” that are granted to professions and replaces them with “restricted activities.”

Under your current legislation, only a land surveyor can engage in the practice of land surveying. This is your “exclusive scope of practice” which is broadly defined in the Land Surveyors Act. For example, somebody who is not a land surveyor cannot do real property reports. The Association can go to court and stop them from performing real property reports.

The pharmaceutical profession has similar sorts of broad provisions regarding the practice of pharmacy. They have what is called the “exclusive scope areas of the practice of pharmacy.” It included things like disseminating information on the
The key to this model of legislation is that there is no exclusive scope of practice...

attendants, pharmacists, a wider range of nurses, etc. It is a model where a number of professions will make claims to engage in the restricted activities for which they feel they are qualified. It does not mean that they will get them automatically, but we can certainly expect to see a realignment of practice areas.

The key to this model of legislation is that there is no exclusive scope of practice; no defined boundary around the profession and a number of people can make claims on each restricted activity. If one extrapolates the principle of the new model into surveying, it may be that technicians say that there are some elements of land surveying to which they should have access and are qualified to practice without supervision. There may be other professions like architects, where some of the functions fulfilled exclusively by land surveyors today, could also be fulfilled by them. Perhaps lawyers might say that they can express an opinion on a real property report.

There is of course a positive side to this revolution. The advantage is that if they can come on to your turf, you may be able to go onto theirs. Think of the areas potentially open to land surveyors in the work currently done by engineers, architects, lawyers and planners. An analogy is the feeding chain. If you are at the top of the chain you have the most to lose from this legislation. If you are lower down the chain you have the most to gain, as the model allows you to make application to receive the right to engage in activities that were formerly the exclusive domain of another profession.

Another key element of the new model is that if you are qualified, and practice within the defined area of practice of a profession, you are compelled by the legislation to register in the appropriate professional college. If you are unqualified and have no knowledge whatsoever about the profession, you can provide the service traditionally provided by the profession without registration so long as you do not engage in restricted activities or use a restricted title. If we use the example of diagnosis, an individual who holds an MD and wishes to provide medical services, must register with the college and is then subject to professional discipline and all of the other rules that go with it. However, if I say that I would like to diagnose, I can’t say I’m practicing medicine, but I could say “Bill Shores, expert in diagnosis” I cannot engage in restricted activities like cutting into you but I can examine you, tell you what is wrong with you and recommend a course of treatment. I would not be regulated and would not be subject to the discipline of the college. The odd thing about the legislation is that if you are qualified, the new Act governs your actions; if you are completely unqualified, you are entitled to offer the services of the profession without restraint except for restricted activities and so long as you don’t use a restricted title (e.g. physician).

In the land surveying profession you do get people offering services that come close to what you do. So long as these services are not defined as restricted activities, this model of legislation would allow them to do them. In this sense, there is no protection for the public. If they mess up, they cannot be disciplined and removed from the register of the college and prevented from practicing. They cannot get penalized. That is the additional danger to the public of this model.

The next major change reflected in the new model is in how one can earn the right to be registered in a college. Under the old model of professional legislation there are two ways into the professions. One is the traditional school and experience route; the
other is to transfer from another respected jurisdiction with accepted credentials reflecting education and experience. The new legislation allows a third route in—purely experience. The bottom line is that if a technician has been at it long enough, eventually he/she may become a member of a professional college. Each college will have to assess the skills of those people who apply under the "experience" option. This is likely to be an expensive and challenging task.

The next major effect of the new legislation is the further judicialization of the discipline process. The importance of a fair, unbiased discipline process cannot be challenged. However, procedures applicable in courts or in large professions may not be applicable in small professions with limited resources. In the case of the pharmacy profession, this new legislation takes 17 pages of procedures for discipline hearings and turns them into 22. If the new model was applied to you, it would take 14 pages and turn them into 22. It requires each professional governing body to have a Hearings Director and a Complaints Director. The Complaints Director is the person who investigates complaints. This person must be a separate person from the person who sets up the hearings. The Complaints Director can have a lawyer, but it can't be the same lawyer as the hearing tribunal. There will be at least two lawyers for the College in each discipline hearing—one who prosecutes the case and another who advises the panel. As the Supreme Court continues to develop the rules against institutional bias, it may become necessary for yet another lawyer to be retained to provide general advice to the College and advise the Council on appeals. The result is a much more complex and expensive process. It brings a much higher level of protection for the person who is being disciplined; but the difficulty is that, if at the end of the day that person is found guilty, very often he will end up bearing the costs of the discipline process. To the extent the guilty person does not bear those costs the other members of the profession will bear them through higher fees.

Another important effect is the reduction of the autonomy of the self-governing professions. Another important effect is the reduction of the autonomy of the self-governing professions. In the original versions of the legislation there were very intrusive powers for the government to override and in fact takeover control of professional governing bodies. These were removed from the final bill after an outcry amongst the professions. There is however a residue of this attitude found in the new legislation. The Act establishes a Health Professions Advisory Board, which will be comprised of 25% of professionals and 75% public members. Amongst this Board's powers is the power to advise the Minister on which restricted activities are to be given to which professions. It is disconcerting that this crucial task will be undertaken by a group that has a majority of members who are not health professionals. Indeed the Health Professions Advisory Board may not even have a single representative of the affected profession on it. This Board also has the ability to advise the Minister generally with regard to the Act.

There is also an increased role for public members in the governance of the professions. Ultimately this may be a good thing in principle as it may serve to reduce public skepticism about the primary role of professions in protecting the public. However, there may be significant logistical problems. Twenty-five percent of Council, Practice Review Board, and Discipline Committee must be comprised of public members. Where will professions and the government find sufficient motivated, qualified people to fill all these roles. Professions require a very special type of individual to serve as public members; individuals who have the capacity and desire to learn about the profession and the public that it serves. Public members of the hearing committees will also have to be prepared to learn the procedures and the rules of natural justice. An improper action by a public member could nullify a discipline proceeding. The government has to appoint the public members and pay them. Sometimes the government is slow in appointing people simply because they do not have appropriate appointees. Is the government willing to commit the financial resources to ensure that there are sufficient qualified and trained public members? If it is not there could be significant difficulties especially in the discipline process.

The next level of intrusion on self-governance is the new role given to the Ombudsman to review the procedures and actions of the colleges. It is hard, politically, for any profession to state that they are against the Ombudsman overlooking their process. However, on a practical level, imagine a circumstance where somebody has been convicted in the discipline process, then a complaint is made to the Ombudsman. Despite the fact that the matter is closed, the college must go through the effort and cost of responding to the Ombudsman's investigation. Similarly if a new standard has been debated and accepted by all but few in a college, should the college be subject to an Ombudsman's investigation if a complaint is made.

From the cost side as any profession approaches the introduction of the new model, there are three potential impacts. As the new legislation comes in you would have to commit the resources and time to deal with the proposed legislation. It is a very intensive process both at a policy level and at a legal level. You need to analyze the drafting and persuade the government that elements of it may
not work for your profession. It will involve lobbying at both the political level and at the policy level, and then working at the legal level.

Next, you would have to revamp your regulatory system. Once you have dealt with the introduction of the legislation, new regulations and bylaws would have to be drafted. Third, the discipline process under the new act would be more expensive.

The one thing you will benefit from is by the time this legislation comes to you, the health care professions will have all litigated many of the uncertainties.

The good things about the act are:
1. Your ability to obtain access to new restricted activities.
2. From the Association’s perspective, the legislation is much more flexible about the ability to delegate.
3. There is a much more flexible approach to the adoption of the Code of Ethics and standards.

The process for adoption will be set out in bylaws so it does not require approval of cabinet. It is an advise and comment process where you are compelled to send the material to the Minister for comment. You consider the comments and change or do not change. You don’t even have to send it to the membership for approval, although you can if you want.

Much of what is included in the Health Professions Act is highly complex transitional material; discipline and registration proceedings for 22 professions.

Overall, my assessment is that it is provides a greater choice for the public and the capacity for professions to expand what they do, but ultimately, a downside from the view of a traditional profession. However, it may be the model for the 21st century and as we enter into the information age, we may all be struggling for new turf anyway. This may simply be a realistic assessment of where we are going to be.

A useful endeavour would be to ascertain what the ALSA thinks appropriate restricted activities should be in the area of land surveying and how the public will be served by having those defined as restricted activities.

A useful endeavour would be to ascertain what the ALSA thinks appropriate restricted activities should be in the area of land surveying and how the public will be served by having those defined as restricted activities.

It is important to keep and maintain links with government officials. It is my experience that professions that lobby and have government links, tend to do better. Good governmental relations put you in a better position to have your voice heard.
Opinions expressed in this article are those of the author. I encourage members to contact me to discuss this article or any other survey related issues.

The Association office receives a large number of newsletters from provincial, state and international survey organizations. Many of these organizations write of similar issues to our own. In the July 1999 issue of The Link, an article entitled “What Does Your Signature Mean?” explored the issue of when a land surveyor’s field presence is required. It might be beneficial to examine what our own affidavit says, and what the land surveyor’s signature means.

Affidavits

When I sign an affidavit what does that mean?

An affidavit as defined in the Land Titles Act means an affirmation when made by a person entitled to affirm. We must be clear as land surveyors what it is we are affirming. The importance of affidavits and statutory declarations is reflected in the Criminal Code, which provides a maximum penalty of 14 years imprisonment for any person making a false affidavit or statutory declaration. This means that any land surveyor who knowingly swears a false affidavit could be found guilty of a criminal offence. And anyone found guilty of a criminal offence in the context of professional practice would also likely be guilty of unprofessional conduct.

Be sure that you meet all of the conditions contained or implied before swearing an affidavit.

An affidavit as defined in the Land Titles Act means an affirmation when made by a person entitled to affirm. We must be clear as land surveyors what it is we are affirming. The importance of affidavits and statutory declarations is reflected in the Criminal Code, which provides a maximum penalty of 14 years imprisonment for any person making a false affidavit or statutory declaration. This means that any land surveyor who knowingly swears a false affidavit could be found guilty of a criminal offence. And anyone found guilty of a criminal offence in the context of professional practice would also likely be guilty of unprofessional conduct.

Some years ago our standard surveyor’s affidavit for plans registered in the Land Titles Office read in part: “That the survey represented by this plan has been made by me in accordance with the provisions of the Alberta Surveys Act.” The current surveyor’s affidavit, Form 11 from the 1981 Forms Regulation pursuant to the Land Titles Act, now reads in part: 1. That the survey represented by this plan was made under my personal supervision.” While this current affidavit no longer affirms that the land surveyor made the survey personally, it implies that the survey was performed under his personal supervision, direction and control, as required by the Land Surveyors Act.

...any land surveyor who knowingly swears a false affidavit could be found guilty of a criminal offence. ...Be sure that you meet all of the conditions contained or implied before swearing an affidavit.

Roman Numerals

There appears to be some confusion as to how to mark re-established monuments. Systematic Practice Review field inspections have recently discovered re-established section corner monuments marked incorrectly. Part C, Section 3.10 of the Manual of Standard Practice states: “If a statutory iron post is placed to re-establish a lost monument or restore an obliterated monument originally placed at a section or quarter section corner, the iron post shall be marked with the same designation as the original monument. Numbers shall be legibly and permanently applied.” All markings on iron posts placed by the original township surveys were in Roman Numerals. A re-established monument, if marked in Roman Numerals, must be marked correctly. Original section corner monuments were marked as to section, township and range with each Roman Numeral separated by a comma. For example, the NE of Section 6-52-16-W4th would be marked as VI, LII, XVI. While the NE of Section 6-52-16-W5th would be marked exactly the same, any surveyor that does not know if he is W4th or W5th Meridians has far more to worry about than understanding Roman Numerals. Monuments at quarter section corners should simply be stamped ¼.

It might be helpful to revisit the principles and rules applied to the use of Roman Numerals. There are six basic principles of Roman Numerals and two modern rules that have been adopted. The basic principles are:

1. There is no symbol for zero.
2. A letter repeated, repeats its value that many times. (III = 3, XX = 20, 200, etc.)
or CCC = 300 etc.) But remember V and L are never repeated.

3. One or more letters placed after another letter of greater value increases the greater value by the amount of the smaller value. (VI = 6, XIII = 13, LXX = 70, MCC = 1200 etc.)

4. A letter placed before another letter of greater value decreases the greater value by the amount of the smaller. (IV = 4, IX = 9, XL = 40, XC = 90, CM = 900 etc.)

5. A bar placed on top of a letter or string of letters increases the numerals’ value by 1000 times. (XV = 15, but XV with a bar above the XV = 15,000)

6. A bar on top of a letter or string of letters with vertical lines on either side of the letter or string increases the numerals’ value by 100,000 times. (XV = 15, XV with a bar above the XV = 15,000 and XV with a bar above the XV and vertical lines on each side of the XV = 1,500,000.)

The modern rules applied are:

1. No more than three of the same symbol can be repeated in a row, and V and L are never repeated. (III, VIII, XXX, LXXX, CCC)

2. The smaller value preceding a larger value cannot be more than two values lower than the larger and it cannot be one-half of the larger value. This leaves IV, IX, VI, XL, XC, LD, CD, and CM as the normal pairings. This would mean for instance that 1999 should be written as MCMXCIX rather than MIM. Also, IL is not acceptable under this rule.

Learn the base letters I, V, X, L, C, D, and M. Apply the rules and build the correct number. There are Roman Numeral converters available on the Internet that will convert Arabic to Roman or vice versa if you need assistance, but it is not very difficult.

The following list is presented to assist in understanding the base letters and the use of multiple letters.

1=I 8=VIII 60=LX
2=II 9=IX 70=LXX
3=III 10=X 80=LXXX
4=IV 20=XX 90=XC
5=V 30=XXX 100=C
6=VI 40=XL 500=D
7=VII 50=L 1000=M
Case Study No. 3
Governing Evidence

This is the third in a continuing series of articles featuring problems commonly encountered in Systematic Practice Review. The purpose of these articles is purely educational, and although the material is taken from an actual practice review, no names or identifying legal descriptions are included. Opinions expressed in this article are those of the author.

The Project

The practitioner conducted a subdivision survey of a property in Southwest corner of the SW ¼ of Section 5. The north limit of the subdivision was to be coincident with the south limit of a metes and bounds description. The south limit of the metes and bounds description is located 957 feet (291.694m) north of the SW corner of the quarter section and perpendicular to the west limit of the quarter. The south limit of the subdivision was to be coincident with the north limit of a 1981 road widening of the east/west government road allowance. The west limit of the subdivision was to be coincident with the west limit of the quarter section. The east/west Government Road Allowance along the south limit of Section 5 falls midway between a baseline and a correction line.

The Plan Examination

In 1939, a road diversion was surveyed through the south half of Section 5. This survey located what would appear to be original survey evidence from the township survey of 1910 at the E ¼ of Section 6 and the NE 31 and established R11, 212.715m north of NE 31 on the west limit of the Road Allowance. This road plan was eventually cancelled in 1985. In 1960, a road widening was taken on both sides of the east/west government road allowance. The widening was not parallel to the original Government Road Allowance. This 1960 survey did not locate the NE 31, but did locate R11 from the 1939 road diversion, and the E ¼ 6, and the E ¼ 31. The survey re-established the NE 31 by producing the east limit of the SE 6 south from R11, the 212.715m as shown on the 1939 survey plan. This 1960 survey found a 14' deflection at the NE 31 in a tie to the E1/4 31. The survey placed R6 17.99 feet (5.483m) south of the re-established position for the NE 31 on the east limit of the NE ¼ Section 31.

A second road widening was taken along the east/west Government Road Allowance in 1981 parallel to the 1960 widening. This 1981 survey did not locate the NE 31, R6 from the 1960 survey or R11 from the 1939 survey. The 1981 survey re-established R6 from ties to a pipeline right of way survey east of R6 and intersected by the 1960 road widening survey. This 1981 survey then established R24, 4.88m south of the re-established position of R6 and perpendicular to the south limit of the 1960 road widening. This 1981 survey did not locate or use the E ¼ 31 as the 1960 survey had, so no attempt was made to place R24 on the section boundary.

In 1982, a road widening was taken along the north/south Government Road Allowance south of the NE 31. This survey located R24 from the 1981 survey and established R8, shown 5.18m west of R24 along the south limit of the 1981 road widening.

The practitioner’s subdivision plan shows finding R24 and the E ¼ Section 6 and utilizing them to define the Government Road Allowance as a straight line between these monuments. The plan makes no mention of looking for R6 from the 1960 survey, or R11 from the 1939 survey, both of which fell between the monuments used. As the west limit of the subdivision is coincident with the east limit of the north/south Government Road Allowance, the subdivision survey requires the monuments that govern that boundary. In addition, the metes and bounds description (coincident with the north limit of the subdivision) is governed by location of the SW corner of the quarter section which is defined by the original monument placed at the NE 31. This subdivision survey should have re-established the NE 31 as the NE 31 and the E ¼ Section 6 define the location of the north/south Government Road Allowance needed for this survey. The 1960 road widening survey appears to have found original survey evidence and shows a 14' deflection at the NE 31. It then follows that any monuments south of the NE 31 such as R6 (1960 survey) and then R24 (1981 survey) are clearly not on the same line as the east boundary of Section 6. The practitioner’s plan would seem to continue on Page 29
Howard Douglas Farnell

(new)
indicate that the deflection occurs at R24. This is not the case.

The Field Inspection
The SPR field inspection found no trace of the original monuments at NE 31 or at R6 (1960 survey). The field inspection found the monument at R11 established by the 1939 survey, the same monument not located by the 1981 survey. The field inspection also found the monuments at E ¼ Section 6, R24 (from 1981 survey) and R8 (from 1982 survey).

The Legislation
Section 32 of the Surveys Act says: “All boundary lines of a survey in accordance with section 29 or 29.3 are determined by the monuments placed for that purpose as shown on the official plan, whether or not the dimensions between them or the areas expressed on the official plan are found by re-measurement to be different.”

This section indicates that in Alberta, boundaries are defined by the monuments placed for that purpose. Any subsequent survey that intersects or places monuments on that boundary can never change the position of the original boundary. These subsequent surveys may provide evidence or perhaps even the best evidence of the location of the original monument, but monuments placed by them do not replace the original monument in defining the boundary. A land surveyor who performs a subsequent survey is required to locate or re-establish the monument in defining the boundary. A land surveyor when performing a subsequent survey is required to locate or re-establish the location of the governing monument.

Section 40(1) of the Surveys Act says: “When a surveyor is required to re-establish the position of a monument placed in the original survey in accordance with section 29 or 29.3 that cannot be found, the surveyor shall do so from the best available evidence respecting the position of the monument.”

Section 40(3) goes on to say in part: “A surveyor who establishes a corner of a section, quarter-section or legal subdivision that was not previously marked by a monument, or re-establishes the position of a monument in accordance with subsection (1) or (2), (a) shall mark the position with a new monument, and (b) shall, within 90 days after completion of the survey prepare and submit to the Registrar a plan of survey showing the method by which the position was re-established.”

The Manual of Standard Practice outlines under Part C Section 3 the monuments and substitute monuments to be used when placing a statutory iron post is not practical. This same section also points out that reference monuments may be used when the actual corner is not accessible. Whether or not the re-established position can be monumented has no bearing on the statutory obligation to re-establish the position.

The Message
Some surveys examined by Systematic Practice Review do not demonstrate an understanding of governing survey evidence. We often find practitioners accepting a road-widening monument as governing the location of an original Government Road Allowance, when the legislation clearly indicates that it does not. The road-widening monument may be the best evidence as to the location of the original monument, but it never replaces it. Road survey monuments govern the limits of the road that they were placed to define and nothing else. This statement is true for all surveys, in that the original monuments only govern the boundaries that they were placed to define and their placement never changes the limits of prior boundaries.

For all surveys, a land surveyor must always determine what monuments govern the limits of a boundary being intersected or retraced by the new survey. These positions must be located or re-established and monumented by the land surveyor to comply with the requirements of the Surveys Act.

Field Staff Seminars
The Director of Practice Review is available to present Field Staff Seminars.

They are an abbreviated version of the field portion of the Getting It Right Seminar, spending 1-2 hours talking about field issues such as evidence, survey methods, field notes, and answering questions. The seminar is not to instruct field staff, it is to reinforce the importance of getting it right in the field.

If there is a sufficient number of people in your area who would like this presentation, please contact Lyall Pratt at 1-800-665-2572 to arrange a mutually agreeable time.
UNDER MY PERSONAL DELEGATION

Two of the primary objectives of the SPR program are to assess the professional competence of practitioners and to evaluate the operations of these practitioners to ensure that the interests of the public and the profession are maintained at the highest possible level. SPR conducts this assessment through a two part process consisting of an internal and external audit of each particular practice.

The external audit consists of a detailed examination of specific products authored by the practitioner in an effort to determine the level of compliance with the various statutes, regulations and standards of good practice adopted by the ALSA. The internal audit examines the technical and administrative operations of the organization in an effort to evaluate the general competency of the firm.

As one would suspect, there is a very definite correlation between the quality of products examined in the external audit and the quality and effectiveness of the internal operational processes that lead up to the preparation of that particular product. Further analysis suggests that there is also a direct relationship between the end quality of survey products and the amount of personal involvement exercised by the professional in their preparation.

I find it interesting, that, of all the topics addressed in the internal audit portion of each review, there is very little discussion of the professional practitioner’s personal contribution to the final returns of survey. Perhaps SPR is sending a poor message to our membership. By not exploring a practitioner’s personal involvement in the preparation of his products, is SPR implying that a land surveyor can discharge his professional obligations merely by establishing an elaborate system within which technicians and technologists conduct the business of boundary determination? Hopefully this is not the case.

Whether driven by economic pressures or rapidly evolving technological advances, delegation of technical responsibilities is a reality in most contemporary land surveying operations. However, land surveyors must be cautioned not to delegate their professional responsibilities to technical staff.

The power conferred by statute upon Alberta Land Surveyors to determine or establish, by survey, the boundaries of land does not confer on them the right to delegate such authority to others.

The Land Surveyors Act details the means by which candidates qualify for membership in our profession. The Registration Committee and Council are the only bodies authorized to grant commissions to successful applicants. The power conferred by statute upon Alberta Land Surveyors to determine or establish, by survey, the boundaries of land does not confer on them the right to delegate such authority to others. Bruce McTaggart, BCLS and Council are the only bodies authorized to grant commissions to successful applicants. The power conferred by statute upon Alberta Land Surveyors to determine or establish, by survey, the boundaries of land does not confer on them the right to delegate such authority to others. Bruce McTaggart, BCLS states in a recent article in The Link, that, “BC Land Surveyors should bear in mind that the ideal aimed at, by the law, is that surveys on which titles are to be based must be made only by men (women) whose compe-

tence is warranted by the Board’s registration as Surveyors; it is not sufficient for the Surveyor to assert of his own belief or authority that So-and-So is a good enough instrument man (technologist) and I will sign his plans. Only the Board can say that, and no Surveyor can usurp this, it’s function.”

The BCLS Board of Management has interpreted the statement “under my personal supervision” to mean that survey operations have been carried out under a practitioner’s supervision and direction in such a manner that he/she is certain of their correct execution. A survey commission is not merely a license to sign plans and a professional certification must surely offer more to the public than a written assurance that a surveyor will take responsibility for the deficiencies in his work.

When a land surveyor takes an oath that his survey and plan is “true and correct,” this implies that he has some personal knowledge to that effect. It follows that a land surveyor must assume a personal role in the execution of each of his surveys. I have difficulty understanding how a practitioner can claim to have any personal knowledge of a survey’s correctness if he has not at a minimum:

• evaluated the extent to which searches were made for governing evidence by his field staff,
• satisfied himself by personal examination of the field notes, that survey measurements were taken, recorded and verified in an appropriate fashion, and
• personally inspected the plan of survey he claims to author and to which he bears witness.

In my opinion, these functions constitute professional duties, responsibility for which should not be delegated to technical staff. This is
not to say that technical personnel are unable to assist in each of these areas, but only that the land surveyor must have personal knowledge of their correct execution.

Having spent nearly three years on the Practice Review Board, it is apparent that many land surveyors in the general membership share my understanding of minimum levels of professional supervision, direction and control. It is also apparent that some do not. For that matter, there has been much deliberation on this issue among the individual members of the Practice Review Board. For a group that collectively delights in dissecting, analyzing and discussing in infinite detail, each article of our MSP and every re-establishment situation brought to its attention, nothing drops the cone of silence over one of our gatherings faster than the dreaded topic of personal supervision. Nevertheless, after grappling with it over time, the Board has taken a pragmatic approach to this issue. If products reviewed in the external audit substantially comply with the acts, regulations and Manual of Standard Practice, satisfactory levels of personal supervision are assumed to have been exercised. If not, the practitioner is requested to re-examine the effectiveness of his internal systems and implement any changes which will act to minimize the recurrance of these shortcomings in the future. In plain English: exercise more personal supervision, direction and control over your staff.

In conclusion, I would urge all members of our Association to exercise their professional privilege; bleed a little red ink on those check plots; rescue your shovel from the garden shed and see if your field personnel are as good at locating evidence as you are; and finally, honestly answer the following question:

Are legal survey operations being carried out in my organization in such a manner that I am certain of their correct execution?
Spectra Precision (new)
Being Proactive in Dealing with the Public

In today’s world, people are more concerned than ever about finding strangers on their property or their neighbours’ property. Because of these concerns, people will often phone the municipality, the Alberta Land Surveyor’s Association, or in some cases, even the police. Surveyors can avoid this problem by taking a few proactive steps in dealing with the public:

1. **All survey vehicles should carry signage in accordance with the Manual of Standard Practice.**
   
   This tells the public that the vehicle parked on the side of the road is a survey crew. Often, I have seen trucks carrying two scruffy-looking individuals that I know are a survey crew, parked on the side of the road with no signage on the vehicle. If I were a member of the general public, I, too, might think these people were casing the neighbourhood and phone the police.

2. **Land surveyors and their survey crews must attempt to contact the landowners of properties they have to enter.**
   
   If the owner is out, then a *Thank-You-While-You-Were-Out-We-Entered-Your-Property* card should be left at the site. Most owners, when contacted, are quite reasonable and are happy to be informed of what is happening. Simply contacting the owner or leaving a card can resolve many potential problems with the public to everyone’s satisfaction.
   
   The *Thank-You* cards are available to all members of the ALSA and can be obtained by contacting the Association office. In addition to the *Thank-You* cards, the ALSA also provides other brochures, such as *The Alberta Subdivision Process* and *The Real Property Report*, that can be used to help inform the public.

3. **The land surveyor’s front-line staff should be given instructions in dealing with the public.**
   
   As most encounters with the public occur between the field staff and the public—not the Alberta Land Surveyor and the public—we, as professionals, must realize that the actions of our front-line staff reflect on us all. Factors like staff appearance (do they look like Hell’s Angels?) and their possession of proper identification (i.e. business cards or company identification) are important to the public and should be given some thought by each practitioner. Training your staff to look and act like professionals can go a long way toward alleviating the concerns of the public.

In summary, if we let the public know, in a professional manner, who we are and what we are doing, the public will have far fewer concerns with the surveying profession.

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Ensight
(repeat)
A NEW PROFESSIONAL DEVELOPMENT PROGRAM

At the 1999 Annual General Meeting the Professional Development Committee (PDC) was instructed to resurrect the concept of a continuing professional development program. A subcommittee of members from the PDC, the Practice Review Board (PRB), Council and the general membership was formed to study the concept of continuing professional development and to consider the direction it should go. This article explains the findings of the committee and outlines a potential new program called the Professional Maintenance Program (PMP).

Through discussions with members, the subcommittee found that some individuals feel, because they are professionals, Alberta Land Surveyors should be responsible for their own continuing education. Others think that a strict mandatory point system is the only way to keep all members current while allowing for a level play field. I believe that the PMP is a compromise. It allows members to assess and develop their individual programs and, through the PRB, encourages those who need additional training to participate.

The PMP consists of three components: assessment, a resource center, and evaluation (see the PMP flow chart). The assessment component is a questionnaire that asks the practitioner about technical, business, professional and personal development issues. From the questionnaire, a member should be able to evaluate and plan their future educational needs. Upon completing the questionnaire, the surveyor can access the Resource Center to find the appropriate courses or seminars. In addition, the practitioner can fill out a PDC questionnaire to notify the PDC of courses they would like to see developed. The PDC will respond by developing seminars that are not available through the Resource Center. The Resource Center is envisioned as a web site linked to educational institutions, facilities that provide seminars, and a library.

The evaluation process of the PMP is, for the most part, self-administered. Members can continually evaluate themselves using the assessment questionnaire and plan their individual program. Those who do not participate, and require additional training, will be encouraged to participate through the educational component of Systematic Practice Review. The PRB may recommend or even mandate practitioners to attend necessary courses.

The subcommittee also looked at Professional Development Programs of the other provinces. One program uses the concept of an annual education levy. The levy is mandatory and allows members to participate in a number of free courses throughout the year. Members who attend the courses get excellent value for their money. The objective of the levy is to provide incentive for members to attend courses and to obtain the financial resources to develop programs. L’Ordre des arpenteurs-geometres du Quebec has had this component of continuing professional development in place for two years. The annual educational levy is $125 per member and their Association conducts 4 to 5 courses a year. It was initially difficult to sell the program but now it is widely accepted.

On November 25, 1999 Council approved, in principle, the concept of the PMP. The PDC will now develop the details to support the concept including the assessment questionnaire. Council has directed the PDC to present the program to the membership at the Annual General Meeting in April, 2000. If you have any questions about the PMP, or would like more information, please direct your comments to the Chairman of the PDC.

Professional Maintenance Program

- Assessment Questionnaire
- Resource Centre
- Systematic Practice Review
- Professional Development Questionnaire
- Professional Development Committee
- Courses

by Steve Yanish, A.L.S.
Leica
(repeat)
Professor Invited as Expert by ESA

Dr. K.P. Schwarz, Professor in the Department, was recently invited by the European Space Agency (ESA) to participate as a peer reviewer in the evaluation of one of the candidate Earth Explorer Core Missions. Dr. Schwarz was the only expert from North America in this group. The research-driven Earth Explorer missions are a key element of ESA’s new Living Planet Program, which has as its key objective an Earth System model in which all the major processes governing the Earth are integrated.

The outcome of the one week consultation and evaluation in Granada, Spain, in October was the unanimous selection of the Gravity Field and Steady State Ocean Circulation Explorer (GOCE) as the first mission to be launched. This is the only one of the four missions that relates directly to geodesy and will result in a vastly improved global gravity field of the Earth which will provide considerable advances in solid earth geophysics, oceanography, ice sheet balance, geodesy, and sea level change.

New Alberta Land Surveyors’ Association Bursary for Geomatics Engineering Students

The Department of Geomatics Engineering is pleased to announce that a new bursary has been approved by the University for a fourth year geomatics engineering student who has elected to enroll in two courses related to land tenure, namely ENGO 579 (Survey Law) and ENGO 581 (Land Use Planning). The bursary, valued at $2,500 per year, will be based on academic merit and financial needs.

Geomatics Engineering Students and Faculty Members Win Four Best Paper Awards at GPS99

The GPS-99 International Conference, to be held on 13-17 September in Nashville, and sponsored by the (U.S.) Institute of Navigation, focused on satellite-based navigation and attracted over 2,000 participants and over 250 technical papers.

Messrs. JiunHan Keong, Jayanta Ray and JiHong Zhang, graduate students in our Department, were selected as Student Paper Award Winners for their papers related to their graduate research. The titles of their papers are GPS/GLONASS Attitude Determination with a Common Clock using a Single Difference Approach, Use of Multiple Antennas to Mitigate Carrier Phase Multipath in Reference Stations and Precise Estimation of Residual Tropospheric Delays in a Spatial GPS Network, respectively. They were three of several international student winners. Messrs. Keong and Zhang are studying under the supervision of Dr. G. Lachapelle while Mr. Ray is studying under the supervision of Dr. M.E. Cannon. As student award winners, they will receive funding to attend the conference and present their papers.

Another Best Paper Award was also won by Luiz Fortes and Sam Ryan, PhD candidates, and Drs. G. Lachapelle and M.E. Cannon for their paper on Testing of a Multi-Reference GPS Station Network for Precise 3D Positioning in the St. Lawrence Seaway. The paper was co-authored by Mr. Sun Wee and Mr. Guy Marceau, Canadian Coast Guard, Ottawa, and J. Raquet, Air Force Institute of Technology, Ohio.
Cansel
(repeat)
As part of the countdown to the start of the new millennium, many newspapers have been carrying lists of Albertans who have made their mark on the 20th Century. I would like to nominate the following who have made a lasting contribution to our Society in the past thirty years. We would not be here if it were not for them.

We can start with the ALSA Council of 1966 under President Ted Rippon. They received a request from a group of interested technicians to help them launch a society that would further the standing and knowledge of non-professionals in the surveying and mapping sector. They sent out 500 questionnaires to prospective members through their employers. The response was poor at first, but they persisted and on March 11, 1967 a successful meeting took place in Red Deer. The ALSA was represented by Ted Rippon and Jack Holloway. Mr. Holloway had prepared a draft constitution and bylaws. After amendments were made, Mr. Dave Usher prepared the final version. After a final blessing at the ALSA Annual Meeting in 1968, the Alberta Society of Technicians and Technologists (ASTT) was born. In 1970, the first committee met under the chairmanship of Dunc Gillmore, A.L.S. The Examining Board consisted of Doug Barnett, Len Olson and Ken Berg. The Certification Board consisted of Hugh Pritchard, Zenev Swydnycz, and Tom Swanby. Ken Berg still serves as the Chair of the Panel of Examiners. All were Alberta Land Surveyors.

Army MacCrimmon, A.L.S. chaired Council from May 1971 to May 1972 when the first members took office under Garry Schirrmacher. They were Harold Von Hollen, Hans Krajewski, Martin Holloway, Gerald Whaley, Army MacCrimmon, Wayne Hughes, Gordon Haggerty, and Bob Baker, A.L.S. as Secretary, Wayne Hughes, Martin Holloway, Garry Schirrmacher, and Hans Krajewski were also appointed to the Panel of Examiners and the Certification Board. These are the pioneers of our Society and they should be justly thanked and honoured. They formed the bedrock of ASSMT.

It must be noted that Henry Palindat was appointed as Secretary and Registrar in September 1973 and still is playing an important role today. He has been our advisor, bylaw editor, RST committee member, Link contributor, and a fountain of knowledge. He is our inspiration and counsellor.

Wayne Hughes was one of our first members and has also played a large role. He has been President on three occasions, been on every committee, was responsible for a very successful Underground Utility Workshop, and with Tony Steven, worked on the establishment of our Safety Certification Program.

...the ALSA Council of 1966 under President Ted Rippon...received a request from a group of interested technicians to help them launch a society that would further the standing and knowledge of non-professionals in the surveying and mapping sector.

Les Bonke served as President for two successive terms and was our representative on the Certification Board for many years. As manager of the City of Calgary Survey Department, he tied in membership to advancement. He is a great supporter.

Maurice Fontaine has also served as President for three terms. During his term in 1982, the educational and experience guidelines for certification were finalized. He also was responsible for our honorary members’ plaque.

Hugh Furber was President for two years in 1984 and 1985 during the difficult years after the creation of the National Energy Program. He has also served us faithfully as Registrar for many years and is the man we count on.

Tony Steven was President for three years during our darkest period. His impact on the education of our members is tremendous. He was responsible for launching the Safety Certification Program in 1990-91 and the RST (Registered Survey Technician/Technologist) designation.

Ed Titanich also served us for two years and worked on the RST with Al Bowler, Henry Palindat, Peter Sullivan, Bob Baker, and Tony Steven. He was responsible for our brochure and new application form.

Syd Loeppky, A.L.S. was our advisor in the late 1980s when many new initiatives were made including the RST and Safety Program. He was the person who asked me to consider the Executive Manager position in 1989.

Barry Bleay also served for two terms and made progress on many public relations fronts including the Member Binder and Website.

We can’t forget though, our many members who quietly exemplify our highest standards of proficiency and ethics in their daily jobs. They are the culmination of the efforts of many Albertans who have improved the standing of non-professional technicians and technologists in our province today.
J.H. Holloway Scholarship Foundation

March 1, 1997 — December 31, 1999

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