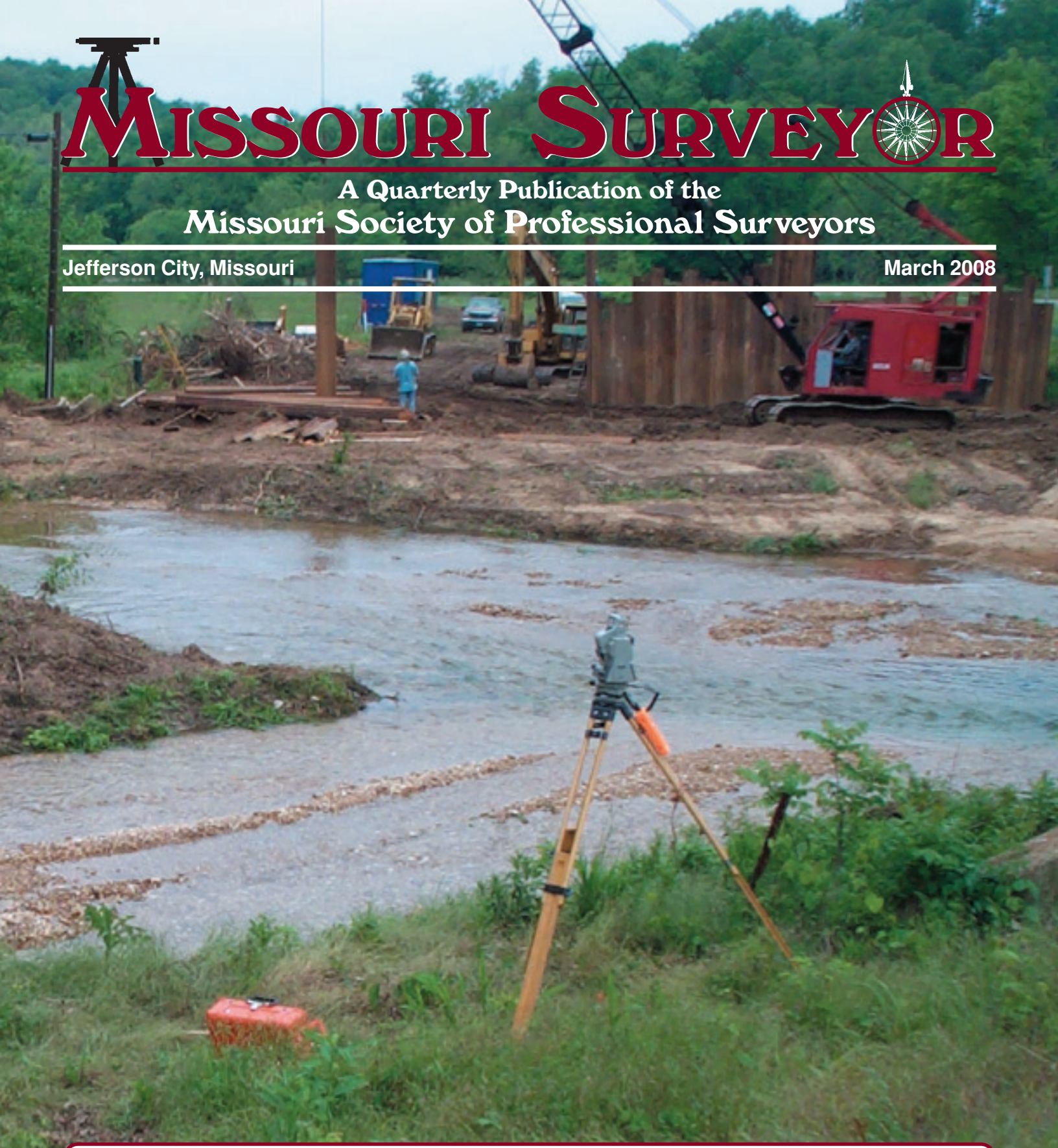

Missouri Surveyor

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri March 2008

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MISSOURI SURVEYOR

CALENDAR OF EVENTS

2008-2009

May 8-10, 2008
Spring Workshop
Lodge of Four Seasons
Lake Ozark, MO

July 11-12, 2008
Board Meeting and Minimum Standards Workshop
Lodge of Four Seasons
Lake Ozark, MO

October 16-18, 2008
51st Annual Meeting and Convention
Joint Conference with Kansas City Society of Land Surveyors
University Plaza Hotel
Springfield, MO

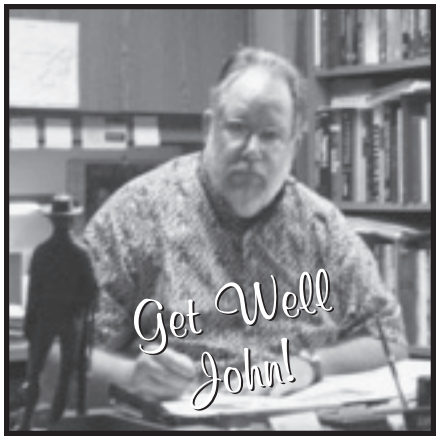
December 6, 2008
Board Meeting, MSPS Office
Jefferson City, MO

May 7-9, 2009
Spring Workshop
Lodge of Four Seasons
Lake Ozark, MO

John Alan Holleck, Editor

Notes from the Editor's Desk

by Interim Editor Donald Martin



Not wanting to establish diminished expectations within the very first sentence of this quarter's edition, but this issue of Missouri Surveyor does suffer an absence not seen in these pages for over twelve years. That absence is the steady hand of our captain of letters, long-time Editor John Holleck. Our friend John is currently facing and overcoming a very serious health challenge. While his efforts and energies these days are understandably dedicated towards recovery, I look forward to the day (soon) when he returns to his desk. It is John that has brought our Society's publication to the level of recognition and acclaim it now enjoys. I know we shall all welcome his return. Until then I have joined with our Publisher Sandy Boeckman to humbly offer to you this non-John version of Missouri Surveyor.

First in the queue of articles for this edition, Missouri's own Dick Elgin describes a troubling trend in "The Missouri State-Specific Exam and Proportioning." Next is the announcement of Mr. William Snyder as the Director of the Museum of Surveying in Springfield, Illinois. This is followed by "The Surveyor's Report" written by a presenter at our upcoming Annual Meeting, Gary Kent. Chris Wickern of Sedalia is next on the list with "Recording of Land Surveys." While this is a reoccurring issue within our community, Chris brings a new interest to this matter based on recent experiences of surveying throughout western states. An announcement by one of our great corporate members, Midland Surveying of Maryville and St. Joseph follows sharing the news that Rick Mattson, Curtis McAdams and Adam Teale are now principals in that firm. After this a treatise by Donald Wilson of New Hampshire entitled "Someone Else's Survey: Can You Trust It?" addresses that complex intersection of surveying and the law. Next from Lee Canfield of ACSM comes "NSPS Certified Survey Technician Program: Who's Using it and Why?" A critical segment of our industry, the non-licensed surveying technicians and assistants, now have an opportunity to earn a recognized credential that reflects their high-skilled experience and learning in surveying services.

Knud Hermansen offers a bit of advice in "Working with Attorneys." Knud, as a surveyor and lawyer, is uniquely qualified on this topic. Next is an article that while it is not specifically about surveyors and surveying it reflects on a significant historic event and how it serves as a model of leadership. Paul Kessler's review of "Leading at the Edge" on Shackleton's Antarctic expedition offers ten strategies for success. A little levity follows with an anonymous submittal from Kentucky, "A Day in the Life of a Surveyor." Many of you will not only identify experiences you share in common with the author, you will probably have your own additions that we would all recognize. While the trade of surveyors is so often about understanding property rights, what about surveyor's plats and intellectual property rights? Check out Vince Schinnerer's report on "Document Ownership." Copyrights, liability and surveying services come together in this article of an important element in the practice of our design profession. While we are all familiar with the adage "Strong Fences Make Good Neighbors", Dexter Brinker has coined a new saying about fences in "Fences as Boundary Evidence." He describes the "...good, bad, or questionable fences..." that have lead many to question why they wanted to be a land surveyor. To close this edition, Joe Paiva offers "Protecting the Public or the Profession?" The ever insightful Paiva reflects on the use of legislation to define the practice of surveying and GIS.

I hope you enjoy this issue of Missouri Surveyor. As the MSPS publication it is your voice and report of important matters as they may pertain to our profession. Your comments and contributions, whether in the form of a Letter to the Editor or your own writing of an article, you are welcome to become a part of the dialog and discussion of our profession. This publication, as well as our Society, can only benefit from an engaged, participatory readership and membership.

THE MISSOURI SURVEYOR

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EDITOR

John Alan Holleck
8510 E. 59th St.
Kansas City, MO 64129
Phone or FAX (816) 353-1782
E-mail: editor@missourisurveyor.org

PUBLISHER

Sandra Boeckman
P.O. Box 1342
Jefferson City, MO 65102
(573) 635-9446 FAX (573) 635-7823
E-mail: msps@missourisurveyor.org

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President's Message

by Donald Martin

Although spring and it's robust sense of renewal and increased activity is on the near horizon, this has not been a "slow" winter in the business of *surveyors leading the way* for their professional interest. For me this winter has been a season of participating in and being witness to many acts of surveyors bringing leadership to events and efforts that are important to the Missouri surveying community. Let me report to you now some of what your peers in practice are doing...

In early December our Society's Board of Directors met in Jefferson City with a full agenda. Well attended, this meeting was an opportunity for a new slate of directors and committee chairs to meet and begin the course for MSPS operations in 2008. Our new lobbyist "Mo" McCullough joined us to discuss legislative issues and challenges. Our PAC chair Rich Barr and Legislative chair Bob Shotts responded by presenting the Society's ambitions to be pursued through the political process. During the committee reports the Board moved to partner with the Board of Registration in an effort to enhance the education and qualifications of those entering the profession – that is planning for the future of the profession. Our local chapters were represented by their leaders and more than ever before the link between the state organization and our local presence was reinforced. In the midst of all this we even took care of the business of our association by passing our 2008 budget. If that sounds like a lot for one day, we also worked in a Legislative Committee meeting that morning!

One Board meeting doesn't tell the whole story. In recent months the local chapters of MSPS have been busy bringing leadership to our Missouri surveying community in southeast Missouri, metropolitan St. Louis and Kansas City, the Springfield vicinity and southwest Missouri. I spent a very interesting evening with the St. Louis chapter where they hosted a dialog on a regional GPS Virtual Reference Network and Bob Myers congratulated our newest Missouri Certified Survey Technicians. I was the guest of SE, the SW and Ozark (Springfield) Chapters as their new officers were installed. The dedication of these surveyors should be applauded – it is not easy to step forward and serve as a leader before your fellow surveyors. And although I was not able to join in their informative seminar I did get to spend an evening with members of the Kansas City chapter as they welcomed Dave Doyle of the NGS. He was there as a continuing education presenter at one of their meetings. Imagine that; a local chapter sponsoring national-level programs of professional development – Betty Sheil of Kansas City is giving us all a fine example of what local chapters and associations can do in terms of service for members. Yes it has been a busy winter for Missouri surveying associations. They have been busy *leading the way*.

Let's all continue working together to preserve and improve our profession. To do so effectively, follow this prescription: keep our associations open to all participants; recruit new members; liaison with aligned professions; keep our societies responsive to members; keep active in legislation and education. You know, coming together in our common interest is not only good business, it is what we Americans do. As observed by de Tocqueville in *Democracy in America*, "Wherever, at the head of some new undertaking, you see the government in France, or a man of rank in England, in the United States you will be sure to find an association." For Missouri surveying, that association is MSPS – *leading the way*.

Cover photo: Surveying for replacement bridge and roadway connection, Route 14 in Douglas County. Photo taken by Ralph Riggs.

The Missouri State-Specific Exam and Proportioning

by Dr. Richard L. Elgin, PLS, PE — Chairman, Exams Committee Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Landscape Architects

In order to become a Missouri Professional Land Surveyor, one must take and pass the Missouri State-Specific Land Surveyors Exam (among other requirements). All Boards that use the NCEES exams (LSIT and PLS) also develop their own two-hour exam that tests the candidate on state-specific items such as Minimum Standards, riparian boundaries, Board rules and regulations, the state's GLO system, resurveys on the state's U.S. Public Land Survey System and State Statutes relative to land surveying. A committee of 18 Missouri PLS's establishes the state-specific exam content and develops and reviews the questions.

The exam format is multiple choice (four choices), except that there are usually two or three or four problems related to resurveys on the U.S. Public Land Survey System that require a "long-hand" calculation/solution. These problems are hand-graded and partial credit is awarded (where warranted). In these problems, the candidate is given measured coordinates of existent corner positions, and GLO dimensions. One must compute coordinates of intervening lost corner positions. These, of course, are single and double proportion problems which are the backbone of any dependant resurvey on our rectangular survey system.

On the exam, a problem situation is given (usually with a sketch) and the candidate must accomplish the calculations and arrive at the required coordinate (lost corner) position. These problems are worth more points than a typical multiple choice problem. Awarding partial credit affords the candidate points for solutions that got started correctly, but "went astray" either mathematically or due to the candidate's lack of understanding of the correct procedure or solution. So, the problems are not "all or none" propositions and the grader can examine and judge the solution.

As one who has worked on the Missouri State-Specific Exam for many years, I have observed a general decline in the candidates' abilities to accomplish relatively simple single and double proportion problems on U.S. Public Land Survey System.

Given coordinates of existent corners along, say, a Township Line, and the GLO plat distances along the line, compute the coordinates of a intervening lost corner: Single proportion. Given the coordinates of four existent corners in each direction from a lost interior section corner, and the GLO dimensions, compute the coordinates of the lost corner: Double proportion. These problems both apply to Chapter 60 of RSMo. The calculation procedures are very straightforward, but some candidates have great difficulty with them.

Keep in mind that candidates taking the Exam have had 12 college credits in surveying subjects and also years of experience working under a PLS and, the exam is open book. Still, some cannot accomplish a single or double proportion problem involving coordinates and GLO dimensions. It seems something is amiss. Either surveying educators aren't teaching or LSIT's aren't being exposed to these important subjects. (Which they must if they are doing any resurveys on the U.S. Public Land Survey System.)

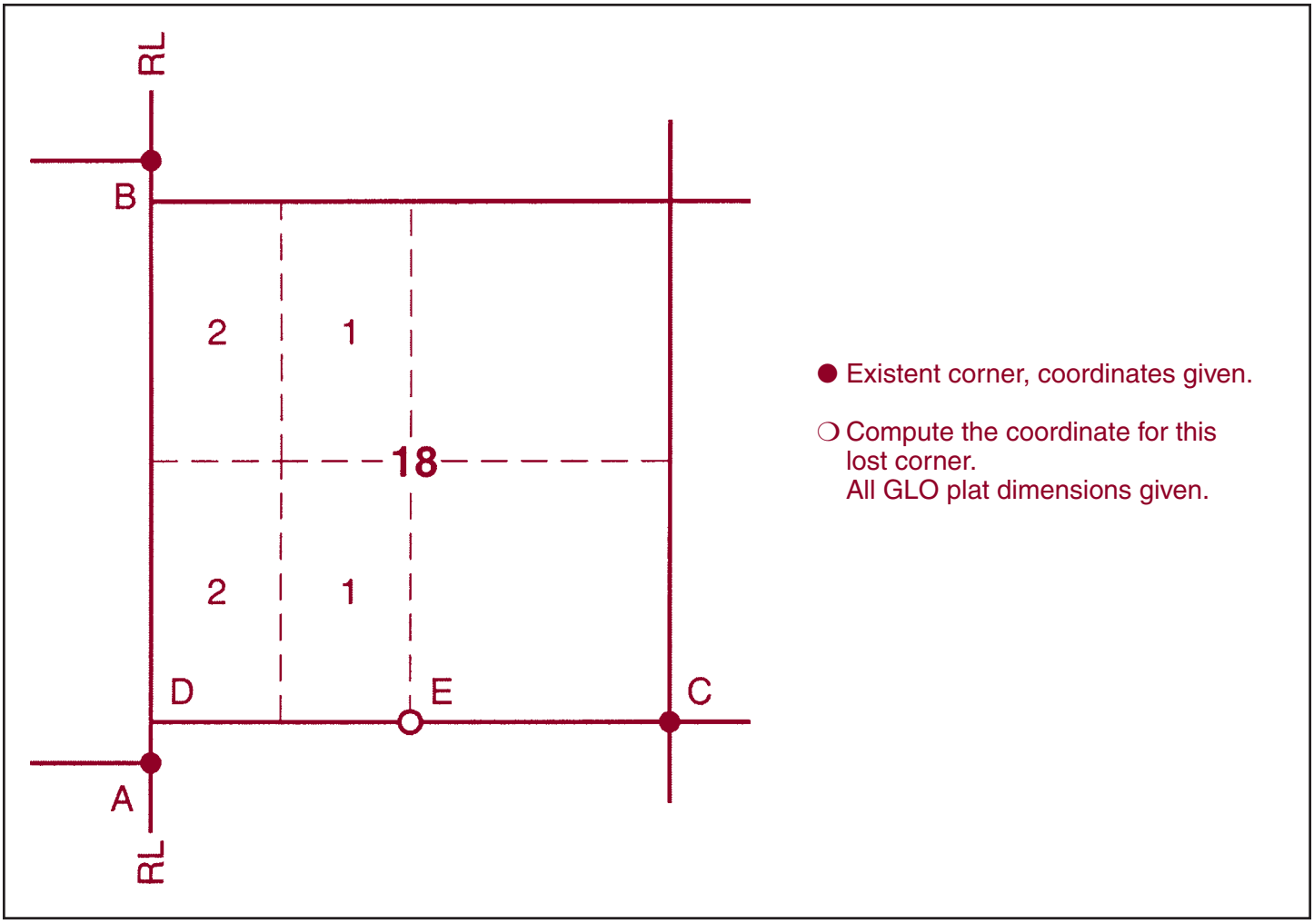
For example, consider the following problem:

Given coordinates for the existent, found corners at A, B and C, compute the coordinates for the lost south quarter corner of Section 18. Also given is the GLO lap AD and the GLO distance CD. (Which is all that's needed.)

Solution: Step One: Single proportion AB for the coordinate at D. Step two: Single proportion CD for the coordinate at E. Remember, of course, E is not set at the CD split, but proportioned, because the GLO distance CE is 40.00 chains.

This problem (with coordinates and GLO dimensions) was given on the October, 2007 State Specific Exam. Thirteen percent of the candidates got the problem 100% correct and received full credit. Thirty-three percent of the candidates received no partial credit because their solutions exhibited no knowledge of how to approach the problem, or did not use any proportioning. Several candidates set D at the GLO lap distance north of A, then split between their D (wrong) and C to reestablish E. They received no credit.

It is disturbing that 33 percent of those taking the



exam received 0 credit for this very straightforward problem. Twelve college credits in surveying, several years of practice and "no clue" how to solve the problem (or presented a solution other than as specified in Chapter 60). Do Missouri surveying educators teach these materials? (I hope so.) Do "online" courses offered by colleges not in Missouri speak to resurvey rules for Missouri's U.S. Public Land Survey System? (Probably not.) Keep in mind that Missouri has resurvey procedures which are unique only to our State. Are Missouri PLS's teaching and "coaching" their LSIT's correctly? (They better.)

In the example above, where did the candidate learn that the lost corner is set by going the GLO lap distance north from A (by merely adding the GLO lap dimension to the north coordinate of A), then set the lost corner at the CD midpoint (by merely averaging the coordinates of D and C)? Oh my! I hope neither some surveying educator (in Missouri or online) nor some Missouri PLS taught the candidate this was correct!

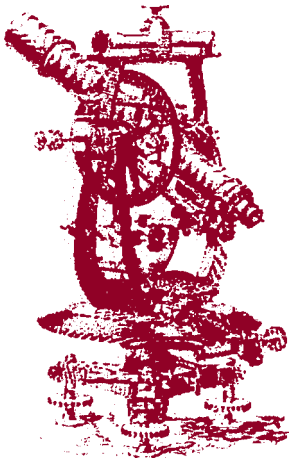
I seems we need to "get back to the basics" and learn (or relearn) some of the resurvey procedures for Missouri's U.S. Public Land Survey System.

Director Selected for National Museum of Surveying

by The National Museum of Surveying, Springfield, Illinois

The National Museum of Surveying announces that William Snyder has been selected for the position of Director of the Museum. William comes to us from the Abraham Lincoln Presidential Library and Museum and assumes his duties for the National Museum of Surveying on January 7, 2008.

William's educational background includes a Bachelor of Arts degree in Art History and Architecture from the University of Cincinnati and a Master of Fine Arts in Museum Studies from Southern Illinois University.



After spending 4 years in the field of Architecture in the late '80's, William found his true calling in the Museum field. He has held numerous positions at several museums including the Taft Museum of Art in Cincinnati, the Louisville Science Center, and the Stan Hywet Hall and Gardens in Akron. While working on his Master's Degree he was Assistant Curator of Collections, Assistant Development Officer, and Curator of Exhibits at the University Museum of Southern Illinois University. With the opening of the Abraham Lincoln Presidential Library and Museum, he assumed the duties of Assistant Director of Museum Programs and Registrar and was very quickly promoted to Director of Museum Programs and Senior Curator.

With this diverse background William is the ideal person to lead the National Museum of Surveying through its formative years and into the future. When asked why he desired the position with the surveying museum, he responded that besides being the director of the Museum, the idea of starting at the beginning was exciting, intriguing, and challenging. He impressed the selection committee with his enthusiasm and his first thoughts on what the Museum could become.

William is active and recognized professionally as evidenced by membership in several professional associations and various awards of excellence including the American Association of State and Local History Award of Excellence awarded in 2006, the Illinois Association of Museums Award of Excellence awarded in 2004, and the same award in 2003. He has been honored to serve as a judge or juror at several schools and non-profit events related to art and historical events. He has also been a construction volunteer for Habitat for Humanity over the last 20 years.

The selection committee of the national Museum of Surveying is excited about William joining us and anticipates that he will lead us through and beyond the opening of one of the finest small museums in the country. His goal of leading us through accreditation matches our dreams perfectly.

David Lee Ingram, Chairman, Board of Trustees
140 Old Bridgewater Road
Mount Crawford, Virgina 22841
(540) 828-2778 (voice)
(540) 828-2683 (FAX)
ingram@cfw.com

Spring Workshop

May 9-10, 2008

Lodge of Four Seasons

Lake Ozark

Registration information available at www.missourisurveyor.org

Or call 573-635-9446

The Surveyor's Report

by Gary Kent, PLS

As outlined by Alexander and Hermansen, the use of a "Surveyor's Report" is an excellent tool to convey relevant information about a survey to a variety of audiences. West Virginia and Indiana both recognized this fact; their respective state survey standards required such a document be prepared and provided to the client (see shaded box on page 10).

The essence of the concept of a surveyors report is that seldom will the plat of survey by itself convey all of the information that played a part in the resolution of the boundary. Depending on the exact content and manner in which the information in the report is presented, clients, attorneys, and title companies may all be interested in reading it so they can understand the results of the survey and what issues there may be that affect the boundary lines.

West Virginia requires that the report include information on the weight given to conflicting evidence, encroachments, overlaps and gaps. Indiana requires the same, in addition to the inclusion of measurement related uncertainties.

What purpose is served by documenting and providing such information? When Indiana first adopted its administrative rule in 1988 requiring surveyor reports, one surveyor was heard to say "I know that my surveys are not perfect, but I can't tell my client that". Portraying or implying to one's client that a survey has no error is a rather precarious position to take. Talk about setting yourself up for a lawsuit!

If our surveys are not perfect, do we really want our clients — or anyone — to believe they are?

Nearly every boundary survey that is performed involves some set of facts or evidence that potentially compromises the surveyor's ability to develop an "exact" answer. It is logical and appropriate that the client and others who may rely on the survey (lender, title company, if not others) have the benefit of the same information that the surveyor had, and the thinking and principles that the surveyor applied to the problem.

So, what are the types of evidence and facts that inhibit the surveyor's ability to develop that perfect boundary — the one that has no error?

The most obvious is one that surveyors deal with every day — the fact that there is no such thing as a perfect measurement. Most states outline an acceptable tolerance or closure in survey measurements. This information is very appropriate to include in a surveyors report. Even better, we can use the report to provide the client with a bit of education in that regard. Some "boilerplate" language could be easily developed to explain in plain words a bit of measurement theory. Think of the possibilities! All of a sudden you are not "just a surveyor" to the client, but an expert in mathematics, statistics and physics.

What about the other facts and evidence that contribute to imperfect boundary resolutions?

They include record documents that are erroneous, incomplete, ambiguous and conflicting. Imperfect cards that surveyors are dealt that they must sort through. And even when or if the sources of such problems are identified, there is still that current deed description that the client took title to. The surveyor did not create it (hopefully) and likewise cannot make it go away.

There are reference monuments that descriptions tie to, and that surveys must be based on, that are problematic. Monuments that are uncertain, ambiguous or indeterminate. Like the description that began at the intersection of two right of way lines; neither of which ever existed. Or the purported section corner monument that had been used extensively by numerous surveyors for years and years that has recently been found to be 17 feet in error.

Finally, what about potential encroachments or possible unwritten rights? Rather than simply look at some rather vague information on a plat of survey, the client should be able to read a detailed explanation of the conditions.

Most of this sort of information simply cannot be clearly depicted on a plat of survey. The surveyor should outline and explain these issues in a surveyors report, so the interested parties have the benefit of the surveyor's extensive and detailed work and resulting opinion.

(continued on page 10)

The Surveyor's Report

"The following observations and opinions are submitted regarding the various uncertainties in the locations of the lines and corners established this survey as a result of uncertainties in reference monumentation; in record descriptions and plats; in lines of occupation; and as introduced by random errors in measurement. There may be unwritten rights associated with these uncertainties.

This survey was based on..."

MO Colleges/Universities Where Land Surveying Coursework is Available

The following list will be updated quarterly as new information becomes available.

Longview Community College - Lee's Summit, Missouri
Contact: Ken Eichman
Longview Community College
Science and Technology Bldg.
500 Longview Road
Lee's Summit, Missouri 64081
816-672-2283

Florissant Community College - St. Louis, Missouri
Contact: Ashok Agrawal
Florissant Community College
3400 Pershall Road
St. Louis, Missouri 63135
314-595-4535

Missouri State University - Springfield, Missouri
Contact: Thomas G. Plymate
Southwest Missouri State University
901 So. National
Springfield, Missouri 65804-0089
417-836-5800

Mineral Area College - Flat River, Missouri
Contact: Jim Hrouda
Mineral Area College
P.O. Box 1000
Park Hills, Missouri 63601
573-431-4593, ext. 309

Missouri Western State University - St. Joseph, Missouri
Contact: Department of Engineering Technology
Missouri Western State University
Wilson Hall 193
4525 Downs Drive
St. Joseph, MO 64507
816-271-5820
www.missouriwestern.edu/EngTech/

St. Louis Community College at Florissant Valley
Contact: Norman R. Brown
St. Louis Community College at Florissant Valley
3400 Pershall Road
St. Louis, Missouri 63135-1499
314-595-4306

Three Rivers Communitiy College - Poplar Bluff, Missouri
Contact: Larry Kimbrow, Associate Dean
Ron Rains, Faculty
Three Rivers Community College
2080 Three Rivers Blvd.
Poplar Bluff, Missouri 63901
573-840-9689 or -9683
877-TRY-TRCC (toll free)

University of Missouri-Rolla - Rolla, Missouri
Contact: Distance & Continuing Education
University of Missouri-Rolla
conted@umr.edu
103 ME Annex
Rolla, Missouri 65409-1560
573-341-4132

University of Missouri-Rolla - Rolla, Missouri
Contact: Surveying Courses in Civil Engineering
Dr. Bill Schonberg, Chairman
University of Missouri-Rolla
Dept. of Civil Eng.
civil@umr.edu
1870 Miner Circle
Rolla, Missouri 65409-0030
573-341-4461

University of Missouri-Columbia, Missouri
Contact: Lois Tolson
University of Missouri-Columbia
W1025 Engineering Bldg. East
Columbia, Missouri 65211
573-882-4377

Missouri Southern State College - Joplin, Missouri
Contact: Dr. Tia Strait
School of Technology
3950 E. Newman Rd.
Joplin, MO 64801-1595
1-800-606-MSSC or 1-417-782-MSSC

The Surveyor's Report (continued)

There are many surveyors who are hesitant or even hostile towards the idea of providing such information in a surveyors report. Some believe it is proprietary information that should, for a variety of reasons, not be given out. Some believe it increases their liability. Some think it will take too much time and cost too much.

These are not valid arguments. Providing the information so other surveyors can readily understand the evidence and procedures used in a boundary resolution will encourage those that come after to follow in your footsteps, rather than wonder what you did. Outlining and explaining the imperfect set of facts and evidence that the surveyor had to deal with will help the reader appreciate the limits of our work and the qualifications to our opinions.

The preparation of a surveyors report need not be a laborious or expensive exercise.

If the surveyor formed his or her opinion based on solid boundary law principles and appropriate evidence, it should not be difficult to distill that information down to a concise, yet complete account. On a fairly straightforward survey, the surveyors report need not be lengthy or overly complicated.

In the case of a large or particularly difficult survey, the development of the final boundary may have been complicated as a variety of evidence was weighed and weighted, and applicable boundary law principles applied to that evidence. The resulting report may, therefore, be relatively lengthy. But even in that case — and perhaps especially in that case — simply going through the thought process of preparing the report will give the surveyor confidence in and confirmation of the boundary resolution that was developed.

Explaining to clients, attorneys and title companies that the results of a boundary survey are not perfect, and that, in some cases, there may be issues that prevent a singular, definitive solution is simply good business — not to mention truthful.

Will it be uncomfortable for us to come clean? Maybe, but what better opportunity to explain what surveyors really do?

What if our clients actually understood what we deal with in resolving a boundary? What if they understood that the measuring is the easy part? What if they respected us for our knowledge on what to measure from and to?

So, let's get started... 

Gary Kent, PLS, is the Integrated Services Director for The Schneider Corporation, a land surveying, GIS and consulting firm based in Indianapolis, IN.

Reprinted from Empire State Surveyor Sept./Oct. 2007

A closer look at state standards

"A Guide for the Preparation of Survey Reports"
by Lionel "Buck" Alexander and Knud Hermansen, 1990

The purpose for creating a survey report is to provide clear, concise and complete information on the facts, assumptions, analyses, procedures and results obtained during the survey. The motive for preparing a report varies among surveyors. The five most popular motives are the following:

(1) The report provides the client with a more detailed and complete explanation than the survey plat typically provides. In other words, the report allows the surveyor to express with words what he or she may not be able to display graphically. In this regard, the report provides extra information and may help prevent misunderstanding and end some confusion that many clients have in interpreting the plat.

(2) Supplying the client with a report motivates the surveyor to devote the necessary time and thought to the research, reconnaissance, and analysis. To prepare the report without devoting enough time and thought to the survey soon exposes the shortcomings of the survey.

(3) In conjunction with the second reason, the preparation of a survey report forces the surveyor to organize the survey information, analyze the information in a rational manner, and explain the results in a coherent style.

(4) Finally, even assuming the contents of the document may not be read by others, the report provides an archival source to refresh the surveyor's memory at a later time.

West Virginia Statutes
30-13A-25(n) and (o)

[A] report of survey shall be used when the plat and description of survey do not adequately address all matters considered by the surveyor in performing the survey and should be provided to the client with the plat and the description of survey.

"The report of survey shall include all unusual circumstances surrounding the survey, with the weight given to conflicting evidence and encroachments, overlaps or gaps and how they were resolved and the names of adjoiners contacted and the information they supplied.

Indiana Administrative Code
865 IAC 1-12-12

(a) When conducting a retracement survey or an original survey, a registered land surveyor shall do the following:

(1) Furnish the client with a written surveyor's report that, in addition to other pertinent data, explains the theory of location applied in establishing or retracing the lines and corners of the surveyed parcel and gives the registered land surveyor's professional opinion of the cause and the amount of uncertainty in those lines and corners because of the following:

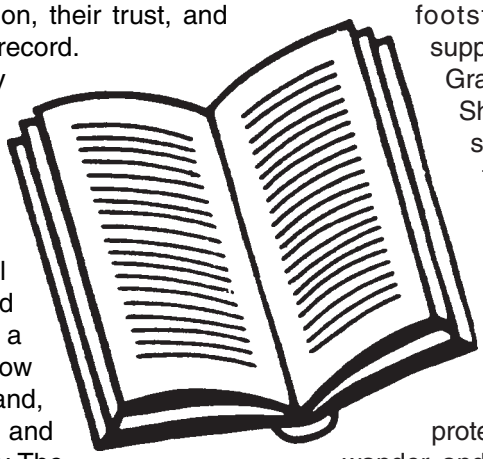
(A) Availability and condition of reference monuments.
(B) Occupation or possession lines.
(C) Clarity or ambiguity of the record description used, and adjoiner's descriptions.
(D) The theoretical uncertainty of the measurements.

Recording of Land Surveys

by Christopher M. Wickern, PLS MO, RSL AZ, CFedS

I remember being approached at a conference several years ago. A few Surveyors were seeking support for a mandatory recording act in Missouri. At the time I thought it was a great idea, and as one of the Surveyors said, "I don't care if the survey says he measured in 50' lengths of garden hose, so long as I know what footsteps I'm trying to follow." I remember thinking it was a great concept, and in a perfect Surveying world; Missouri would have one or enforce what is on the books. I've been away from Missouri Surveying for a few years and now have real experience working under recording requirements. The differences aren't an abstract thought or concept. The differences are very real, and have a direct impact on the publics perception, their trust, and preserving evidence through the public record.

Some say record all surveys, others say record no surveys, and some advocate a review panel for checking all surveys to be recorded through. The opposition to mandatory recording ranges from the practical to the absurd. Practically, a recording act could empower local authorities to act as survey police and "approve or reject" a map submitted by a licensed land surveyor depending on how the legislation is worded. On the other hand, it is absurd to think that mandatory filing and the associated cost will drive clients away. The cost of a boundary survey is an insignificant amount when land is sold, transferred, or subdivided.



Consider this very real scenario for many Missouri Surveyors: Research is started for a survey and it is discovered that posts were set for the section corners in the Government Survey of 1843. Subsequently, the County Surveyor's records state that the post no longer exists and a stone was set at the corner in 1885 from the original accessories of bearing trees and mounds. That's where the record ends. There are no other footsteps or surveys in the record. We search for evidence at this corner and discover an open field with a 2" galvanized fence post, set in concrete cut off 0.20' above ground. We also find a cross cut in the concrete base, a 1/2" reinforcement bar with no cap, a boat spike, a flagged 60d nail, two 5/8" reinforcement bars, and a new fence corner, all within a 4.5' radius. In this instance, a lot of evidence has been gathered to evaluate, and you question everything found. Are the re-bars someone's idea of the corner? Who set them, when did they set them, why did they get set where they are? Could it be the re-bar was placed to tie and hold the galvanized fence post while the concrete cured? Which monument is the land owner supposed to honor as *the* boundary corner. Which one is *right?*

There are a lot of footsteps at the corner, but nothing that says how the previous surveyors got there, or where they went. Technically, they may be right and reestablished within standards and according to the procedures and statutes at the time they were set. The problem is these were established using existing evidence at different times and not evidence that has been preserved in the record. Our evidence is in conflict with evidence others may have gathered and used to define the boundary. We don't know because their survey was never made a part of the record, and the evidence used then is lost now. Subsequent surveys have been performed in most areas. How do you discover a subsequent survey that is not in the record? How does one follow the footsteps when the only evidence of supplemental work is squirreled away in Great Grandma's cedar chest and she now lives at Shady Acres Retirement Village in a far away state? The answer, of course, is you can't follow what is hidden and can't be discovered. The footsteps in the field have been obliterated by time. At best, our record is incomplete. Much is lost and not available to today's Surveyor. A record one can only hope to partially complete with the evidence found through fieldwork today. The public is not protected with Boundary and Land Corners that wander, and our profession is diminished in their eyes.

Too often, corners are declared lost and new corners proportioned and set. Proportionate measure and procedures are a last resort, and it's almost guaranteed *not* to place the corner in its original position. Proportionate measure and declaring a corner lost is admitting the Survey Profession has failed. We haven't perpetuated the record of subsequent surveys, and we have contributed to losing evidence over time. We are the ones who have not added our findings to the record. We are the ones who can't seem to agree on a corners location. Yet, we are supposed to be the ones best able to perpetuate and preserve the evidence.

A few short years ago, the US Congress enacted legislation to help resolve boundary disputes at Lake Tanneycomo. Surveys were performed to establish the Government Boundary around the Lake. Few subsequent surveys had been performed and placed in the record. Many local surveyors were hired to establish portions of this boundary. Local surveyors understood that the area had been cleared to supply railroad ties for the expanding early rail system. Bearing trees were thought to be lost. Many years after these surveys were performed; one federal agency surrenders its rights and interests in the property to another federal agency. The boundary is verified and suddenly, evidence of the

(continued on page 12)

Recording of Land Surveys (continued)

original corner is discovered. The Lake Boundary belongs to the people of the US, and local owners could not claim adverse possession. Many survey conflicts could be if subsequent surveys were in the record.

There seems to be an acceptance by officials, agencies, surveyors, and the public that the Recording of Boundary Surveys is not needed or even desired. I find that the public often thinks that surveys should be recorded when the issue is discussed directly with them. In addition, many recorders and virtually all assessors would agree that surveys should be recorded. A great divide seems to exist between Surveyors who believe recording should be required and those who believe it should seldom be required. Evidence of this divide is found in our statutes.

What do our statutes tell us regarding recording of surveys. RSMo 137.185 requires any division of land less than 1/16th Section to be surveyed and recorded. It also provides a means for tracts not surveyed to be surveyed and recorded. RSMo 60.650. states, "For the purpose of preserving evidence of land surveys, every surveyor who establishes, restores, or reestablishes one or more corners..." This makes sense to me. In order to *preserve evidence* every surveyor who *establishes, restores, or reestablishes* one or more corners. The statute is saying it is *important* that we preserve the record of the evidence. The statute goes on to state, "one or more corners that create a *new parcel* of land shall file the results of such survey with the recorder of deeds... ". This second part seems to be contradicting the first, especially when other parts of this and other statutes are read.

RSMo 60.657 exempts a survey from being recorded if "It has been recorded under another provision of law." Surveys performed by County Surveyors, or Surveyors employed by public agencies publish their results, and are already a part of the public record. An exemption should exist for these surveys. Let's keep RSMo 60.657, and 137.185 in mind and consider an existing property never before surveyed, and is not in the public record. It is an existing parcel and the surveyor sets monuments at some corners, and perpetuates others. A Survey need not be recorded according to 60.650 because it is an existing parcel. This same survey may be required by 60.657 because it is not recorded under another provision of law (or failed to be recorded as required by 137.185).

The importance of Surveys and the evidence shown on them is demonstrated throughout RSMo Chapter 446, Establishment of Evidence of Boundaries and Title to Land, is devoted nearly in its entirety to Surveys, Recording of Surveys, and these records as evidence.

The importance of Surveys and the evidence shown on them is demonstrated throughout RSMo Chapter 446, *Establishment of Evidence of Boundaries and Title to Land*, is devoted nearly in its entirety to Surveys, Recording of Surveys, and these records as evidence. The language in 446 is dated, but the intent of the law is clear. Recording Surveys and subsequent surveys perpetuates the *evidence* found into the future.

I strongly believe in the benefits of mandatory recording act. Working without one is like hiking in the forest with no compass or map. There's always the potential for making several wrong turns. It is also extremely important for surveyors to be an integral part of forming these acts. The last thing any of us would want is an unlicensed technician employed by an agency refusing to file my survey. Platting requirements by cities and counties vary drastically through out the state. Some areas have virtually no requirements, others are stringent and complex, and many are extremely dated. One City has an ordinance in effect that requires an Engineer to set 3' long monuments at property corners. There has been no actual problem with Engineers practicing Land Surveying, but it clearly demonstrates dated local requirements. A statewide recording act will serve many purposes. Cities and Counties could adapt these for their local requirements with little effort. The recording act could also set a bar that local jurisdictions couldn't cross and limit the local requirements, streamlining the review process.

Doing nothing will continue the downward spiral of the publics perception of our profession, and may ultimately lead to vastly different licensing requirements. The public is not being protected with corners that wander, and we diminish the profession by not adding to the record. The best way to avoid unintended consequences is for surveyors and our state society to become involved and steer the process.

Please e-mail comments to:
chris_wickern@yahoo.com

MIDLAND SURVEYING

land surveyors / planners

NEWS RELEASE

Midland Surveying, Inc. of Maryville and St. Joseph, Missouri is pleased to announce that Rick Mattson, P.L.S., Adam Teale, P.L.S., and Curtis McAdams, P.L.S. will join Troy Hayes, P.L.S. and John Teale, P.L.S. as principal owners of Midland Surveying, Inc. in January 2008.

Rick Mattson, P.L.S. is Branch Manager of the Midland Surveying, Inc. office in St. Joseph, MO. Rick has his professional surveyor's license in Missouri and Kansas and has over 20 years of surveying experience. He lives in Maryville with his wife Lana. They have three children.

Adam Teale, P.L.S. is Project Manager for Midland Surveying, Inc. in the Maryville, MO office. Adam has a B.S. in Geography and Surveying from East Tennessee State University. He is a licensed professional land surveyor in Missouri and Iowa and has 14 years of surveying experience. He lives in Maryville with his wife Anna and their two children.

Curtis McAdams, P.L.S. is Project Manager for Midland Surveying, Inc. in the St. Joseph, MO office. Curtis has 16 years of surveying experience and has his professional surveyor's license in Missouri. He lives in Maryville with his wife Megan and their two children.

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There will always be logistical issues in surveying. The one thing I haven't learned to do is to be in two places at once, but I am working very hard on learning how to do that. Hayes in Tennessee and me in Florida has never been an issue. The truth of the matter is that with overnight deliveries, the internet, email, FTP access and the telephone we can all do business with just about anyone we want.

I'm a Consulting Surveyor and I wouldn't have it any other way. Things change and my business will change right along with them. The keys are motivation, support and always remembering that the harder we work, the more luck we have."

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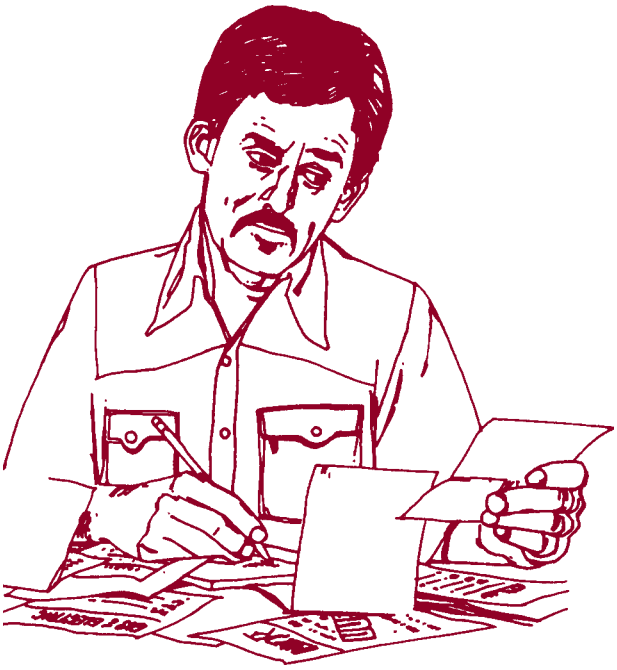
Someone Else's Survey: Can You Trust It?

by Donald A. Wilson, LLS, PLS, RPF, As seen in Professional Surveyor Magazine, August 2007

There is no rule that states one must honor someone else's survey, other than the original survey, but previous surveys are accepted by other surveyors and others (mostly the unaware) on a regular basis for a variety of uses. Some owners have a perimeter survey by one surveyor, then ask a second surveyor to subdivide the property based on the previous perimeter survey. Naturally the client does not wish to pay again for work on the perimeter, but how can the second surveyor know if the previous survey is correct without considerable checking? In fact, that just might be why the landowner sought the second opinion as well as other possible very worrisome reasons.

Often surveys are encountered for abutting tracts, and differences, whether gross or minor, are often ignored or merely accepted on no other basis than the prior surveyor was there first. Particularly in cases where the second surveyor knows and/or respects the previous surveyor, the first work is often accepted at face value. This practice is risky at best, and, based on what various courts have stated in the following cases, is probably unprofessional, perhaps even unlawful.



The case of *Ivalis v. Harding*, 496 N.W.2d 690, 173 Wis.2d 751 (1993), had to do with a section line incorrectly located by a county surveyor. The line was originally surveyed and marked (established) between 1859 and 1863 and was erroneously located in 1915. The title documents for both parties to this action were drawn based on the 1915 survey, which parties believed to be the dividing line between government lots 8 and 9. The error was perpetuated by a surveyor in 1971. This surveyor was later found negligent for erroneously locating the correct line, despite the fact that he pointed out that other surveyors commonly relied upon the monuments set in the 1915 survey, including the opposing surveyor in this case on other occasions. The court suggested that those surveyors may also be negligent in their activities but such was irrelevant in this case.

Revisiting *Rivers v. Lozeau*, Fla. App. 5 Dist., 539 So.2d 1147 (1989), the court stated, *"The sole duty, function and power of the retracement surveyor is to locate on the ground the boundaries, corners and boundary lines established by the original survey.* The following surveyor, rather than being the creator of the boundary line, is only its discoverer and is only that when he/she correctly locates it."

Also revisiting *Racine v. Emerson*, 85 Wis. 80, 55 N.W. 177 (1893), the highway case discussed in an earlier article, the court stated that, "the east line of the street was where the original surveyor placed it, not where it should be according to resurveys or subsequent surveys." The court made the following statement: "The fact, generally known and quite apparent in the records of courts, is that two consecutive surveys by different surveyors seldom, if ever, agree; and the greater number of surveys, the greater number of differences and disagreements will occur. (quoting *Erickson v. Turnquist*, 77 N.W.2d 740 Minn.). When two surveys disagree, the correct one cannot be determined by still another survey. It follows that resurveys are of very little use in such a case, except to confuse it." The bottom line, according to *Racine*, is that "great care must be used in reference to resurveys since surveys made by different surveyors seldom wholly agree."

Since we commonly encounter these "resurveys" and so-called retracement surveys with which we do not agree, or are in reality incorrect, of what effect are they, other than being, as the court stated in *Johnson v. Westrick*, 200 Wis. 405 (1930), "worse than useless for they only serve to confuse unless they agree with the original survey"? Previous articles and quotes taken from several of the leading cases have hinted at their lack of effect.

One case in point is *Hagerman v. Thompson*, 235 P.2d 750 (Wyo., 1951), wherein three plats were presented to the court, each purporting to depict the same mineral survey, with no two in agreement. The court stated in this case that "the purpose of a resurvey is to ascertain lines of the original survey and original boundaries and monuments as established and laid out by survey under which parties take title to land, and they cannot be bound by a resurvey not based on survey as originally made and monuments erected."

In this case the three surveys were presented to the court, which, after evaluation, said, "the three surveys in question here were resurveys, binding on no one, unless one of these perchance should ultimately in a proper proceeding be found to be correct. Which one of these resurveys is correct is a question of fact."

Another important decision is that of *Williams v. Barnett*,

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Someone Else's Survey: Can You Trust It? (continued)

287 P.2d 789 (Cal. App. 1955). This was a situation where two parties agreed on a common boundary, which a surveyor later found in disagreement with the true line. While the parties argued that the true line was unknown to them, the court unsympathetically stated that the true line could be found by retaining a surveyor; therefore it was not unknown since the means to locate it were within reach. The court further stated that "resurveys in no way affect titles taken under a prior survey."

Both this case and the earlier case of *Myrick v. Peet*, 180 P.574 (Mont. 1919) stated that titles in reliance of erroneous surveys are void. "In the absence of a real dispute, an agreement purporting to establish the boundary between the lands of adjacent proprietors, at a line known by both to be incorrect, and the result of which if it be given effect must be to transfer to the one lands which both know do not belong to him, is without consideration and within the statute of frauds, and consequently void."

Since the sanctity of titles is of utmost importance to the court systems, surveys that interfere with them do nothing except confuse or cause disruption to peaceful enjoyment.

Furthermore, in *Williams*, the court stated that since the agreement was contrary to the Statute of Frauds, it was inappropriate and therefore unenforceable. It is treated both in law and in equity as a mistake, and neither party is stopped from claiming to the true line. The boundary is considered definite and certain when by survey it can be made certain from the deed.

One of the most important decisions on the subject is *U.S. v. Doyle*, 468 F.2d 633 (1973). In this case, the court recited three familiar principles: The original survey as it was actually run on the ground controls; it does not matter that the boundary was incorrect as originally established; and a precisely accurate resurvey cannot defeat ownership rights flowing from original grant and boundaries originally marked off. The court concluded with "the generally accepted rule is that a subsequent resurvey is evidence, although not conclusive evidence, of the location of the original line."

Since the sanctity of titles is of utmost importance to the court systems, surveys that interfere with them do nothing except confuse or cause disruption to peaceful enjoyment. The Montana Court stated in the previously cited case of *Myrick v. Peet* that most boundary disagreements are attributable to poor descriptions and faulty surveys: "That the subject of disputed boundaries has been a fruitful source of litigation since property rights were first recognized finds proof in the prodigious mass of literature to be found in the books upon the subject. The difficulty is not to find authority, but to select cases which best express the rule to be applied to the facts in issue. Innumerable cases involving boundary lines can be traced to loose description, faulty surveys, and excessive areas created in marking off governmental subdivisions — the bane of all tribunals called upon to reconcile discrepancies in the surveys of the public lands."

One might argue that unless a surveyor's work properly locates the title, or the boundaries as originally established, it is not a survey, technically or legally. One might then think about the contractual relationship whereby the agreement is that a survey be performed, but in reality wasn't.

Caution should be exercised before accepting any kind of evidence, and *Doyle* has stated that a resurvey is evidence. Yet is only evidence, which can be erroneous and misleading or can be correct and supportive. The bottom line is that it is only someone else's *opinion*. Franklin Delano Roosevelt is quoted as stating, "there are as many opinions as there are experts." Bernard Baruch stated, "every man has a right to his opinion, but no man has a right to be wrong in his facts."

Bad surveys do not destroy good titles since they apparently have no effect, "other than to confuse". As an attorney-friend once stated in a seminar, "when you discover a problem and ignore it, you become part of the problem." Apparently that is just what happened in the *Ivalis* case.

Don Wilson is president of Land & Boundary Consultants, Inc.; part owner of and the lead instructor in Surveyors Educational Seminars, a member of the Professional Surveyor/ RedVector Dream Team providing online courses for continuing education; and a regular instructor in the University of New Hampshire Continuing Education System for 25 years. He is also co-author of several well-known texts.

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MIDLAND SURVEYING

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NSPS Certified Survey Technician Program Who's Using It and Why?

by Lee Canfield

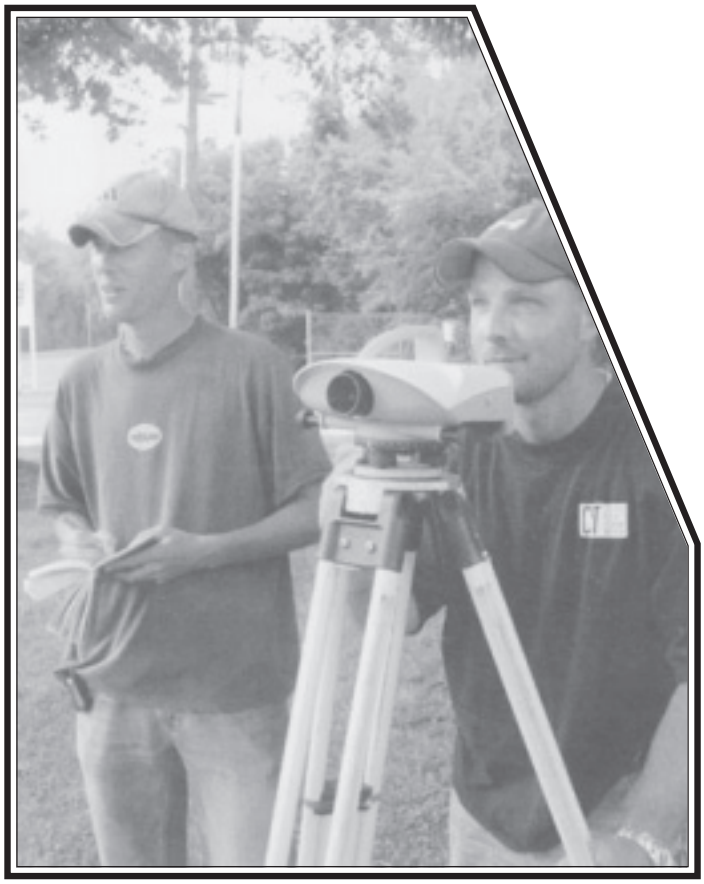
With so much emphasis being placed these days on enhanced professional standing of surveying through the development of educational opportunities in our four-year university programs, it is sometimes easy to overlook a significant segment of the profession. That segment is the multitude of technicians who every day collect and process the data on which we, the professional surveyors, base and form our opinions.

As we pursue and encourage the concept of a four-year degree requirement for licensure, it is important that we also plan for the career advancement of those who, for whatever reasons, will not attain that status. We must understand that the incentive and initiative necessary to keep our invaluable technicians in the business can only be recognized if a clear career path has been defined. A uniformly recognized method for documenting one's progress and achievements can be a major factor in this process.

Certification is used by many organizations to acknowledge, through testing or some other mechanism, that someone has met requirements it has set forth for a particular activity. Certification is not the same as licensure, which bestows upon one the right to provide a service to the public in return for acceptance of the responsibility and liability associated with that right. It does, however, provide credibility for the person holding the certification.

Certification is used by many organizations to acknowledge, through testing or some other mechanism, that someone has met requirements it has set forth for a particular activity.

Likewise, certification is a tool that can be used by anyone who wishes to purchase something for which the value may be subjective. In surveying, a certification statement on a plat, signed by the surveyor, indicates that the service provided in order to create the plat was conducted at a level of high professionalism and quality.



It is within the context of providing both a credential and an evaluation tool that the Certified Survey Technician (CST) program, run through NSPS, was created. The program has been in existence for several years and has generated a great deal of interest from employers, technician level employees, and those who procure surveying services. A company owner can now have the ability to better gauge an applicant's capabilities by using the CST program than is typically possible through what is written on a resume. Likewise, those seeking employment need a credential to show that they have achieved recognition for a certain level of competence. These are among the many factors that make the CST program a meaningful benefit to the surveying profession.

Another aspect of the CST program is that it can serve as the basis for a career track for the technician level employees who may not have the opportunity to achieve the professional surveyor level because of existing or impending laws requiring a four-year degree. The CST program should be promoted as a benefit to members who can offer it to their employees at a reduced rate. Building a career track for technicians is critical to the future of the surveying profession because people need to have documentation that they have

(continued on page 21)

NSPS Certified Survey Technician Program (continued)

reached a particular level of competence. Without that documentation, the incentive to not only progress, but also just to stay in the profession may not exist.

For example Ron Collier, survey division manager for Charles P. Johnson and Associates in Silver Spring, MD, is using the CST program for several purposes. With the advances in equipment today, field crew personnel and survey technicians are not exposed to or taught a lot of the basics. Most surveyors have not taken any exams since they graduated high school. The CST exam is a great tool to get them back in to a test-taking mode. They have recently tested 13 individuals in their office. Over the last few years they have tested up to 25 people, and one employee is now a Level IV CST. Charles P. Johnson provides in-house training for their employees. Ron says, "We emphasize the idea that the more that you know and can do, the more valuable you are to the firm." He goes on, "I believe that this is the best tool that we have today to promote the profession within and to build a much stronger work force."

Evan Brown, project manager for Britt Surveying, Inc. in Venice, Florida, is using the CST program to train and advance their staff. They are using in-house workshops for employees to share knowledge and learn from senior staff members, and also encourage staff to participate in educational seminars hosted by the Florida Surveying and Mapping Society (FSMS). Britt Surveying is a steadfast supporter of the CST program. They also offer a financial bonus and opportunity for advancement to individuals who attain certification.

One of the major supports of the CST program has been McKim and Creed. They have tested employees from Florida, the Carolinas, and Virginia. They use the CST program to provide a career ladder for their technicians. They currently offer bonuses for the different levels of achievement. Currently, more than 160 employees have taken the CST exam from McKim and Creed. They offer study sessions for the staff and have created a study manual on all of the different levels.

Barry Savage, President and Adjunct Faculty at Cleveland State Community College and owner of Savage Surveying and Mapping, says "The CST program insures a standard skillset for employees that I can depend on." He encourages all employees and students to take the CST. They have an education reimbursement program for employees to encourage certification.

As you can see, survey managers and business owners use the CST program to help survey technicians with their career development. Certification also provides employers with credentials to offer clients and a means to evaluate and promote personnel. Those familiar with the CST program know that it becomes more than just a test because of the training and development conducted by organizations in preparation for the exam. While studying, surveying technicians become familiar with the academic knowledge behind the field procedures they follow every day. By advancing through the CST program, a survey technician moves progressively into more responsible positions. Having gained confidence, some technicians will hit the books even harder and go after the Fundamentals of Land Surveying Exam. This grassroots movement is a way to help technicians become professionals.

With the help of many volunteers across the country, the CST Board, and the leadership within NSPS in particular, the program has made great strides. This is a program that deserves to be encouraged and utilized by the surveying community.

Lee Canfield is the education program coordinator for NSPS and is responsible for the administration of the CST program.

Working With Attorneys

by Knud H. Hermansen, PLS, PE, PhD, Esq.

As a surveyor, engineer, and attorney, I often find myself working with attorneys on engineering and surveying legal problems. Without a doubt there are some members of the Bar with whom I have clearly enjoyed working alongside. Bright, intelligent, knowledgeable, good listeners, eloquent, logical, and capable are among a few of the attributes that these attorneys share. However, not all interactions with attorneys have been enjoyable. For those engineers and surveyors who have not worked with attorneys or within the legal system, I would like to share some frustrations and advice about working with certain attorneys and the legal system.

What's good for the goose is good for the gander

One time I had the pleasure of listening to a state supreme court justice speak. During the course of his speech, he remarked that he was recently involved as a party in a lawsuit. He remarked, rather appropriately, that every attorney should be sued at the beginning of his/her career in order that they may approach the practice of law with humility and some common sense.

Unfortunately, few attorneys have been sued and many opt for the shotgun approach to litigation. In other words, sue everyone that was ever involved with the project and let the legal system sort out the negligent parties. I have always been very frustrated with the shotgun approach to litigation that some lawyers adopt and employ. I've heard one lawyer justify the process by saying the approach is necessary to bring all relevant persons before the judge and let the judge decide who is at fault. I would opine that those attorneys that employ this tactic have never been a party in a lawsuit and undergone the agony, apprehension, and emotional trauma involved with litigation not to mention the expense, time, and resources required to defend against a frivolous complaint.

Furthermore, for those trying to operate a consulting firm, there is the stain on the reputation of the firm every time a lawsuit involves the firm. As a consequence, I believe it would be in the best interest of surveying and engineering firms if a system was adopted that required the loser to pay the legal expenses of the winner. This system would reduce litigation faced by engineers and surveyors. I know a few victims will go uncompensated under this policy. However, under the present policy a lot of innocent firms become victims of frivolous lawsuits.

Procrastination and Negligence

Without a doubt, we have all procrastinated from time to time. However, when we procrastinate to the point that our client's position or project is jeopardized, we are negligent. Procrastination, to the level of negligence, seems to happen so frequently in legal practice that I am appalled by its common occurrence.

For example, I will receive a call the day or night before trial asking if I would be an expert witness. (Let me make it clear that a week before trial is no less negligent in my opinion.) I am bothered by this behavior for three reasons. First, there is the inference that the engineering or surveying testimony that I will be presenting is so simple that it does not require any preparation time. Second, there is the attitude from the attorney that their client should immediately take priority over my existing clients. Third, there is the unquestionable inference that I will give testimony that helps the attorney's client. In other words, as an engineer or surveyor I am a hired gun and can be expected to provide only favorable testimony without knowing or analyzing the facts and the situation.

If engineering and surveying firms were to operate in a similar manner on behalf of their client, I have little doubt attorneys would find it very easy to convince the court the engineer or surveyor is liable for negligence. I would advise engineers and surveyors to avoid situations where an appearance it court will occur without adequate and thorough familiarity with the facts and probable questions that will be asked.

Learning Curve

Before attending law school, experience taught me there are three types of attorneys. First, there are attorneys who simply do not want to listen or learn. These attorneys are easily identified because they prefer to argue some unrelated legal concept or go to great lengths to settle rather than litigate the question (but settle only after great expense to their client). This attorney tends to be arrogant or subject to unreasonable procrastination.

Second, there are some attorneys that, try as they might to learn, will not be able to understand because they lack the fundamentals required to understand the problem. Let me explain this category by way of selected experiences. I went to law school in the era when the HP-41 was just making its appearance so, as most readers know, calculators had been around for some time (so much so that I had long since gotten rid of my log tables and slide rule.) Nevertheless, when the instructor announced that everyone would need a calculator for tax class, I was shocked to learn that many of my classmates had never owned a calculator. The instructor, seeing the student's consternation at the suggestion of using a calculator for the first time, tried to reassure the class by stating that only rudimentary calculations were going to be performed such as adding, subtracting, multiplication, divi-

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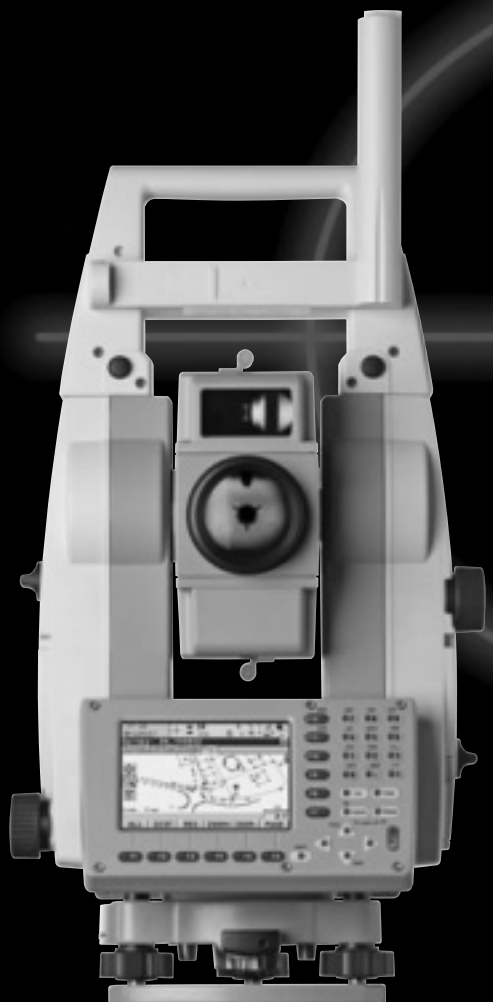

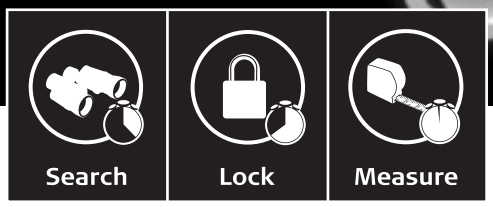

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Working With Attorneys (continued)

sion, and percentages. Again, I was shocked to hear many of my fellow law students ask me if I could show them how to do a "percentage." I was incredulous that any person could have earned an undergraduate degree without owning a calculator or knowing how to do a percentage, yet these people exist and many are now attorneys practicing law.

Now the purpose for this discourse is not to make light of all the attorneys which bachelor degrees in political science, art history, English, social work, etc., who don't understand simple math yet practice law. No doubt, they are familiar with many seemingly simple subjects that I am unfamiliar with. My point is to convey some idea of the frustration I often face when explaining to certain attorneys an engineering or surveying problem requiring far more mathematics than simple percentages. To present the problem in other terms takes at least 30 credit hours of course work to bring engineering students with SAT scores of 1400 or better to some level of understanding. Surely not every attorney is up to the task after only an eight hour session.

This brings me to the last category of attorneys. These attorneys take the time to learn, listen to you when you explain, and do learn what it takes to understand and present the surveying or engineering problem in an intelligent and accurate manner. Unfortunately, when I have the pleasure to work with these attorneys, more often than not they have to argue before a judge who falls in one of the first two categories.

The bottom line — because of the learning curve among some members of the Bar, there really is no logical defense engineers and surveyors can use to counter frivolous litigation or prevent illogical verdicts from occurring. As a result, it is not enough that an engineer and surveyor know they are correct in their analysis and opinion when it comes to litigation. The engineer or surveyor must meet four criteria to stand a chance of success: 1) the practitioner must be thoroughly familiar with the facts and engineering or surveying principles relevant to the problem; 2) the practitioners must have the skill, resources, and time to adequately educate the attorney and judge on the relevant engineering or surveying principles; 3) the client's attorney has to have the ability and be willing to devote the time to learn; and, 4) the judge must have the ability and be willing to devote the time to learn. Seldom are all four criteria present. My advice is to encourage alternate dispute resolution to resolve engineering and surveying problems whenever possible. Encourage your client to compromise rather than litigate.

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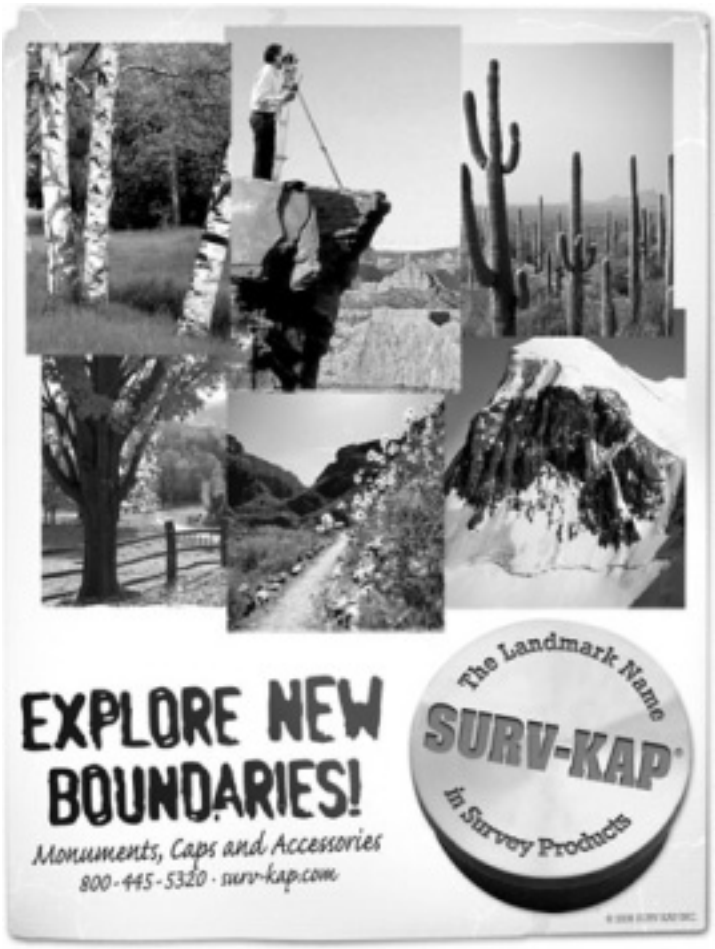

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Meaning of Leadership

by Paul Kessler

A Powerful Exploration of the Meaning of Leadership — Inspired by the Example of a Legendary Antarctic Explorer, Sir Ernest Shackleton.

Brutal cold. Total darkness. Aching thirst. Gnawing hunger. Constant danger. Utter desolation. This was the everyday reality for Sir Ernest Shackleton and his crew. On December 5, 1914, Shackleton and 27 men sailed from South Georgia Island on the Southern Ocean aboard a wooden vessel named the *Endurance* with a burning goal: to be the first to cross the Antarctic Continent. Forty-five days after their departure, disaster struck. Ice trapped the *Endurance* and froze the expedition. For nearly two years, Shackleton and his crew were stranded on the icy sea. When *Endurance* went down, they made camp on an ice floe. When their rations ran low, they developed a taste for penguin. In the face of unspeakable hardships, the men pulled together and continued to work as a team with astonishing good cheer. Ultimately, Shackleton and his crew triumphed. On August 30, 1916, after a hazardous rescue mission in a frail lifeboat, every man was saved.

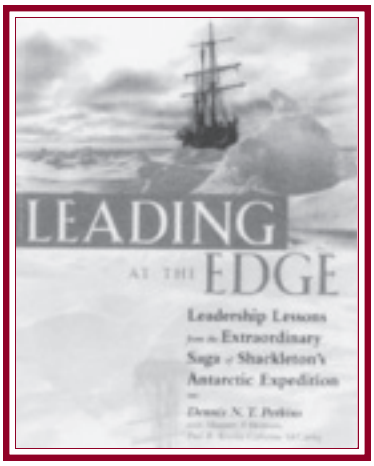
How did Shackleton inspire his crew to such extraordinary levels of courage, unity, and commitment? Leadership experts Perkins, Holtman, Kessler & McCarthy reveal how Shackleton's vision, actions, and philosophy of leadership provide a compass to executives and managers in today's climate of fierce competition, economic uncertainty, and constant change. Through the lens of the Shackleton expedition, the authors apply insights from "the edge" — the outer limits of human *Endurance* to guide individuals and organizations to the peak of performance excellence.

How did Shackleton motivate the teamwork and dedication crucial to success in extreme circumstances? What separates the *Endurance* from the ill-fated Karluk, a 1913 Canadian ship whose crew, like Shackleton's got trapped in the frozen Arctic, but came to a tragic end after degenerating into a culture of deceit, theft, and chaos? *LEADING AT THE EDGE* identifies ten strategies that made all the difference:

1.) Never lose sight of the ultimate goal, but focus anxiety on short-term objectives.

After the wrenching demise of the *Endurance*, Shackleton quickly rose to the challenge and immediately shifted his goal from the crossing of the Antarctic continent to the survival and safe return of every person on the team. He set new objectives and focused the expedition on short-term goals that were steps towards their survival. He reflected "A man must shape himself to a new mark, directly the old one goes to ground."

2.) Set a personal example with visible, memorable symbols and behaviors.



When the *Endurance* got crushed by ice, Shackleton knew a sledge march to the ocean depended on traveling light. Ship captain Frank Worsley took note of how Shackleton inspired his men to pare down: "he himself set the example, throwing away, what a spectacular gesture, a gold watch, a gold cigarette case, and several gold sovereigns."

3.) Instill optimism and self-confidence, but stay grounded in reality.

"You've damn well got to be optimistic," Shackleton insisted. Yet when *Endurance* got trapped in pack ice, he summed up the situation for his second-in-command, Frank Wild, with no equivocation: "The ship can't live in this." Frank Wild, remembered: "Shackleton made a characteristic speech to hearten our party, the sort of speech that only he could make. Simply and in brief sentences he told the men not to be alarmed at the loss of the vessel, and assured them that by hard effort, clean work, and loyal cooperation, they could make their way to land. This speech had an immediate effect: Our spirits rose, and we were inclined to take a more cheerful view of a situation that had nothing in it to warrant the alteration."

4.) Take care of yourself: Maintain your stamina and let go of guilt.

Shackleton placed great importance on the physical and psychological needs of his men, and constantly monitored their condition. He also found outlets for his own anxieties: keeping a journal, writing letters home, and talking it out with Worsley and Wild.

5.) Reinforce the team message constantly: "We are one — we live or die together."

Shackleton viewed exceptional teamwork as crucial to the survival of his expedition. Captain Worsley observed: "Shackleton was always opposed to splitting the party...although the temptation to explore was almost overwhelming."

(continued on page 28)

Meaning of Leadership (continued)

6.) Minimize status differences and insist on courtesy and mutual respect.

Shackleton saw the need for decision-making authority, but not for a hierarchy of power. On the *Endurance*, everyone pitched in, regardless of station. A photograph from the expedition captures the ship's surgeon on his knees vigorously scrubbing the deck. When Frank Hurley, the photographer, lost his mittens, seaman Thomas Orde-Lees observed Shackleton's response: "At once he divested himself of his own, and in spite of the fact that he was standing up in the most exposed position all the while he insisted upon Hurley's acceptance of the mitts."

7.) Master conflict. Deal with anger in small doses and engage dissidents.

Shackleton first identified individuals whose attitudes could be seen as a challenge to his leadership, then brought them into his fold. For a tent mate, he chose the photographer, who craved respect and attention, and was known to become moody when he felt slighted.

8.) Lighten up! Find something to celebrate and something to laugh about.

Shackleton had a knack for using celebrations to boost morale. December 5, 1915, marked one full year since the crew had left civilization. To ward off collective lamenting, Shackleton declared a holiday in honor of the anniversary of their departure.

9.) Be willing to take the Big Risk!

Before sailing off in search of help across 800 miles of stormy sea in a small open lifeboat, Shackleton considered the odds and alternatives. He concluded that the risk was justified solely by their urgent need of assistance and the likelihood that they would never be found in their current location.

10.) Foster a spirit of tenacious creativity. Never give up — there is always another move.

Shackleton and his men ultimately succeeded thanks to their remarkable ability to draw from one another and think creatively about potential solutions in the face of death. The lifeboat that secured their safety sported a decking made form case lids and sled runners.

Adapted from LEADING AT THE EDGE: Leadership Lessons from the Extraordinary Saga of Shackleton's Antarctic Expedition by Dennis N.T. Perkins (AMACOM: May 2000). Available through the NYSAPLS Bookstore.

Reprinted from Empire State Surveyor Sept./Oct., 2007.

Working with Attorneys (continued)

Speedy Justice or Litigation

Flowing from the last category of frustration, is my latest frustration with certain members of the Bar. I have been a zealous proponent of alternate dispute resolution, also known as ADR, for solving engineering or surveying problems. Frankly, I have had little success in convincing other attorneys that ADR is an acceptable alternative to litigation.

I will accept some of the blame because I am usually pushing for engineers and surveyors to be arbitrators and mediators rather than attorneys. Not a smart political move when many attorneys can't find work or enough billable hours as it is. In my defense, I feel if there has to be some ignorance in the system, justice is better served when the arbitrator or mediator understands the problem, rather than the law. For my efforts, I hear comments from attorneys such as "without the rules of evidence my client won't stand a chance," "I need the time to beat my client on the head with his wallet," "I won't put my kids through college that way," etc.

As a consequence of this disdain for ADR, I see people win judgments of $100,000 and have a $120,000 legal bill after spending five years in litigation. Of course, it has been pointed out to me by several engineers and surveyors that even ADR falls prey to the ills surrounding litigation if enough attorneys get involved.

In spite of the few frustrations I have been allowed to vent, I find practicing law in conjunction with engineering and surveying a very rewarding experience. A good deal of credit goes to the many exemplary attorneys, engineers, and surveyors I encounter and work with in my practice. To these individuals I offer a heartfelt "thank you." There is always an outstanding offer to work with you as a team in order to remove these frustrations from your practice and mine.

Hermansen is a professional land surveyor, engineer, and attorney at law. In addition to consulting work, Hermansen teaches at the University of Maine in the Surveying Engineering Technology program.

Reprinted from Empire State Surveyor July/August, 2007.

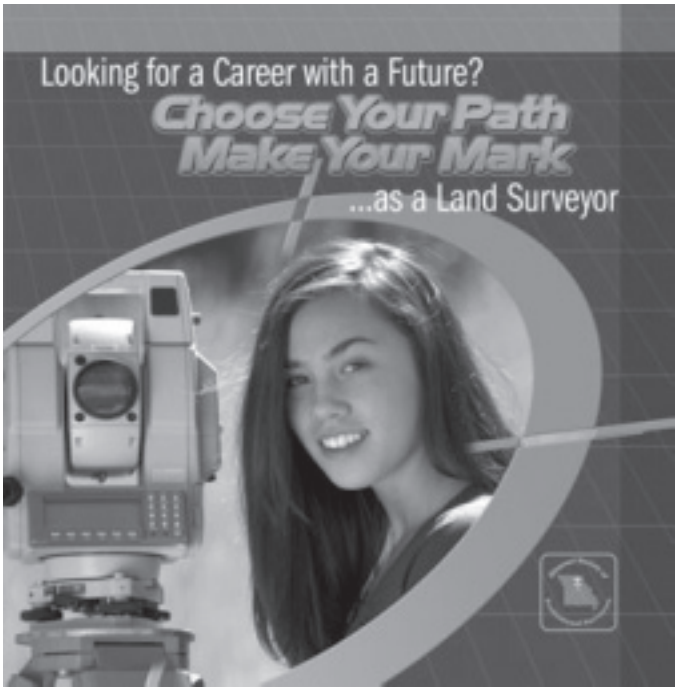
A Day in the Life of a Surveyor

by Anonymus

- Poison Ivy — Money spent on treatment and on "Ivy Block" which is not cheap.
- Delays on the job from questions/comments by nosy neighbors and passers-by.
- Mis-information provided from clients.
- Lack of existing monumentation from which to base your survey.
- Deeds mis-recorded in Mortgage Books.
- "New" curbs and sidewalks that have removed evidence of previous surveys.
- Dogs!
- Client's comment that the "property is clear." (With the exception of numerous plantings along the boundaries. Oh, and the 20 years of mulched grass clippings stacked in one corner of the rear yard!)
- A "cluster" of pins/pipes at one or more corners.
- Disagreements on why your survey does not match the "survey" (mortgage inspection) done by a previous surveyor.
- Calls to the police because you are spray-painting hedonistic marks in their front yard.
- Phone calls at night because you cut their cable TV service. (Buried about 2 inches below the surface.)
- Removal, by an adjoining owner, of pins set by the surveyor.
- Reading about shootings at residences you had recently surveyed. (So far, the tally is one killing, two woundings and one incident with no physical harm.) All, concerning property ownership.
- Explaining at a public hearing, again, that I am a surveyor (proudly) and not an engineer.
- Hearing "how much?" for the umpteenth time.
- Sweat-dripped bifocals.
- Lost hat and small (but very important) equipment.
- Pointy plants around the base of the residence.
- Shoppers.
- Fences! Tall ones!
- Copperheads, Hornets and Bees!

All of the above has happened on small, urban, residential lot surveys. I could add a few more comments from events occurring on farm and commercial surveys!

Reprinted from KAPS, 2007.



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Document Ownership

by Victor O. Schinnerer & Co., Inc.

Many clients look at professional services as a commodity. With surveys, reports, plans, specifications, and other documents viewed as "products," it is important to understand intellectual property rights intrinsic in professional services. Design professionals need to contractually address business and liability issues relating to the use and ownership of deliverables and any rights to use those deliverables if the professional service relationship is terminated.

Using deliverables as leverage

Design professionals provide services; deliverables are instruments used to provide those services. Although these instruments of service are not products of a professional relationship, they do have commercial value. Therefore, the ownership rights in instruments of service should not transfer to the client or another party unless all fees and reimbursables are paid. Ownership of deliverables is the major leverage factor a design professional has in obtaining power.

Addressing liability exposures

By transferring title ownership and copyright of instruments of service, a firm is giving up control over the use or reuse of those instruments. When a firm signs and seals documents, the firm identifies itself as responsible for their content. As a result, firms may have to defend against future merit less claims based on inappropriate use of their documents. Any transfer should be in exchange for the client's commitment to defend and indemnify claims from the client's future use.

Design professionals need to contractually address business and liability issues relating to the use and ownership of deliverables and any rights to use those deliverables if the professional service relationship is terminated.

Obtaining protection through copyrights

Under industry standard forms, not only does ownership of instruments of service remain with the design professional, so do the copyrights, which constitute separate property rights. This reservation of ownership recognizes that a firm is retained and compensated for special expertise, knowledge, and skills expressed through instruments of services. Clients do not pay for documents, they pay for professional services.

Ownership of documents is distinct from ownership of the copyright in those documents. A copyright exists even without any action to register the copyright. This right prohibits others from reproducing documents, creating derivative works based on those documents, and distributing the documents to others. Merely possessing one set of documents does not alter the copyright in those documents.

Transferring "works made for hire"

Copyright law allows the transfer of rights in intellectual property from the creator to the client. Simply calling the deliverables "works made for hire" may not affect this transfer. Unless there is a written assignment of copyright, the client may not gain any control.

Controlling documents upon termination

Standard agreements grant the client a limited license to reproduce instruments of service solely for purposes of construction and operation of a project. Any termination of the design contract automatically terminates the client's license. If termination does not trigger the firm's agreement to extend the license, the client cannot use those documents to complete the project.

Often, when a design professional's contract is terminated, the parties trade the right of continued use of the documents for the payment of all sums due and the release of the firm from any future claims. If the client can terminate the contract for its convenience, precautions should be taken to preclude the transfer of rights in the instruments of service without appropriate compensation and liability protection.

Because the use or misuse of instruments of service affects specific rights and obligations of the client, construction team, and public, a licensed professional should retain ownership of, control over, and responsibility for those instruments. Any ownership transfer provision should be considered carefully.

Reprinted from Empire State Surveyor Sept./Oct., 2007.

Fences as Boundary Evidence

by Dexter M. Brinker

One of the few truly professional services offered by the land surveyor is the analysis of existing land boundary evidence. Perhaps the hardest question he has to answer is, "When is a fence a boundary monument, and when is it just a fence?" The following discussion will not solve the problem but will outline for the beginning land surveyor some of the main considerations facing him and the profession as a whole when dealing with boundary fences.

Early in my gyrations as a land surveyor I heard the expression, "Oh, he's just a fence-line surveyor." From the way it was said, I knew it wasn't a compliment. The implication was that the person being referred to would assume that existing fences were in the right place (that is, on the property boundaries), make the measurements necessary to delineate these fences, and furnish the client a pretty map showing everything in order. Obviously, this method eliminated the need for either record or monument searches and gave this surveyor a great price advantage over the one who insisted on performing all of those wonderful and professional acts of searching and evaluating! Since I was young and idealistic, I determined that I would never resort to being a "fence-line surveyor."

A few years later, however, I found myself involved in restoring a section corner. The original stone was probably part of someone's fireplace, but there was a good assortment of right-of-way fences that seemed to perpetuate the original location of the corner. I knew that if I measured from the nearest available monuments and did a lot of questionable proportioning, I would surely come up with a different location which would probably not be as valid as the one I already had and which would certainly cause a lot of trouble for all adjoining landowners. So, all of a sudden, I became a "fence-line surveyor."

Good, Bad, or Questionable Fences

As years went by, I learned that there were "good fences," "bad fences," and "questionable fences." I also formulated "Brinker's Law of Fences," namely, "All land surveyors, lawyers, landowners, and judges will evaluate the same fence differently." All of which brings up the basic question, "Why does anyone want to be a land surveyor and take the risk of making fence line decisions?" If you insist on being a land surveyor, you had better know your fences!

A very pertinent remark was made by A. C. Mulford in his booklet, "Boundaries and Landmarks." He said, "Loose, faulty and ignorant conveyances, the use of perishable land-marks or no landmarks at all, the temptation to build fences 'off-line' for a dozen reasons, good and bad, and innumerable other things have conspired to render the boundaries of land the most uncertain of all things."

In an expansion of this idea, Russell E. Kastelle presented a very interesting gaper at the ACSM 1985 Fall Convention in Indianapolis. His discussion, entitled "Fence Lines, Title Lines and Property Liens," explains some of the reasons why fences often are not where you might expect them to be. On the other hand, you must not ignore the possibility that fence lines *may* be the best possible *collateral evidence* preserving previous survey monument locations. In some cases the fence may actually define the original boundary intent.

Some Guidelines for Evaluating Problem Fences

The fundamental problem is being able to provide, or at least develop a preponderance of evidence to show that the fence can be relied on. Not an easy task! However, here are a few guidelines to help you evaluate problem fences:

(1) Try to date the fence. Sometimes the material and condition will help you determine the age. Examine the part that is in the ground for rust or rot. Compare with fences of known age.

(2) Ask adjoiners and nearby residents if they know the history of the fence in question.

(3) Search records for names of previous landowners in the vicinity. Send them a short letter explaining your need and a brief set of questions for them to answer. Perhaps you would want to ask them to phone you collect if they have pertinent information.

(4) Study aerial photographs if available. Fence lines are amazingly visible, especially if animals have walked along them.

(5) Try to visualize the terrain, vegetation, land values, and usual surveying techniques at the time the fence was built.

(6) Study the differences between agreement fences, fences of convenience, fences of acquiescence, fences of adverse possession, and fences built at a time when one party owned the land on both sides.

(7) If at all possible, learn whether the fence was built before or after conveyance, and whether it was built before or after a *survey*. These facts may help establish the intent of the conveyance. However, in all cases, the possibility of a defective survey must be considered.

(8) Remember that before 1919 many land surveys were done by engineers and other "non-surveyors," but the resulting fence lines, built in good faith, *may* indeed be *title lines* even though recorded dimensions do not agree with ground evidence. Master your state statutes and case law on the subject and learn the fencing customs peculiar to your region.

(9) Even if the fence was built after a *proper* survey by a competent licensed land surveyor, you will have to deal with the problem of "acceptable positional tolerance at the time the survey was done."

Keep in mind that many physical objects or conditions, other than fences, *may* be considered as collateral evidence. These include, but are not limited to, retaining walls, building walls, party walls, hedges, roads, utilities, changes in sidewalk construction, paths worn by animals along previous fences, rows of rocks thrown from cultivated fields, and variations in vegetation. All should be subjected to close scrutiny on the chance that they may indicate where an ancient boundary was.

If a group of fences seems to fit a recorded plat but does not agree with a survey monument, consider the possibility that the monument may be wrong!

Whether restoring aliquot lines in the public land survey system or ancient boundaries created *by any* other method,

(continued on page 35)

Fences as Boundary Evidence (continued)

never disregard a fence that *may* be more than a fence; it may be *a survey monument*. Conversely, do not assume that every fence is a boundary; *do your homework!*

Examples of Fence Problems

Once I was retained by an irate landowner who wanted me to assure him that the fence which he had recently built was in the correct position. It was a beautiful redwood fence solidly set in concrete, but the neighbor claimed it was on his property. I did a meticulous survey to establish the lot line. However, before setting the lot corners I got out not only my dip needle but also my trusty shovel. No response on the dip needle, but the shovel revealed a brass rod at each end of the lot line within 0.02 ft. of where I would have set my markers. These corners were set long before numbered markers were required, but the brass rods were a "trade-mark" of an earlier surveyor in the area known to have done quality work. I felt good about my survey but had to inform my client that the fence was, indeed, a foot into his neighbor's land. "How," I asked my client, "did you establish the line for your fence?" "Well," he said, "I bisected the distance between our garage roofs." I guess that has to be a classic example of a "bad fence."

Let us now consider an example of a "good fence," but one not completely free of problems. Several years ago my wife and I were negotiating to buy an 80-acre (more or less) parcel of land described in government survey terminology (i.e. the S$^1/_2$ SW $^1/_4$ of a section). We told the realtor we would buy it if he could acquire for us a road easement across an adjoiner's land to give us access to a nearby county road. The realtor was successful, but in describing the easement relied on an incomplete and defective land survey. Neither monument which controlled the boundary from which the easement started was in existence, and it appears that a theoretical tie was made to an existing quarter corner abut 1500 ft. away using the still too prevalent assumption that all sections are exactly a mile on each side and are perfectly square.

Some time later, after we had completed the purchase of the land, our new neighbor and I met on the ground and agreed on the *intent* of the easement location as marked by several centerline stakes. I proceeded to build a fence on the sideline of the easement at the prescribed distance from the centerline. Later, when the road was built, the original survey markers were lost, but as far as our neighbor and we were concerned, this is a "good fence"; that is, it is in the intended location.

However, consider what could happen if we both sold our land before the statutory acquiescence period (20 years in Colorado) expires, and one of the new owners insisted on a resurvey of the easement location. The discrepancy between the record and field location is so great that the easement could easily be moved 100 ft. from its present *and proper* location unless the new surveyor accepted the fence as collateral evidence defining the original survey. It is very likely that some land surveyors would, indeed, accept the fence, but others would rely on the recorded description. In addition, the uncertainty of the starting boundary, coupled with confusion over the basis of bearings, could lead to a wide assortment of solutions. Hence the new owners would probably end up turning their problem over to lawyers and courts with no assurance of ending up with the correct decision.

Property Line Fence?
or Just an Animal Enclosure?

In our particular case, I hope to avoid such future problems by recording a boundary agreement plat, signed by our neighbors and us, with an appropriate note indicating that the fence, as built, is to control over the recorded verbal description.

The Profession and the Center of Section

All land surveyors working within the framework of the public land survey system should be particularly mindful of the implications of the discussion on the proper location of aliquot lines in general and the center of section in particular. For example, in the same section of land one fence may be judged to be controlling (i.e., acceptable collateral evidence), while another may be rejected. When it comes to fences on or near aliquot lines, each land surveyor has to make his own decision and live with "Brinker's Law" as quoted above. It is a sad commentary that after 200 years of use and abuse, the public land survey system does not offer any clear and concise standards of positional tolerance for either accepting or establishing aliquot lines. The fact that we are still arguing among ourselves over the proper location for a "center of section" is a disgrace to the land surveying profession. We can only hope that land surveyors of the future will attack this problem more aggressively than those of the past, and will quit turning these important decisions over to the courts.

On a more positive note, and one which I hope will guide those future land surveyors. Let me close with another statement from A.G. Mulford's booklet: "For after all, when it comes to a question of the stability of property and the peace of the community, it is far more important to have a somewhat faulty measurement of the spot where the line truly exists than it is to have an extremely accurate measurement of the place where the line does not exist at all." In other words, there are still some *"good* fences."

Our thanks to Dexter M. Brinker, Durango, CO, for giving us permission to reprint the above article. He can be reached at 970-247-8172.

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Geomatics Community Dialogue

by Joseph V.R. Paiva, PhD, PS, PE

Protecting the public or the profession?

It used to be that most states' land surveying licensing or registration laws related only to "credentialing" surveyors who would be surveying or re-surveying property boundary parcels or boundaries. With so much financial consideration and emotion tied up on real property, being able to properly locate and relocate deed and title lines was important, so it was a "no-brainer" (when considered with today's thinking) since most of the laws were adopted in the 20th century on this subject.

As surveyors, we understand how incorrectly determined land lines can cause problems for the parties, their heirs and assigns, as well as the municipalities and other government entities which may have jurisdiction. Our training (theoretically) for surveying property boundaries is to be super-cognizant of those issues so that the landowner, adjoiners and all the other stakeholders are properly served, issues that require settling will be surfaced and advised upon, and surveys are completed resolving or at least minimizing ambiguities that seem to creep into the process of transferring title to real property.

Construction surveying, if done incorrectly, can result in structures or activities related to facilities located with construction surveying that don't "fit," or are in the wrong place, or are subject to flooding, or that cause redesign of the rest of the project, etc. So it became a no-brainer to gradually add these kinds of activities to those being regulated under the original land surveying licensing laws.

> ***In my opinion, changes to protect the public are reasonable, though we ought to be careful about not legislating to ridiculous detail.***

In the construction of these laws, there was clear intent to provide a benefit to the "public," even if that public was a single person. Theoretically, the public was being protected from incorrect or incompetently performed surveys and the mischief that they would wreak. While the public being served when a property line was surveyed was more than the landowner (there always being adjoiners), and thus there was more benefit for the public good, legislators saw value in including construction surveying activities, viewing them, probably, in similar way.

Recently, there has been a spate of legislative proposals and actual laws further amending the practice of land surveying. They most especially delve into more and more specific definitions of what constitutes surveying. Some of these include [my paraphrasing] assigning to a licensed surveyor as the only person to: be responsible for the creation, preparation or modification of a geographic information system; practice aerial photogrammetry; perform mapping of utility facilities; perform mapping and create maps of any kind; or locate a non-cadastral land boundary.

You may have an opinion as to whether these limitations or expansions on what a surveyor (and only a surveyor) is licensed to do are reasonable or unreasonable. I think a question for legislators, the profession, the public and individual surveyors to think about when considering these changes is: are the changes to protect the public or the profession?

In my opinion, changes to protect the public are reasonable, though we ought to be careful about not legislating to ridiculous detail. Protecting any profession should definitely not be the purpose of any law. To me that's un-American, but regardless of one's country, if the political system is reasonable, it would seem inappropriate.

My favorite question to ask with respect to limiting surveyors to be the only people who create, prepare or modify a geographic information system is: is it the surveyor who creates the GIS that a pizza company develops to figure out where its customers are coming from so that it can better market to them? Or a GIS for the purpose of taxi dispatch? Or a GIS for the purpose of navigating an aircraft, be it civilian or military?

Proponents of legislatively expanding the definition of surveying are (usually) quick to say that my example questions aren't covered by such limiting laws. On the other hand, some will say that, yes, even those activities are limited, because the pizza corporation is financially harmed or that customers will not be picked up quickly by the taxi service or that planes (and their passengers and crew) may get lost if the GIS is not developed properly.

My purpose in bringing up this subject is to get everyone (i.e. citizens) to contribute to the process of developing the thinking that is the background for these new laws. Even having a rule such as, no new laws (regarding this subject) unless they protect the public, can be difficult because there is also a question of who is the public, how much do they need to be protected, and is the law the most reasonable way to offer that protection. Is there a decision-making algorithm for defining when the public is being protected?

In my view, the new laws pose a huge problem. They focus on greater and greater amounts of detail and define what

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Geomatics Community Dialogue (continued)

a surveyor does and doesn't do. The danger is that the same law can then be interpreted to mean that it defines what a surveyor can and cannot do.

Technology is advancing in all fields, but certainly in the geomatics sciences at an ever-accelerating pace, compared to the almost static state of geomatics technology through most of the 20th century. Surveying instrumentation and software has become easier and easier to use, but there has also developed overlaps with other sciences and fields of study, some of which were not considered at the time of the original licensing legislation. Geography for example, is considered the "home" of geographical information science on many university campuses. It is a field of study and professional practice that in volume of energy and people (and money) is comparable and perhaps larger than that devoted to surveying alone.

Is it a good idea to legislate using technology as the basis? Or is it better to look how the technology and the information generated with it are used? I think the more reasonable approach is the latter.

Joseph Paiva is a geomatics consultant, seminar presenter and author. He is currently working on a book that will be a practitioner's guide to the acquisition, care, maintenance and use of modern total stations. He may be reached at jvrpaiva@swbell.net.

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