Missouri Surveyor

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri December 2013

What's in this issue...

MISSOURI SURVEYOR

CALENDAR OF EVENTS

2013-2015

December 7, 2013
Board Meeting
MSPS Office
Jefferson City, MO

February 19, 2014
Board Meeting and Capitol Visitation
Jefferson City, MO

May 8-10, 2014
Board Meeting and Spring Workshop
Lodge of Four Seasons
Lake Ozark, MO

July 11-12, 2014
Board Meeting and Pac Fundraiser Golf Tournament
Minimum Standards Workshop
Capitol Plaza Hotel
Jefferson City, MO

August 20-22, 2014
Review Course
Jefferson City, MO

October 23-25, 2014
57th Annual Meeting and Convention
Joint Meeting with the Kansas Society of Land Surveyors
Sheraton Overland Park Hotel, Overland Park, KS

December 6, 2014
Board Meeting, MSPS Office
Jefferson City, MO

May 7-9, 2015
Board Meeting and Spring Workshop
Lodge of Four Seasons, Lake Ozark, MO

Donald R. Martin, Editor

Notes from the Editor's Desk

Donald R. Martin

Welcome to the fall 2013 edition of Missouri Surveyor. Before I start with any benign chatter about "…this edition is full of great…" let me first acknowledge that I am not John Holleck! Of course this is not good news for the *Missouri Surveyor*. After all, under Surveyor Holleck's editorship this was an award winning publication. I do hope all readers will be understanding that this former student of John's may take a little time in catching on. John, you were my first academic instructor in surveying and you have been a most capable steward of our newsletter…may I follow your legacy in the manner of success you ably achieved as a surveyor and editor. On behalf of MSPS members and *Missouri Surveyor* readers I wish you well. Now on to this quarter's edition…

This edition begins with a message from our new President Robert Ubben. A second generation surveyor, Robert is a master practitioner from the Kansas City area who is not only a fine surveyor but has also been a leader in surveying education and guiding a metropolitan surveyors association. After the message from the *Prez* we have recollections and photographs from the 2013 Annual Meeting. Awards, honors, new officers, new surveyors…it was a great event and it is recalled in these pages! This flashback is followed by a report of regional surveyors participating in a geocaching picnic near Kansas City by Ernie Cantu. Then Knud Hermensen and Carlton Brown detail the life and costs benefits derived from a formal education in surveying entitled *Return on Investment*. Up next is Annual Meeting guest and presenter Chuck Karayan. *Evidence of Occupation* is Chuck's article regarding the importance of the surveyor's duty to weigh all evidence associated to boundary interpretation.

MSPS Past-President Dick Elgin follows with news of his new book *The US Public Land Survey System for Missouri*. This must-read encompasses the vast story of the uniqueness and sheer space of our state's rectangular survey system. Enclosed is ordering information if you wish to acquire your own copy! After Dr. Elgin's article regarding his book of surveying history comes an interesting piece about honoring the history of individual surveyors. *The Final Point* by Frank Lenik describes the specific experience he and fellow surveyors shared paying tribute to one of their own in a particularly surveying manner. Long time surveying commentator Milt Denny next ponders the importance of the non-science side of survey in *Learning the Art of Land Surveying*. After Milt's article comes an offering by our own Steve Weible describing a personal research journey in which he combined an interest in genealogy with following the footsteps of a surveyor. In so doing Steve discovered unexpected relations between lineage and labor.

Enjoy this edition and please feel welcome to participate in this periodical. Writings, stories and ideas from MSPS members are welcome and encouraged. This is our newsletter, and our voice of *surveyors leading the way!*

Donald

THE MISSOURI SURVEYOR

Published quarterly by the
Missouri Society of Professional Surveyors

OFFICERS

Robert L. Ubben ..... President
Adam Teale ..... President-Elect
Jim Mathis III ..... Vice President
Joe Clayton ..... Secretary-Treasurer
Sandra C. Boeckman ..... Executive Director
Sharon Herman ... Immediate Past President
Troy Hayes ..... NSPS Governor

DIRECTORS

Gerald V. Bader
Robert Ross
Rich Howard
Chris Wickern
Susanne Daniel
Michael Gray

ADVERTISING RATES

	4 issues	1 issue
Full Page	650.00	200.00
Half Page (horizontal or vertical)	400.00	150.00
Quarter Page	250.00	100.00
Professional Card	50.00	N/A

COPY DEADLINE

March Issue — February 1
June Issue — May 1
September Issue — August 1
December Issue — November 1

EDITOR

Donald R. Martin
105 S. Capistrano
Jefferson city, MO 65109
Phone (573) 619-8702
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

*The **Missouri Surveyor** is published quarterly by the Missouri Society of Professional Engineers, to inform land surveyors and related professions, government officials, educational institutions, contractors, suppliers and associated businesses and industries about land surveying affairs. Articles or opinions appearing in this publication do not necessarily reflect the viewpoints of MSPS but are published as a service to its members, the general public and for the betterment of the surveying profession. No responsibility is assumed for errors, misquotes or deletions as to its contents. Articles may be reprinted with due credit given.*

President's Message

Robert L. Ubben, PLS

I'll start off my first message by thanking the membership for providing me the opportunity to serve in this role. It seems like it has come upon me quickly, and in reality it takes about six years to ascend from Director to President, if everything goes well along the way. That commitment of devoting several years to the association is something I admire in all of the current and past leadership and committee members of MSPS. I believe time has gone fast for me as it has been fun, there is always some idea or issue to work through as a group, you're busy meeting new people, and learning how to reach compromises that are equitable and beneficial with professionals from around the state that may have different reasoning than yourself. It truly has been an enjoyable ride for me getting to this point. Thanks for putting your trust in me and all other board members of MSPS for this upcoming year.

The one thing I am personally most excited about coming into this position is watching the positive changes in the Land Survey Program (LSP) as it adjusts to being a division of the Missouri Department of Agriculture. Jim Mathis, Rich Barr, Stan Emerick, Mo McCullough, and I met with Dr. Jon Hagler, past Director of the Department of Agriculture, in September of this year. It was a great introductory meeting with department staff that had a sense of urgency and energy to create a forward motion of the abilities and functions of the LSP. Some differences are already apparent and are very welcomed. I believe that the surveying community and the general public that the LSP serves will be pleased with the overall services of the LSP. The week of our annual meeting held at Tan-Tar-A Resort, there was a change in the leadership of the department from Dr. Hagler to Mr. Harry Bozoian. I look forward to meeting Mr. Bozoian, introducing him to our association, and continuing to work with the LSP. It was a great effort by MSPS, its members, and our legislators to make this happen, and is appreciated.

I have just finished contacting persons to help chair the various committees that MSPS has. Thank you for those who have volunteered to chair, co-chair, or be a part of the committees. These are the people that work quietly in the background solving problems, collaborating, planning, presenting, working with legislators, and assuring the continuity of the association by the work they do. The committees do so much more than I have listed. They are an important part of the association that are often under the radar and don't get thanked enough for what they do. They work hard, come from all around the state, and meet to work on bettering the profession for us all. Watching the committees do their work has been enlightening to me, these people really care about what they do, and they do it to all of our benefits. Thanks again, and I look forward to seeing what can be done this year.

One legislative item that will continue is proposed changes in the education requirements for enrolling as a land surveyor in training. The bill introduced in 2013 failed to get a hearing and died in committee. This will be a topic that MSPS puts a focus on and will work to get the bill introduced again. MSPS has a legislative day every winter, this will be a good opportunity to visit the capitol and help the Missouri Legislators better understand the purpose of the proposed changes.

Closing my first MSPS President's message, I would like to congratulate the newly licensed professional land surveyors and those who are now enrolled as L.S.I.T.'s. For those of you who made it to Tan-Tar-A to be recognized, it was a pleasure meeting you in person. That is a big career accomplishment. MSPS always looks forward to the recognition portion of the Annual Meeting and seeing new faces. It is a big deal to be proud of.

From the MSPS Annual Meeting

Thanks to Our Exhibitors

Berntsen International Inc.
GeoShack Direct
Griner & Schmitz, Inc.
Klein Survey Systems, Inc.
Land Survey Program (Dept. of Ag)
Laser Specialists
Ozark Laser
Positioning Solutions Company
Seiler Instrument Company
Surveyors Materials, Inc.

Let us help you transition to AutoCAD® Civil 3D®

- Custom Implementation Services
- Custom Civil 3D Template Creation
- Custom Training Programs

"Excellent Instructor –
Took away a lot of information for engineering current production"

– Robinson Engineering – IL

"Excellent knowledge base instructor"

– Ayres Associates – WI

"Excellent Class – Easy to follow along"

– Crawford Murphy Tilly – IL

AUTODESK
Silver Partner
Architecture, Engineering & Construction
Consulting Specialized
Authorized Training Center
Authorized Certification Center

solutions.seilerinst.com
SEILER
Committed to excellence since 1945

Chicago • St. Louis • Kansas City • Milwaukee • Indianapolis • Omaha
Toll Free: 888-263-8918 • Email: cad@seilerinst.com

MSPS Honors its Best
Darrell Pratte Awarded Surveyor of the Year

The **Surveyor of The Year** award has been presented annually to a dedicated member of MSPS since 1987. The recipient is one who gives their time and exudes effort and dedication to land surveying, while working within the society for the betterment of the profession.

This year's recipient began his surveying career in 1975 as a chairman for S. H. Smith and Company in Poplar Bluff and became licensed in 1985. In 1987, he took the position of Surveyor for the Missouri State Park System, a position he held until 1991. From 1991 until 2004 he was a project surveyor with the Cadastral Survey Section of the Missouri State Land Survey Program. In June 2004, he accepted the position of Geodetic Survey Section Chief and was responsible for the Geodetic Survey Network in the State of Missouri. During his time with the State of Missouri, he worked under the only other two people to serve as state land surveyor, Bob Myers and Mike Flowers. In 2008, the honoree was appointed State Land Surveyor.

During his surveying career he has registered over 700 section corners and over 300 surveys. He recently completed a survey retracing 40 miles of line between Missouri and Arkansas from the southwest corner of Missouri, east along the south line of McDonald County and part of Barry County, to mile point 205, which is near the corner of Carroll and Benton counties in Arkansas, restoring every mile post along this line. His attention to detail and determination to achieve results is commendable, along with his professional achievements within MSPS.

He has served on the Board of Directors for MSPS and was President in 2009. He has also served on numerous committees including County Surveyors, CST, GIS/Vision 21, Handbook, Scholarship, History, Legislative, Standards, Nominating, and the Awards Committee. He has also volunteered his time at the Missouri State Fair. When called upon, he has always been willing to volunteer his time in any way that he could.

His ability to diligently serve as our State Land Surveyor, while adapting to change has been remarkable. With his staff and budget reduced he has effectively restructured the Land Survey Program. He has played a major role in getting the Land Survey Index and Land Survey records online, which has tripled the amount of orders from the State Repository. He also had to facilitate and oversee the internal transition of the Land Survey program from the DNR to the Missouri Department of Agriculture in 2013.

For his years of dedicated service to the surveying profession and MSPS, please help me in congratulating the 2013 Surveyor of the Year, PLS 2126, Darrell Pratte.

Thank You

I would like to thank the Missouri Society of Professional Surveyors, Past President Sharon Herman, President Robert Ubben, the Board of Directors, the Awards Committee and its Chairman Curtis McAdams for bestowing upon me the title, "2013 Surveyor of the Year". You cannot know the honor I feel to have this award, a statue of an early to mid-twentieth century surveyor, on display in my office.

Receiving this award is a highly charged emotional event for the recipient. I was not the first surveyor to get up before my peers and find myself struck dumb. I did mention the fact that the Board, some years ago, decided to tell the recipient ahead of time that they would receive the award. Then I said this was a bittersweet moment, and that is all I could say.

This moment was bittersweet because the person that believed in me most could not be there. My biggest supporter in all my endeavors, my darling wife Nancy had succumbed to a horrible disease just six weeks prior to the annual meeting. I wanted to thank Nancy for her belief in me, her support of me. She would be so proud, because she knew the pride I have in the profession and the society. The words would not come out, try as I might, so I am taking this opportunity to thank MSPS and to thank Nancy Ellen Pratte, without whom this day would not have been possible.

MSPS Awards the Robert E. Myers Service Award to Troy Hayes

Each year, the **Robert E. Myers Service Award** is given to an MSPS member, who throughout their career has shown exemplary service and dedication to the surveying profession and the organization. This year's recipient is deserving of this honor in so many ways. He is a visionary, a public servant that personifies and upholds the tradition and history of land surveying. It is truly my honor to share some of this man's personal and professional achievements with you today.

Sometimes life's biggest adventures begin close to home. In 1979 at the age of 17, this gentleman took a job at a local Engineering firm, a decision that unknowingly would shape his career and open the door to a lifetime of opportunities, achievements and friendships along the way. There was something about being out in the field that he loved, something that drew his interest and a desire to learn more. After two years of working as a survey assistant in the field, he decided to pursue his education and left his hometown for Denver, Colorado where he graduated from the Brinker School of Surveying and Mapping in 1981. He went back to work for the local engineering firm, which later restructured and gave him an opportunity to become an owner in 1989. At 27 years old, this was just the beginning of his aspiring career.

35 years down the road from his beginnings as a survey assistant in Northwest Missouri, this gentleman is currently an owner and President of two very successful small businesses in land surveying and GIS and is also an owner and Vice President of a Title Company. He has earned his professional land surveying licenses in Missouri, Kansas, Iowa and South Dakota and has served as the Nodaway County Land Surveyor since 2004 in his old stomping grounds. He also previously served as the Buchanan County Land Surveyor from 1998 to 2008. His perseverance and entrepreneurial spirit helped him build up a small, local surveying firm from northwest Missouri and expand that business to achieve large surveying contracts for various state and federal agencies, operating and overseeing his local survey crews throughout the Country.

His tenure in the surveying profession is a testament of his dedication to the people he serves, and also the people that work for him. He is well-respected, disciplined and active in the professional organizations that support surveying principles. The recipient's dedication to MSPS is evident in his work for the organization and service on various committees. Some of his most notable achievements with MSPS include:

Serving on the MSPS Executive Board throughout the 90's and as President in 1999. He was presented with the Missouri Surveyor of the Year award in 2000, and has served on various committees including: Education, GIS/Vision 21, Highway Liaison, Legislative, Annual Meeting, Nominating and Awards. He is currently serving as the NSPS Missouri Governor.

An accomplished business owner and ardent surveyor, the recipient of this prestigious award is also a humble missionary who has used his professional skills to oversee and facilitate the establishment of an orphanage in Haiti to ensure an education, shelter, drinking water and food for many Haitian children and their caretakers. His passion for missionary work in Haiti is inspiring to his family and those that work with him on a daily basis. He is active in his church, dedicated to his family and loves to be outside, whether hunting, fishing, golfing or surveying.

Ladies and gentlemen, I am proud to say that I have worked with the recipient of this award for more than 20 years. Please join me in honoring the exemplary service and dedication of PLS 2219 from Maryville, Missouri – Mr. Troy Hayes.

Thank You

I want to thank MSPS again for selecting me for the Robert E. Myers service award. I am honored and humbled to receive the award, and am certain there are many more deserving of it than me. The awards committee did an excellent job of keeping this a secret, had I had any idea I would have not changed into my Maryville Spoofhound football fan gear when I checked out of the hotel before the awards luncheon. Because I was so shocked I was at a loss for words during the presentation and neglected some important thanks and acknowledgments:

First of all I would like to thank John Teale for giving me a chance to become a surveyor and for encouraging me to become active in our state association. I also failed to mention an entire table of men who were there that day. I have the privilege of working with Rick Mattson, Adam Teale, Curtis McAdams and Jeff Anderson every day. Because they can run our business just as well if not better when I am gone as when I am there, I have time to devote service to the profession. I thank them for allowing me that opportunity. Last but not least I want to thank my family for their love and support during my 34 years in the surveying profession.

I also want to congratulate Darrell Pratte for the Surveyor of the Year Award. It was an honor to share the moment with him. As I look back at the adversity Darrell has overcame during his time as our State Land Surveyor and the strides the program has made in the transformation of the repository and the move to the Department of Agriculture, I can't think of a more deserving recipient. Keep up the good work Darrell!

Swearing In

Left to Right: Mike Gray, Susanne Daniel, Rich Howard, Gerald Bader, Jim Mathis, Adam Teale, Robert Ross, Joe Clayton, Sharon Herman and Robert Ubben.

Swearing in (at the podium) is State Land Surveyor Darrell Pratte.

LSITs & PLSs Licensed in 2013 – Congratulations

LSITs

Mark Wesley Jefferson
Payson, Il.

William John Kenter
Stoning, IL

Caitlin Johannes Miller
Grandview, MO

Kevin Lee Nelson
Bolivar, MO

PLSs

Earl T. Beckwith
Millington, TN

Robert Stephen Boyer
Arnold, MO

Patrick William Brown
Spokane, MO

Jimmy Lee Cleveland
Brighton, TN

Samuel J. DePriest
Olathe, KS

Daniel J. Evans
Emden, IL

Darren E. Forgy
Lincoln, IL

Brian G. Higgins
St. Peters, MO

Nicholas Mark Hillmer
St. Michael, MN

Michael D. Lay
Lenexa, KS

Raymond S. McCrae
Fairdealing, MO

Wayne L. Mory
Montgomery, IL

Leslie Wayne Pendergrass
Ozark, MO

Andrew J. Riddle
Spring Hill, KS

Kevin M. Schweikert
Columbia, MO

Steven A. Sherwood
Newburgh, IN

Michael J. Smith
Indianapolis, IN

Derek Wayne Twente
Moro, IL

Dennis M. VanRyckeghem
Lees Summit, MO

Horace Wayne Walker
Niceville, FL

New Surveyors

Left to Right: MSPS President - Robert Ubben, Jimmy Lee Cleveland, Patrick William Brown, Samuel L. DePriest, Michael D. Lay, Adrew J. Riddle and MSPS Immediate Past President - Sharon Herman

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: David Gann, PLS, Program Coordinator/Instructor — Land Surveying MCC — Longview, MEP Division
Longview Community College
Science and Technology Bldg.
500 SW Longview Road
Lee's Summit, Missouri 64081-2105
816-672-2336; Fax 816-672-2034; Cell 816-803-9179

Florissant Valley Community College — St. Louis, Missouri
Contact: Richard Unger
Florissant Valley Community College
3400 Pershall Road
St. Louis, Missouri 63135
314-513-4319

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)

Missouri University of Science and Technology — Rolla, Missouri
Contact: Dr. Richard L. Elgin, PLS, PE
Adjunct Professor
Department of Civil Engineering
1401 North Pine Street
211 Butler-Carlton Hall
Rolla, Missouri 65409-0030
573-364-6362
elgin@mst.edu

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

Survey Says

by Ernie Cantu, L.S. KS

"Maybe it's YOUR equipment that isn't measuring very well." That was a comment from a geocacher to the survey-grade GPS crew at the 13th Annual KC Area Picnic geocaching celebration in North Kansas City, Missouri.

On August 24, 2013, geocachers from the Kansas City area as well as from distant lands converged at Macken Park's Festival Shelter for fun and games at the geocachers' 13th Annual KC Area Picnic. The event brought in over 400 registrants for the day's geocaching activities that included a balloon toss in the heat of the day, a most-extravagantly-built geocache building contest, a computer program (Wherigo) that told a story interactively based on a person's changing location, and many more activities for young kids and "adult kids."

Mark Mendon, a Kansas City area geocacher with the Picnic planning crew (geocaching username buzzkill2), coordinated with the Kansas Society of Land Surveyors (KSLS) and the Missouri Society of Professional Surveyors (MSPS) to offer the "Survey Says" geocaching event for the Picnic. Sharon Herman, President of MSPS, provided hundreds of brochures to promote surveying as a viable career choice for people who were already familiar with GPS for recreational use. Ernie Cantu and his wife April (geocaching usernames cantuland and mrscantuland) ran the table at the surveyors' booth, handing out brightly colored surveyor-pink flags and promotional surveying brochures to anyone who wanted to take on the challenge of testing their coordinate stake-out abilities. Wil Anderson (BHC Rhodes) and Robert Ubben (Affinis Corp), both of the KC Metro Chapter, were on site demonstrating the differences between the magic of professional survey-grade GPS and the little handheld receivers that were traditional to geocaching.

The booth brought in 146 participants. Each participant was given GPS coordinates and a flag to mark his or her opinion of where those coordinates landed. The resulting pin cushion was a mass of pink flags in a 30 foot diameter circle. Coordinates had been previously converted from NAD83 Missouri West state plane coordinates (US Feet) to the "geocaching format" of degrees, minutes and decimal minutes, which was what geocachers were used to using. Participants were given coordinates of N39°08.957790' W094°34.021041', although a geocacher's handheld receiver could only go to three decimal places in the minutes.

The difference between those coordinates and N39°08.958000' W094°34.021000' was only 1.275 ft in northing and 0.192 ft in easting, distances much too small for a recreational handheld receiver. Mike Stewart had the winning flag that was 1.57 feet away from the coordinates. He won ten free tickets for event prize drawings. Mike Stewart's geocaching username is "QRPNut," someone who is nuts about Q-code Reduced Power radiotelegraph transmissions. The second closest flag measured at 2.05 feet away.

As an endeavor in public relations, the "Survey Says" event turned out to be a bigger success than we expected. Throughout the day, each geocacher hoped their flag would end up closest to the coordinates. Who would be the lucky geocacher? Each participant wrote his or her name on the pink flag and plunked it in the ground. When it was time to stake out the coordinates to find a winner, Robert Ubben handed the data collector to nearby Miss Masters, the daughter of KC area geocachers Shawn and Kim Masters, geocaching team username of Bowhuntur(S&K).

"West 10 feet!" she said.

With a sly smile, Robert Ubben played the crowd with a pace to the east rather than to the west. The crowd quickly responded with, "Wrong way!" "The other way!" "Your other west!"

Miss Masters read the data collector again, "West 13 feet!" The crowd figured it out. That

(continued on next page)

Survey Says *(continued)*

machine knows where you are. They continued to narrow down the distance. "West 2 feet. North 2 feet. East a foot. North a half-foot." Then as the numbers fell tighter and tighter, she announced, "East zero point zero two and north zero point zero one."

Geocachers are used to dealing with an accuracy of ten to twenty feet. So to translate the numbers into something geocachers would easily understand, I announced, "That's half the width of a nano," meaning half the width of a particular tiny magnetic geocache container common to geocachers that was the same size as the pink eraser on the end of a wooden pencil. They understood then what the difference was between using recreational and professional GPS equipment.

Then someone noticed that the rover pole was about ten feet away from the center of the cluster of fluttering pink flags. "Maybe it's YOUR equipment that isn't measuring very well. Maybe YOU are the one who is off. How do we know your position is any better?" The crowd laughed.

With a low, hushed voice, I asked Robert Ubben, "Are you on it?" He again smiled a sly smile and gave me a secret nod in the affirmative. I raised my voice to tell the crowd, "I wonder if there might be something at the bottom of this pole. Let's check it out."

Geocachers moved in closer to inspect the ground. The point of the rod was on something aluminum hidden in the grass. Fingers rubbed at it to clean away the dirt. Evidenced there, witnessed before the eyes of all, was a 2-inch diameter aluminum cap, stamped KC GEOCACHERS (by BHC Rhodes), that was found by young Miss Masters using survey-grade GPS equipment, with the tip of the rod resting inside the triangle in the center of the aluminum cap. The crowd applauded and bits and phrases could be heard expressing awe and amazement. Now that's magic.

Ernie Cantu, L.S. KS, works from Wichita, Kansas, for Professional Engineering Consultants and also teaches surveying courses at Bulter Community College in Andover, Kansas. Ernie believes that every human being on the planet should be a member of the Kansas Society of Land Surveyors. He is an active geocacher with numerous geocache finds and owns too many geocache hides. Ernie is a member of geocaching organizations in various states and countries. His geocaching username is cantuland on the Geocaching Dot Com website.

For Immediate Release

For More Information:
John Baffert
(520) 622-6011

SURV-KAP SERVES UP NEW USER FRIENDLY WEBSITE AT SURV-KAP.COM

TUCSON, AZ (XX) – SURV-KAP, the landmark name in land survey markets and monument products has redesigned its website ~ SurvKap.com with a cleaner, more intuitive design that will allow customers to navigate the website with ease and speed.
According to SURV-KAP President John Baffert, the new design includes a new and improved stamping form that will allow customers to see a live preview of how the stamp will look on the product.
"We strive to provide fast, reliable and courteous service to the surveyor community and our new website will take our customer service to the next level," said Baffert.
Founded in 1972, SURV-KAP, LLC manufactures and distributes land survey markers and monument products in 31 different categories for the professional survey industry. With more than 4,000 customers throughout the United States and Canada, the company's survey markers are in use from Antarctica to the Bahamas. SURV-KAP's products are made in the USA.

Contact: Carla Hayes
913-663-1900

10/7/2013
For Immediate Release:

BHC RHODES Looks to Expand Reach in Missouri, Hires Additional Leader for Surveying Segment

Mr. Jeff Means, L.S., joined BHC RHODES as a project surveyor and will lead a team comprised of both a survey field crew and in-house technical staff. Means has eighteen years of surveying experience which has been largely on the Missouri side of the Kansas City metro, where for many years he co-owned Brown Means & Associates in Blue Springs, Missouri. He will continue to build upon his long time Missouri relationships while taking on new business expansion in the market for BHC RHODES. Means' expertise includes mapping, boundary, construction, park survey, and planning on recognizable projects such as the Kansas City International airport, Kansas City Parks and Recreation and Branson Landing in Branson, Missouri. *"Jeff has experience on both ends of the surveying business. He has been in the field as a land surveyor and in the office managing operations and sales. From his experience on both ends, he knows exceptional customer service is imperative and that fits perfectly with our "No Problem" customer service philosophy"* said BHC RHODES' Surveying Manager, Wil Anderson, L.S. BHC RHODES' surveying operation is based in their Kansas City, Kansas office and provides traditional Boundary, ALTA, PLAT, construction staking and Topographic, as well as high tech 3D laser scanning surveying.
BHC RHODES, civil engineering and surveying firm was founded in 1992 and is based in Overland Park, KS. They perform work nationally and internationally for telecommunications, public works, and development customers. BHC RHODES was recognized in 2013 as one of the Kansas City area's fastest-growing companies for the second year in a row, ranking in the Kansas City Business Journal and Ingram's Magazine Corporate Report honor roll. Their expertise has been published in the APWA Reporter magazine and Transmission & Distribution Word. BHC RHODES has been voted one of the best places to work both locally and nationally. For more information visit their web site at http://www.ibhc.com.

Return on Investment...A formal Surveying Education

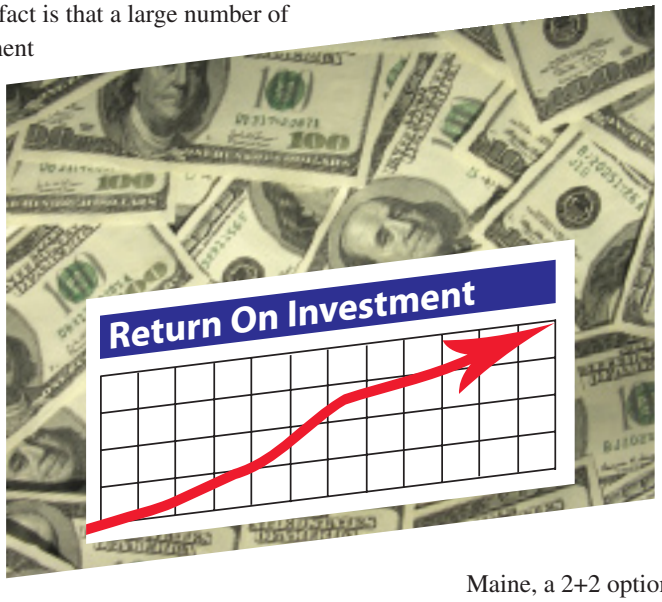
by Knud E. Hermansen, PLS, PE, PhD, Esq, Carlton A. Brown, PLS, PE, PhD

As faculty members in the Surveying Engineering Technology program at the University of Maine, we are often asked if it is worth pursuing a bachelor of science degree in surveying. In other words, will a graduate receive a good return on their investment by pursuing academic studies in surveying. Our answer is an unqualified "YES."

The Return from the Investment

The return from investing in a four-year surveying education has many facets aside from the knowledge itself and the need for the degree in some states for obtaining a professional license. From our observation, graduates from a four-year surveying program are in the top 30% of the starting salaries received by college undergraduates. This surprises many surveyors who often feel they are on the bottom end of earners.[1] The fact is that a large number of college graduates cannot find employment after graduation.[2] What employment is available for many college graduates is not too far above the minimum wage.[3] Some graduates such as those with a degree in social work must often obtain a graduate degree or work as an unpaid intern for one or two years before securing paid employment in their field.

On the other hand, over thirty employment announcements were posted for University of Maine surveying students between January and May 2013[4] - almost three times more than the number of surveying students graduating.



A four-year surveying degree has considerable value aside from surveyor licensing. Graduates with a bachelor of science degree in surveying are in an excellent position to multiply their earnings through additional studies. Graduates can go on to earn a graduate degree in the surveying field or a related field such as GIS. Graduates can also pursue graduates studies and earn an MBA,[5] graduate degree in civil engineering,[6] or a law degree.[7]

Most four-year surveying programs are ABET accredited. Graduates with a bachelor of science degree in surveying from an ABET accredited program can seek dual registration as both a surveyor and engineer in most states.[8] Dual licensing as both an engineer and surveyor will add at least 50% to an individual's average salary.[9] Many surveyors also hold other licenses or certifications allowing practice and expanded services in such areas as designing on-site septic systems, forestry, wetlands delineation, flood plain manager, photogrammetry, and city planning, to name a few.

Surveying graduates also have considerable potential to increase their earnings by hard work and entrepreneurial endeavors. Unlike some professions such as grade-school teaching or social work where individuals most often work within a structured bureaucracy, surveyors usually obtain employment where they can advance based on merit and hard work. Licensed surveyors can start their own firms with minimal investment in equipment and software compared to other startup businesses.

The bottom line is that a graduate with a four-year degree can expect to earn around $600,000 more during their professional career.[10]

The Cost

The second part of analyzing the return on an investment in formal education as a surveyor is to look at the cost of a formal education. Without question, education is expensive. A four-year degree at a public university will cost around $90,000.[11] There are numerous ways to reduce or even eliminate this cost.

One way to drastically reduce costs, available to every student, is to earn a surveying degree at a two-year college.[12] At the University of Maine, a 2+2 option is available for almost all two-year (associate in science) surveying degrees. Even where a two-year surveying degree is not available in a state, a frugal student can earn approximately two years of credit toward a four-year surveying degree at most community colleges. General education courses required for a surveying degree such as mathematics, physics, writing, speech, accounting, economics, business law, ethics, and humanities courses are usually found and can be taken at community colleges found near most communities.

Full tuition payment through scholarships or other avenues are often available to students. The most common source for payment of all tuition costs in the surveying program at the University of Maine is veterans' tuition assistance like the G.I. Bill. Almost 7% of the current students in the surveying program at the University of Maine are veterans receiving veterans' educational benefits.[13]

(continued on page 16)

THE FIRST OF ITS KIND,
THE NEW TRIMBLE R10 GNSS SYSTEM

PRODUCTIVITY BEYOND GNSS

solutions.seilerinst.com

SEILER

Committed to Excellence since 1945

Powerful New Technologies & Features:

- Trimble xFill™ – provides RTK coverage during connection outages
- Trimble SurePoint™ – precise position capture
- Trimble HD-GNSS – cutting edge processing engine
- Trimble 360 – advanced satellite tracking receiver technology
- Integrated wireless communications
- A compact, lightweight design

Trimble

Authorized Distribution Partner

Contact Us for a Demonstration

Email: solutions@seilerinst.com

Toll Free: 888-263-8918

Sales

Rentals

Training

Financing

Service

Return on Investment *(continued)*

A major source of scholarship grants come from state surveying societies. Many state surveying societies award student scholarships in excess of several thousand dollars a year. Almost all surveying students at the University of Maine receive one or more surveying scholarships.

Another major source of education financial support is summer employment in the surveying field. Summer often brings an increase in surveying field work with a corresponding increase in part-time surveying employment. Some employers even provide scholarships to summer employees going to college.[14]

The Results

After examining both the investment cost and return on the investment, the result shows a four-year degree in surveying is a good investment. The college graduate can expect to earn 65% more than a high-school graduate.[15] Based on a 30-year professional career, a graduate can expect a 7% return on their investment.[16] Of course the return on the investment is considerably higher with community college courses, tuition aid grants, and scholarships.

For almost all individuals, pursuing a four-year surveying degree is worth the effort.[17]

† Knud Hermansen and Carlton Brown are professors in the Surveying Engineering Technology program at the University of Maine. The Surveying Engineering Technology program is a four-year program leading to a B.S. degree in Surveying Engineering Technology. It is an ABET/TAC accredited program. A five year B.S./M.B.A. option is available. The focus of the program is to educate students for professional surveying practice.

[1] The average salary of a surveyor in 2012 was $59,180 a year or approximately $28.50 an hour while an elementary teacher was $56,000 per year, a social worker was $47,000 per year, forester was $57,000 per year, and electrical engineering technician was $58,000 per year. "May 2012 National Occupational Employment and Wage Estimates United States" Bureau of Labor Statistics. Retrieved May 2013 from http://www.bls.gov/oes/current/oes_nat.htm#17-0000

[2] See Willis, Gerri. (2013 Feb.) "Drowning in Debt: Liberal Arts Graduates" *Fox Business, Gerri Willis Daily.* Retrieved May 2013 from http://www.foxbusiness.com/on-air/willis-report/blog/2013/02/19/drowning-debt-liberal-arts-graduates and Gerber, Scott. (2012 Sep.) "How Liberal Arts Colleges Are Failing America." *The Atlantic*. Retrieved May 2013 from http://www.theatlantic.com/business/archive/2012/09/how-liberal-arts-colleges-are-failing-america/262711/

[3] Notte, Jason. (2013 April) "284,000 College Grads Making Minimum Wage" *MSN Money*, Retrieved May 2013 from http://money.msn.com/now/post.aspx?post=60c2d77c-2d2b-4920-8156-4fb05e443d93

[4] The employment outlook for surveyors is 25% higher than average. (August 2012) "Surveyors", *Bureau of Labor Statistics*. Retrieved May 2013 from http://www.bls.gov/ooh/architecture-and-engineering/surveyors.htm

[5] It is a misconception to believe an individual must have an undergraduate business degree before earning a masters in business administration (MBA).

[6] Most civil engineer programs will allow an individual with a B.S. in surveying to enroll directly into the civil engineering graduate program.

[7] Generally the only two requirements to be accepted into a law school is an acceptable undergraduate grade point average (GPA) and an acceptable law school aptitude test (LSAT) score. All things being equal, nurses and technical majors are often given preference.

[8] NCEES administers both components of the surveying and engineering exams. Individuals seeking licensure as a professional engineer will have to work under a licensed engineer performing engineering services before the individual can sit for the principles and practice portion of the engineering exam.

[9] According to the NSPE 2012 Engineering Income and Salary Survey, a dual licensed individual mean salary is $104,000 a year.

[10] "2013 College Education ROI Rankings: Does a Degree Always Pay Off?" *PayScale*. Retrieved May 2013 from http://www.payscale.com/college-education-value-2013

[11] "2013 College Education ROI Rankings: Does a Degree Always Pay Off?" *PayScale*. Retrieved May 2013 from http://www.payscale.com/college-education-value-2013

[12] In Maine, community colleges tuition rates are approximately a third of the tuition rates at four-year Universities.

[13] As an aside, without an explanation, almost all at this time are U.S. Marine veterans.

[14] The Bureau of Land Management fell into this category along with many private employers such as Judith Nitsch Engineering, Inc.

[15] Korane, Kenneth J. (2012, Sept.) "Which Engineering Schools Offer the Best Value?" *Machine Design*. Retrieved May 2013 from http://machinedesign.com/news/which-engineering-schools-offer-best -value

[16] "2013 College Education ROI Rankings: Does a Degree Always Pay Off?" *PayScale*. Retrieved May 2013 from http://www.payscale.com/college-education-value-2013

[17] Ibid.

A Scene Repeated For More Than 100 Years.

New technologies and old-time customer service. The two go hand-in-hand at Griner and Schmitz, one of the region's most respected surveying and GPS equipment companies.

Since 1910 Griner and Schmitz has blended personal service with the most contemporary tools of the surveying trade. With our staff of factory-trained service technicians, Griner and Schmitz keeps you working and productive.

Come join us and see what the next 100 years will bring.

Griner Schmitz circa 1952

Griner and SCHMITZ INC. EST. 1910

Where old and new go hand-in-hand.

1701 Broadway, Kansas City, MO 64108
(800) 821-3896 | www.grinerschmitz.com

MSPS Fast Facts

- 1000 and more, members strong
- 70% + of Missouri's Active Licensed Surveyors
- Politically Active, Community Focused, Region-wide Membership
- Local Chapters Including: St. Louis, Kansas City, Springfield
- Affiliated With:
  - The National Society of Professional Surveyors
  - The American Congress of Surveying & Mapping
  - The Missouri Association of County Surveyors

Meetings

- Annual Meeting (fall), 350 + Attendance
- Continuing Education Workshop (spring), 250 + Attendance
- Laws & Regulations Workshop (summer), 150 + Attendance
- Capitol/Legislature Visitation (winter), 50 + Attendance
- Board of Directors Meet Five Times Each Year

Publications

- *Missouri Surveyor,* 40 Page Newsletter
  - Published 4 Times a Year
  - Industry News, Technical Reports, History, Professional Technique, Research
  - 25 + Advertisers

- *www.missourisurveyor.org*, Website
  - Member Lists
  - Find a Surveyor Feature
  - Surveying Career Streaming Video

- *Before You Buy, Sell, Divide or Build: Consult a Surveyor*, Brochure
  - Customer Instructions
  - Costs Guide
  - How to Choose a Surveyor

Did You Know?

Did you know there are three professional surveyors currently serving in the Missouri House of Representatives? Yes…three! If you have not had the pleasure of knowing these fine surveyors as fellow practitioners, check-out their official biographies as elected members of Missouri's state assembly:

Representative Bart Korman, District 042

Rep. Bart Korman, a Republican, represents Montgomery and Warren Counties (District 42) in the Missouri House of Representatives. He was elected to his first two-year term in November 2010.

In addition to his legislative duties, Rep. Korman is a professional land surveyor and auctioneer with Korman Auction Service.

Rep. Korman is an officer in the Warren County Rotary club and is involved with other organizations such as the Missouri Society of Professional Surveyors, the Missouri Association of County Surveyors, the Montgomery City Knights of Columbus and the Montgomery County Fair Agriland Committee. He is a former president of the Missouri Society of Professional Engineers – Central Chapter, a graduate of the Montgomery County EXCEL Leadership Program, and is a member of Farm Bureau and the NRA.

Rep. Korman is a 1994 graduate of Montgomery County R-2 High School. He graduated from the University of Missouri in 1999 with a B.S. in Agricultural Engineering and a B.S. in Agricultural Systems Management.

Rep. Korman was born December 20, 1975 in Hermann. He is married to Sarah (Young) Korman. They have one child, Wyatt. They attend Immaculate Conception Church in Montgomery City.

Representative Rocky Miller, District 124

Rep. Rocky Miller, a Republican, represents parts of Camden and Miller Counties (Lake of the Ozarks Region) (District 124) in the Missouri House of Representatives. He was elected to his first two-year term in November 2012.

In addition to his legislative duties, Rep. Miller is a professional engineer and land surveyor with Miller Companies, an engineering, environmental services and land surveying firm.

Rep. Miller is an Elder in the Lake Ozark Christian Church and is involved with other organizations such as the Missouri Society of Professional Engineers, Missouri Society of Professional Surveyors, Daybreak Rotary, Chamber of Commerce and Missouri Water and Wastewater Conference. He is a former president of the School of the Osage School Board and former Director of the Missouri School Board Association and is a member of Farm Bureau and the NRA.

Rep. Miller is a 1984 graduate of School of the Osage, Lake Ozark. He graduated from Missouri S & T in 1988 with a B.S. in Civil Engineering and completed MBA course work at St. Ambrose University. He began his career with Laclede Gas and Iowa Southern Utilities before returning home.

Rep. Miller was born October 22, 1965 in West Palm Beach, Florida. He is married to Della (Taylor) Miller. They have four children, Clay, Jordon, Michael and Jared and one grandchild, Ayden. Rep. Miller, a sixth generation resident of the district, resides on his family farm near Tuscumbia.

Robert Ross, District 142

Born in Houston, Missouri; Graduate of Summersville High School; Bachelor of Science Degree in Cartography with an emphasis in Land Surveying at Southwest Missouri State University 2003. He and his wife Chrissy have two boys, Rylan and Carson and they attend the Summersville First Christian Church. In addition to his legislative duties, he is a self-employed Professional Land Surveyor and the owner of Midwest Benchrest which is a nationally sanctioned 600 and 1,000 yard shooting range. He serves on the Board of Directors of the Missouri Society of Professional Surveyors and is actively involved with Missouri Cattlemen's Association, Texas County Farm Bureau & the NRA. Elected to the House: 2012.

Missouri Society of Professional Surveyors

6th Edition Handbook

The MSPS 6th Edition Handbook has been updated to include Missouri Revised Statutes for professional land surveyors, Minimum Standards and ALTA survey requirements plus an entire section on Historical Missouri Surveying Statutes.

Name: _____

Firm: _____

Address: _____

City, State: _____ Zip: _____

Phone: _____ Fax: _____

Email *(needed for digital copy)*: _____

❒ Digital - $50.00 ❒ Hard Copy - $80.00

Payment Options

❒ Visa ❒ MasterCard ❒ Discover ❒ Check Enclosed ❒ Invoice my Firm

Card #: _____ Exp. Date: _____

Total Amount: $_____

Please send your order form to MSPS, 722 E. Capitol Avenue, PO Box 1342, Jefferson City, MO 65102 or fax it to 573-635-7823.
For questions, contact Sandy Boeckman at 573-635-9446 or msps@missourisurveyor.org.

solutions.seilerinst.com

SEILER

Committed to excellence since 1945

Spar 300

Underground Infrastructure 3D Mapping Surveying System

Optimal Ranging

The Spar 300 is a Precise 3D Mapping Underground Utility Surveying System that integrates with Trimble Access-based Utility Survey software on a TSC3, and Trimble GNSS receivers, which enables significant productivity improvements by combining Location, Marking, Surveying, and CAD Export.

Do you want to map to underground utilities with precise x/y/z coordinates?

For additional information or an on-site product demonstration, contact:

MISSOURI/ ILLINOIS

Jeff Brinkman – (314) 422-7891

Pat Stack – (314) 614-5883

KANSAS

Steve Tomps – (816) 520-7446

Email: solutions@seilerinst.com

Sales • Service • Rentals
Financing • Training • Implementation

Evidence of Occupation

by Chuck Karayan, PLS, Reprinted from *California Surveyor*, Winter 2013

***Chuck** began surveying in 1963. Since then his career in public and private practice has taken him from the deserts of southern Arizona to the forests of northwestern Washington. He is licensed in Oregon and California; is a contributing writer for The American Surveyor magazine; and he teaches courses on water boundaries at the University of Wyoming Outreach School. Academically trained as an earth scientist/geographer, he also attended the University of San Fernando Valley, College of Law. For over 25 years, his career has focused on boundary and land title matters as a manager and expert witness.*

Following his 1066 victory at the Battle of Hastings, William-the Conqueror created the Doomsday Book, a cadastre used in establishing the original Baronies and 'titled estates' throughout England. In the years following 1066, these large land holdings held by Williams's allies (the new nobles) were fragmented into smaller and smaller *freeholds* and *leaseholds*.

The commoners and peasants transferred their rights in these smaller parcels by oral ceremonies called Livery-of-Seisin. Until the 1677 adoption of the Statute of Frauds, which among other things called for written descriptions in the transfer of real property, uncontested occupation was their only evidence of ownership. Since 1677 written descriptions have evolved into our modern concept of record title. Today record title is generally considered better evidence of ownership than "naked possession."

When my surveying career began in 1962 there was a deep schism within the profession between "fence line surveyors" and "deed line surveyors" as they pejoratively referred to each other. Essentially their disagreement centered on the question of whether record title or occupation should prevail when the two disagreed. In part because the groups were nearly equal in size, and in part because neither side advanced a 'winning' argument, the disagreement remained unresolved.

This on-going argument deprived the profession of an accepted standard of care.'Some surveyors simply located, mapped, and monumented the lines of occupation; others conducted no records research, simply locating, mapping and monumenting the description in their client's deed. Most licensees operated somewhere between these extremes, but without a universally agreed upon 'procedure and level of performance' it is difficult to call such an environment *professional practice*.

Into this chaos stepped Curtis Maitland Brown. Through enduring and monumental effort he traced judicial and legislative law through the analytical process necessary in surveying, producing the widely acclaimed Boundary Control and Legal Principles. Shortly thereafter Mr. Brown authored Evidence and Procedures for Boundary Location. These two texts have been accepted as authoritative sources by an overwhelming majority of surveyors as well as many courts.

By the mid-1970's most surveyors had generally decided that in the event of conflict between record title and occupation the former should prevail. Unfortunately, by phrasing the question in that manner, *the baby was thrown out with the wash*. A better question to have asked and answered would have been: Under what circumstances does one or the other prevail? In adopting the premise that "one size fits all." i.e., record title prevails, many members of our profession discarded occupation as legitimate evidence of title. Neither the legislature nor the judiciary has done so.

The purpose of this discussion is not to argue for or against the use of evidence of occupation in establishing boundary monumentation. Nor is the purpose to establish criteria for determining which line, "deed" or "fence" (if either), should be shown as the boundary on a map or plat. Rather, the purpose of this discussion is to focus on the surveyor's duty to his or her client and to the public; that duty being: to collect, preserve and present *all of the **evidence** which could have an effect upon the boundary.*

Judges and juries seldom visit the site of real property disputes. If they do, they are not able to see a boundary or record title line because these are legal concepts which do not have specific physical characteristics. Rather, the court relies on the surveyor to *gather all of the evidence*, to display it on maps and exhibits, and to integrate that evidence into their professional opinion.

California Business and Professions Code (The Land Surveyors Act) states in §8762(b) (3) that the Record of Survey shall include 11 **evidence** that, by reasonable analysis, might (emphasis added) result in ... alternate positions..." California Code of Regulations, Title 16, Division 5 (Board Rules ... Relating to ... Land Surveying) states in §404.2(b) that the required responsible charge of the surveyor includes the ability to answer questions regarding the analysis of "**evidence** related to written and unwritten property rights."

The 5th Edition of Boundary Control and Legal Principles (§1.10) states: "The surveyor's responsibility is to collect **evidence** of past boundaries described in documents..." and it goes on to state that the surveyor is also responsible "to collect **evidence** of possession and use...." The 3rd Edition of Evidence and Procedures for Boundary Location (§12-20) states: "If possession lines do not agree with written or deed lines, the relationship of the written or deed lines to that of the possession lines must be shown". The ALTA/ACSM Minimum Standard Detail Requirements for Land Title Surveys §5 (Field Work) in C. Lines of Possession require "The character and location of **evidence** of possession or occupation ..."

The duty to collect, preserve and present the evidence of title does not depend upon the question of acceptance or rejection of such evidence; nor does it depend upon the question of encroachment;

and, the duty exists without regard to the relative evidentiary weight assigned. In other words, no matter how "the boundary question" is answered (record title, occupation, both, neither), and whether-or-not the evidence is used as a basis of that boundary, the surveyor is obligated to show the occupation/use by their client or by his/her adjoiner. Moreover, the obligation includes locational data pertaining to that evidence at the same level of accuracy/precision as all other evidence of title.

Due in part to the sheer volume of litigation, 'field trips' by the trier-of-fact (judge/jury) have become extremely rare in today's world. Instead, the courts rely on the parties and their witnesses to collect, preserve and present all relevant evidence. The location of such **evidence** being fundamental to justice, our legislature provided surveyors with "the right of entry upon or to real property" and imposed upon the owner or tenant a duty "to provide reasonable access without undue delay." (B&PC §8774(a); see also Penal Code §602.8 (c) (4)). Clearly the legislative intent was to ensure the surveyor's ability to meet the duty of identifying, locating and perpetuating all **evidence** of boundary and title.

Only some evidence is physical in nature and susceptible to location; some evidence consists partially or totally of declaratory statements. The collection, preservation and presentation of these declarations can be as vital as other boundary and title evidence. For this reason the legislature has endowed surveyors with the authority to place such declarants under oath when gathering and memorializing declaratory boundary and title **evidence**. (See: B&PC 8760).

Before discussing application of these ideas, I believe that it will be useful to lay some foundation for terminology commonly used. First, in this discussion I have - and will continue to - assiduously avoid the issue of defining "boundary." The duty of collecting, preserving and presenting relevant evidence applies without regard to how "boundary" is determined. Second, since the courts are the final arbiters of boundary/title disputes, I have chosen to use the meaning of terms as the law has defined them rather than adopting the vernacular meaning used by many in our profession.

EVIDENCE	Testimony, writings, material objects or other things presented to the senses that are offered to prove the existence or nonexistence of a fact. (California Evidence Code § 140)
RELEVANT EVIDENCE	Evidence, including that which pertains to the credibility of a witness or hearsay cleclarant, having any tendency in reason to prove or disprove any disputed fact of consequence to the matter being decided. (California Evidence Code § 210)
RECORD TITLE	Real property rights evinced by one or more documents entered in the public land records. (Black's Law Dictionary)
FENCE	A hedge, structure, or partition erected for the purpose of separating two contiguous estates. (Blacks Law Dictionary)

Historically many law schools encouraged students with a 'social science' educational background and discouraged students from the I physical sciences'. Fortunately that is far less common today, but the foundation of that bias had some merit. Physical scientists, engineers, technicians, mathematicians, etc. tend to expect 'hard' (absolute) answers while historians, political scientists, philosophers, etc. tend toward 'soft' (generalized) answers. Over the years, many surveyors have expressed frustration with the lack of a "definite answer" in studying boundary law. I am sure that some readers may feel the same way. Particularly in the process of evaluating evidence and assigning relative weight to it, multiple opinions are possible (this is at the heart of professional practice and why two surveys may come to opposing conclusions). Lawyers are trained to be able to make different legal arguments from one set of facts. This is why it is so important that the surveyors ***gather all of the evidence***; that it be ***preserved*** in their field notes; and that it is **presented** in their mapping.

Each of the following illustrations depicts "Ash Drive." a public right-of-way (the fee title to which is not relevant to our discussion); the top of the drawings are North; the illustrations are schematic in nature and are not drawn to scale; the decimal-feet dimensions shown are not intended as limits or requirements for the concepts illustrated (magnitude receives legal attention only when "quantity" has a direct effect upon "quality"); the symbols used are described in the legend below.

The R/W line of Ash Drive

The center-line of Ash Drive

The Record Title line of a land parcel

Parcel limit as described in decd/plat

Wood or wire fence/block wall/etc.

Bricked surface area

Hcdge/artificial planting

It is truly rare for the measured limits on the ground to exactly match those expressed in record documents. This is in part because today's equipment is so much better than what was available in the past (at the time of the original measurement and/or "paper description"); it is also in part because all measurement is an approximation, incapable of exact replication.

In mathematics, precision (and therefore implied accuracy) is calculated using the individual deviations of the mean. Except for data beyond the adopted standard (outliers) variation is merely considered evidence of validity. In jurisprudence minor variation is

(continued on next page)

Evidence of Occupation *(continued)*

considered not to exist per the doctrine *De Minimus non curat lex* (The law does not concern itself with trifles). The thinking in both arenas is that small, insignificant differences are just "background noise." While precise measurement is of significance in our profession, particularly in validating the position of recovered monuments, it rarely has determinative value to the law.

Illustration 1 below shows a common situation wherein the fence crosses the record title line but deviates from it by small amounts on each end. If the record title line was monumented or mapped as the boundary, the fence could well be used as evidence of the owners' intent to hold to that line and support the surveyor's professional opinion. If the fence was a block wall with capstones, it is quite possible that the Record Title Line (RTL) would continuously be on top of them, merely running from one side of the capstones to the other. It would be hard to imagine any court instructing the parties to remove the "encroaching" wall and erect one on the "true line."

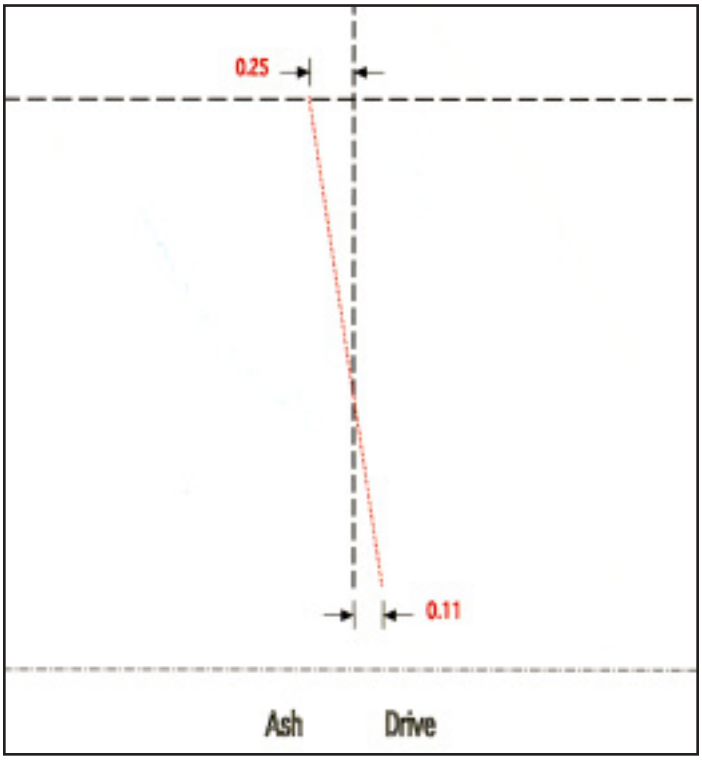


ILLUSTRATION 1 *- The existing fence crosses the Record Title Line, deviating at the ends by relatively small amounts.*

This evidence is likely to be viewed by the court as indicating the parties' intent to conform with, and supporting the use of, the Record Title Line as their boundary.

Illustration 2, (right) shows a similar situation wherein the improvements parallel the RTL but remain entirely on one side of it. The court is much more likely to see the evidence of a *de minimus* deviation from the RTL as a claim to it than as a recognition/ assertion of a different line.

The situation shown in illustration 3, (top of page 24) occurs less frequently and presents different issues. It is obvious that 'human error' has played a part in the misalignment of the fence, but "which human and when" are important factors. If the original surveyor marked the comer 1.00 feet east of its intended location and the original purchaser relied upon that, the fence constitutes evidence of the record title line (monuments, prevail over the plat). If, however, the fence was constructed without reference to an 'original monument,' then the original purchaser must have made the mistake and the plat represents the record title.

In my opinion, the Record-of-Survey ought to include an analysis of whether or not the front lot comers were established at the time of subdivision. If the front comers (or off-sets) were so established then the R/S should also include the evidence and positions of such monuments to the east and west.

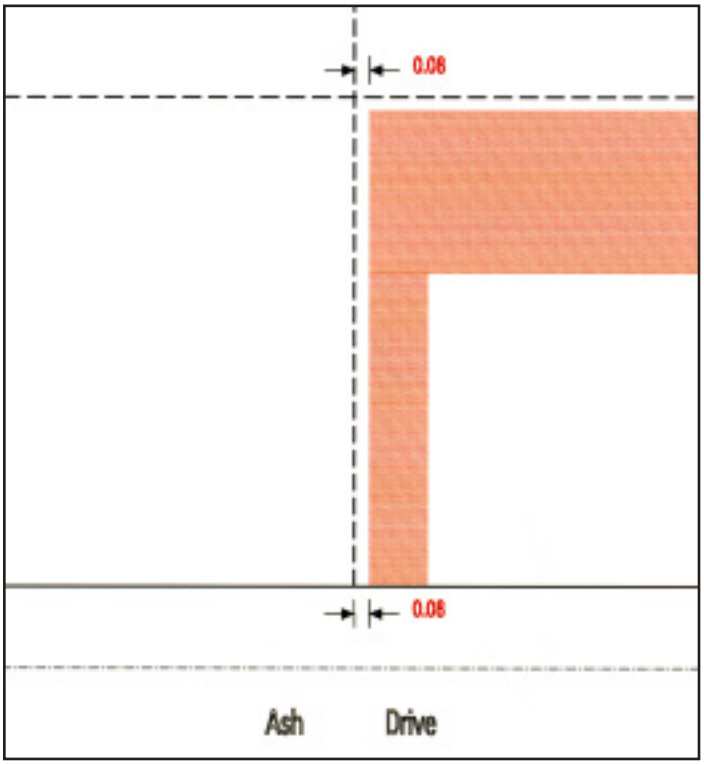


ILLUSTRATION 2 *- The brick walkway and patio are significant economic investments. The evidence that the edge of those improvements parallels and nearly coincides with the Record Title Line would tend to support an opinion that it (the RTL) constituted the boundary.*

While the evidence shows an absolute deviance from the RTL the difference is so small as to be meaningless in the eyes of the law; De Minimus non curat lex (The law does not concern itself with trifles).

"If the original monuments are no longer discoverable, the question of location becomes one of evidence merely... the surveyor... must inquire into all the facts, giving due prominence to the acts of the parties concerned...."

Judicial Functions of Surveyors, T. M. Cooley (Chief Justice, Michigan Supreme Court)

Whenever a fence line and the record title line are not coincident the surveyor should ask: (a) Who built the fence? (b) When was it built? (c) Why was it built? (d) How have the parties treated the fence since it was built? This ***evidence***, the thorough and complete answers to these questions, is vital since it potentially affects the legal and/or equitable rights of the landowners and may therefore form the basis of a courts ultimate decision. The situation shown in illustration 3 (below) is significantly different. While such situations occur far less frequently than those previously discussed, the impact is potentially much greater, as is the breadth of the evidence which the surveyor will need to gather. In addition to the above questions regarding the 'fence' (hedge) the surveyor should inquire into the occupation and/or use of the area on both sides of the record title line.

As an example, the presence of a recreational vehicle parked between the RTL and the hedge as well as the presence of oil stains on the ground could be pivotal. But simply noting their presence would not fulfill the surveyor's duty. Is there a fence in addition to the hedge? Where? Whose RN is it? If it is the adjoiner's: How often and for how long has it been parked there? And, is that a permissive use? Is it paid for? Etc., etc. etc. The surveyor is responsible to gather *all of the evidence* that could affect the boundary.

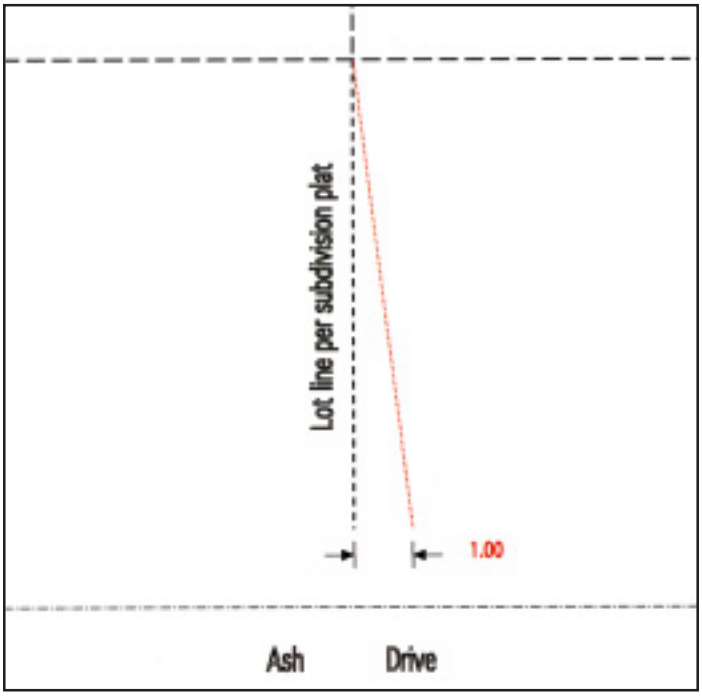


ILLUSTRATION 3 *- Obviousl human error has played a dominate role in the position of the fence. The.pivotal question is who made the error. If the original surveyor or the builder's agent marked the corner 1.00 feet east of its intended location and the original purchaser relied upon that, the fence constitutes evidence of the original (true) line - monuments prevail over the platldeed. If, however, the fence was constructed without reference to an 'original monument', i.e., the original purchaser made the mistake, the plat/deed represents the record title. Further evidence would be needed to.formulate a defensible boundary opinion.*

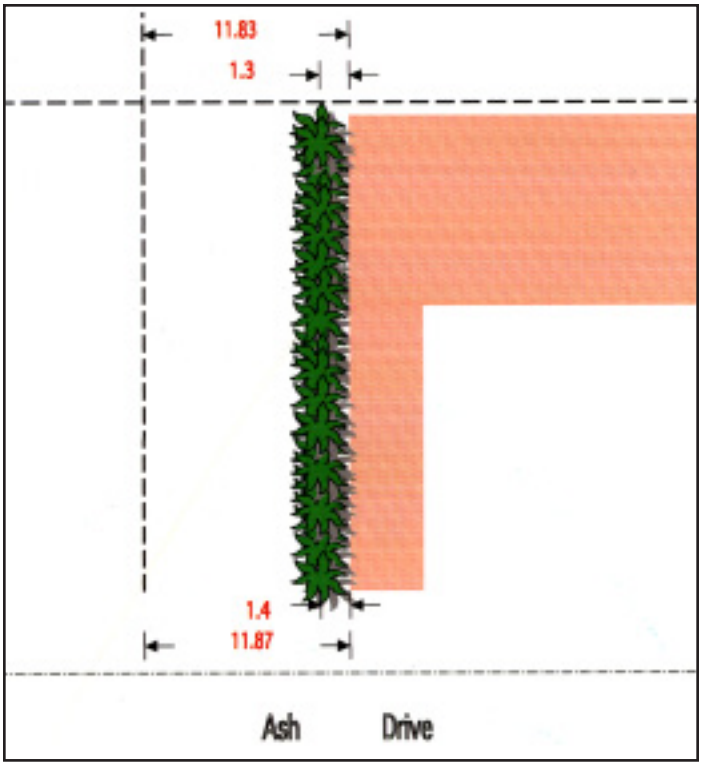


ILLUSTRATION 4 *- The ALTA/ACSM Minimum Standard Detail Requirements for Land Title Surveys §5 (Field Work) would not require inclusion of the* ***evidence*** *of occupation/use shown herein since it is more than five feet from the Record Title Line (assuming that the RTL is considered the boundary). But, the location of the boundary is the primary purpose of the survey; moreover, the surveyor's opinion as to its location may subsequently be challenged in court.*

The identification and memorialization of evidence is a statutory obligation in addition to (and distinct from) expressing an opinion as to the boundary's location.

Law schools train future lawyers to analyze the facts in a given case. The students are then asked to develop more than one legal argument from them. This analytic approach of considering all possibilities which the evidence supports and choosing the most rational is embodied in the Theory of Major Probability which Mr. Brown ascribed to William C. Wattles (§ 11.47 of BC&LP). Mr. Wattles ascribed the idea to the Hawaii Supreme Court. In any event, the authorities seem to agree that it is a process which surveyors should pursue; and, it conforms to our duty of gathering and considering all of the available evidence.

The legal concept of The Preponderance of the Evidence implicitly acknowledges that the surveyor is likely to gather some evidence which could support a contrary conclusion. While our professional opinion may result in a particular line being adopted as the client's boundary, another surveyor (or the court) may place varying evidentiary weight on some items and thereby arrive at a different conclusion. And, the attorneys are allowed to plead and prove contradictory claims - such as Agreed Boundary (requiring

(continued on next page)

Evidence of Occupation *(continued)*

mutuality) and Adverse Possession (requiring hostility). These are but some of the reasons that we are expected to gather the evidence, preserve it in our field notes, and memorialize it in our plats - not just the evidence supporting our opinion, but all of the evidence.

Illustrations 1, 2, 3 and 4 have been relatively straight forward, intended to focus on a particular idea. But the reality of most boundary surveys is often much more complicated.

In illustration 5, as a very young man Ezekiel Wainwright acquired a rural parcel described as being four hundred feet wide. His Last Will and Testament devised portions of the now suburban lot to his oldest and youngest sons as shown. Seven years later the youngest son sold his portion (the westerly 200 feet) to your client who ordered a survey revealing that the lot is actually 391.77 feet wide as well as the existing fence's location.

A preliminary analysis might have leaned toward an internal boundary at the mid-point, the brother's parcels being considered simultaneously created - they would therefore share the excess/ deficiency proportionally. Assuming that to be the case the evidence of occupation (the fence) is indicating a different line.

The surveyor, gathering all of the evidence, would inquire into: Who built the fence? When was it built? Why was it built? How have the various parties treated the fence since it was built? Are there other improvements? Who built them? When? Why? Etc.

Since the documents forming the record title are likewise merely evidence, the surveyor's inquiry must also seek to divulge whether or not comer monuments were expressly or implied called for and whether or not they (or their positions) can reliably be reestablished.

Assume for the sake of discussion that Ezekiel built the fence, constructed a house on the easterly portion and listed the westerly 200 feet for sale with a local real estate broker. Not finding a buyer willing to pay his asking price, he withdrew the listing. The oldest boy moved into the house, occupied the property, paid the taxes and insurance, and cared for his father until his death. Given this evidence you might decide that the parcels were actually created prior to Ezekiel's demise, that the oldest son acquired his rights first, and that the fence is the best evidence of the grantor's original intent. In that case the record title line dividing the two parcels would not be equidistant from the outbounds, nor would it be 200 feet from its westerly boundary; it would be the fence itself.

Instead, assume for the sake of discussion that the oldest son built the fence and house immediately after Ezekiel's death. The first seven years of his occupation might not be considered hostile due to the familial relationship with the adjoiner. But, if your client delayed having the survey for five or more years that occupation could be considered hostile and under Color-of-Title.

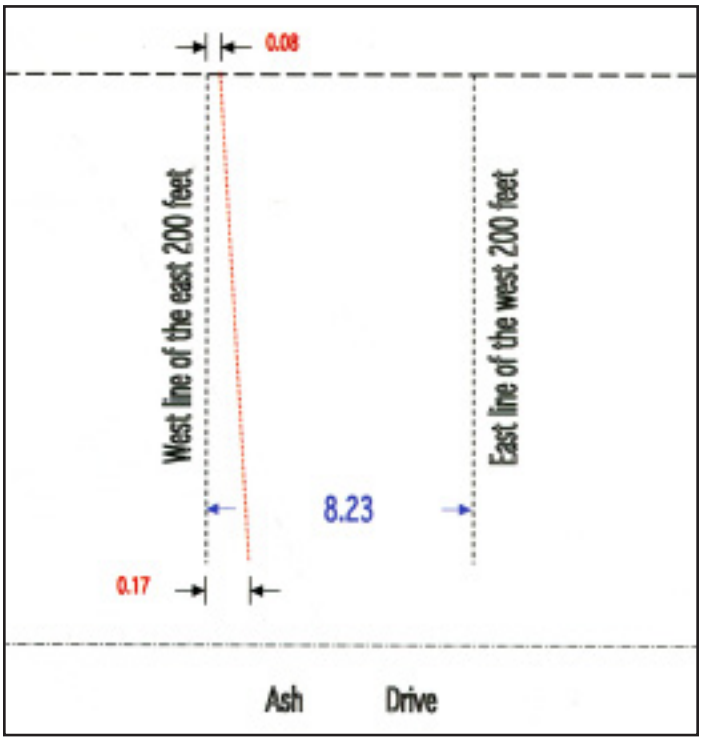


ILLUSTRATION 5 *- The two parcels were created by Will (the testator's deed called for 400'). Since the parcels were created simultaneous the RTL would be "split," Additional evidence and legal argument would likely be necessary to form a boundary opinion.*

Whenever you find possession not in conformity with the RTL you should seek evidence of: (a) Who built the fence? (b) When was it built? (c) Why was it built? (d) How have the parties' treated it since it was built?

Now assume that Ezekiel's property was completely unimproved upon his death and that his sons, finding no monumentation of his or his adjoiners' properties, agreed to and mutually constructed the fence as their common boundary.

These are but three of many legal arguments which the evidence supports that could bolster or oppose the use of the fence. Without regard to how a surveyor determines a boundary, that professional opinion is always subject to judicial review. The court's authority to determine boundaries includes not only the legal concepts used by surveyors but also includes equitable and 'public policy' matters - any or all of which may involve the evidence of occupation and/or use.

SEILER

Over 65 years of Service Excellence

SERVICE/REPAIR

- GPS
- Data Collectors
- Lasers
- Levels
- Robotic and Total Stations

Toll Free:

877-330-6303

Trimble Authorized Distribution Partner

Trimble PREFERRED SERVICE PROVIDER

Email:

servicedept@seilerinst.com

ST. LOUIS • KANSAS CITY • INDIANAPOLIS • MILWAUKEE • OMAHA

ISO 9001:2008 SEILER INSTRUMENT Registered October 2003

A Summary of
"The U.S. Public Land Survey System for Missouri"

by Dr. Richard L. Elgin, PLS, PE

"The U.S. Public Land Survey System for Missouri" is a manual which covers all aspects of Missouri's unique version of the rectangular system of land surveys. It is written specifically for Missouri, but has application in other states. A complete synthesis of the subject, it is written for the student in a college-level course studying the USPLSS, and for the licensed practitioner who desires more knowledge of the system, and for the licensed professional surveyor in another state who seeks license in Missouri by comity and has little (or no) knowledge of Missouri's version of the USPLSS.

The manual begins with the early history of the USPLSS in America. This is the period from the Land Ordinance of 1785 and continues with the development of the system into 1815. In the Fall of 1815, surveys of the public lands began in the Missouri Territory with the establishment of the Initial Point to the 5th Principal Meridian in what is today east-central Arkansas. Prior to the Louisiana Purchase in 1803 both the French and Spanish had ruled and had made surveys and grants in what is today Missouri. The system of those and private claims is discussed. The location of Missouri's boundaries evolved from 1818 until 1850. The "shaping of Missouri" and the surveys of its boundaries are described. Chapter 2 describes the establishment of the Initial Point and the 5th Principal Meridian (and its errors). The chapter then describes Missouri's system (and placement) of standard lines and its auxiliary principal meridians; then the procedures and methods for surveying township exteriors; then the subdivision of the townships into sections. Also covered in the chapter is the protraction of fractional sections, their acreages and fraudulent townships. Chapter 3 describes today's task of conducting resurveys on the system. Once the monuments of the USPLSS become obliterated or lost, how they are to be restored or reestablished is detailed. This chapter describes the four phases of a resurvey on the system. Chapter 4 compares and contrasts statute, case and administrative law. Our courts have had before them many cases involving issues related to resurveys on the USPLSS. The courts have issued judgments and established precedents. This chapter presents and summarizes the leading cases involving the USPLSS in Missouri. Chapter 5 describes the methods and procedures for the reestablishment of lost corners on the USPLSS. This is dependent on several factors which are examined: The "weight" of a standard corner versus a closing corner; previous Missouri statutes regarding the reestablishment of lost corners; the GLO's 1883 "Restoration Manual"; current best practices and the current Chapter 60, RSMo. The chapter concludes by stating the rules for reestablishment of lost corners, and some possible alternatives. Chapter 6 presents example calculation problems for computing the position of lost corners, applying coordinate geometry and applicable paragraphs of Chapter 60. This mostly applies single and double proportionate measurement. Chapter 7 presents color copies of portions of 90 GLO plats from around the state. Much can be learned about Missouri's system by a close examination of GLO plats which represent rather normal townships with standard protraction schemes, and also townships closed against standard lines, townships closed against rivers, townships with grants and townships which were closed against state boundaries. Each GLO plat presented has a caption which explains the circumstance of the township.

In this one reference manual, all aspects of Missouri's USPLSS is presented, from 1785 to its first application in the state in 1815, to the GLO's original surveys and platting, to previous statutes and court cases, to today's resurveys on the system, to example problems illustrating modern calculations on the system. It is a tremendous reference for the surveying educator, one seeking to become licensed as a Missouri Professional Land Surveyor and also for the licensed practitioner.

The book's author is Dr. Richard L. Elgin, PLS, PE. Dick is ideally suited to write this book, being that rare Professional Surveyor with a PhD in surveying (University of Arkansas, 1982), an entire professional career in surveying (raised in the business, then owner and president of a surveying firm in Rolla for 22 years), a surveying educator (on faculty or adjunct faculty at Missouri S&T for 33 years), and previous coauthor ("Sokkia Ephemeris," "Legal Principles of Boundary Location for Arkansas," among others). With funding of this work from the Missouri Society of Professional Surveyors, in his "retirement," over the past two years Dick has written this much needed tome about Missouri's USPLSS. It has 419 pages, 24 figures, 20 example protraction problems, 28 example proportioning problems, 90 example GLO plats, 4 appendices, and a glossary.

"The U.S. Public Land Survey System for Missouri"

By Dr. Richard Elgin, PLS, PE

NOW AVAILABLE

Members - $120.00
Non Members - $160.00

(Includes Shipping)

Sponsored by MSPS, the book ***The U.S. Public Land Survey System for Missouri*** is now available. This book is a complete synthesis of Missouri's unique version of the USPLSS. Its chapters are: **1.** Early History of the U.S. Public Land Survey System, the French and Spanish in Missouri and Missouri's Boundaries. **2.** Original Surveys on the U.S. Public Land Survey System for Missouri. **3.** Resurveys on the U.S. Public Land Survey System. **4.** Missouri Court Decisions Concerning Resurveys on the U.S. Public Land Survey System. **5.** Reestablishment of Lost Corners for Missouri. **6.** Example Protraction and Resurvey Problems. **7.** Some Missouri GLO Plats. The book has 419 pages, 24 figures, 20 example protraction problems, 28 example proportioning problems, 90 example GLO plats, 4 appendices and a glossary. Written by Dr. Dick Elgin who is uniquely qualified to write this book. Dick is a surveying researcher, practitioner, educator and author. Semi-retired, he's spent the last two years writing this much-needed manual about our state's USPLSS.

ORDER FORM

Name: _____

Firm: _____

Address: _____

City, State: _____ Zip: _____

Phone: _____ Fax: _____

Email: _____

PAYMENT OPTIONS

❒ Visa ❒ MasterCard ❒ Discover

Card #: _____ Exp. Date: _____

Total Amount: $_____

❒ Check Enclosed ❒ Invoice my Firm

Please send your order form to:
MSPS, 722 E. Capitol Avenue, PO Box 1342, Jefferson City, MO 65102
Or fax to: 573-635-7823.
For questions: 573-635-9446 or msps@missourisurveyor.org

The Final Point

by Frank Lenik

I used to joke with my wife that when I died, I wanted a geodetic marker set at my grave so that I could continue to be of service to my profession. I reasoned that my friends would come to visit me and it had the added benefit that I could keep an eye on projects in my neighborhood. I went so far as to pick out a plot in the Egg Harbor City Cemetery. It was on top of a hill along a county road with long sights in both directions. My wife was not amused however, when I suggested that she needed to be buried on the far side of the cemetery to provide the location for the azimuth mark. But whose wife ever laughs at their husband's jokes?

When I recently said goodbye to a friend and colleague who passed away my old joke came to mind. Walter White was a local surveyor from Pennsylvania who had worked his entire career in the Delaware Valley. While planning his memorial service his family and friends were looking for a way to honor and remember him, and I suggested we get him a National Society of Professional Surveyors "Final Point".

The "Final Point" program is run by the NSPS in concert with Berntsen International to remember Land Surveyors who have passed. For a small donation, you or the family can receive a 4" bronze disc engraved with the surveyor's name, license number, and the latitude and longitude of the final resting place of the surveyor. The disc is available either highly polished or with a brushed finish, and can come with a stem for mounting in a monument or without a stem for placing on a presentation plaque. The monies raised through this program are used for scholarships for surveying students.

My penchant for carrying a good thing too far was satisfied by combining the NSPS Final Point program with the National Geodetic Survey's OPUS DB program. If you haven't met OPUS DB yet, you are in for a real treat. Those of you who have performed static GPS surveys will love this and those of you who never did will get a taste of the good old days! OPUS DB is a program where local surveyors can help to improve the National Spatial Reference Network, resurvey old marks or set new geodetic control wherever you need it.

If you plan to go this far you will need a GPS receiver capable of logging raw GPS data. You will also need to document your observation with photographs, instrument serial numbers and other pertinent information for submittal to the NGS. Oh yeah, you will also need to set aside four hours of your day to make an OPUS DB observation.

Completing the process takes a bit of time and planning. The disc from the NSPS has to be special ordered. If you are planning to install it as a mark, you need to order the disc with a point in the center of the mark to survey to. Then gather your materials such as a sonotube, rebar and concrete. Next, collect your team and install the monument. Finally, once the concrete has set, you need to occupy the point.

The result is one which any family member would be pleased with, and any surveyor would be proud. Walter's NGs Data Sheet can be found at: http://www.ngs.noaa.gov/OPUS/getDatasheet.jsp?PID=BBDB81&style=modern

Frank Lenik PLS is a licensed land surveyor in Delaware, New Jersey, North Carolina and Pennsylvania.

He is the Area 2 Director for the National Society of Surveyors and is employed by Leica Geosystems, Inc.

"Final Point" disc provided by the National Society of Professional Surveyors Foundation and Berntsen International.

Friends of Walter gather and begin the process of setting the mark.

David Latinski of Coatesville, Pennsylvania remembering his best friend and colleague.

Learning the Art of Land Surveying

by Milton Denny, PLS, Reprinted from *Empire State Surveyor*, November/December 2012

Most surveyors today have a good background in math and science. The problem many face is learning how to survey land. Many of the older surveyors had a mentor that taught them the art of surveying, much as a medical student learns to be a doctor by serving time as an intern at a hospital. This system seems to be missing today for many people that pass the surveying test, but still don't know very much about surveying land. While we have many text books on the subject of surveying technology and law, what is missing is instructions on land surveying. The proof of this is the setting of many corners next to existing corners that should never be set. In judging a plat contest for a state society (not New York), a surveyor showed a found concrete monument with brass cap with drill hole. The surveyor noted the real corner was one hundred of a foot North and two hundreds of a foot West of the drill hole. This is a surveyor that doesn't understand surveying and doing the client a great disservice by showing this kind of foolishness.

One of the most important things to learn is to recognize what evidence you may find. Let's start by talking about what evidence may look like as found in the field.

Advice from surveyors past

"The highest and best evidence of the location of a tract of land is that furnished by the monuments found on the ground and which have been made for that particular tract."

"The line originally run, fixed and marked is the true boundary line that will control irrespective of any mistakes or errors in running and marking the line.

"The marks on the ground of an old survey, indicating the lines originally run, are the best evidence of the location of the survey. "

"The Position of old fences may be considered in ascertaining disputed boundaries. As between the old boundary fences and any survey made for the monuments after dispute, the fences are by far the better evidence of what the lines of the lot actually were."

What things may I find that may be evidence

Following is a list of items that may be corner evidence. It would serve a surveyor well to be able recognize most of these items.

- Buggy Hub and Axle
- Shotgun Barrel
- War Cannon with Barrel Down
- Upright Railroad Rail
- Model "T" Ford Axle
- Pinched Iron Pipe
- Rock Piles
- Fences and All Kinds of Walls
- Balks-Ridges of Earth, Plow Lines
- Tree Blazed lines
- Witness Trees
- Stump Holes
- Field Stones
- Cut Stones
- Concrete Monuments
- Rebar or iron pipe with survey cap

Where can I find record evidence related to my survey

- Original surveys or field notes in local courthouse.
- Recorded plats and subdivisions
- Tax Assessor's office and tax documents
- Run a traverse closure of the deed and plot the deed
- The digital Quad sheets can be a great help in getting the overall picture
- Soil Conservation Service and historical aerial mapping
- Topo call from survey notes or old surveys
- House ties to property lines as shown on old surveys

Neighboring property owners

You have not performed a complete research effort until you contacted the owners around your property, asking for old survey plats, copies of deeds and any other information they can provide. You may want to ask if they

Could be a stone in a pile of rocks...

...An old painted line...

...An old painted line...

can show you some local known corners. Also ask if any older residents in the area may have additional information. A digital camera is an excellent way to make a copy of some old deed from a neighbor on location.

Good faith locations

It may be held generally that the claimant, entryman, or owner of lands has located his or her lands by the good faith location rule if such care was used in determining the boundaries as might be expected by the exercise of ordinary intelligence under existing conditions.

A good faith location is a satisfactory location of a claim or of a local point. It is one in which it is evident that the claimant's interpretation of the record of the original survey as related to the nearest corners existing at the time the lands were located is indicative of such a degree of care and diligence upon their part, or that of their surveyor, in the ascertainment of their boundaries as might be expected for that time and place. This is referred to as the good faith location rule.

The relationship of the lands to the nearest corners existing at the time the lands were located is often defined by fencing, culture, or other improvements. In many parts of the country, county and other local survey monuments, which may consist of pipes or stones commonly used at the time, may be found at the apparent corners of the entryman's improvements including fencing. The possible existence of such local monuments demands a diligent search for any records from the old local survey, but even if the monuments are of unknown origin they must be analyzed for good faith location. (BLM 2009)

Satisfactory local conditions

It is not intended to disturb satisfactory local conditions with respect to roads, fences, and other evidence of use or occupancy. The surveyor has no authority to change a property right that has been acquired legally, nor accept the location of roads, fences and other use or occupancy as prima facie evidence of the original survey. Something is needed in support of these location. This will come from whatever intervening record there may be, the testimony of individuals who may be acquainted with the facts, and the coupling of these things to the original survey. (BLM 2009)

What do other surveyors say!

Boundaries and Landmarks

"A good deal has been written on this general subject with reference to public lands of the West, but little has been done in this line in connection with the ordinary conveyance of the eastern United States. My hope is to furnish something which may prove useful to those who are destined to wrestle with problems of this nature (placement of corners). No attempt will be made to describe methods of measuring the line; the intention is to furnish suggestions for finding the line which is measured. 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 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". (A. C. Mulford 1912)

How many of us have fallen into this trap.

Conclusion

I hope you can see there may be a whole lot more to learning the Art of surveying than the math and science. Many of the surveyors of my generation have spent a life time learning the Art, and still learn new things almost daily.

Reference Material

The Surveyors Guide, B.F. Dorr, 1886

Boundaries and Landmarks, A. C. Mulford, 1912

Magnetic Surveys, Howe & Hurwitz, 1964

Government Surveying, Shobal V. Clevenger, 1883

United States Land Surveys, John B. Cleary, 1936

Methods of Land Identification, M. Gose, 1941

Manual of Surveying Instructions, BLM, 2009

Milton E Denny, PLS has over forty years of surveying experience, is a registered surveyor in six states and a veteran of project development and management of surveying and mapping firms. He is a past president of the Alabama Society of Professional Land Surveyors. Mr. Denny is the author of many manuals dealing with marketing and management of firms for surveyors and photogrammetrists. He was instrumental in the creation of the Geographic and Land Information Society and served as its first president.

Thomas Hill Holman, Land Surveyor

by Steven E. Weible, PLS, February 2012

As land surveyors we follow in the footsteps of those who have gone on before us. We study their field notes and drawings and we search for the monuments that they set and the witness trees that they marked. After following any particular surveyor over time, we begin to develop an understanding of his techniques, his style and his proficiency. We feel a kinship with those we highly regard and a disdain for those whose work we consider "infamous." It's as if we know them so well, but ... what do we really know about them? What kind of education did he receive? How old was he when he did this particular survey? What ever happened to him?

These were some of the questions about which I began to wonder after following Thomas Holman on several surveys that I worked on in St. Francois County. Having an interest in genealogy and actively searching for information on my own family history, I decided to search and see what I could find concerning the history of Thomas Holman, the land surveyor. The search took me to several internet resources, as well as, county courthouses and cemeteries in St. Francois, Washington and Dent Counties.

Thomas Hill Holman was born November 17, 1864 at Caledonia in Washington County, Missouri. He was the fourth of four children born to his mother and the tenth of ten children born to his father.

His father, William Holman, was native to Tennessee, having been born there in 1813. William married Nancy R. Barksdale in 1836. John Barksdale Holman, Martha Pinchback Holman, and William Turner Holman were born to William and Nancy in Tennessee. Around 1845 the family moved to the Dent County area of Missouri where they developed a considerable landholding. Mary E. Holman, America Holman and Stephen Adair Holman were born to William and Nancy in Missouri.

Thomas' mother, Zelia Ann Woods, was native to Caledonia in Washington County, Missouri, having been born there in 1822. Zelia was the daughter of William and Elizabeth Woods, both natives of Tennessee who married in Washington County, Missouri in 1809.

In 1853 William Holman's first wife, Nancy, died. Subsequently, on November 16, 1854 he married Zelia Ann Woods. They apparently resided on the Dent County, Missouri farm where Harvey Woods Holman was born on October 6, 1855 and James Perry Holman was born on November 17, 1857. Following the death of William Woods in April 1856, William, Zelia and their children moved to Zelia's portion of the Woods estate at Caledonia in Washington County, Missouri. At Caledonia Elizabeth Holman was born May 7, 1862 and then, lastly, Thomas was born.

The early settlement of Caledonia has been described as a settlement of educated and refined Scotch-Irish Presbyterians and Methodists. William Woods has been noted as having been influential in the development of the Methodist Church there. In 1870 the Methodist Episcopal Church, South, organized the Bellevue Collegiate Institute at Caledonia, offering an education from grammar school to a baccalaureate degree. This is where Thomas Holman received his formal education, very likely including instruction in the principles of surveying.

Having completed his schooling, Thomas must have developed expertise and a reputation as a land surveyor for in 1888, at the age of 24, he was elected to the office of County Surveyor in Washington County, Missouri and served two terms to 1896.

As good as his initial education must have been, Thomas, apparently, felt a need for more, because in September 1898 he registered in the surveying short course at the Missouri School of Mines in Rolla, Missouri. The surveying short course was a two-year program described as having the same mathematical, scientific and technical engineering content as the civil engineering degree program, while omitting the nontechnical courses, such as the humanities and electives that generally round out a four year degree. It does not appear that Thomas received a certificate or diploma or degree from MSM, but apparently he got the additional education that he needed.

On his 34th birthday, November 17, 1898, at Caledonia, Thomas married Rollie Goodykoontz of Caledonia, the daughter of prominent local physician William R. Goodykoontz. Their first child, Mary Holman, was born February 15, 1900 at Rolla.

(continued on page 36)

FOR MORE INFORMATION CALL YOUR TRIMBLE DEALER

Seiler Instruments
St. Louis, MO
314-968-2282

Seiler Instruments
Belton, MO
816-331-3383

Thomas Hill Holman, Land Surveyor *(continued)*

Thomas, Rollie and Mary returned to the home area and settled at Bismarck in St. Francois County, where Thomas is reputed to have engaged in private land surveying. By late 1903 Thomas was serving as deputy to St. Francois County Surveyor, Samuel L. Asbury, a fellow Methodist. Samuel Asbury declined to seek reelection as St. Francois County Surveyor in 1904, allowing Charles W. Francisco to take office. For whatever reason, Mr. Francisco failed to complete his term and Thomas Holman was elected to the office in November 1906.

During this time a second child, Ruth Rollie Holman, was born to Thomas and Rollie on December 7, 1904. Their third child, George Goodykoontz Holman, was born July 8, 1908.

In March of 1907, Thomas and Rollie purchased Lot 14 of the William P. Doss First Addition to the City of Farmington (present address: 320 North A Street, Farmington, MO) and presumably moved their family there. Interestingly, this lot is located just a few blocks from the present Methodist Church.

Thomas was subsequently reelected as the St. Francois County Surveyor in 1912, at the age of 48, and in 1916, at the age of 52. In 1922, 27 year old, World War I veteran, Lovell L. Turley, was elected St. Francois County Surveyor. Plats on file in St. Francois County during Turley's term show Thomas Holman as the Deputy Surveyor performing the work. Incidentally, Turley went on to become superintendent of St. Joseph Lead Company.

Thomas and Rollie's second child, Ruth Rollie, died of typhoid August 24, 1924 at the age of 19. She had graduated from Flat River Junior College in the spring of 1924 and would have started in a teaching position the following week in the public school at Ironton. As a result of Ruth Rollie's death, Thomas acquired Lot 103, Block D of Parkview Cemetery in Farmington for the family burial plot.

In December of 1925, Thomas and Rollie purchased Lot 9, Block 20 of the Doe Run Lead Company's Subdivision of the western portion of the Town of Flat River (present address: 602 West Main Street, Park Hills, MO). In April of 1927 they sold the lot previously acquired in Farmington and, presumably, moved to Flat River.

In September of 1929, Thomas and Rollie's daughter, Mary, was wed to Henry Zapf of Bismarck by the pastor of the Methodist Episcopal Church, South, of Bonne Terre. The Zapf family was established as a fruit and vegetable producer, providing fresh produce for the Lead Belt area.

Following the term of Lovell Turley as St. Francois County Surveyor, it does not appear that Thomas further held that office nor served as deputy. His work as a land surveyor was not done, however, because in late 1929, at the age of 65, we find him working for the Stone and Webster Engineering Corporation at Warsaw, Missouri. The old field books show him as Chief of Party for a crew performing land surveys for the development of Lake of the Ozarks, which was created by Union Electric's construction of the Bagnell Dam Hydroelectric Project.

The 1930 U. S. Census taken on April 5, 1930 at the incorporated place of Warsaw, Lindsey Township, Benton County, includes Thomas, age 65, Rollie, age 60, and son, George, age 21. Details from the census record indicate that they were renting for $15 per month and they had a radio set. Thomas' occupation is listed as Civil Engineer in the Dam Construction industry. It appears that Thomas continued working for Stone and Webster Engineering Corp. until at least May 1931.

In August of 1935, Thomas and Rollie acquired the East 75 feet of Lots 1 and 2, Block 2 of W. P. Doss' Second Addition to the City of Farmington (present address: 313 College Street, Farmington, MO). In February of 1940, they sold the lot previously acquired in Flat River and, presumably, thereafter resided in Farmington.

After his return from Warsaw, Thomas is reputed to have become actively involved in the St. Francois County Abstract Company until retiring in 1953 at the age of 88 or 89. It has been said that his private surveying records came under the custody of the St. Francois County Abstract Company and its successor organization, Preferred Land Title Company.

In November of 1954, Thomas and Rollie sold their lot in Farmington and purchased Lot 3, Block 12 of the Town of Bismarck (present address: 913 Mulberry Street, Bismarck, MO) across the street from the Bismarck Methodist Church.

On September 30, 1965, just a month and a half short of 101 years of age, Thomas Hill Holman slipped into eternity, having lived a long and productive life, and was buried at Parkview Cemetery in Farmington, Missouri (Latitude N 37°48'14.8", Longitude W 90°26'38.4", NAD 1983).

As I started this search of the history of Thomas Holman I had no expectation of finding a family relationship with him. My interest was merely in finding out more about him. As it turns out we're not directly related, but there is a family link by marriage. Thomas' daughter's husband's brother married my grandfather's sister's husband's sister. So, according to Family Tree Maker, that makes Thomas Hill Holman the father-in-law of the brother-in-law of the sister-in-law of my grand aunt. How about that! We're like kin after all.

Avoiding Boundary Problems (by not *being* the problem)

by Gary Kent, LS, Reprinted from *The Texas Surveyor*, November/July 2013

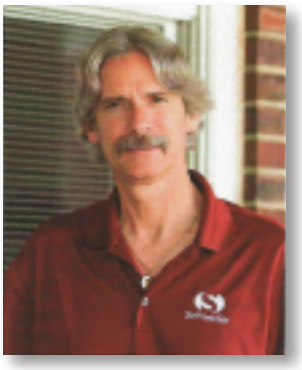
(TSPS invited 2013 Convention Speaker Gary Kent to preview one of his courses for the upcoming annual event this Fall in Arlington, Texas.)

AIthough surveyors are often named in lawsuits simply because it is the nature of the work they get involved in, they sometimes unwittingly bring the problems on themselves. Surveyors need to understand that the client ,is going to 'go the bank' with their monuments - or with the line on a drawing - and if there is ~more to the story than meets the eye' with respect to what the survey revealed, that story must be told in clear and unambiguous language. In order to do that effectively, surveyors have to understand the ramifications of what they do and, just as importantly, they have to be able to communicate in something besides 'survey-speak.'

A few months back, I wrote and facilitated a mock trial in another state and when the program was over, I asked the judge to offer her observations on the trial. Her main comment was that surveyors are hired as expert witnesses because the issue at trial is too complicated for the normal person to understand on their own. She emphasized that *it is not helpful* for surveyors to "Wow" everyone with their knowledge about surveying and boundaries if what they have to say is not comprehensible to the judge or jury. An expert is brought in to testify in order to help the judge or jury understand the issues, and thereby impart a fair decision. But if all an expert does is offer 'techno-speak' or give rote answers with no context or explanation, the court's time has been wasted and, worse yet, the surveyor could be an unwitting party to a bad decision based on misunderstood concepts.

Admittedly, when on the stand the expert is mostly, although not entirely, at the mercy of the attorneys - especially the one asking the questions. The chance to expound on or explain an answer may be limited. But outside the courtroom, when simply dealing with clients, contractors or neighbors, there are no such constraints or limitations. It is inexcusable if a party is left with a wrong impression and stumbles into a lawsuit because the surveyor did not fully explain the situation and the context of what he or she did.

Take the example of a boundary survey commissioned by a client who is already in a boundary dispute with her neighbor. The survey results in one line of the property falling 10 feet over the neighbor's fence. The surveyor - believing he or she *must* set those comers' - proceeds to set a capped rebar in the next door neighbor's garden with a lath next to it marked "Property Corner." The plat of survey will show the fence with the surveyed line (drawn, of course, in a heavy line width) 10 feet beyond.



If the plat (assuming one is even prepared) is merely mailed to the client and no other explanation is offered, what is the client going to with the information provided? Wait, let's back up: What information has been provided? Until or unless the plat is received in the mail, the only *obvious* information imparted to the client is the lath marked "Property Comer." Remembering that she is already in a material disagreement with her neighbor (which should have raised a red flag to the surveyor in the first place), she will, at best, go tell him that his fence is 10 feet over onto her property and that he needs to move it. At worst, she will forego the niceties of a conversation and simply tear the fence down and plow up his garden.

> "She emphasized that *it is not helpful* for surveyors to "Wow" everyone with their knowledge about surveying and boundaries if what they have to say is not comprehensive to the judge or jury."
>
> ***- Gary Kent, LS***

Perhaps the plat included - as is required by Board rules - a note or report that would have provided some guidance regarding the circumstance of the fence *("Note that some unwritten rights may have accrued to the east adjoiner based on the fence lying 10 feet west of the east line.")* But, (1) the rebar and lath were set on Friday, (2) the surveyor has not gotten around to drawing the plat (assuming there will even be one at all) until the next Wednesday (it will put in the mail that afternoon), (3) the client will receive it on Friday (a week after she got home from work and saw the lath), and (4) she won't read the note - or if she does read it, she won't understand its ramifications. The surveyor has, in fairly short order, and not surprisingly given the situation on the ground, become part of the problem rather than part of the solution.

(continued on next page)

Avoiding Boundary Problems *(continued)*

What *should* have been done? Aside from the fact that the surveyor already knew there was bad blood between the neighbors, he or she needed to make sure that nothing was done - or not done - that could be misinterpreted or acted on in baste or out of ignorance.

Maybe the corner should not have been set in the first place! After all, there is a problem when a corner falls 10 -feet over a neighbor's fence. Maybe it's not indicative of a 'boundary problem,' but certainly there are potential unwritten rights associated with the location of the fence - adverse possession, acquiescence, estoppel or parol agreement. And that being the case, it would seem logical to perhaps hold offsetting the comer until the client and neighbor have a chance vet their differences and/or consult attorneys if they are inclined. Additionally, while surveyors cannot give legal advice, as professionals knowledgeable about these types of issues, they can offer some perspective based on their education and training, and experience in similar situations. The situation may offer the surveyor an opportunity to help the neighbors settle their differences the easy way - by agreement - rather than the hard way - by litigation.

When it comes to agreements, surveyors do; however, need to know the limits of their authority and not get in over their heads. They can make sure the parties understand the situation from a surveyor's perspective, and what their options are from a survey standpoint. Of course, they need to be fully aware of ordinances that may regulate the creation of new parcels, or 'lot line adjustments.' They can conduct surveys and/or write descriptions that will - preferably and hopefully - be used in an exchange of quit claim deeds fixing a new line. But surveyors should not prepare those deeds, and the parties need to consult attorneys to address issues like outstanding mortgages before any agreement is concluded.

In summary, it behooves surveyors to understand that there are only two parties who can settle a boundary dispute, and they are the two affected owners. They can settle it the easy way - by agreement (or perhaps by simply agreeing to disagree) or they can do it the hard way - by litigation. The surveyor's job does not end with the completion of the survey or even with the delivery of the plat. He or she must make sure all of the information the client needs to make an informed decision is clearly presented in a timely manner and in an understandable form. If the client makes a poor decision because he or she was not adequately informed of the ramifications and possibilities (in contrast to the client who makes a poor decision *despite* being adequately apprised), it does not matter how good the survey was - what started as a potential 'boundary problem' has become, definitively, a 'surveyor problem.'

Front Cover Picture: Painted Rock Conservation Area is located on Highway 133, seven miles west of Westphalia in Osage County.

The lands of Painted Rock Conservation Area show evidence of occupation by Native Americans as early as 9,000 years ago. An Indian burial cairn, located along Osage Scenic Bluff trail, was constructed between 500 and 1,500 years ago.

The property was purchased in 1877 by a group of Jefferson City dignitaries, who named it the Painted Rock Country Club. Their successors sold the property in 1946. The Department of Conservation purchased the property from a private individual in 1981.

Painted Rock Conservation Area consists of 1,480 acres. The Osage River intersects the property along the west boundary. Breathtaking views are offered from the Scenic Trail at two boardwalks and other locations. The forest contains six ponds, which are managed primarily for wildlife, and Clubhouse Lake. The forest consists primarily of oak and hickory, with the areas along the Osage River dominated by bottomland hardwoods. Several small glades can be found throughout the area and offer a kaleidoscope of wildflowers from May to October.

2013 MSPS Corporate Members

Firm	Street_Address	City	State	Zip	Office_Phone	email
ABNA Engineering, Inc.	4140 Lindell Blvd.	St. Louis	MO	63108-2914	314-454-0222	aadewale@abnacorp.com
Affinis Corp.	7401 W. 129th St., Ste. 110	Overland Park	KS	66213	913-239-1100	
Allenbrand-Drews & Assoc., Inc.	122 N. Water St.	Olathe	KS	66061	913-764-1076	morris@allenbrand-drews.com
Allstate Consultants, LLC	3312 Lemone Industrial Blvd.	Columbia	MO	65201	573-875-8799	
Amsinger Surveying, Inc.	101 S. Crittenden, Rm. B-3	Marshfield	MO	65706	417-859-5516	adsedda@aol.com
Anderson Engineering, Inc.	2045 W. Woodland	Springfield	MO	65807	417-866-2741	sbrady@aeincmo.com
Anderson Survey Company	203 NW Executive Way	Lee's Summit	MO	64063	816-246-5050	jsa@andersonsurvey.com
Bader Land Surveying, Inc.	16255 Sugar Bottom Road	Ste. Genevieve	MO	63670-8613	573-483-2777	baderls@brick.net
Bartlett & West, Inc.	1719 Southridge Drive, Ste. 100	Jefferson City	MO	65109	573-634-3181	
Bax Engineering Co., Inc.	221 Point West Blvd.	St. Charles	MO	63301	636-928-5552	dbax@baxengineering.com
Bowen Engineering & Surveying, Inc.	2121 Megan Drive	Cape Girardeau	MO	63701	573-339-5900	info@bowenengsurv.com
Buescher Frankenberg Associates, Inc.	103 Elm St.	Washington	MO	63090	636-239-4751	mail@bfaeng.com
Burdine & Associates, Inc.	1638 Jeffco Blvd.	Arnold	MO	63010	636-282-1600	
Cardinal Surveying & Mapping, Inc.	PO Box 278	Cottleville	MO	63338	636-922-1001	shelly@cardinalsurveying.com
Central MO Professional Services, Inc	2500 E. McCarty	Jefferson City	MO	65101	573-634-3455	kbrickey@cmps-inc.com
Cochran	530 A E. Independence Dr.	Union	MO	63084	636-584-0540	mail@cochraneng.com
Cochran	737 Rudder Road	Fenton	MO	63026	314-842-4033	tvanleer@cochraneng.com
Cole & Associates, Inc.	10777 Sunset Office Dr. Ste. 10	St. Louis	MO	63127	314-984-9887	twesterman@colestl.com
Doering Engineering, Inc.	5030 Griffin Road	St. Louis	MO	63128	314-487-6913	mdoering@doeringeng.com
Frontenac Engineering Group, Inc.	2725 Sutton Blvd. B	St. Louis	MO	63143	314-644-2200	billb@frontenacengineering.com
George Butler Associates, Inc.	9801 Renner Blvd.	Lenexa	KS	66219-9745	913-492-0400	
Govero Land Services, Inc.	5929 Old State Rd.	Imperial	MO	63052	636-464-9380	glsland@goverolandservices.net
Grimes Consulting Inc.	12300 Old Tesson Road, Ste. 300 D	St. Louis	MO	63128	314-849-6100	
Harms, Inc.	PO Box 52	Eldon	MO	65026	573-392-3312	jharms@harmsinc.com
Hood-Rich, Inc.	801 S. Glenstone	Springfield	MO	65802	417-862-4483	ddrumm@hoodrich.com
Integrity Engineering, Inc.	PO Box 700, 1714 E 10th Street	Rolla	MO	65402	573-341-2100	terris@integrityeng.com
John R.M. Nelson, Inc.	PO Box 482	Bolivar	MO	65613	417-326-2777	jnjnkn@yahoo.com
Koehler Engineering & Land Surveying, Inc.	194 Coker Lane	Cape Girardeau	MO	63701	573-335-3026	wkoehler@koehlerengineering.com
Midland Surveying, Inc.	501 N. Market	Maryville	MO	64468	660-582-8633	tryhayes@midlandsurvey.com
Migar Enterprises, Inc.	PO Box 528	Grandview	MO	64030	816-966-0839	
Minnick Surveying	7905 Big Bend Blvd., Ste. 101	Webster Groves	MO	63119	314-721-9500	info@minnicksurveying.com
Musler Engineering Co.	32 Portwest Court	St. Charles	MO	63303	636-916-0444	rich@muslereng.com
Olsson Associates	7301 W. 133rd St., Ste. 200	Overland Park	KS	66213	913-381-1170	pward@oaconsulting.com
Pellin Surveying LLC	208 South Church Street	Union	MO	63084	314-985-5263	pellinsurveying@gmail.com
Phoenix Engineering & Surveying, LLC	3855 S. Northern Blvd	Independence	MO	64052	816-743-9000	wes@phoenix-llc.com
Pickett, Ray & Silver, Inc	3320 Rue Royale	St. Charles	MO	63301	636-397-1211	dskornia@prs3.com
Pitzman's Co. of Surveyors & Engineers	2725 Sutton Blvd.	St. Louis	MO	63143	314-781-5665	bill@pitzmans.com
Poepping, Stone, Bach & Associates, Inc.	801 Broadway, Ste. 224, PO Box 190	Hannibal	MO	63401	573-406-0541	psba@psba.com
Riggs & Associates, Inc.	102 W. Trish Knight St., PO Box 71	West Plains	MO	65775	417-256-8125	ralphr@riggslandsurveying.com
Schlagel & Associates, PA	14920 W. 107th St.	Lenexa	KS	66215	913-492-5158	
Schmitz, King & Associates, Inc.	18900 West 158th St., Ste. G	Olathe	KS	66062	913-397-6080	dave@schmitzking.com
Schultz Surveying and Engineering	4800 West Blvd.	Poplar Bluff	MO	63901	573-686-0806	sjschultz@sseeng.com
Shafer, Kline & Warren, Inc.	1700 Swift Ave., Ste. 100	N. Kansas City	MO	64116-3821	816-756-0444	graham@skw-inc.com
Shaffer & Hines, Inc.	PO Box 493	Nixa	MO	65714	417-725-4663	chines@shafferhines.com
Sprenkle & Associates Inc.	PO Box 286	Monett	MO	65708	417-236-0112	
St. Charles Engineering & Surveying, Inc.	801 S. Fifth St., Ste. 202	St. Charles	MO	63301	636-947-0607	
Surdex Corporation	520 Spirit of St. Louis Blvd.	Chesterfield	MO	63005	636-368-4400	brianh@surdex.com
The Sterling Company	5055 New Baumgartner Road	St. Louis	MO	63129	314-487-0440	ggower@sterling-eng-sur.com
Thouvenot, Wade & Moerchen, Inc.	720 Olive Street, Ste. 200A	St. Louis	MO	63101	314-241-6300	jlandeck@twm-inc.com
Tri-State Engineering, Inc.	702 S. Main St.	Joplin	MO	64802	417-781-0643	slett@tristate-engineering.com
West Wildwood Surveying, LLC	8023 Waddell Avenue	St. Louis	MO	63125	636-394-6090	wwsurv@att.net
Whitehead Consultants Inc.	114 N. Main St.	Clinton	MO	64735	660-885-8311	mtaylor@wcieng.com
Zahner & Associates, Inc.	26 N. Jackson St.	Perryville	MO	63775	573-547-1771	zahner@zahnerinc.com

Missouri Society of Professional Surveyors
P.O. Box 1342
Jefferson City, Missouri 65102