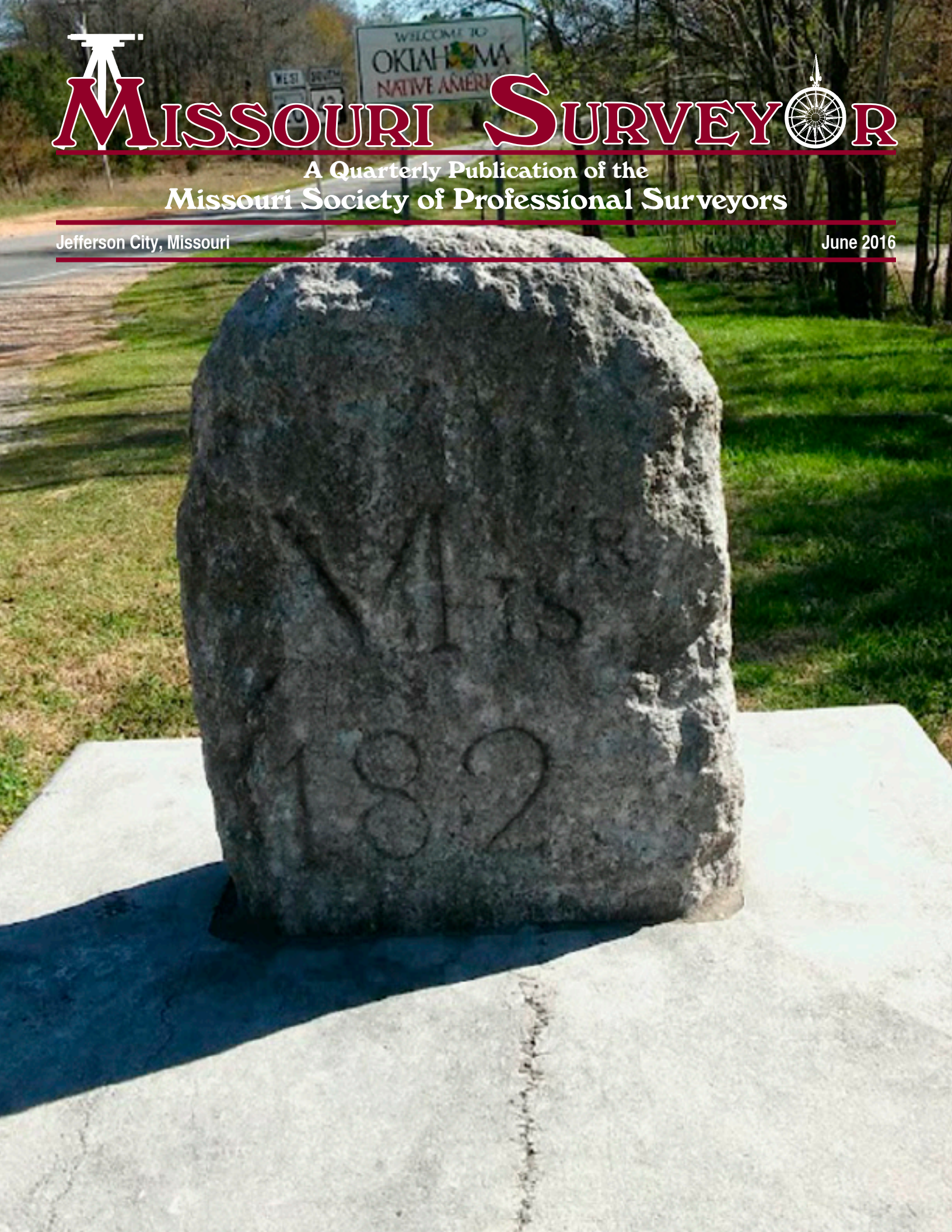


Missouri Surveyor

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri

June 2016

MISSOURI SURVEYOR

CALENDAR OF EVENTS

2016

July 16, 2016
Board Meeting
Jefferson City, MO

August 20, 2016
200th Anniversary of the Running of the Osage Treaty Line, Fort Osage
Sibley, MO

August 24-26, 2016
Review Course,
Best Western Capital Inn,
Jefferson City, MO

October 13-15, 2016
59th Annual Meeting and Convention
Sheraton Westport Lakeside Chalet,
St. Louis, MO

December 3, 2016
Board Meeting
Jefferson City, MO

Front cover:
Southwest Corner of Missouri set October 16th 1823 by Joseph C. Brown. A "Sister Stone" to this corner was set at the intersection of the State Line and the Osage Treaty Line, 24 Miles 49 Chains to the east, along the Border on October 22nd 1823 (has never been recovered).
Photo by Joe Clayton, March 28, 2016.

Donald R. Martin, Editor

Notes from the Editor's Desk

Donald R. Martin

Greetings all and welcome to the June 2016 edition of *Missouri Surveyor*. With a lot to cover regarding this edition I first direct readers to page 38 and a simple photo tribute to the Exhibitors at the 38th Annual Spring Workshop. Always a great help to MSPS events our members are well served by the Exhibitor/Vendor community. More than mere sales departments they always come through as true partners in the business of Missouri surveying. Along with sales they provide first rate technical support, leading edge training and exemplary service. A tip of the instrument man's backwards ball cap from our Ol' pard Tripod, the three legged ground hog in honor of our friends…our surveying technology, equipment, service and education vendors! Now, onto the contents, commemorations, contributions, classifieds, critiques and communication.

Our first feature is the story of an estate sale find turned into a grand historic artifact in *Rare map obtained by A&M-CC is string of coincidences*. Enjoy this story of a 19th century surveyor's map from Texas going from abandoned papers in an attic to the Manning Papers collection at a university. Next, our own Dan Govero shares *Preserving the Profession*, a piece he has shared before with national publications. After which comes announcements from Joe Clayton and Stan Emerick of summer activities sponsored by the MSPS History Committee and our Southwest Chapter in *200th Anniversary of the Osage Treaty Line Commemorations*. This is followed by a masterful companion piece by History Committee Chair Emerick entitled *The Osage Treaty Line Initiative*. Read-up on the details and see how you can collect a "bounty" – Wanted: Original Evidence from Ancient Survey! While everything Stan writes is wonderful I do suggest you stay with the article and particularly enjoy the *Final Thoughts* chapter…it is a poetic endorsement of history's value. Next Joe Paiva shares the news of new features on the MSPS web presence: *MSPS Online Learning Portal News* and *MSPS Launches YouTube Channel*. *On the Trail: Snake tales from a surveyor* follows; check out the homemade snake boots!

A national education concern is brought to light in Louisiana by a surveyor in *Attention students: Cursive writing could become requirement in public schools*. Next we share an image of the John Holleck *Final Point*. This is followed by *Stranger to the Deed* by Knud Hermansen. Learning opportunities abound as Joe Paiva reports *Linn Tech Gears Up for Board-Mandated College Courses*. He then shares the news of our latest surveyor/PhD in *MSPS Member Receives PhD*. Way to go **Dr. James Preston Peterson II**! MSPS lobbyist Mo McCullough gives us a session ending wrap-up in *Capitol View: A look at surveying legislative matters*. Next we have a memo *from National Society of Professional Surveyors* Executive Director Curt Sumner as he seeks to fight press misinformation regarding surveyors and our profession. Curt's letter is followed by a photo montage of our Spring *Workshop Exhibitors*. In this edition's anchor position is *News from the Nation Geodetic Survey*.

Before closing I refer you all to page 33; take the time to participate as a MSPS member and make your recommendations for fellow members deserving award honors. I hope you enjoy this edition and remember *Missouri Surveyor* is your voice; I welcome that which you may have to say or write.

Donald

THE MISSOURI SURVEYOR

Published quarterly by the
Missouri Society of Professional Surveyors

OFFICERS

Jim Mathis III .....President
Joe Clayton.....President-Elect
Gerald Bader .....Vice President
Chris Wickern .....Secretary-Treasurer
Sandra C. Boeckman .....Executive Director
Adam Teale.....Immediate Past President
Troy Hayes ..... NSPS Governor

DIRECTORS

Susanne Daniel
Michael Gray
Earl E. Graham
Charles Quinby
Stan Emerick
Bradley McCloud

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 Surveyors, 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

Jim Mathis III

Greetings to all of my fellow Missouri surveyors. The leaves are out and the bugs biting, so I trust that this spring has found us all busy either getting the crews out or cussing the canopy and spraying the repellant as we wind our way along grown-over footsteps of surveyors long gone.

I ran across the work of one of those surveyors-long-gone the other day while researching an old county surveyor's record book. This one particularly caught my eye. Here was a very well written narrative explaining the progress of the work, with clear, concise dimensions on a beautifully rendered plat. The record was well over one-hundred years old, but one could almost feel as if he or she was actually on the ground watching as the surveyor chopped the marks out of the old government bearing tree, or squinted through open compass sights to extend his random line. So here -- long ago -- was a professional, just like Missouri surveyors today, clearly taking pride in his work and leaving big footprints for others to follow.

But regardless of how well he did his work, it seems that the general public just didn't understand or appreciate what he or other surveyors did. For at about the same time my surveyor-long -gone was penning his articulate record, the author of an 1879 history book about pioneer families of Missouri was relating an anecdote about a rather windy pioneer settler who presumed to use big words to impress his neighbors by explaining how a surveyor could measure across the Cuivre River: "You see, gentlemen, the surveyor first gets an *obligation* across the stream, and sticks down his compass. Then he *leanders* up or down the river, as the case may be, and *gits* another *obligation* from that; then he *leanders* back to the first *obligation* and works it out by *figgers*. It's simple enough, and I could do it myself, although I don't know a darn thing about *figgers*." Maybe the windy old settler of 180 years ago got his terms confused when he spoke of *leandering* and *obligating* a line, but his tale illustrates how little understanding the general public had for surveyors, and how many felt that they could "do it myself."

And today, just like my surveyor-long-gone, we all struggle to perform quality work only to find that the public's perception of us is less than flattering. For example, how many times have you heard that "no two surveyors can agree," or that "GPS is moving all the corners"? It's difficult for any individual land surveyor to find the time to explain the intricacies of surveying, whether to the public, our clients, their client's neighbors, attorneys or the courts. Surveyors have always been the experts at research, measuring, recovering evidence, trigonometry, application of the law, running a business, managing employees, and drafting plats. But as individuals we're often too busy trying to earn a living to educate the public.

That's where our Society comes in. While any particular surveyor would be hard pressed to find the time to educate the public, as a group MSPS often sponsors activities aimed at generating public interest and explaining our history - how it relates to what we do today, in short what it is we're doing out there. MSPS remains the best vehicle to communicate effectively to enhance our surveyor's personal reputations and the art of surveying as a profession.

In recent years, MSPS and our regional chapters have sponsored "Surveying at the Arch" and the "Joseph C. Brown Memorial." This year on August 20, MSPS, spearheaded by the Southwest Chapter, will commemorate the 200th anniversary of the surveying of the Osage boundary, with an observance at historic Fort Osage (see page 10 for more information). Let's pull together to continue to support our Society's efforts to educate the public and generate interest in the wonderful heritage of surveying, so the work that we're doing today will be appreciated and not ridiculed tomorrow.

Jim

Rare map obtained by A&M-CC is string of coincidences

by Julia Garcia of the Caller-Times (Corpus Christi, TX), April 22, 2016

Ann E. Hodges, special collections librarian and university archivist at Texas A&M University-Corpus Christi, displays James M. Manning's personal map, a recent acquisition by the university. It was added to the Manning Papers collection, which includes Manning's personal and professional documents, including letters. Manning, one of the first surveyors to work in the Coastal Bend, died in 1872.

It is by complete happenstance that a rare original map of Texas ended up in a collection at Texas A&M University-Corpus Christi.

"It was an amazing string of coincidences. I have never experienced anything like it in my career of 22 years," said Ann Hodges, librarian and university archivist in the special collections at Mary and Jeff Bell Library.

The multicolored printed map belonged to surveyor James M. Manning and dates to 1853. Manning, who died in 1872, was one of the first surveyors in the Coastal Bend, including San Patricio and Nueces counties, according to the library's website.

In early March, Hodges was at an annual meeting of historians in Irving. She received an email from a journalist in Indiana who told her about a map of Texas that was recently sold to a Dallas-area auction house.

"He said 'A local woman is selling an old Texas map at auction,' " Hodges said. "She found it in a box of stuff she bought for $10 at an estate sale. I couldn't authenticate anything about the map, but the auction house happened to be at the meeting, so I said I would check on it."

A few conversations later and Hodges realized what a find the map was and its relevance to the university, which is where the Manning Papers are housed. The Manning Papers consist of about 173 documents from his career as a Deputy District Surveyor in South Texas.

> ***"Every surveyor has to retrace the steps of every surveyor that came before them back to the original land grant of Texas,"***

The map, drawn by cartographer Jacob de Cordova, is believed to be his personal work map because of an authentic stamp by Cordova and a handwritten note by his wife, Mary A. Manning. James Manning was responsible for adding crucial updates to the 1853 edition of Cordova's map. The item went up for bidding at an auction the following weekend when Hodges was at a meeting in Florida. She made arrangements with Heritage Auctions, Inc., who was conducting the auction, to bid on the university's behalf.

Normally a map of this nature would be a hot commodity in the collector's world, she said. About five people were bidding in addition to Hodges. But the university won the bid for the map and for a letter written to Manning from Cordova.

Texas A&M University-Corpus Christi recently purchased a rare map of Texas that belonged to James. M. Manning. This is the case the map of Texas was carried in.

As soon as Rick Smith, assistant professor of geographic information science and geospatial surveying engineering, found out about the acquisition, he was immediately fascinated. "The Manning map is the first official map of Texas, and it really set the standard for really all maps that came after it," Smith said. "To have something that historically relevant to Texas history and to land surveying available to our students is phenomenal. It's in amazing condition." The map is not one that was viewed on a wall in a museum, but actually was kept inside a leather bound book. It was likely colored after Manning's death, Hodges said.

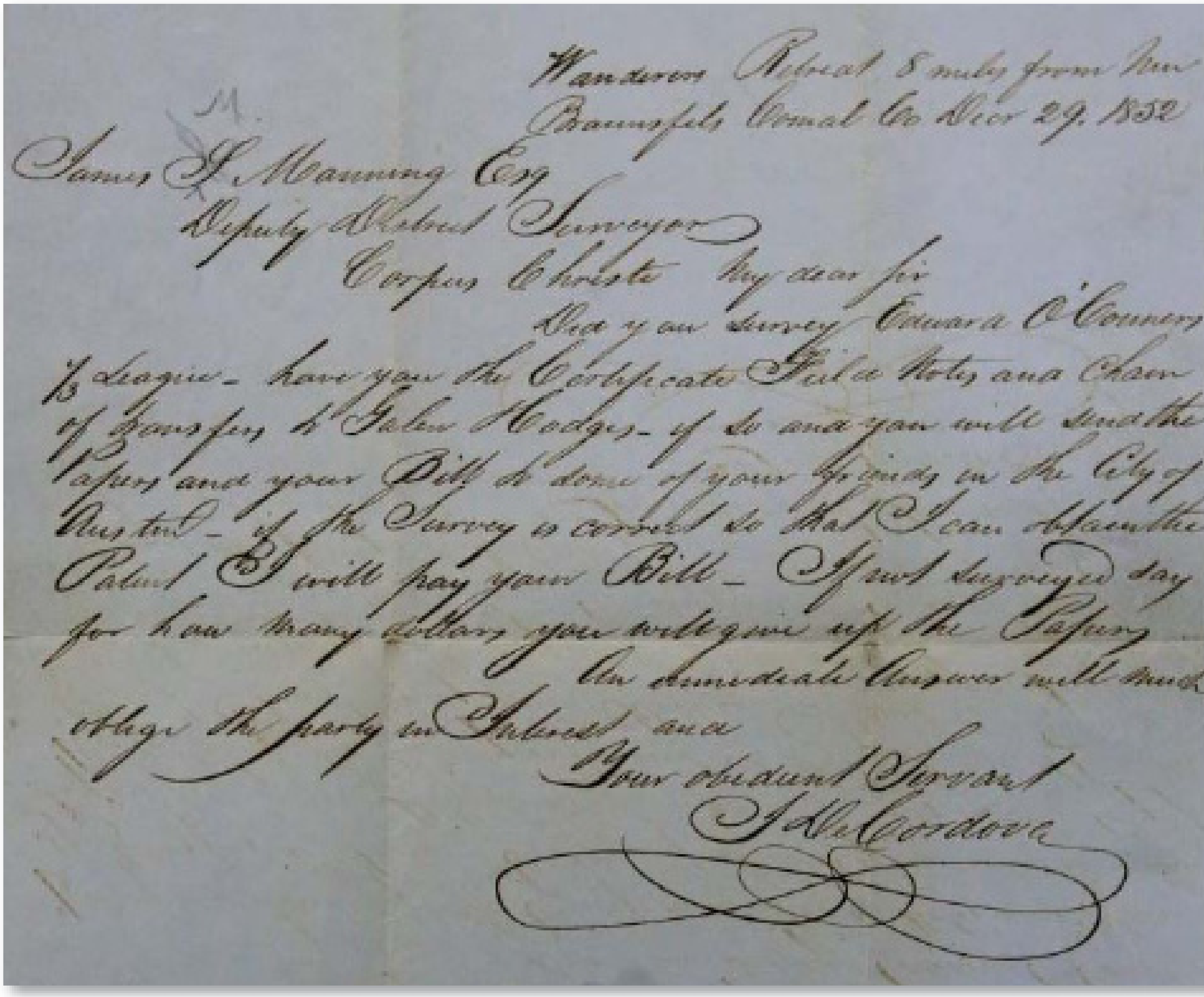
Not only a tool for students, the map can serve the professional land surveyors in the area and across the state.

"Every surveyor has to retrace the steps of every surveyor that came before them back to the original land grant of Texas," Smith said. "If they're going to retrace that history, instead of saying we'll look it up online, I can walk them to the library and say 'Here is the map we've been talking about all semester.' "

Land surveyors keep notes on everything, Smith said. They learn early on to always use pencil and never erase. Many field books kept by surveyors are part of the 11 collections housed at the Bell Library.

"You never know what will be important so you scratch things out," he said. "Students are able to connect to these historic figures on a very personal level even from something as generic as a map or a deed. That's exciting to see them learning about the history, but also the people involved."

(continued on next page)



Wanderers Retreat 8 miles from New Braunsfels Comal Co Dec 29. 1852

James H. Manning Esq
Deputy District Surveyor
Corpus Christi My dear Sir

Did you survey Edward O'Connor 1/3 League - have you the Certificate Field Notes and Chain of Transfer to Galen Hodges - if so and you will send the Papers and your Bill to some of your friends in the City of Austin - if the Survey is correct so that I can obtain the Patent I will pay your Bill - If not surveyed say for how many dollars you will give up the Papers

An immediate Answer will much oblige the party in Interest and

Your obedient Servant
J de Cordova

Texas A&M University-Corpus Christi recently purchased this letter to surveyor James M. Manning from cartographer Jacob de Cordova. The letter was added to the Manning Papers collection, which is housed at the Mary and Jeff Bell Library at the university.

James D. Carr, a land surveyor for 19 years, thought he misheard the news about the Manning map when he first heard it. Once he realized that it was true, he was ecstatic.

Though he hasn't seen it in person yet, Carr said he has seen photos. He called the map "beyond cartographic standards."

"I have the utmost respect and appreciation for pieces of history, maps, that have laid the land that we walk and survey today,"Carr said.

Digitizing maps and other documents has made it easier to access the information, but Carr said it only goes back so far. He said researching original maps is key in how modern surveyors create tracts of land to this day. He called them footsteps.

"The footsteps can be pictorial, verbal or both," he said. "You would be surprised of how accurate the mathematical components and the descriptive narration of the original surveys are compared to today's methodology and instrumentation."

ZAHNER

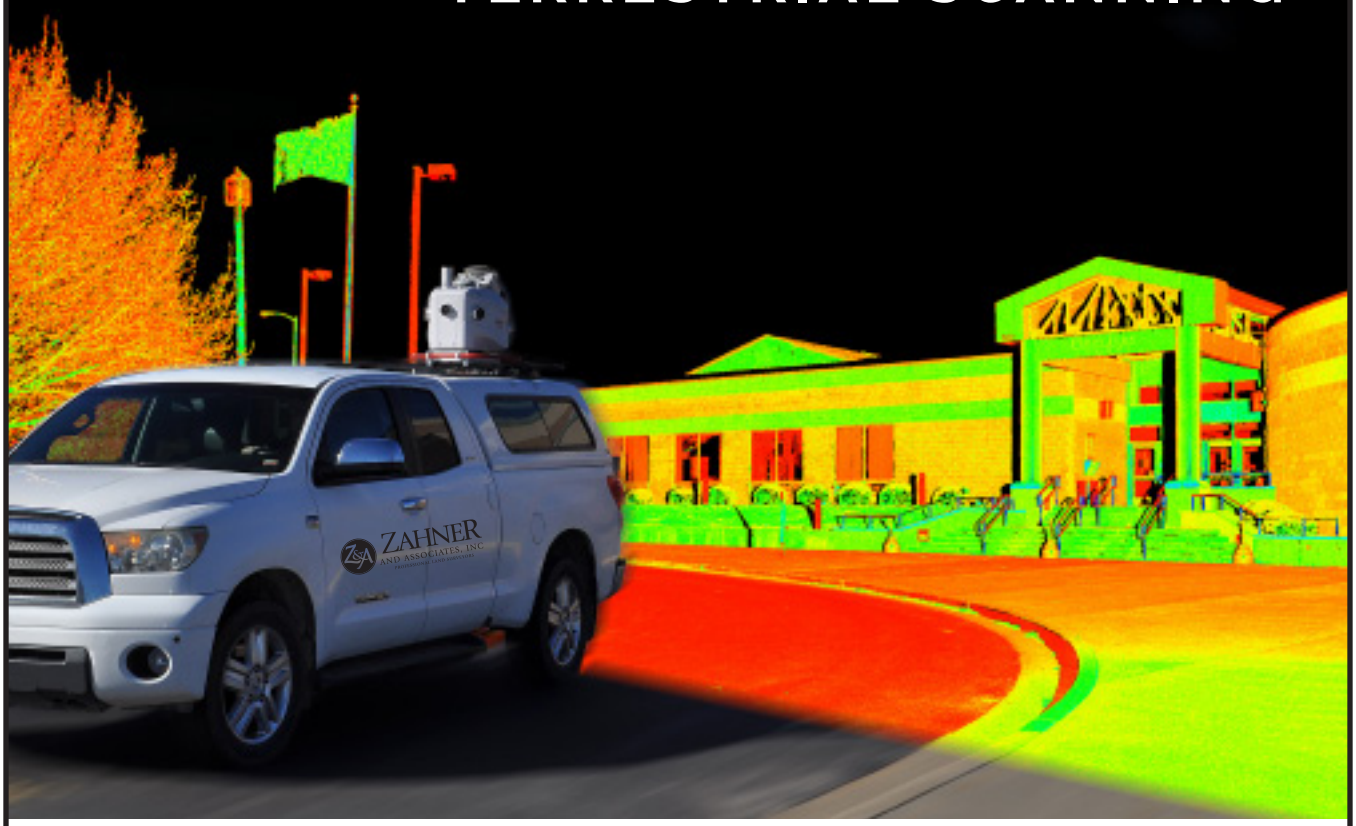
AND ASSOCIATES, INC

PROFESSIONAL LAND SURVEYORS

DRIVING RESULTS

your partners in

MOBILE LIDAR & TERRESTRIAL SCANNING



Learn more about how Zahner & Associates can help you provide your clients with safer, faster, more accurate data then ever before.

200 Zahner Place
Perryville, Missouri
573.547.1771
info@zahnerinc.com

Visit our website: **www.zahnerinc.com**

Preserving the Profession

by Daniel L. Govero, President of Govero Land Services in Imperial, Missouri

In recent years we have been faced with the fact that the number of licensed Professional Land Surveyors is declining rapidly. Then I read articles about the "one man" surveying companies, and how they are saving money, but who is going to save the profession? New technology has afforded us the opportunity to be "one man" companies, but most of us got involved in the business by working on a survey crew, deciding we liked it, and obtaining the education needed to become professional land surveyors.

In a recent article in a land surveying magazine, the land surveyor states that he began his career in surveying as a part time rodman, and held other titles including instrument man, party chief, project manager, survey department manager. Some of his experience must have come from working for various companies during his career and obtaining knowledge along the way.

Running a surveying & engineering company is not easy and not for everyone. I have been in business for 27 years and have trained and mentored many along the way. Employees are the biggest expense in a company, but by having employees you not only contribute to the economic impact of your community, you are also providing education and training in the profession and quite possibly planting the seed of future surveyors.

Education is not the only answer. Our profession requires mentoring and hands on training to learn how to find monuments, research, make decisions on what was found and compare the information with what is recorded and what is not recorded, but is used. Surveying is a profession that cannot totally be taught by education alone. We as surveyor's must incorporate new people in the profession, mentor them and help educate them if the profession is to survive!

Our Company has mentored many people over the years. One became licensed, took the challenge and joined the Missouri Society of Profession Land Surveyors, worked her way to become the first female president to lead our society and did an excellent job. She has been involved with many surveying projects since including, the monumenting of the Joseph C. Brown Memorial. We have had several other personnel get licensed, some work for other companies, some opened their own business in the area where they live. Needless to say, we have encouraged and mentored people to get involved and stay involved with the surveying profession.

This profession cannot be taught in school by itself. School will not tell us how to find a monument in the field, or if we are missing the original monument. School will also not educate us on how to resolve a boundary. It takes experience to learn how to compare recorded documents, with what we find in the field and the differences between possessions and recorded, and where is the correct line? This can only come from experience which as our profession ages is going away.

When the "one man" survey company quits, retires or goes out of business it's gone-no one to take his place. New technology is great, but let's help the future of the surveying profession by passing along our knowledge by hiring, training, and mentoring new people in the field.

Seiler Instrument

Your Source For...

Over seventy years ago our firm started with optics by servicing and reconditioning surveying instruments and microscopes. Through the years Seiler Instrument focused on expanding this technology to surveyors and many other industry professionals to sell, support, promote, and educate our customers on GNSS/GPS technology, Hydrographic Survey Solutions, 3D Laser Scanning, UAV/UAS technology, CAD software and more.

Seiler is an authorized distributor and partner with many high quality American Manufacturers such as:

- Trimble / Spectra Precision/ Seco
- Seafloor Systems
- AGL
- Autodesk
- Optimal Ranging
- Intuicom
- Laser Technology

Seiler Instrument's continued commitment to customer service excellence goes beyond just a sale. We support industry professionals with experienced field and service staff that meet your needs face-to-face. Our dedication to continuing education through local surveying and industry associations further support and strengthen our commitment to you – our customer.

Thank you for your business and the opportunity to earn it.

70 YEARS OF EXCELLENCE
1945-2015

SEILER
GEOSPATIAL DIVISION

Toll Free: 888-263-8918
Email: solutions@seilerinst.com
www.seilerinst.com

Contact Us:

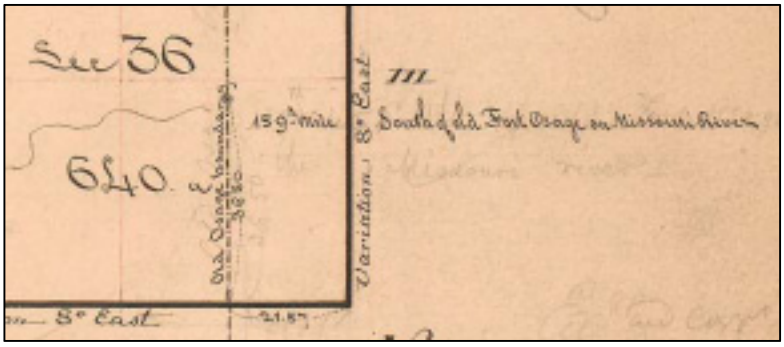
St. Louis Office
3433 Tree Court Ind. Blvd.
St. Louis, MO 63122
Office: 314-968-2282

Kansas City Office
918 N. Scott Ave
Belton, MO 64012
Office: 816-331-3383

SALES • SERVICE • RENTALS • TRAINING • FINANCING

200th Anniversary of the Survey of the Osage Treaty Line Commemorations!

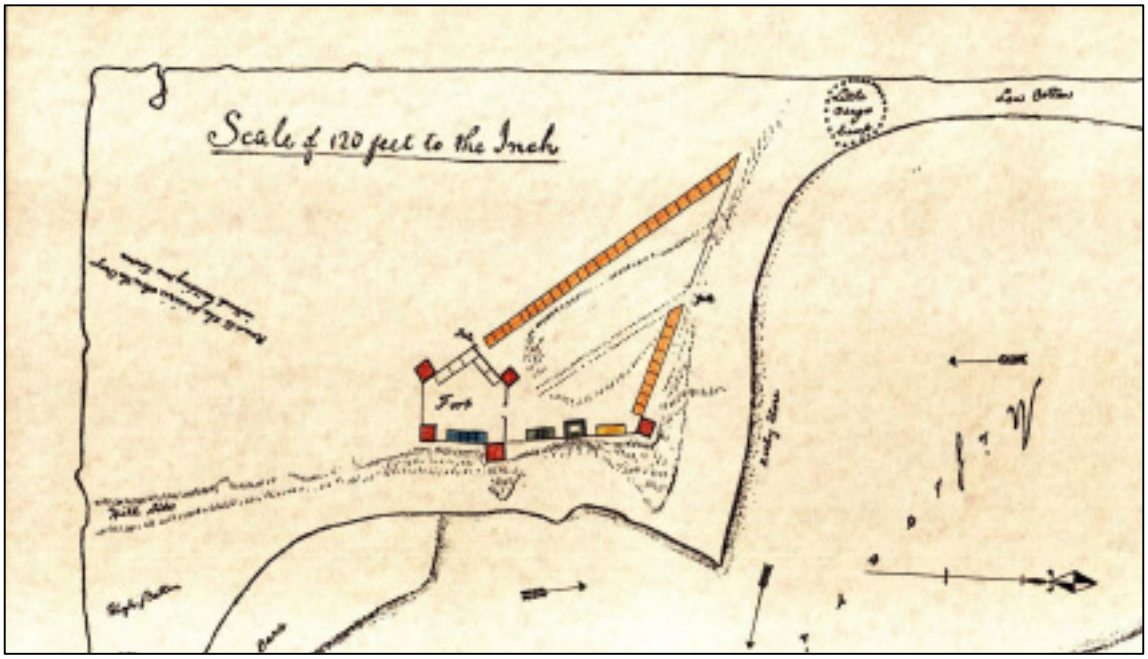
SW Chapter Monumentation & Summer Picnic



The Southwest Chapter of the Missouri Society of Professional Surveyors welcomes all to come join us as we remember our survey history on August 13th at 11:00 A.M. We plan to monument and sign the most southerly point in Missouri on the Osage Treaty Line which was tied to the USPLSS. This township intersection is at Latitude 36° 49' 57.07" N, Longitude 094° 09' 42.96" W, south of Stark City in present-day Newton County.

Upon completion of the monument dedication we will have our ***Summer Picnic*** at the historic Jolly Mill (Latitude 36° 53' 50" N, Longitude 094° 04' 18" W). Hamburgers and hotdogs will be supplied…we ask you bring a side dish and your own beverages. Those planning to fish for trout you need to purchase a Missouri Fishing License along with a Trout Stamp. - *Joe Clayton*

Survey Party at Fort Osage



Kickoff the *Osage Treaty Line Initiative* with a celebration at Fort Osage. Tentatively planned for Saturday, August 20th at the Fort near Sibley, Missouri. In addition to food and refreshments, it will feature talks about the efforts to mark the line, and the historical impact it had on the area and the native tribes. The party will include demonstrations of the tools used in that time period and the techniques employed to determine the "variation of the needle". There will also be a reenactment of the running of the first leg of the line to the Initial Point where a replica monument will be dedicated. - *Stan Emerick*

The Osage Treaty Line Initiative

by Stan Emerick, MSPS History Committee Chair

This year marks the 200th anniversary of the surveying of the Osage Treaty Line, the line that was supposed to serve as the western and northern boundaries for the fledging State of Missouri. It was initially negotiated during an 1808 treaty between the United States of America and chiefs of the Greater and Little Osage nations. This line is the first surveyed boundary line in western Missouri.

Photograph of mural, "Fort Osage -1808 Jackson County.

Initially there were two components to the boundary, one on each side of the Missouri River. The northern segment ran from the mouth of the Kansas River northward for a hundred miles then loped eastward to the River Des Moines. The southern segment began at Fort Clark, later renamed to Fort Osage, and ran southward to the Arkansas River. The northern segment survived the annals of time serving as both county and state boundaries. The southern segment slipped into obscurity shortly after its inauguration.

In celebration of this anniversary, the Missouri Society of Professional Surveyors is initiating an effort to recover evidence of the southern expedition. During the fall of 1816, the survey party marking the Treaty Line set more than two hundred and fifty monuments along the way. It is the Society's goal to recover viable evidence of at least one of those monuments and perpetuate its existence along with the significance of this truly historic endeavor. This effort to recover surveying antiquities in our contemporary world is the paying homage to our profession's forbearers. Join us in seeking the last vestiges of a truly noble effort, which once completed, quickly fell fallow and all but forgotten to history. While paying respect to the original surveyors, today's surveyors may receive pay in the form of a MSPS sponsored "bounty" should original evidence be recovered.

HISTORY OF THE TREATY

Shortly after the United States acquired the lands of the Louisiana Purchase, treaties to extinguish the Indian claims to the territory were initiated. To "treat" with the Indians, Governors William Clark of the Missouri Territory and Ninian Edwards of the Illinois Territory, along with Auguste Chouteau are appointed as Commissioners to represent the

(continued on next page)

THE BOUNTY PROGRAM

MSPS is offering a bounty for the recovery of an original Treaty Line milepost, as set by Brown. The lucky surveyor finding legitimate evidence of a milepost will receive a bounty of $500. Supplemental stipends will be added to that bounty for the fortunate individual, should that surveyor accede to the preparation of a corner restoration document and collaboration on an article suitable for publication. If he shall also agree to present the results of his investigation at a future societal convention, the Committee will cover the cost of his lodging and registration fee. If one were to fully participate in this effort, the total compensation for their efforts could easily exceed $1000. If a serious investigation by another individual proves to successful yield another milepost, a second bounty may also be awarded. The successful recipients will receive their rewards during a future MSPS event.

Validation of evidence for a corner shall be determined by a group of judges comprising members of the committee and the Land Survey Program. The surveyor purporting to have found valid evidence of a milepost, shall submit his evidence to the committee for review. The committee's investigation may warrant further engagement by the surveyor, perhaps requiring additional information to reach a final judgement.

While this program is designed to engage members of our Kansas City & Southwestern chapters, it is in fact open to any licensed surveyors or their subordinates. The ultimate goal being to enhance our society's community outreach and public awareness program, as well as preserving our historical record.

Individuals wishing to receive updates on this program should register with the committee by sending an email to Semerick@f-w.com.

The Osage Treaty Line Initiative (continued)

interests of the United States. Clark and Chouteau were well-known to the native tribes; the former through his expedition with the *Corps of Discovery*, the latter as a prominent French fur-trader.

The original treaty with the Osage occurred at Fort Clark in the years 1808 and 1809. Pierre Chouteau, acting as agent and the Osage chiefs parlayed settlement of hostilities and acceptance of terms. In exchange for establishing a trading post at the fort and fiscal considerations, the Osage agreed to relinquish all of their interests to lands east of the fort and north of the river, including a two-league square area around the fort.

Beginning in September of 1815 (the end of the War of 1812) several of the native tribes agreed to meet with the government at Portage Des Sioux, a village near the confluence of the Missouri and Mississippi Rivers. Several treaties were signed to end the hostilities that transpired when the tribes chose to side with the British during the war. The treaties effectively extinguish nearly all of the Indian rights to land within the Territories. This action was compelled by the impending tide of immigrants coming from the eastern states and Europe.

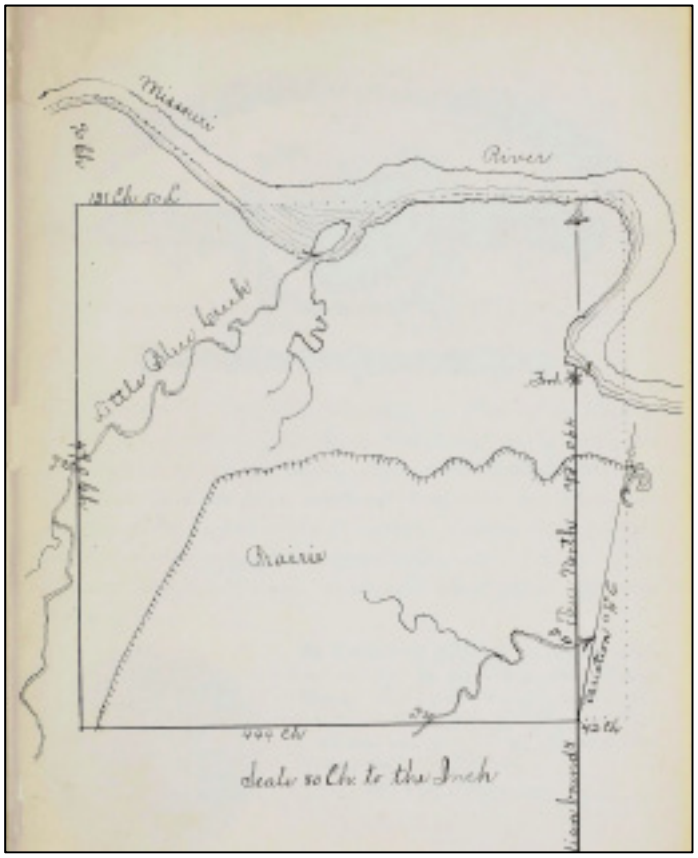
Anxious to secure the boundary with the Indian nations, the Commissioners instructed Surveyor General William Rector in 1816 to have the Indian boundary surveyed. Rector cautioned although he was prepared to employ surveyors he did not have the authority to pay them. It was for the commissioners to provide funds necessary to supply the expedition. Rector nonetheless engaged two of the more prominent surveyors of the day, Joseph Cromwell Brown and John C. Sullivan. Brown to run the southern line and Sullivan the northern one.

In his letter to Brown in July of that year, Rector wrote that the commissioners and members of the Great and Little Osage tribes were to meet at Fort Clark in early August to agree upon the line. He instructed Brown to acquire the necessary supplies to execute the survey and to rendezvous at the fort posthaste to begin the survey. He further instructed Brown that the running of the line will be in a similar fashion to the Surveys of the United States lands. In addition to the setting of mileposts and witnesses, they are instructed to include in their field notes "*every object that is worthy of observation*". This meant that they were to be on the lookout for any salt or mineral deposits that may be of value to the government. His letter concludes by affirming he is not authorized to pay them, but has no doubt that they will receive "*a Just Reward*". Even back then surveyors were known for taking on work with only a promise of payment.

SURVEY OF THE *FORT SQUARE*

Brown's first tasks at the fort was to determine magnetic declination. Rector writes that: "*Should the weather permit, you will make frequent observations for the variation of the needle. And will regulate your compass to the true meridian according to the results of your several observations…*" In his reply he stated he had determined the variation to be 11 1/4 degrees east, "*by two sets of observations*", and that was the variation with which he would run. He also noted other "calculations by azimuth" produced a variation of only 10 1/2 degrees, producing a curious fact to be discussed later.

As noted above, part of the treaty included an area surrounding the fort that was set aside for development. This reserve was defined as being "two leagues square". The league was a standard unit of French measure common in the eastern settlements of the territory but seldom seen in the western area. One league would be equivalent to three miles and a sixteenth in English measure. Two leagues would be equal to six miles and a



Brown's map of the Fort Square.

furlong, (Two leagues = 184 French arpents = 490 English chains = 32,340 feet.)

While awaiting arrival of the rest of the party, Brown marked off the two-league Fort Square. He began this survey on the 15th of August at the fort's southern gate. He then ran north through the fort on his "true meridian". At roughly seven hundred feet from the gate he finds a large red oak tree on the Missouri River's bank and determines it to be mile point Zero for the southern leg of the Treaty Line.

After marking this point with witnesses, he proceeded to meander the southern bank of the river northeastwardly around the bend. Then turning westward, he continued the line across the mouth of the Little Blue River until reaching a point roughly six miles west of the fort. He departed the bank on a southern meridian to a point he estimated to be slightly above the elongated, latitudinal section of the river bank (see Brown's map). He marked this point as the northwestern corner of the Square. He then ran the northern line eastwardly back to a large cottonwood tree on the bank of the river.

Returning to the northwest corner he set out down the western line, measuring the full two leagues to the southwestern corner. He then turned eastward and ran 444 chains intersecting the treaty line and erecting a mound. This point is at the 4.32 mile point along the Treaty Line. Brown wrote in his letter to Rector that the rest of the Fort Square could be drawn with imaginary lines, as it is "*all together public land*". Generally speaking, the reserve is bounded on the north by the Missouri River, on the west by the Little Blue River and on the south by Fire Prairie Creek.

It may be worth noting that the courses and distances along the meander line do not work well with the mile call for the intersect point. Perhaps this is simply a scrivener's error or a mistake made during transcriptions. For the sake of this investigation, we will assume that his calls to the lengths along the treaty line will hold over his meander of the river. Hence the corners of the Fort Square have been "backed in" from the point of intersect with the treaty line.

(continued on next page)

The Osage Treaty Line Initiative (continued)

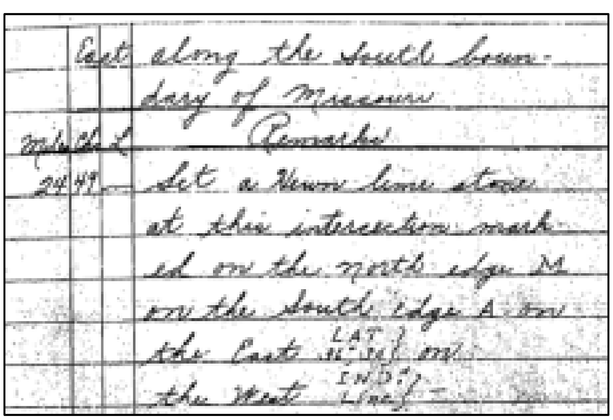
BROWN'S RUNNING OF THE TREATY LINE

Once the survey party assembled at the Fort they departed on August 24th. Brown noted in his journal that contrary to the original plan, neither Mr. Chouteau nor the Indian chiefs would accompany the surveyors - they will have to run the line on their own volition. What follows are excerpts from their field notes interspersed with commentary:

In the twenty-eighth mile the party experiences every surveyor's bane, crossing the same creek eight different times within the same mile! The good news is it was still August. The bad news: stagnate water and mosquitos. This is probably Crawford Creek located near Pleasant Hill.

Brown's notes routinely reflected his opinion of the soil. More than a log of survey measurements, the field notes serve as a geography lesson for the diversity of the lands that exist in the western parts of the territory. In the fifty-fifth mile Brown's whimsical nature emerges when he observes that all he sees is prairie and a few creeks "*which appear merely as marks on this grand meadow…*" Brown's linguistic skills eventually strain as the requisite to note the quality of land taxes his vocabulary. In the beginning he soundly records the quality of the land with phrases like "tolerably good prairie". Farther along his adjectival lexis is reduced to "brushy" and "marshy" and "gravelly" and "stony" and "hilly" and "barrenny". I wonder what he would have given for a decent thesaurus?

As fortune would happen, the end of the seventy-eighth mile falls in the Osage River, which he notes as being about 200 feet wide. He was then very close to the former site of the primary village of the Osage nation during the latter half of the eighteenth century. I doubt that when the treaty was struck, anyone had an idea how close this line would come to that principle encampment. Today the line passes within a mile or so of this site which in now known as the Osage Village State Historic Site in Vernon County, northeast of Nevada.


East along the South boun-
dary of Missouri
Mile Ch L Remarks
24 49 Set a Hewn lime stone
at this intersection mark
ed on the north edge M
on the south edge A on
the East LAT on
the West IND Line

Transcription of Brown's notes at the presumptive Missouri-Arkansas State Line.

On the evening of September 6th, at the end of the eighty-fifth mile, Brown makes his first attempt to correct the variation of the needle. He determines it to be only ten degrees east of north and makes the appropriate correction to the compass vernier. The next evening, he makes two more observations and confirms the variation to be identical.

Brown comments in his notes that the two hundred and thirteenth mile runs along the top of a "*smart mountain*". "*This mountain stands on a bottom surrounded by prairie… [which] is not extensive in width anywhere, being enclosed by mountains*". Do you think the good people of Arkansas were aware of Brown's prophetic quip when they chose this locale as the site for their flagship university? I wonder if he ever crossed paths with a razorback.

In the two hundred and fiftieth mile he enters a "*thorn and brier swamp of the worst sort*". Shortly thereafter he encounters cane fields that are virtually impassable. He decides to meander his way toward the river and along its northern edge until he reaches the point of intersect. At that point he cuts a line back to the high bank of the river, where he sets a post inscribed "254 ½ Miles to Ft Osage" on one side and "Indian Boundary" on the other. The date is October 7th.

Less than a month later, Governor Clark wrote to the Secretary of War William Crawford relaying news that Brown's party had been massacred and that he feared their task was left incomplete. Three days later the party arrives in Saint Louis, and to paraphrase another famous Missourian, "the report of their demise had been greatly exaggerated". Several days later, the Missouri Gazette publishes a letter from Surveyor Brown expounding on his adventures.

EVIDENCE OF THE TREATY LINE IN THE GLO RECORDS

Unfortunately the Treaty Line's tenure as a boundary was short-lived. A few years after its marking, a revised petition for statehood moves the western boundary

(continued on page 16)

SCANNING, IMAGING AND SURVEYING IN ONE TOTAL STATION.

SAVE TIME AND INCREASE EFFICIENCY IN THE FIELD AND OFFICE WITH THE TRIMBLE S7 TOTAL STATION.

Imagine needing just one total station on the job site to perform all of your data capture. The Trimble S7 Total Station combines scanning, imaging and surveying plus all of our other top features into one powerful solution. Use the Trimble S7 along with Trimble Business Center office software to create dynamic 3D models, high accuracy visual site documentation, point clouds, and more.

Now you can work faster with integrated scanning and Trimble® VISION™ technology. With Trimble SureScan™ you collect and process data faster by focusing on collecting the right points, not just more points. Use Trimble VISION technology to direct your survey through live video images on the controller. Back in the office, you can use your Trimble VISION data for measurements, or to process 360-degree panoramas and high dynamic range (HDR) images for even clearer deliverables.

For more information visit Trimble.com/geospatialTS

SEILER GEOSPATIAL DIVISION

Seiler Instrument
St. Louis * Milwaukee * Omaha
Indianapolis * Kansas City

solutions@seilerinst.com
www.seilerinst.com

Trimble
Authorized Distribution Partner

The Osage Treaty Line Initiative (continued)

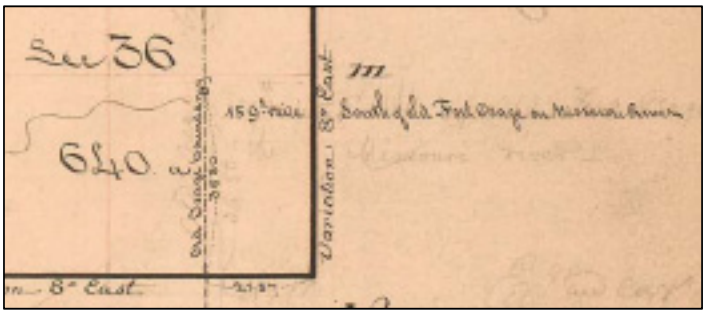
some twenty four miles to the west. Seven years after this excursion, Brown is again employed to run the new state boundary along with its southern connection. This action causes the treaty line to fall dormant, where it has remained for the last two centuries.

Since it served as a true boundary for such a short time, there are few references to it in the public land records. The few US General Land Office (GLO) surveys conducted in the west during that period were the running of a few standard lines and township perimeters. A couple of the township perimeters in Johnson and Lafayette counties should offer us the best prospects for beginning our search.

The first standard line to appear in this area was run by Charles McPherson in 1818. He ran the southern side of Township 48 to the southeastern corner of Section 36 in Range 30 West. He got within a mile of the Treaty Line, but neglected to make a tie to it before turning north and running the eastern boundary of that township.

In 1820, Angus McDonald, under contract with Angus Langham, intersected the treaty line while running the southern line of Township 45 North. He then ran along the treaty line to set the southern lines of Townships 46 & 47 North. Unfortunately, while running along the line, he makes no reference to the mileposts. It is the subsequent breakdown of these two townships that gives us the best indication of the location of the treaty line. The GLO notes and plats for these two townships have multiple instances of calls to the line.

In 1821, under contracts run for William Ashley, the line is again noted when crossed by the southern lines of Townships 25 and 35 North. The crew running the south line of T30N also looked for the treaty line, but to no avail. They noted spending four days searching a wide swath of land trying to find the Indian boundary without success.



GLO plat reporting dimension's from Ashley's notes of October 16, 1821.

The only other documented case of an intersection with the treaty line comes in 1823, when Brown runs the southern boundary of the state. About half way along the twenty-fifth mile, he intersected the Indian boundary at a point that would roughly equate to MP 181.6. There he sets a hewn limestone inscribed with the three boundaries and the latitude (36°30'). By all indications, this appears to be the only stone monument set on the entire treaty line.

South of the state boundary, there does not appear to be any evidence of surveys intersecting the line. Shortly after Brown's effort, a portion of this area in Arkansas is ceded to the Cherokee and Choctaw tribes in substitution for the lands they surrendered their surrendering lands in the southeastern portion of the United States. Unfortunately, disputes between the Osage and Cherokee and colonial settlers force the federal government into another displacement of the tribes. Government surveys do not begin in this area until the early 1830's, during the same timeframe as the forced migration of the *Five Civilized Tribes* to the Indian Territory (Oklahoma).

LINKING THE TREATY LINE TO THE MODERN WORLD

As noted above, there is little evidence of the line in the GLO records. Determining search locations for lost mileposts can become an arduous task. What follows are estimations of positions for several points along the line. Additional positions are available on the website. Coordinate pairs correspond to the Missouri Coordinate System of 1983, West Zone (MCS83-W), with values expressed in US Survey Feet. Latitudes and longitudes are also provided to assist in searching. It should be noted that these estimations have been produced from a combination of physical measurements (GPS observations) and internet research utilizing the Public Land Survey on Google Earth (PLSGE, part of Earth Survey). These datasets are simply offered as a starting point for field investigations. Reliability cannot be assured.

At the moment, there is only one specific position on the treaty line that can be substantiated. That being the south gate of the fort. The reconstruction of the compound at the Fort Osage National Historic Landmark appears to have been based upon sound archaeological evidence. If correct, it affords us a viable starting point for our expedition. As determined from PLSGE, the south gate of Fort Osage is estimated to be at position 1100160N, 2875860E (39°11'15.7"N, 94°11'33.1"W). According to Brown's notes, this should represent Mile Point (MP) 0.13 along the treaty line.

As noted above, the best opportunities to get a fix on the location of the treaty line occur in Townships 46N and 47N. There are multiply ties shown along the section lines in these two townships. And for a brief period of time, T46N actually closes on the Indian boundary. Unfortunately, those corners were later extinguished during the westward expansion of the township.

Robert Ubben with Affinis Corporation has done some exploratory work near Strasburg. His group has recovered some of the section corners that would have straddled the treaty line in the aforementioned townships. Comparing their coordinates against positions scaled from PLSGE produced some remarkable results. In many cases the coordinate positions were within about twenty feet of each other. Infusing their data with calls from the GLO record has yielded an estimated position for the intersection of the treaty line and the south line of T46N to be 971530N, 2878517E (38°50'04.1"N, 94°11'05.0"W). This point should in fact be fairly close to MP24.

Attempting to apply a validity check on the PLSGE data, positions were determined for the northeast corner of T47N and the southeast corner of T45N. Applying the GLO records to these points produced intercepts with similar limits as the Affinis points. The several sets of points fell within a thirty-foot norm on a linear regression. Certainly reasonable enough to initiate a search field. Allowing for this variance, the position of the intercept along the southern line of Township 45-29 works out to be around 907061N, 2879849E (38°39'26.8"N, 94°10'51.0"W). This point should also be close to MP36.

An analysis of this data generated some insight into Brown's work. The 1827 version of the GLO plat for township 47-30, shows the location of some of the mileposts along the "Osage Boundary Line". Applying those calls to the calculations noted above, it appears that Brown ran this upper portion of the line with a surplus of about two links per chain. Indices further south along the line will vary some from this estimate, but for the most part, it seems to be fairly consistent.

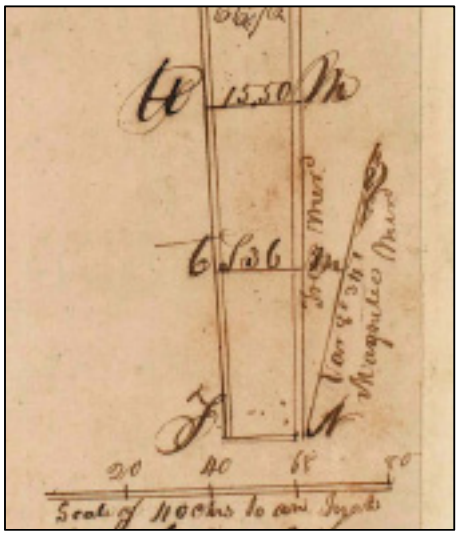
Also apparent from the data is a difference in Brown's level of competence d. Brown's ability to determine the correction for declination appears to be superior to others that followed behind. As noted above, Brown ran his line from the fort on an 11 1/4 degree variation. When the subsequent GLO surveyors sectionalized the land, they ran on a variance of 8 1/2 degrees. By today's measurements, those surveys run between two and three degrees east of north. Whereas Brown's 1816 line is only off the true meridian by about a degree. When he makes his adjustment at the eighty-fifth mile, he pulls that error back to within half a degree of true south. All things considered, a rather impressive achievement for the day.

Due to the efforts of Joe Clayton with Anderson Engineering and Jim Herre of Indian Creek Surveying, we also have field verified positions for corners along the south lines of both Township 35-29 and 25-30. Their work has also proved useful. They found several points along the south line of 35 North, including the township corner between Ranges 29 and 30. The GLO record indicates that the treaty line was intersected roughly 88 chains east of there. This would produce an intercept in the vicinity of 579681N, 2886013E (39°11'15.7"N, 94°11'33.1"W).

Their work in Sections 35 & 36 of T25N affords us a bonus point. The GLO plat shows the treaty line intersection at 21.57 chains west of the township corner, which would produce an intercept near 242576N, 2887652E (36°49'575.1"N, 94°09'42.9"W). The plat also shows a tie of 36.5 chains along the line back to the 159th milepost. Projecting a line from this intercept back towards the correction point at MP85, yields a search position for this milepost at 245032N, 2887648E (36°50'21.3"N, 94°09'42.8"W). If the GLO notes are correct, this position may very well represent one of the best opportunities for finding an original post. Parenthetically, inversing back to the Affinis' points tends to support the two-percent surplus in distances noted above.

Darrell Pratte and the Missouri Land Survey Program executed a retracement survey along the boundary between Missouri and Arkansas in 2005. Their goal was to retrace the state line established by Bazil Gordon in 1845, and to determine the proper intercepts with the USPLS system running through Ranges 27W to 34W. Through their efforts we have state plane coordinates for the mile points along the line. Applying this work to Brown's 1823 notes

(continued on next page)



GLO plat noting 8 ½ degree variation.

The Osage Treaty Line Initiative (continued)

and the ties shown on the 1849 plat of Township 21-30 yields a computed position for Brown's intercept point of 122255N, 2887817E (39°36'07.3"N, 94°09'42.9"W). Theoretically, this should be the location of the stone monument set by Brown. It is the fervent hope of this *Initiative* that someone will be able to successfully recover this lost monument and secure its rightful place in the annals of Missouri history.

Beyond this point there isn't much historical record to reply upon. Brown's notes of meandering the Arkansas River near the mouth of Frog Bayou yields the only reasonable estimation for the position of the closing milepost. Comparing Brown's meander line notes with the 1831 plat of Township 9-30 and the PLSGE yields a vague position for the end of line in the vicinity of 35°26'34"N, 94°09'05"W; a point that today appears to be on an island in the river.

Within the realm of full disclosure, it should be noted that much of Brown's work appears to contain inconsistencies. His traverses around the Fort Square and his meander along the Arkansas River do not work well geometrically speaking. There are sufficient errors in the theoretical closures to give the average surveyor pause. In addition, a cursory review of the available KMZ file will reveal some doubts about the mile-point calls of recognizable features such as creek and river crossings. Nevertheless, the body of the work still appears to be sound. Posts and mounds were obviously set, along with their witnesses. Brown was known as a reputable man, and his legacy as a competent surveyor is unparalleled. If one were to engage in this effort to retrace his work, I have no doubt that they would come away from their journey enriched by the experience, and in awe of his abilities.

FINAL THOUGHTS

The year of 1816 is historically known as the "Year without a summer". From that period, there are reports of ice on the rivers in May and it snowing in June. There was also a peculiar phenomenon perceived as a persistent dry fog that reddened the sky and dimmed the sun to a point where sunspots were visible to the naked eye. This atmospheric anomaly was hypothesized to be the result of the massive Mount Tambora volcanic eruption that occurred in Indonesia in the spring of the previous year. The event was so disruptive to agriculture that it caused the price of grain to skyrocket half a world away. I imagine that this hardship must have burdened Brown's party. Not only on their efforts to supply the expedition, but also on their foraging for food and game during their journey and the grazing for their animals. Although Brown does not specifically address this adversity, it almost certainly would have had added to their difficulties.

We should try to imagine how grueling this excursion must have been for them. Here they were, trying to mark a significant boundary line, by holding a true and steady course through the wilderness, making precise measurements through often rugged terrain, all the while trying very hard not to be "massacred" along the way. What a phenomenal feat that was! Now here we stand, two hundred years later, marveling at their accomplishments. Wondering if we would have had the wherewithal and fortitude to accomplish such a task. Using the tools they had at hand, could we have come anywhere close to attaining the level of performance that they achieved? In a similar timeframe, without the use of our ATVs and GPS? I for one, have my doubts.

Occasionally I am asked why I have such an interest in history. My immediate reply is: How can one not? We walk through history every day. Both figuratively and literally. Figuratively we "follow in the footsteps" of those who came before. Often oblivious to the lives they led, the joys they felt, and the sorrows they endured. We cross their paths without giving a second thought or pondering what they thought, how they felt or where they supposed they were headed.

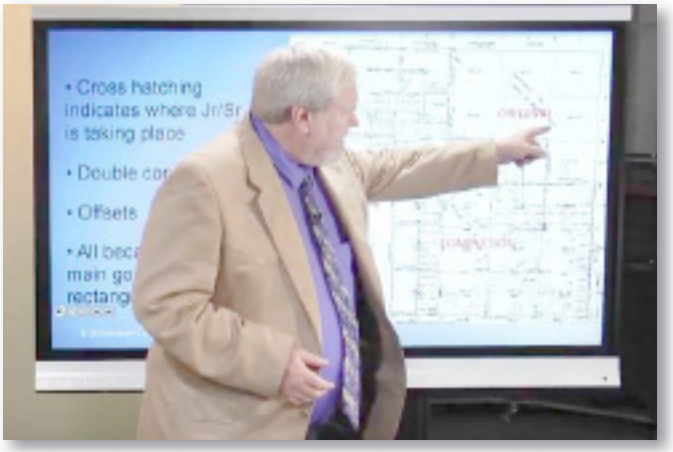
We too walk through history literally, sharing the experience with those around us. Witnessing the events of the day, along with our own joys and hardships. In our walk through history our own footprints are left behind in the way we treat each other and the world we live in. What record will we leave behind? Will anyone come looking for our markers? How do we want to be remembered?

MSPS Online Learning Portal News

by Joe Paiva

Many thanks to all of you who have patronized the *Online Learning Portal*; many of you have taken the online Minimum Standards courses (2 hours) that are available on this platform. Many have also partaken from the other offerings that are available in the portal.

Gary Kent, our spring workshop speaker, has seven courses that go through all the aspects of the new 2016 ALTA/NSPS standards. If you missed the workshop or need a video reference (once you sign up for the course, you can come back to review it as many times as you wish for a year) this is a great way to reinforce your own learning at the workshop. You can pick and choose the course or courses that are most of interest to you… you don't have to necessarily commit to all seven. If you are extremely familiar with ALTA/NSPS surveys, or if you are a manager or office person who needs a general understanding there's also an overview course on the standards. Finally, Gary has created a free "What's Changed" course that summarizes everything major in less than 30 minutes! We've posted this on the MSPS YouTube channel, but if you take it on the MSPS Online Learning Portal, you can get 0.5 PDU for it. It's free on the learning portal as well.



Coming soon, possibly in June, are eight new courses by Dennis Mouland. He's recorded four courses on ethics and four courses on fractional sections. We are finalizing these courses for viewing and will be announcing them via email soon.

MSPS Launches *YouTube* Channel

by Joe Paiva

Take a close look at the MSPS website (www.missourisurveyor.org) and you'll see in the left-hand list of selections, a new **VIDEO** tab. This takes you to some of the videos that we now have which are a record of some society events. We are also in the process of adding about 13 videos by *Missouri Land Survey Program* personnel to help you understand all the different ways that the *Program* helps the citizens of the state - especially surveyors in Missouri!

You can go to the channel directly at www.youtube.com. Then, in the YouTube search box, type "Missouri Society of Professional Surveyors." Near the top of the list, you will see the society logo and the word "channel" enclosed in a box. Click on that box to be taken to all of the videos in the channel. To help increase our visibility to other surveyors and the public, do us a favor and subscribe to the channel. Click "like" (the thumbs up symbol) on videos you watch. You can share them with others by clicking on "share." If you have a personal or company website where you'd like to publicize these videos (could even be an MSPS chapter website), follow the onscreen instructions to link or turn over the task to your webmaster! This all helps with our online presence as *your* professional society.

On The Trail: Snake tales from a surveyor

by Gary Sanderson, The Recorder (Greenfield, MA), April 13, 2016

An old surveyor stopped by Saturday afternoon to shoot the breeze. A bit of a character, he's always welcome.

He started right in on the Red Sox, especially Panda Bear, whom he calls "Fatso," then said he's more interested in the Patriots' draft and even had the date memorized. Not bad for an octogenarian closing in a 90.

Then came the subject he most wanted to address.

"What the hell is wrong with those people wanting to stock rattlesnakes at the Quabbin? Do they need their heads examined?"

"Well, you're not alone in that opinion," was the response. "Truthfully, though, it probably won't change things much. No one will likely ever know the difference."

"That may be true, but it still makes no sense to me."

Mind you, we're talking about a man who has legitimate reasons for his feelings about poisonous snakes. In 40-some years as a land surveyor on jobs from northern Maine to Maryland, he had some close calls over the years. And he didn't hesitate a millisecond to engage in eager conversation about his encounters with dangerous snakes as a member of crews cutting line with machetes, pounding hubs into the ground and running traverse and cross-section detail through mountainous wilderness plots spanning the Northeast from the early 1950s into the '80s.

A South Deerfield native, he had heard childhood tales of poisonous snakes and where they lurked but had managed to avoid confrontation during a foot-free childhood that included many a trek up the two Sugarloafs. No, never a rattlesnake or copperhead sighting from his boyhood adventures. Not a one. Just cautionary adult tales planted in his consciousness to assure that he was always alert when exploring the hills and dales.

That all changed as an adult, when he went to work as a land surveyor, working on projects like the MassPike between Westfield to Russell, where snake-infested Mt. Tekoa loomed large to the north, or Lane's Quarry along the West Springfield/Westfield border, and especially during extended work in the early 1960s laying out peripherals related to Camp David, the famous presidential retreat built 62 miles northwest of the White House in the 1930s and situated in the snake-infested Catoctin Mountain Park in rural western Maryland.

"We had to wear special high boots when we worked there," he said, "and sightings of poisonous snakes were not rare. In fact, I recall a laborer getting bitten not far from me and getting very sick.

Of course, he also remembers the time he was working somewhere in western Massachusetts — for the life of him, he can't recall where — when a trusted crew-member he always called "Old Fred" intervened in a memorable incident.

"I was walking along through the woods with Old Fred behind me and I unknowingly walked right past a snake I didn't see," he said. "Well, Old Fred — he had a hunter's eye in the woods — touched me on the shoulder and said, pointing down with the tip of his machete, 'Hey, look what you just walked right past — copperhead!'

"Sure enough, right there, a foot away from the point of his machete was a three-foot snake in an aggressive pose. You're more apt to get bitten by a copperhead, you know, because they don't warn you with a rattle. Old Fred took care of the problem. With the flick of his wrist, he cut that snake's head off right there within five feet of me."

Another time, having laid out an underground mountain communications chamber outside of Clear Springs, Md., blasting crews were hollowing out the bed rock with dynamite when they disturbed a thickly populated nest of rattlesnakes, blowing many living, squirming, angry rattlers atop a large, flat, warm bedrock shelf. The fellas were used to dealing with such problems, and their methods speak to the reason why Eastern timber rattlers are now an endangered species in these parts, where they were likely for years attacked with similar lethal fury.

"They doused the stone surface with gasoline and set the ledge aflame," he said, "killing them all."

You don't have to wonder whether rattlers uncovered during similar construction projects here in the Pioneer Valley and elsewhere in New England were likewise burned from existence. It was undoubtedly done here before the snakes became protected by law.

"When we told the story to the guy who owned the place where we ate every night, he didn't seem surprised," said the surveyor. "Apparently, it was common practice. Plus, he told us a story about a wildfire up there up on that mountain, when people could hear the rattlesnakes rattling as they fled down the hill toward water."

Who knows whether that's fact or fiction? You be the judge.

Back closer to home in the Pioneer Valley, our aged surveyor source said he didn't recall seeing a rattler, per se, when working on the MassPike project "around that bridge at Woronoco," but he did remember being warned often to be wary of rattlers, then in early autumn finding the shed skin of a large rattlesnake in a cement drainage trench along the edge of the interstate. It served as a visual reminder of the potential dangers lurking around any sunny, stony corner, and, of course, gave the fellas the heebie-jeebies every time a twig snapped across the back of their legs or a dead prostrate branch two or three inches thick lay across a path they were clearing through brush.

Then there was the time not far away, our source remembered, when a worker at the aforementioned Lane Quarry went into the brush to answer Mother Nature's call, come running out terrified, grabbed a long, heavy stick and came back out with a limp four-foot rattlesnake dangling from the end of it.

"In the field, we were always on the lookout in rocky, upland terrain, plus around stone walls, which snakes seem to like," he said, "especially down in Pennsylvania and Maryland. Stonewalls were always a concern down there, but I would guess you'd find snakes in stonewalls here, too, if you went looking."

One other place our surveyor friend remembers for its poisonous snakes was his brother-in-law's secluded, wooded estate in the middle Hudson Valley Town of Kingston, N.Y. There, he said, copperheads were not an uncommon sight in the woods and probably still aren't, be it along the dirt roads or even around the house, where one of his brother-in-law's Irish setters was once bitten. When his brother-in-law asked him if he'd survey the perimeter of his property some weekend to mark the corners, he promised to do so, "but only around wintertime when the snakes were hibernating."

As indisputable as it is today that local rattler and copperhead populations have diminished over the past 50 years, the fact is that they *were* here and were not at all uncommon in the not-so-distant past. Now, given the fact that the Pioneer Valley is indeed warming with the rest of the planet, how long before the return of the vipers with or without MassWildlife's proposed reintroduction initiative at the Quabbin Reservation?

Who knows? Maybe rattlers will find their way to Mt. Zion on their own.

Attention, students: Cursive writing could become requirement in public schools

by Will Sentell, The Advocate (Baton Rouge, LA) March 27, 2016; http://theavocate.com

Entering a national debate, freshman Louisiana Sen. Beth Mizell wants to require public schools to teach cursive writing, starting in August.

"I have people who tell me they got a thank-you note and cannot read it," said Mizell, a Franklinton Republican.

"It just struck me more and more: Why would we shortchange our children of something that is an identity forever?" she said.

The measure, Senate Bill 275, is awaiting action in the state Senate Education Committee.

Similar bills are pending in 11 other states, according to the National Conference of State Legislatures.

Six states already have cursive writing laws on the books, and teaching it is required in Arkansas, North Carolina, South Carolina and Tennessee.

The senator said what got her attention was when a land surveyor in Tangipahoa Parish told her he was having trouble hiring young workers because they could not read the notes on old surveys.

How common such lessons are in Louisiana is unclear because the state Department of Education does not keep tabs on the optional skill.

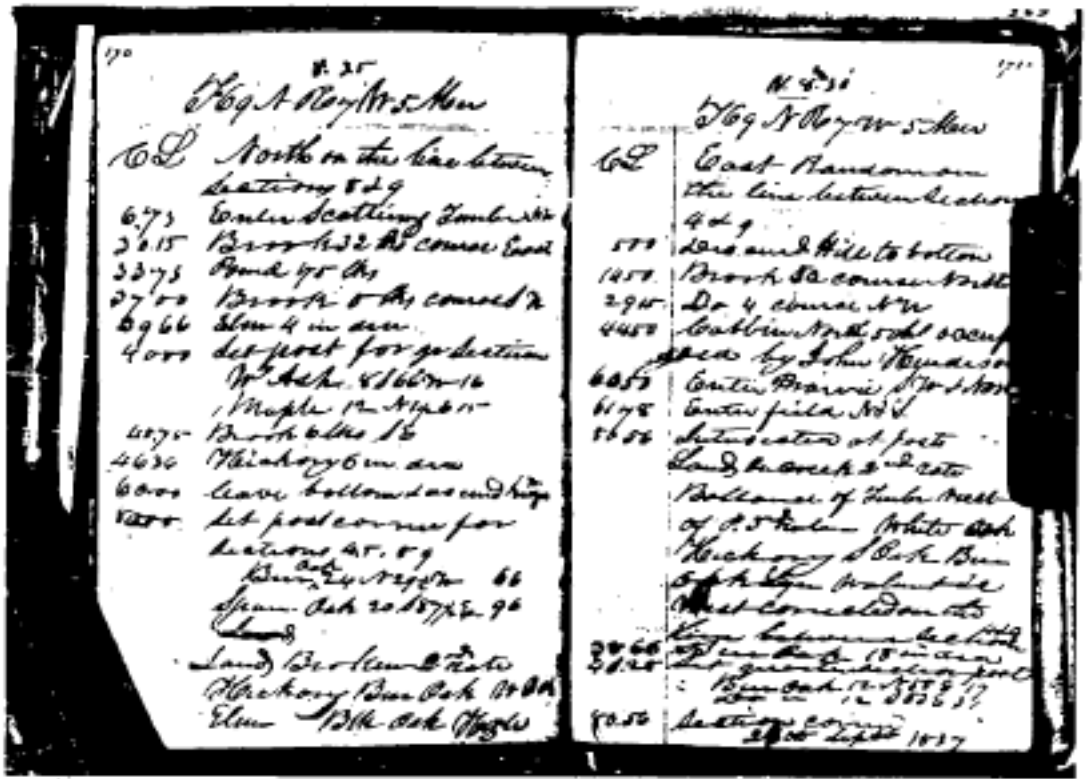
The top-rated Zachary school district does not routinely teach cursive penmanship because of time demands.

"How do you get the typing, the printing and the cursive all done at the same time when you are also teaching them how to read?" asked Zachary Superintendent Scott Devillier.

It is taught in the St. Bernard Parish school district.

"We are still a pretty conservative community," St. Bernard Superintendent Doris Voitier said. "And we still encourage kids to hopefully write letters and things like that."

Cursive writing — also known as script — was routinely taught in public schools for years. But the explosion of computers and new demands on daily classroom schedules have made it an endangered species for many 21st century students.



"It is considered an outdated mode of communications," Mizell conceded.

The senator said what got her attention was when a land surveyor in Tangipahoa Parish told her he was having trouble hiring young workers because they could not read the notes on old surveys.

Business owners have told her job hopefuls cannot sign their names on applications.

"Think about how many of the young people are so driven by having a unique identity," Mizell said.

"When you think about it, there is nothing more unique than your signature," she added. "This is such an opportunity to have an individual statement, how we sign our name."

Cursive writing is taught in the Central school district.

"It is not required, but it is part of our program," said Central Superintendent Michael Faulk. "At some point, they are going to have to write."

The mandate is not part of Common Core, the revamped reading, writing and math benchmarks.

Jean Woodside, a former state Teacher of the Year, said she teaches cursive writing to her fourth-graders at Bains Elementary School in St. Francisville.

She noted that the U.S. Constitution and other historical works were done in cursive. "You have to be able to read and appreciate cursive writing," she said.

Woodside, a veteran of 28 years in the classroom, said handwriting is no longer classified as a content area, like math and science.

"We have so many curriculum demands," she said. "Finding an hour or 30 minutes or 45 minutes or whatever it would take to teach handwriting the way we formerly taught handwriting, that is not an option."

Woodside said she introduces the subject by putting a "love note" on the board every day.

"It is in cursive," she said. "They cannot even begin to read it when they first come to class."

Once students buy in, Woodside said, they are eager to learn the skill.

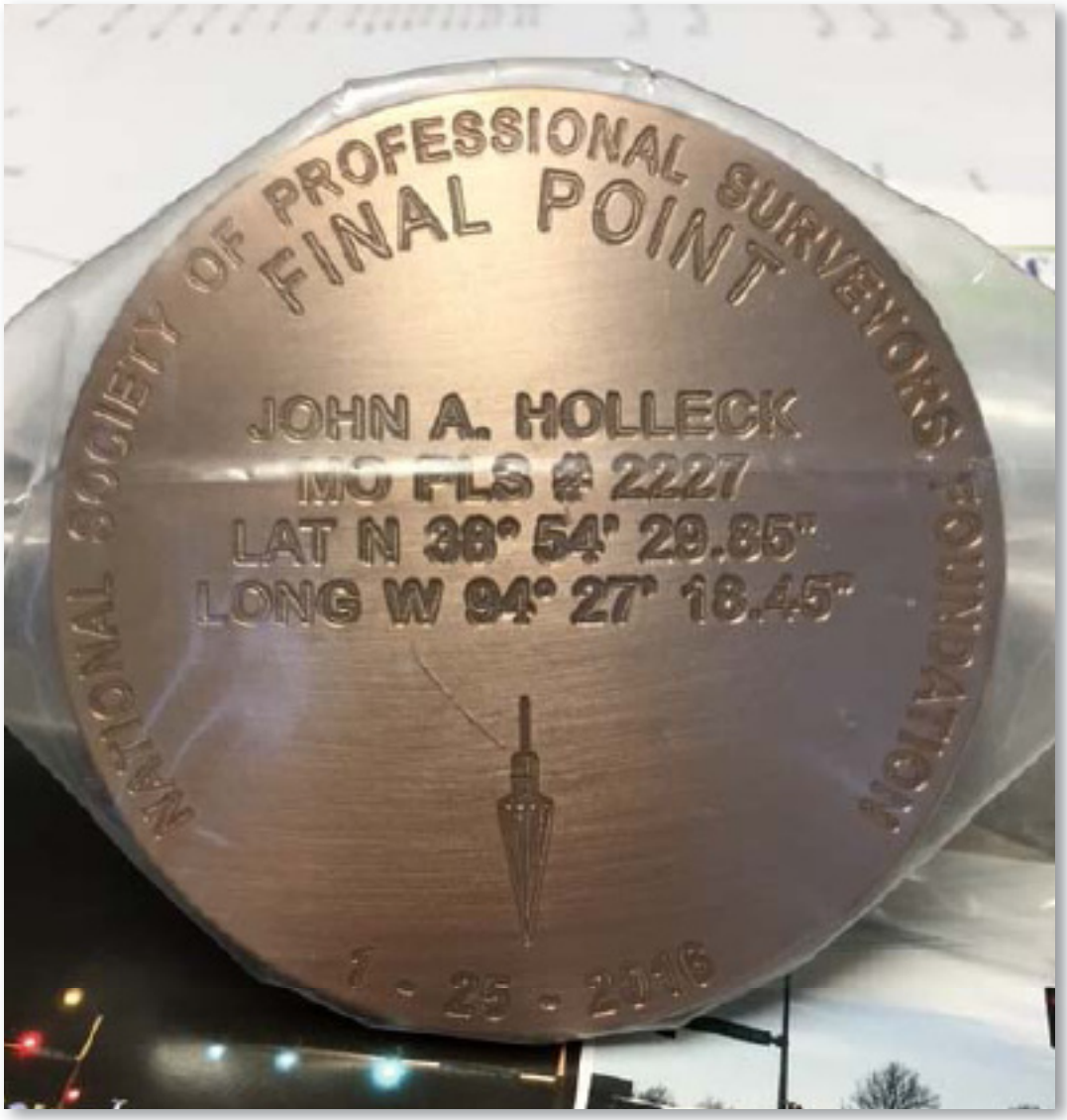
"So as teachers, we have to creatively imbed it in different activities," she said.

The Final Point Marker for John Holleck

With the passing of Missouri Surveyor's former Editor John Holleck, MSPS past President Robert Ubben of Raytown chose to remember John with a Final Point Marker. As part of the Berntsen and NSPS Final Point Project the remembrance contributes to an endowment for surveying scholarships – a fitting tribute to Mr. Holleck, a longtime surveying educator.

The beautifully engraved, solid 4" diameter bronze concrete marker has been personalized with the longitude and latitude of the Science and Technology building and grounds of the Metropolitan Community College – Longview in Lee's Summit, Missouri. This is the site where John taught most of his courses and led his students on the leveling and traverse test networks.

MSPS Lifetime Achievement Award being presented to John Holleck in 2014.



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 EST. 1910 INC.

Where old and new go hand-in-hand.

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

Stranger to the Deed

by Knud E. Hermansen, PLS, PE, Ph.D, Esq.

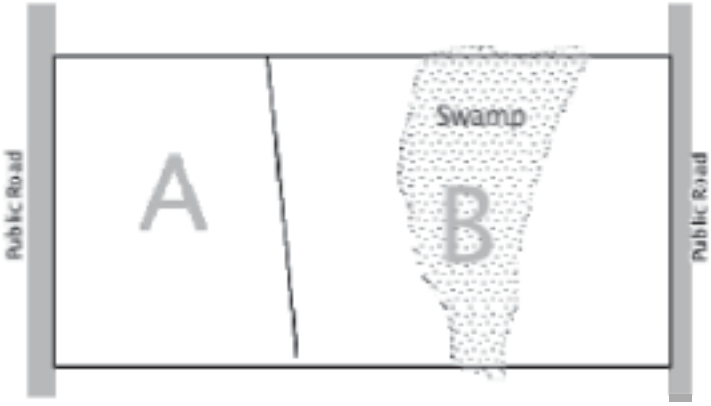
A surveyor queried me in regard to a conversation he had with a neighbor's attorney. The neighbor's attorney claimed that the surveyor's client did not have a right of way across the property belonging to the attorney's client.

The surveyor pointed out as proof positive that his client's easement was expressly mentioned within the deed of the attorney's client. How can the neighbor deny an easement does not exist when the easement is described in his deed?

Background

Here are the facts with the names omitted.

The owner of parcel B (surveyor's client) has wanted an easement for many years across parcel A (neighboring property) in order to access that portion of parcel B that could not be accessed without crossing a swamp. The owner of parcel A had always put off the request for an easement for parcel B by promising to convey an easement to the owner of parcel B at the time the owner of parcel A conveys his property. He was attempting to sell parcel A.



The owner of Parcel A, the neighboring property, entered a purchase-and-sales contract to sell his property. When the owner of parcel A conveyed his parcel, he inserted the following in his deed:

> "*Excepting and reserving from this conveyance a 20 foot wide easement along the northerly boundary of the above described conveyance for* [the owner of parcel B], *his heirs and assigns to access his property.*"

Upon learning of this clause in the neighbor's deed, the owner of parcel B obtained a survey locating the easement and planned to build a road across the neighboring property (parcel A). The new owner of parcel A objected to both the survey and the contemplated road to be constructed. A dispute ensued.

Unfortunately for the surveyor's client (the owner of parcel B) the creation of the easement in the conveyance of parcel A was ineffective under the *Stranger to the Deed* Doctrine.

Foundations for the Stranger to the Deed Doctrine

Under the *Stranger to the Deed* Doctrine the law will not permit the owner of land to convey the land to one person and in the same deed to establish an easement in favor of another. In some jurisdictions, the stranger to the deed applies to all interests in property, not just an easement.

Under the *Stranger to the Deed* Doctrine the creation of an easement to an individual not a party to the deed is not a valid conveyance. There are several reasons for voiding a third party transfer.

First, there can be no presumption of acceptance on behalf of a third party when the grantee to the deed accepts the deed conveying title to the property. There is no meeting of the minds. The easement to a third party is not a collimation of negotiations.

Imagine the havoc to title that could result if the acceptance of a grantee will bind a third party. Consider the situation where the owner of a parcel is burdened by an easement of necessity crossing the middle of his property. Every attempt to persuade the owner of the appurtenant property to move the location of the road in the easement has failed. Without a requirement for a third party in a deed to accept the conveyance, the owner of the burdened property could sell the property to his spouse reserving an easement to the neighbor in a different location much more favorable to the burdened property and much less favorable to the appurtenant property. Without the *Stranger to the Deed* Doctrine to protect the owner of the appurtenant property, the establishment of an easement in this situation means that the "easement by necessity" no long exists and its former location is extinguished.

A second reason for an easement granted to a third party to be void is that there was no consideration for the interest created in favor of the third party to the deed. Since there was no consideration for the interest conveyed to the third party (at least stated in the deed), the interest is not protected by the recording statutes.

A third reason for an easement granted to a third party to be void is that the easement conveyed will not be indexed and not found during a typical title search.

Consider the following ramification if the stranger to the deed doctrine did not exist.

If the creation of an easement to a third party in a deed of conveyance were permitted, the result would thwart notice of the easement during a title examination of the appurtenant property. Referring to the first scenario, the examination of the title to parcel B would never reveal the existence of the easement. A title search of parcel B's title documents would never reveal a conveyance from the owner of parcel A to parcel B. Even if an abstractor, searching parcel B's title were to look in the grantor/grantee index for title documents involving the owners of parcel A, the abstractor would never see a listing in the index where the owner of parcel A conveyed an easement to an owner of parcel B. It is not a reasonable and typical procedure for a title search of parcel B's title documents to also examine each and every title document for the surrounding properties.

The fatality arising under the *Stranger to the Deed* doctrine could have been avoided if the grantor had first made a conveyance of the easement to the owner of parcel B by deed, followed immediately (if so chosen) with the conveyance of parcel A.

Some jurisdictions have abandoned or modified the *Stranger to the Deed* doctrine. Why shouldn't the grantor be allowed to accomplish in one deed what can legally be accomplished in two? Is it much different from what the law has long permitted, for the grantor to convey, using just one deed, a life estate to one person and a remainder to another person?

Unfortunately for the surveyor who made the query that started this discussion, the jurisdiction where the properties reside continue to recognize the *Stranger to the Deed* doctrine. Even though the easement is cited in the neighbor's deed, the neighbor is under no obligation to recognize the easement.

† Knud Hermansen is a licensed surveyor, engineer, and attorney at law. He teaches in the Surveying Engineering Technology program at the University of Maine and offers consulting services in boundary retracement, surveyor liability, roads & easements, boundary litigation, and alternate dispute resolution.

SEILER
GEOSPATIAL DIVISION

70 YEARS OF EXCELLENCE
1945-2015

Celebrating 70 years of Service Excellence

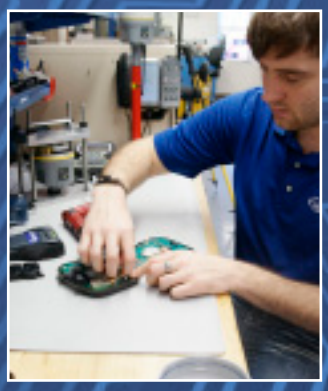
SERVICE/REPAIR

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

Trimble PREFERRED SERVICE PROVIDER

Trimble Authorized Distribution Partner

SPECTRA PRECISION AUTHORIZED DEALER



Toll Free: 877-330-6303

Email: servicedept@seilerinst.com

www.seilerinst.com

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

Linn Tech Gears Up for Board-Mandated College Courses

by Joe Paiva

The State Technical College of Missouri (STCM), formerly Linn Tech is now set up to offer two online courses during the fall term and two more in the spring. Two of those courses, Surveying I and II are technically "mixed mode" courses, as they will require your presence on the Linn campus during five Saturdays for the laboratory sessions. It is possible to do an equivalent experience if you're not able to travel there, but ONLY if this is pre-approved during the time of registration.

Such remote laboratory work has to be done with the active participation and commitment on the part of a licensed land surveyor or engineer who has the equipment, time, and needed field assistance to be the student's mentor, lab instructor and field assistant. Laboratory projects that are done remotely will be identical (only modified for local conditions) to those done on campus. They will be done on the same schedule, and graded on the same basis, by the course instructor, not the licensed individual who serves as mentor/lab instructor. This option places a lot of responsibility on good communication, attention to detail and timeliness on the part of the student.

College level courses, whether online or not, are not anything like continuing education courses. Students must be prepared to commit between an average of eight to 12 hours a week for the 16-week period of the course. It may be more like 12 to 16 hours when the course included laboratory work.

STCM will offer in the fall *Surveying I* and *Land Records: Researching and Rules of Construction*. In the spring it will be *Surveying II* and *Legal Aspects of Boundary Surveying*. The abbreviated descriptions of the courses follow.

To get more information or to apply for enrollment as a non-degree student at the College, contact Cynthia Cox, Surveying Coordinator, at Cynthia.Cox@statetechmo.edu, office phone (573) 897-5220, mobile phone (573) 205-8292.

CVT 240 Surveying I

This course teaches basic surveying principles, mathematics, and operations with emphasis on basic computations and operation of equipment including the surveyor's tape, level, and total station. This course has a laboratory component where the student learns basic instrument use and elementary surveying operations through a variety of required (laboratory) field exercises.
Pre-requisite: CVT 140 or equivalent or interview/test with a grade of C or better
Text: *Surveying*, 6th ed., McCormac

CVT 241 Surveying II

This course teaches the theory and practice of traverse computations. Topics that are introduced include mathematics and concepts used in route surveying; elementary concepts of property boundary surveying, topographic mapping, and volume calculations; and construction surveying. Elementary concepts of Geographic Information Systems (GIS) and Global Positioning Systems (GPS) are also introduced. This course has a laboratory component where the student builds on the instrument use and surveying operations learned in Surveying I.
Pre-requisite: CVT 240 or equivalent) or interview/test with a grade of C or better
Text: *Surveying*, 6th ed., McCormac

(continued on page 32)

Linn Tech Gears Up (continued)

CVT 242 Land Records: Researching and Rules of Construction

This course teaches the fundamental knowledge required to perform land records research with deeds and other related records, survey records, and other land records preparatory to conducting property boundary surveys. The student will examine evidence of ownership, historical information, property descriptions, and legal requirements for reviewing and recording documents. Applications of the applicable portions of the Missouri (and other state) Minimum Standards for Property Boundary Surveys as well as of the standards for land title surveys of the American Land Title Association (ALTA)/National Society of Professional Surveyors (NSPS) will be discussed. Various aspects of professional practice and ethics are also included.
Pre-requisite: CVT 241 or approved equivalent with a grade of C or better
Text: *Interpreting Land Records*, 2nd ed., Wilson

CVT 243 Legal Aspects of Boundary Surveying

This course teaches the legal principles of surveying including topics in boundaries, property law as applied to surveying, monumentation, deed interpretation, and professional liability and ethics. Also discussed are various principles of Missouri survey law, regulations such as the Missouri (and other state) Minimum Standards for Property Boundary Surveys, and the applicable portions of the standards for land title surveys of the American Land Title Association (ALTA)/National Society of Professional Surveyors (NSPS).
Pre-requisite: CVT 241 or approved equivalent with a grade of C or better
Texts: *Brown's Boundary Control and Legal Principles*, 7th ed., Robillard and Wilson and *The U.S. Public Land Survey System for Missouri*, any edition, Elgin

MSPS Member Receives PhD

by Joe Paiva

Congratulations to James Preston Peterson II who recently graduated from the Missouri University of Science and Technology with his PhD in Civil Engineering. Dr. Peterson's dissertation title: *Unmanned Aircraft Systems, Image Collection and Computer Vision Image Processing for Surveying and Mapping that Meets Professional Needs*. Jim is busy writing papers for scientific journals as well as surveying and geomatics magazines in the U.S. and global markets. You can expect to see him presenting seminars on optimizing UAS operations, flights, and image processing. Two MSPS members were on Jim's committee: Dr. Richard Elgin and Dr. Joseph Paiva. Dr. Peterson is Geospatial Manager at Cole & Associates, Inc.

Volunteers needed to run for the MSPS Board of Directors three year term.

Must be PLS and current MSPS Member in good standing.

Send email to Adam Teale, MSPS Nominating Committee Chair
ateale@midlandsurvey.com

Awards Nomination Form

to be awarded at the Annual Conference

Person Nominated:_____

Name of Award:_____

On a separate page highlight the reason(s) for your recommendations/nomination.

Mail or fax completed form to the **Missouri Society of Professional Surveyors, PO Box 1324, Jefferson City, MO 65102, Fax: 573-635-7823, no later than September 1, 2016**. If you have questions contact Adam Teale, Awards Committee Chair.

AWARDS

Surveyor of the Year Award has been given since 1987. This award is given to a MSPS member who has given freely of his/her time and efforts to the organization and toward the betterment of the surveying profession.

* Must be a Member of MSPS.
* Should enjoy an outstanding reputation for his/her knowledge, integrity and professional competency.

Robert Myers Service Award has been given since 1990. This award is given to an MSPS members who, over an extended period of time (ten years minimum) has given exemplary service and dedication to the surveying profession and in particular to the Society.

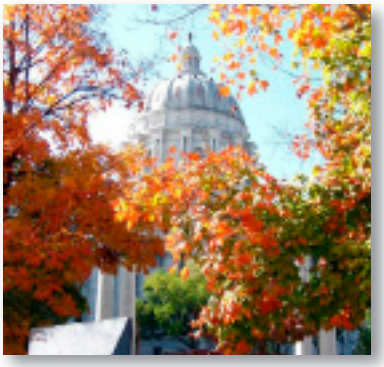
PAST RECIPIENTS INCLUDE

Surveyor of the Year – Stan Emerick, Robert Ubben, Darrell Pratte, Chris Wickern, Mark Nolte, Ralph Riggs, John Teale, Mike Gray, Don Martin, Dan Lashley, Richard Cox, Jim Mathis, Robert Shotts, Troy Hayes, Craig Ruble, Gerard Harms, John Holleck, John Stevens, Richard Barr, Erwin Gard, Charles Kutz, Robert Myers, Dan Govero, Jim Anderson, Mike Flowers, Bob Pirrie, and Jerry Day

Robert E. Myers Service Award – Gary Bockman, Sharon Herman, Troy Hayes, Rich Howard, Stan Emerick, Don Martin, Robert Myers, John Teale, Jim Mathis, Robert S. Shotts, Stan French, Dan Lashley, Gaylon Smith, Gerard Harms, John A. Holleck, J. Michael Flowers, Erwin Gard, Rich Norvell, David Krehbiel, Richard Elgin, Dan Govero, Jim Anderson, Rich Barr, Norman Brown, and Harold Schulte

Capitol View: A look at surveying legislative matters

by Mo McCullough, MSPS Lobbyist



The 2016 legislative session came to a close on May 13th and the Missouri State Capitol building now sits like a huge empty cave. As is usually the case the last two weeks were packed full of action and surprises, some good, some bad. Bills surviving the amendment process may have started out with one subject and very few pages reached passage often with multiple subjects and over hundreds of pages!

The "big" issue for Missouri surveyors during this session was the effort by the Missouri Bar and the Land Title Association to legally assure authorization to develop land descriptions for deeds. They were seeking specific language with a somewhat detailed listing of description services they wanted included in the practices of law and title insurance underwriting. MSPS opposed such action and in February began working with legislators Korman and Ross (both are licensed surveyors and MSPS members) to stop or limit any intrusions by other professions into the legal definition of surveying and its practice (RSMo 327.272). Eventually MSPS reached an agreement with the attorneys and land title businesses to not oppose "compromise language". This agreed too language was passed by inclusion in SB 588 and SB 833 (it had also been slipped into five others bills, none of which passed). Had we not exercised the good judgement to work with these other groups the bad language would have been on these seven bills! Our action limited the reach of these other professions and preserved the surveyor's role as protector of the public's health, safety and welfare when it comes to land boundary matters.

SECOND REGULAR SESSION
[TRULY AGREED TO AND FINALLY PASSED]
CONFERENCE COMMITTEE SUBSTITUTE FOR
HOUSE COMMITTEE SUBSTITUTE FOR

SENATE BILL NO. 833

98TH GENERAL ASSEMBLY
2016

Unofficial

AN ACT

To repeal sections 313.800, 313.817, 327.272, 381.022, and 381.098, RSMo, and to enact in lieu thereof ten new sections relating to financial transactions, with existing penalty provisions.

Be it enacted by the General Assembly of the State of Missouri, as follows:

327.272.5 Nothing in this section shall be construed to preclude the practice of title insurance business or the business of title insurance as provided in chapter 381, or to preclude the practice of law or law business as governed by the Missouri supreme court and as provided in chapter 484.

The Board of Registration's language (supported by MSPS) removing the requirement for three letters of recommendation from new licensee applicants did not make it to the Consent calendar but it was amended onto SB 831. Unfortunately, that bill got loaded up with several unpopular amendments and died on the last day of the session.

Our bill which proposed changes in educational requirements for those entering the surveying profession stalled early and never really got off the ground. If MSPS intends to continue seeking this change, we need to start early on its language and building our support.

National Society of Professional Surveyors

March 9, 2016

Mr. Douglas A. McIntyre
Editor-in-Chief & CEO
24/7 Wall St., LLC
New York, NY 10128

RE: *Will yourjob disappear?*
Samuel Stebbins and Michael B. Sauter
10:29 AM EST March 6, 2016

Dear Mr. McIntyre:

I am writing to you in reference to the article entitled "'Will your job disappear", authored by Samuel Stebbins and Michael B. Sauter, which appeared in the March 6, 2016 edition of 2417 Wall St.

The article addresses what are referred to therein as "17 disappearing middle class jobs." Statistics are provided from the U. S. Department of Labor, Bureau of Labor Statistics webpages, http://www.bls.gov/oes/current/oes173031.htm and http://www.bls.gov/ooh/architecture-and-engineering/surveying-and-mapping-technicians.htm, along with some commentary about each job.

On behalf of the members of the National Society of Professional Surveyors (NSPS) and of the respective independent state surveying societies (listed below) which are affiliated with NSPS, I wish to point out to you some misleading language in the article regarding job number 15 on the list, "Surveying and mapping technicians". This category is referenced as 17-3031 in the aforementioned BOL statistics.

While the information shown for 17-3031 is correct, the article goes on to incorrectly identify the workers in the category as "surveyors and mapping technicians". In that same BOL statistical information, the category for "surveyors" is shown in 17-1022 which clearly identifies the category as a "professional" occupation requiring a bachelor's degree as the typical entry-level education and a licensure requirement within all states in which one wishes to practice before being allowed to certify legal documents associated with ownership and development of land within those respective states. Such surveyor's license is also required for the practice of a variety of other geospatial activities.

Additionally, the projected employment change in the 2014-2024 statistics for "surveyor" is quite a bit more optimistic than that for the "surveying and mapping technician". In fact, with the average age of the surveyor nationwide being in the mid50s, and an ever-increasing demand for geospatial information, the need for surveyors' services is very likely to be on the increase.

On behalf of the surveyors throughout the country, we the undersigned appreciate the opportunity to point out the misconception created by the language in the "17 disappearing middle class jobs" article, and request that a clarification be printed in an upcoming edition of 2417 Wall St.

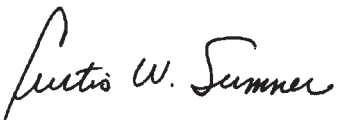
We are pleased to provide the following information which can be incorporated into the requested clarification that will assist your readers in better understanding the roles of professional surveyors, and the surveying and mapping technicians who work under their guidance, in their commitment to protect the health, safety, and welfare of their fellow citizens:

Professional Surveyors, with the assistance of surveying and mapping technicians, bridge the gap between the past and the future, utilizing highly specialized skills and technology to build solutions to spatial problems locally, regionally, and nationally. Whether retracing property boundaries that were established centuries ago, modelling terrain characteristics using aerial UDAR equipped UA Vs, or providing sea bottom surveys using the latest high precision sonar systems, today's Professional Surveyors provide the foundation for better decision making in our nation's rapidly evolving physical landscape. With industry demandfor these highly skilled professionals at an all-time high, the rewards for choosing a career in the surveying and mapping field are better than you might think.

Careers in the surveying and mapping profession offer tremendous opportunities for young people who are interested in exploring their world.

Ready for a challenge, or want to learn more about surveying? Start by clicking www. nsps. us. com.

Respectfully,



Curtis W. Sumner, LS
Executive Director

Resolving Boundary Disputes

2016 Annual Meeting

October 13-15, 2016

Sheraton Westport Lakeside Chalet ~ St. Louis, MO

Thursday, October 13, 2016

"The Missouri USPLSS in Four Hours" *by Dr. Dick Elgin, LS, PE*
"Minimum Standards" *by Darrell Pratte, PLS*
"Section Breakdowns" *by Bob Shotts, PLS*
"Accuracy Using GPS" *by Seiler Instrument*
"Understanding the Boundaries of the Professional Surveyor" *by Mark Wiley, PLS*
"UAV's-Pro's, Con's and Pricing Availability" *by Jim Martin*
"Safety and the Professional Land Surveyor" *by Mark Wiley, PLS*
"UAV Regulation and Insurance" *by Jim Martin*

Friday, October 14, 2016

"Keeping the Professional Land Surveyor Professional" *by Mark Wiley, PLS*
"Surveying Liability-Insurance & Coverage-What, Why and How Much" *by Lisa Isom (invited)*
"Data Collection Field to Finish" *by Jim Martin and Aaron Newman*
"Contracts and Liability" *by Eric Harris*
"Point Cloud Processing" *by Jim Martin and Aaron Newman*
"Contracts: Others and Your Own" *by Eric Harris*

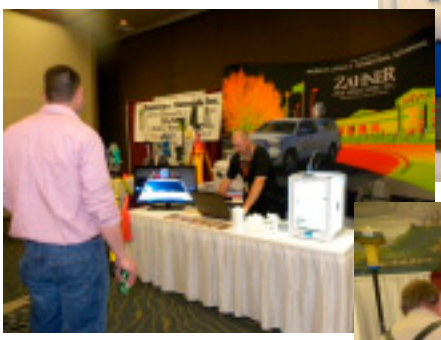
Saturday, October 15, 2016

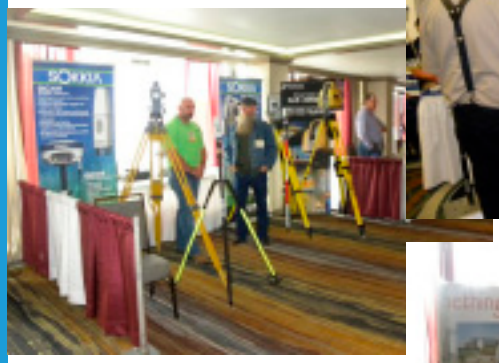
"Revisiting Justice Cooley and Resolving Boudnary Disputes-The Judicial Functions of the Land Surveyor" *by Michael Pallamary, PLS*
"Quality Control for Land Surveyors" *by Michael Pallamary, PLS*

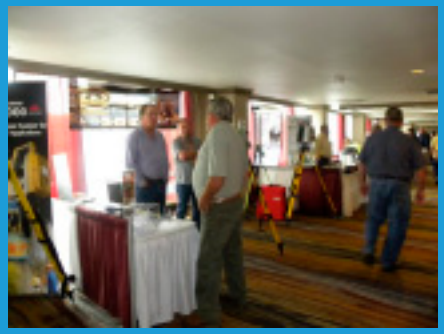
MISSOURI SOCIETY OF PROFESSIONAL SURVEYORS

Spring Workshop

Thanks to Our Exhibitors







Carlson Software, GeoLearn, LLC, GeoShack, Griner & Schmitz, Klein Survey Systems, Laser Specialists, Missouri Department of Agriculture Land Survey Program, Ozark Laser, Seiler Instrument Company, Shawnee Professional Services, State Technical College of Missouri, Surveyors Materials, Topcon Solutions Store and Zahner & Associates

News from the National Geodetic Survey

Thursday, April 21, 2016

NGS Trains NASA GIS Team for Subsidence Research

NGS personnel are training members of NASA's GIS Team this week in geodetic leveling data collection and reduction procedures. The team is implementing a research plan to quantify subsidence in the area of the NASA Langley Research Center in Hampton, VA. They will use leveling procedures to establish a baseline of high-precision height differences between a network of geodetic control marks, GNSS tracking stations, and a water level station recently installed at the Center in support of the project.

Thursday, April 15, 2016

GRAV-D Project Tests Unmanned Aircraft

On, Thursday, April 14, NGS tested a gravity-measurement device on an unmanned aircraft out of Manassas, Virginia, as part of its Gravity for the Redefinition of the American Vertical Datum (GRAV-D) project to produce highly accurate height measurements. Test flights took place in "unmanned mode" with a safety pilot aboard. An unmanned plane can more easily obtain GRAV-D data in remote locations and has the potential to greatly reduce the costs associated with data collection. Once complete, GRAV-D will provide an estimated $240 million in annual savings from improved floodplain management and an additional $282 million in savings from activities that benefit from more precise elevations, including coastal resource management, construction, agriculture, and emergency planning. Partners include Aurora Flight Sciences Corporation and Micro-g LaCoste.

Thursday, April 7, 2016

Record Month for Online Positioning User Service (OPUS)

NGS's OPUS helped surveyors and engineers more than 83,000 times in March 2016, reaching a new high total for the popular web tool that ties individual user surveys into the common National Spatial Reference System. March usage was buoyed by both university usage and National Surveyors Week contributions to the "GPS on Bench Marks" campaign, which NGS prompted in collaboration with the National Society of Professional Surveyors.

Thursday, March 31, 2016

Geodetic Training for U.S. Fish & Wildlife Service

In 2015, the U.S. Fish and Wildlife Service (USFWS) received funding to establish geodetic control at each of its Region 5 Wildlife refuges. Each refuge now has high quality vertical benchmarks connected via geodetic leveling to nearby existing level lines. To help the USFWS ensure that each refuge can take advantage of this investment, NGS provided instruction on modern geodetic techniques and how GNSS (Global Navigation Satellite System) positioning can be used to extend geodetic control throughout the refuges.

Thursday, March 24, 2016

Training to Perform Accurate Geodetic Leveling Surveys in North Carolina

The week of March 21, NGS provided on-site training in geodetic leveling river crossing data collection and processing procedures to employees of the North Carolina Geodetic Survey. NGS has recently developed new procedures for surveyors and geodesists to perform leveling surveys across rivers, valleys, or other barriers. A new chapter has been added to the NGS geodetic leveling manual to describe these updated techniques. These new procedures demonstrate NGS's commitment to addressing the needs of the surveying community by making use of modern and more accurate equipment that is readily available to the widest group of users. This training will enable our partners to extend their vertical control networks across natural barriers, such as rivers or lakes, providing for increased efficiency and cost savings.

Thursday, March 17, 2016

Aerial Imagery Helps Assess Impacts of El Niño

NGS deployed the NOAA Office of Marine and Aviation Operation's King Air aircraft to complete the collection of geo-referenced oblique imagery of the West Coast. More than 3,000 images were collected from the U.S.-Mexico border to Cape Flattery, WA. The imagery will be used to assess impacts of the ongoing El Niño event in several NOS mission areas, including navigation and coastal zone management. The imagery also supports the work of mission partners, including other NOAA offices, the U.S. Geological Survey, U.S. Army Corps of Engineers, Federal Emergency Management Agency, and state, local, and academic interests. The data are in the public domain, and baseline imagery from September 2015 is available for comparison purposes.

Thursday, March 10, 2016

Guidance Received on Surface Elevation Table (SET)Technique

The National Park Service, in collaboration with NOAA and the U.S. Geological Survey, recently published *The Surface Elevation Table and Marker Horizon Technique: A Protocol for Monitoring Wetland Elevation Dynamics*, building on more than 20 years of expertise using SET technology to understand processes of vertical wetlands growth. The document gives users an authoritative protocol to help them across all phases of implementation—from designing a study to establishing study sites, installing infrastructure, taking elevation measurements, and analyzing data. Coastal scientists use SET data to understand wetland development over long time scales, and to study why some wetlands appear unable to keep pace with rising sea levels.

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

SECOND EDITION

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 or ❒ Invoice my Firm

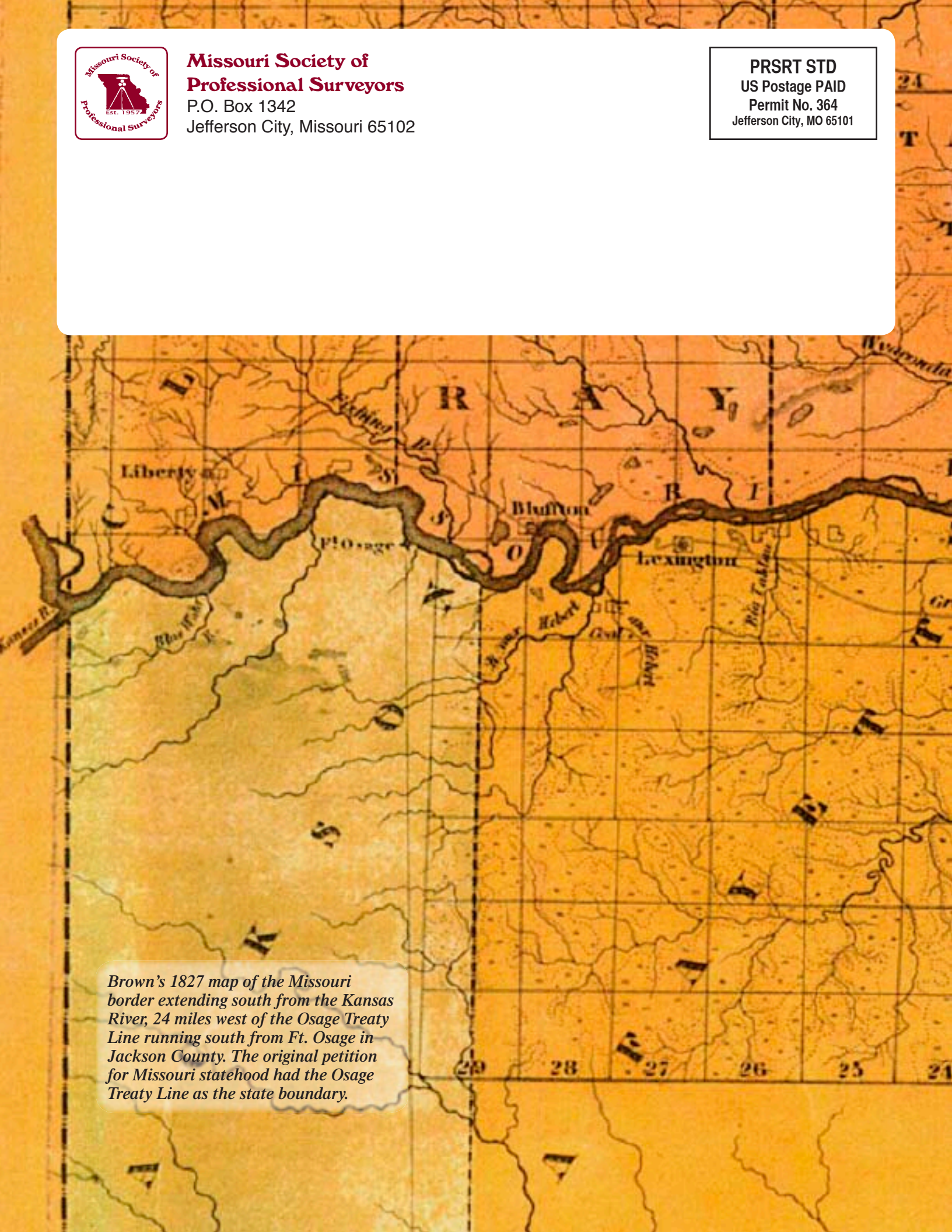
Missouri Society of Professional Surveyors Est. 1957

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 call 573-635-9446 or email msps@missourisurveyor.org

2016 MSPS Corporate Members

Name	Street Address	City/State/Zip	Email	Office Phone	Firm
Wesley Scrogham	3855 S. Northern Blvd	Independence, MO 64052	wes@phoenix-llc.com	816-743-9000	Phoenix Engineering & Surveying, LLC
Gerard Harms	PO Box 52	Eldon, MO 65026	jharms@harmsinc.com	573-392-3312	Harms, Inc.
Ralph Riggs	102 W. Trish Knight St., PO Box 71	West Plains, MO 65775	ralphr@riggslandsurveying.com	417-256-8125	Riggs & Associates, Inc.
Larry Graham	1700 Swift Ave., Ste. 100	N. Kansas City, MO 64116-3821	larry.graham@skw-inc.com	816-756-0444	Shafer, Kline & Warren, Inc.
	103 Elm St.	Washington, MO 63090	mail@bfaeng.com	636-239-4751	Buescher Frankenberg Associates, Inc.
Kevin Lambeth	2045 W. Woodland	Springfield, MO 65807	klambeth@aeincmo.com	417-866-2741	Anderson Engineering, Inc.
David King	18900 West 158th St., Ste. G	Olathe, KS 66062	dave@schmitzking.com	913-397-6080	Schmitz, King & Associates, Inc.
	9801 Renner Blvd.	Lenexa, KS 66219-9745		913-492-0400	George Butler Associates, Inc.
J. Bernard Baldus	PO Box 528	Grandview, MO 64030	bb@landsurvey-co.com	816-966-0839	Migar Enterprises, Inc.
Steven Lewis	702 S. Main St.	Joplin, MO 64802	slewis@tristate-engineering.com	417-781-0643	Tri-State Engineering, Inc.
John Nelson	PO Box 482	Bolivar, MO 65613	johnrmnelson@yahoo.com	417-326-2777	Nelson Surveying, LLC
Dale Bax	221 Point West Blvd.	St. Charles, MO 63301	dbax@baxengineering.com	636-928-5552	Bax Engineering Co., Inc.
Terry Westerman	6175 Main Street	Frisco, TX 75034	twesterman@coletx.com	972-624-6000	Cole & Associates, Inc.
Daniel Govero	5929 Old State Rd.	Imperial, MO 63052	glsland@goverolandservices.net	636-464-9380	Govero Land Services, Inc.
Daniel Zervas	1638 Jeffco Blvd.	Arnold, MO 63010		636-282-1600	Burdine & Associates, Inc.
Michael Zahner	200 Zahner Place	Perryville, MO 63775	zahner@zahnerinc.com	573-547-1771	Zahner & Associates, Inc.
	3312 Lemone Industrial Blvd.	Columbia, MO 65201		573-875-8799	Allstate Consultants, LLC
James Anderson	203 NW Executive Way	Lee's Summit, MO 64063	jsa@andersonsurvey.com	816-246-5050	Anderson Survey Company
Chris Koehler	194 Coker Lane	Cape Girardeau, MO 63701	ckoehler@koehlerengineering.com	573-335-3026	Koehler Engineering & Land Surveying, Inc.
Dennis Amsinger	101 S. Crittenden, Rm. B-3	Marshfield, MO 65706	dennis@amsingersurveying.com	417-859-5516	Amsinger Surveying, Inc.
Richard Musler	32 Portwest Court	St. Charles, MO 63303	rich@muslereng.com	636-916-0444	Musler Engineering Co.
Keith Brickey	2500 E. McCarty	Jefferson City, MO 65101	kbrickey@cmps-inc.com	573-634-3455	Central MO Professional Services, Inc
Robert Shotts	267 East Third Street	Lebanon, MO 65536	bob@shottsinc.com	417-588-7877	Robert S. Shotts, Inc.
	12300 Old Tesson Road, Ste. 300 D	St. Louis, MO 63128		314-849-6100	Grimes Consulting Inc.
Marty Marler	11402 Gravois Rd., Ste. 200	St. Louis, MO 63126	marler@marlersurveying.net	314-729-1001	Marler Surveying Co., Inc.
Mark Doering	5030 Griffin Road	St. Louis, MO 63128	mdoering@doeringeng.com	314-487-6913	Doering Engineering, Inc.
	PO Box 493	Nixa, MO 65714	chines@shafferhines.com	417-725-4663	Shaffer & Hines, Inc.
Robert Ubben	8900 Indian Creek Parkway, Ste. 450	Overland Park, KS 66210		913-239-1100	Affinis Corp.
Chris Bowen	2121 Megan Drive	Cape Girardeau, MO 63701	info@bowenengsurv.com	573-339-5900	Bowen Engineering & Surveying, Inc.
Michael Meiners	801 S. Fifth St., Ste. 202	St. Charles, MO 63301		636-947-0607	St. Charles Engineering & Surveying, Inc.
Troy Hayes	501 N. Market	Maryville, MO 64468	tryhayes@midlandsurvey.com	660-582-8633	Midland Surveying, Inc.
Hagos Andebrhan	1020 E. 8th St.	Kansas City, MO 64106		816-283-3456	Taliaferro & Browne, Inc.
Steven Laune	530 A E. Independence Dr.	Union, MO 63084	mail@cochraneng.com	636-584-0540	Cochran
	201 NW 72nd Street	Gladstone, MO 64118	sam@sams-survey.com	816-436-0732	Aylett Surveying & Engineering
David Skornia	22 Richmond Center Court	St. Peters, MO 63376	dskornia@prs3.com	636-397-1211	Pickett, Ray & Silver, Inc
Michael Taylor	114 N. Main St.	Clinton, MO 64735	mtaylor@wcieng.com	660-885-8311	Whitehead Consultants Inc.
	6408 Hwy AJ	Washington, MO 63090	pellinsurveying@gmail.com	636-583-7777	Pellin Surveying LLC
David Rinne	14920 W. 107th St.	Lenexa, KS 66215	dr@schlagelassociates.com	913-492-5158	Schlagel & Associates, PA
Craig Ruble	PO Box 367, 801 S. McArthur	Salem, MO 65560	craig@rublesurveying.com	573-729-8740	Ruble Surveying, Co.
William Berthold	2725 Sutton Blvd. B	St. Louis, MO 63143	billb@fe-stl.com	314-644-2200	Frontenac Engineering Group, Inc.
Shelly Clark	PO Box 278	Cottleville, MO 63338	shelly@cardinalsurveying.com	636-922-1001	Cardinal Surveying & Mapping, Inc.
Steve Kasten	520 Spirit of St. Louis Blvd.	Chesterfield, MO 63005	stevek@surdex.com	636-368-4400	Surdex Corporation
Gerald Bader	16255 Sugar Bottom Road	Ste. Genevieve, MO 63670-8613	baderls@brick.net	573-483-2777	Bader Land Surveying, Inc.
Edward Weman	8023 Waddell Avenue	St. Louis, MO 63125	wwsurv@att.net	636-394-6090	West Wildwood Surveying, LLC
Terris Cates	PO Box 700, 1714 E 10th Street	Rolla, MO 65402	terris@integrityeng.com	573-341-2100	Integrity Engineering, Inc.
William Berthold	2725 Sutton Blvd.	St. Louis, MO 63143		314-781-5665	Pitzman's Co. of Surveyors & Engineers
Patrick Poepping	801 Broadway, Ste. 248, PO Box 190	Hannibal, MO 63401	psba@psba.com	573-406-0541	Poepping, Stone, Bach & Associates, Inc.
	7905 Big Bend Blvd., Ste. 101	Webster Groves, MO 63119	info@minnicksurveying.com	314-721-9500	Minnick Surveying, LLC
Patrick Ward	7301 W. 133rd St., Ste. 200	Overland Park, KS 66213	pward@olssonassociates.com	913-381-1170	Olsson Associates
George Gower	5055 New Baumgartner Road	St. Louis, MO 63129	ggower@sterling-eng-sur.com	314-487-0440	The Sterling Company
	50 SE 30th Street	Lee's Summit, MO 64082	esinfo@es-kc.com	816-623-9888	Engineering Solutions
Derek Twente	4940 Old Collinsville Road	Swansea, IL 62226	dtwente@twm-inc.com	618-624-4488	Thouvenot, Wade & Moerchen, Inc.
James Park	8 E. Main Street	Wentzville, MO 63385	jpark@cochraneng.com	636-332-4574	Cochran
	901 NW Vesper Street	Blue Springs, MO 64015	info@powellsurveying.com	816-228-7070	Powell and Associates, LLC
	7101 College Blvd., Ste. 400	Overland Park, KS 66210		913-371-5300	Brungardt Honomichl & Co., P.A.
Michael Adams	2930 SW Woodside Drive	Topeka, KS 66614	madams@cfse.com	785-272-4706	Cook Flatt & Strobel Engineering

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



Brown's 1827 map of the Missouri border extending south from the Kansas River, 24 miles west of the Osage Treaty Line running south from Ft. Osage in Jackson County. The original petition for Missouri statehood had the Osage Treaty Line as the state boundary.