Missouri Surveyor

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri

September 2017

MISSOURI SURVEYOR

CALENDAR OF EVENTS

2017

October 19-21, 2017
60th Annual Meeting and Convention
Ramada Plaza Hotel & Oasis
Convention Center,
Springfield, MO

December 2, 2017
Board Meeting,
Jefferson City, MO

2018

February 7, 2018
Board Meeting and Capitol Visitation
MSPS Office,
Jefferson City, MO

May 3-5, 2018
Board Meeting, Golf Tournament and
40th Annual Spring Workshop
Lodge of Four Seasons,
Lake Ozark, MO

July 14, 2018
Board Meeting
MSPS Office,
Jefferson City, MO

August 22-24, 2018
Review Course, Best Western
Capital Inn,
Jefferson City, MO

Cover: Bob Shotts of Ruble, Riggs & Shotts, LLC surveying Southwest Power Administration tower site with GPS RTK in Melden, MO.

Donald R. Martin, Editor

Notes from the Editor's Desk

Donald R. Martin

Hello readers and welcome to the September 2017 edition of *Missouri Surveyor*. As MSPS busies itself with our upcoming 60th Annual Meeting, much of Missouri is anticipating the total eclipse of 2017. Ol' Pard Tripod the three-legged groundhog has been polishing the solar filter and has been as anxious as a Connecticut Yankee in King Arthur's Court with anticipation of the lunar blocking of Sol's light. Me? I think nothing goes better with a sunless sky than a slumber. So after a nice long 2-minute eclipse nap I will be back to looking for prose, poems, paragraphs, pages, pronouns, pictures and proofs for this periodical publication.

First up in this edition is Joe Clayton's *President's Message* swan song. Thanks for a good year of leadership Joe! Then our old friend Chris Wickern returns to our pages with *We Have Met the Enemy, and He is Us* – another masterpiece of opinion on the recording of surveys. Next, MSPS member Chris Ferguson shares two tales; *"A Better Way to Survey…"* and *With Tally Pins and Billhooks; Life on an Early GLO Survey Crew*. Thanks Chris for these good reads! Surveyor Ferguson is followed by bio's for *Nominees for the MSPS Board of Directors and Officers*. After these post office portraits and police profiles comes a story from our northwest neighbor in *A Successful Dig* by Jeff Bahr, the story of Nebraska surveyors recovering the Sherman-Howard County border stones buried in 1893. From the Rocky Mountain State we have the report of a survey society putting-its-money-where-its-mouth-is in *WCCC Uses $250,000 Donation to Launch Land Surveyor Program* by Phil Castle. It details how the Professional Land Surveyors of Colorado endowed an academic program in surveying. This is followed by *Unique Record of the Last Total Solar Eclipse Resurfaces in Charleston 47 Years Later — Just in Time for the Next One* by Caitlin Byrd.

Then a follow-up to a story from the last September edition (*Surveyors Launch Effort to Save NMSU Program*) we have the good news of *NMSU Launches New Geomatics Program with National Award* by Linda Fresques. The geomatics program at New Mexico State has received a monetary award from NCEES to upgrade survey instruments in the program and offer scholarships. After the NMSU story we join Robert W. Foster in looking to the horizon and contemplating *The Future of Surveying? Quantum Computing and Blockchain*. Next up is surveyors bundling two services into one project in *Unique Surveying Project Helps Pinery Bushfire Victims Get Properties Back into Shape* by Courtney Fowler. It is the record of Australian land surveyors training next generation surveyors while helping a community recover from a natural disaster. The final feature is *Ask the Contractor: Get Future Home Surveyed Before You Buy* by Sandy Griffis. Ms. Griffis leads readers into a tale by Land Surveyor Thomas Liuzzo of Great Basin Surveying. Liuzzo paints an entertaining yet too real picture of property purchasers paying the price of passing on our professional practices which protect peoples' perceptions of place and prices paid for pie pieces of the American Dream. Whew!

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

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Missouri Society of Professional Surveyors

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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

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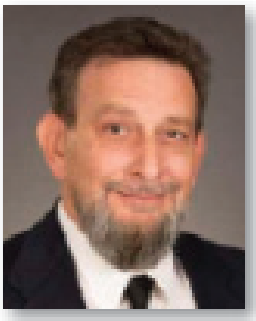
President's Message

Joe Clayton, PLS



This being my last *President's Message*, I would like to thank everyone for the privilege to serve as your President. Being involved with this organization has been a true blessing; I have met Governors, testified before Missouri House and Senate committees, and met scores of surveyors who have given me a lifetime of memories; all because of my MSPS involvement! I recently thumbed through our *Membership Directory* and there was nary a page that didn't contain someone who I had met, which gives a true sense of community that comes from being a member of MSPS!

It's fitting that in this an *award winning year* for our Society we celebrate our 60th Annual Meeting this fall. Ever with a foot in the past, while standing in the present, with an eye to the future; members have planned a 60th which will honor our rich history, celebrate our current achievements and point us forward to a boundless future. Billed as Golf, Guns, Games and Giveaways our gathering in Springfield looks to fulfill our mission of providing quality continuing education and leveraging the opportunity to give back to our members and vendors.

Our host, the Ramada Plaza Hotel & Oasis Convention Center has a large compound with great new meeting rooms, ceiling space tall enough for drone flight, an indoor pool, a restaurant and bar featuring barbeque and smoked meat, and a breakfast buffet with room, all for under $100 a night! Our conference will offer 21.5 PDU's and 15 speakers during 3 days covering subjects of interest to all members from our LS newbies to our 60 year veterans. There will be daily drawings for flat screen TV's to be given away and 60th Annual commemorative t-shirts, hoodies and throwback baseball shirts for sale at our booth. Throughout the conference, the Ozark and Southwest Chapters will be selling a limited number of raffle tickets for a member and vendor sponsored raffle. Proceeds will go to scholarship funds for MSPS and both Chapters: 1st Prize is a $600 gift certificate to Cherokee Firearms for a gun purchase while 2nd Prize will be a Yeti Cooler – the drawing to be held at lunch on Saturday. Our usual Annual Golf Tournament is joined this year by our Inaugural 5 Stand Clay Shoot, which will pay back 50% to the top 3 shooters and prize drawings for non-winners with remaining proceeds going to the MSPS Scholarship Fund.

The Annual Business Session will include the election of new Board members….we have a fine slate of candidates! There will also be voting on proposed By-Law changes. Following our meeting we will receive a Keynote address in leadership from Danny White, LtCol, USMC (Ret.). I have read his book and think you will find his words inspirational. After "business" will be our awards luncheon. We have offered our past presidents a special invitation to the 60th Annual Meeting and Friday afternoon we will assemble the past presidents for a photo, it is my understanding we have several Past-Presidents already registered, there are many I hope to see in attendance. Following the reception with vendors we will have a barbeque buffet dinner. We will finish out the day with our Texas Hold'em Poker tournament, when held in the past the poker tournament has been a source of great fun and competition among peers.

I hope to see you at our 60th Annual! Your participation as always will determine the success of our event. I may have a skewed opinion but I feel our upcoming Annual Meeting will have the best bang for your buck in our 60 year history. I hope it will set a good positive tone for our Society's next 10 years of membership involvement!

It has been my privilege!

Joe!

We Have Met the Enemy, and He is Us

Over the course of several years, much has been written, cussed and discussed concerning a very basic principal near to the hearts of all Missouri Land Surveyor's; the **recording of Boundary Surveys**. The end result? As a profession, we have opted to maintain the status quo.

Some have been surprised to learn that I believe we do not need any new recording laws. I believe we need merely to follow our existing laws! This changes the subject from new recording laws into what our laws actually state. A few of our laws and what they state is the subject of this article.

We begin with how a Land Surveyor is defined in our statutes. The Revised Statutes of the State of Missouri at 327.272, states: 1. Any person who practices in Missouri as a professional land surveyor… the adequate performance of which involves the special knowledge and application of the principles of mathematics, the related physical and applied sciences, **and the relevant requirements of law**… **that affect real property rights** on, under or above the land… Emphasis is placed on the relevant requirements of law, because *understanding our laws is an essential part of the very definition of who we are*, as Missouri Land Surveyors.

The counter argument to understanding our laws from surveyors across the State is, "we aren't lawyers." To say we must be attorneys to understand how a law affects land surveying is a little like saying; as licensed drivers, we must be an attorney to go the speed limit. Understanding how our laws affect surveying is part of the essential definition of you, the licensed Professional Land Surveyor. Again, our definition states; ***the adequate performance*** requires the ***knowledge of the relevant requirements of law that affect real property rights.***

Many times our accepted standard of practice, a practice handed down to us, leads us to apply this knowledge in a most peculiar way. Instead of applying the relevant requirements, we have often been trained to ignore, circumvent and at times ~~to~~ work around the laws affecting real property rights.

Let's look at the most recent law requiring a survey to be recorded, Section 60.650. "For the purpose of preserving evidence of land surveys, **every surveyor who establishes, restores, or reestablishes one or more corners that create a new parcel of land** shall file the results of such survey with the recorder of deeds..." Simple, straightforward, to the point *and doesn't mean much*. It doesn't mean much for 3 main reasons:

1) Surveyors cannot create a new parcel (unless it is their land). Only the owner can "create" a new parcel.
2) A Surveyor who restores or reestablishes a corner is not creating a new parcel.
3) Our accepted standard of practice – as detailed by a prominent member of our noble profession – he outlined the accepted standard as follows: "the surveyor prepares a description, the client takes the description, transfers the property by deed and then you survey the parcel. You are no longer surveying a new parcel, it is an existing parcel and recording is not necessary." He went on to explain this was the way he side-stepped the requirement as he divided a parcel from his Mothers farm!

Next is RSMo 137.185. The most common objection by Surveyors across the state is, "Section 137 applies to Assessors, not land surveyors." This is the accepted standard of practice. And IF our definition stated we must have an understanding of only Chapter 60 and Missouri Standards for Boundary Surveying, they would have a point. However that is not part of the definition of a Land Surveyor. We are required to have the ***knowledge of the relevant requirements that affect real property rights.*** With this in mind, let's take a look:

> 137.185. Tracts less than one-sixteenth of a section.
> 1**. In all cases** where any person… may hereafter divide any tract of land into parcels less than one-sixteenth part of a section, **it shall be the duty** of such person … **to cause such lands to be surveyed and a plat thereof made by a surveyor** … which **plat shall particularly describe and set forth the lots or parcels of land surveyed**… and the plat thereof recorded as herein provided…
> 2. … Said plat **shall be certified to by the surveyor and recorded** in like manner as the plats of towns are required to be certified to and recorded.
> Very specific requirements to cause a surveyor to survey the land, the surveyor to prepare a plat describing the subdivisions made and record the survey. Again, few of us are attorneys but it would be nonsense to argue that these are not ***relevant requirements that affect real property rights.***

The text continues with the subdivision of rural land in areas where there is no planning and zoning or local governing

authority. Many Surveyors who actually record rural subdivisions in these areas do so without the owners' signature. They state on the face of the plat that they have surveyed the land, complied with our current Boundary Standards and divided the land as shown on the plat. It is so common that it may be considered an accepted standard of practice. Section 60.650 has no mention of an owner signing the plat. 137.185 does not mention it, but it does say it is to be recorded in the same manner as plats for towns. As we look at those statutes and local ordinances governing subdivisions, they do require the owners' signature. Most make reference to Section 442.380. It states: "Every instrument in writing that conveys any real estate, **or whereby any real estate may be affected, in law or equity,** proved or acknowledged and certified in the manner herein prescribed, shall be recorded in the office of the recorder of the county in which such real estate is situated."

I don't think any Professional Land Surveyor would argue that a plat creating a new parcel or parcels *does not* have an affect on *real property rights in law or equity*. In fact, it sounds like something from our definition of a Land Surveyor.

Many surveyors will use another accepted standard and state, "the plat doesn't create the new parcel. The deed creates it when the owner sells a parcel according to the plat." Sounds reasonable, but the Assessor will begin assessing when the plat is recorded, not when the owner sells a parcel. Are they assessing a parcel that doesn't yet exist? Again, the Surveyor has no authority to create new parcel of land. It must be done by the owner in compliance with our laws.

For those who think these laws are lost in history and do not apply, a fairly recent Court decision may give us some food for thought. The case is *Goad v. Ulrich*, Missouri Court of Appeals, District 2, dated, February 16, 2007. In their reasoning, the Court stated, "In order to transfer a parcel of real estate that is smaller than one-sixteenth of a section and lying outside of a city, town, or village, Widmore was required to record a plat which particularly described the lots to be transferred. §§ 137.185 and 442.380." The client and the public are protected by following the relevant requirements of law affecting real property rights.

Accepted Standard of Practice

We do have accepted standards of practice beyond our laws and regulations. An accepted standard of practice is generally defined as, 'a duty of a professional to exercise the level of care, diligence, and skill as other professionals in the same discipline would in the same or similar circumstances.'

As we look at the definition of our profession, those laws which affect real property rights and our charge to know and apply these laws; it is apparent that our accepted standard of practice fails to meet the essential definition of a Land Surveyor.

How did this happen?

The answer lies in how surveying evolved in the State of Missouri. In the beginning, there was one law regulating the practice of land surveying. It was the office of the County Surveyor, enacted under the territorial laws for the Territory of Missouri in 1814. It still exists today as Chapter 60.

The key to understanding how our accepted standards evolved, is to understand *NO other surveyor was regulated by the State for 143 years!* The state passed laws requiring surveys be performed, platted and recorded. And yet, the only surveyor it applied to was the only one the state regulated, the County Surveyor.

Those practicing thought the laws did not apply to how they practiced their trade, and they were right. Throughout these 143 years one generation would train the next generation. Decade after decade until 1957 when the state enacted a licensing requirement to practice our profession.

The initial requirement allowed many practicing the trade of surveying to be grandfathered in and granted a license. There have been many requirements added since then. Such as testing for minimal competency, state specific questions, education requirements, along with acquiring years of experience practicing under a licensed professional. Here is where we still feel the effects of a century and a half of surveying as a trade.

Our current education requirements to know the legal aspects of boundary surveying is disproportionate to the other requirements. We require many hours of college credit in mathematics, surveying, route surveying and statistical analysis along with many other courses. There is much consideration being given to require a degree for licensure. Yet, we currently require only 2 hours of Legal Aspects of boundary surveying.

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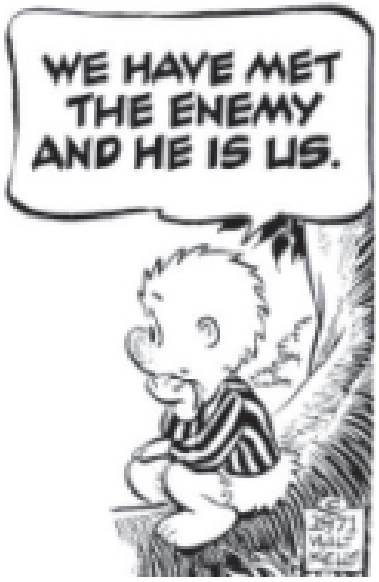
We Have Met the Enemy, and He is Us *(continued)*

Most of our knowledge of the legal aspects of land boundaries is still handed down to us through experience. We stand in a long line of generations training the next generations and treat the legal aspects of surveying as a trade.

We seem to have opted to maintain the status quo of the tradesman who trained the next generation of surveyors. Their practice of stating, "*those laws don't apply to us*", is alive and well today. How many of us were trained to think that, Section 137.185 applies to Assessors, not surveyors? How many of us were trained that rural subdivisions of land do not need to be signed by the owner? How many of us are trained to 'work around' laws affecting real property rights? How can we say they don't apply to us, when the essential definition of our profession ***requires*** us to have knowledge of the relevant requirements of law that affect real property rights?

Does this mean we should pursue new laws or new standards? ***No!*** It means we should ***learn and apply*** **the laws affecting real property rights**. It means we have to change our accepted standards of practice into something that fulfills the requirements of 327.272 1, that which defines us as Professional Land Surveyors. Only then would discussions for new laws be appropriate.



Until then, to paraphrase the old Pogo cartoon, *we have indeed met the enemy and he is us.*

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"A Better Way to Survey"

The Story of the "Doc Mann" Township

by Chris Ferguson, PLS July 2017

The Situation:

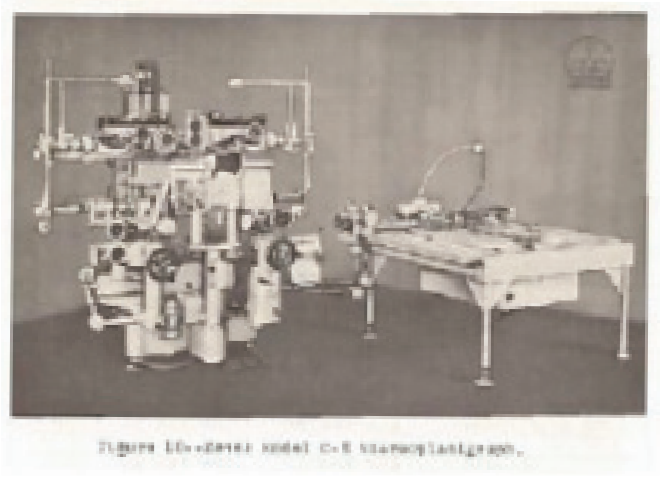
By the 1950's the US Forest Service was beginning to identify a serious problem managing its boundaries. While much of the land out West designated as National Forest was huge swaths of unpatented Public Domain often surrounded by other state and Federal reserves, that was definitely not the case in the Eastern States (considered as all states from the Atlantic Seaboard to those touching the west bank of the Mississippi River). Missouri was especially prominent among those, with intermittent tracts of acquired Federal land often bounded on all sides by private property.

The USDA-Forest Service Washington Office (WO) was keenly aware of the problem, which made effective administration of the new Forests difficult, even sometimes inaccessible. By 1955, the WO and the North Central Regional Office out of Milwaukee (RO) collaborated on grand designs to incorporate a novel solution. The plan agreed to was a photogrammetric approach to "cadastral engineering" (as land surveying was referred to in the Forest Service at the time). Earlier trial runs had seemingly good results in the West, most recently the Tahoe National Forest in 1954. However, that survey was entirely in the Public Domain and had the cooperation of - and verification by - the Bureau of Land Management (BLM) in a previously BLM-surveyed township (but not filed for record afterwards).

This was nonetheless encouraging news to the WO, who was beginning to fret excessively over: 1) lack of qualified personnel to accurately determine boundaries (this had been considered a local District Ranger's duty in the past), and 2) the ever-increasing cost of contracting boundary surveys from the private sector, which was fast approaching the appraised value of acquiring new land into the Eastern Forests.

The Plan:

So it was decided by WO Engineers from various staff sections (Cartography, Property Line, Surveys & Maps) to employ this innovative new cost-saving method using exciting state-of-the-art technology while requiring far fewer surveyors (sound familiar?). The test bed would be the Rolla District of the Mark Twain National Forest and titled "The Missouri Experimental Cadastral Project", set to commence in July 1957.



The latest in 1950's technology.

There are not-so-subtle differences between unsettled Public Domain surveyed by the General Land Office in the early 20th Century and the site selected for the "Experiment". Township 36 North, Range 9 West of the Fifth Principal Meridian, lying in present day rural Phelps County Missouri and being generally south of Newburg, was originally subdivided by Deputy Surveyor Major Angus L. Langham and Benjamin Fort (who probably did most of the fieldwork), from March 27th to April 18th, 1822. Beginning in 1837 and ending in 1914, the township was entirely conveyed to private ownership, with the overwhelming majority of land patented by the government for private conveyance prior to the Civil War. Several dozen surveys of varying quality were made by County Surveyors between the early 1870's to early 1920's, mostly carving sections into quarters and forty-acre tracts.

The Weeks Act of 1911 enabled the U.S. Government to purchase land primarily in the Eastern States for inclusion into the National Forest System. Between 1935 and 1940 well over half the township (15225.06 of 22932.24 platted acres) was incorporated into the Gasconade District of the Gardner Purchase Unit by virtue of the Act as the

(continued on next page)

"A Better Way to Survey" *(continued)*

Great Depression raged on. Much of the land had been deserted after being clear-cut for railroad ties, tool handles and charcoal, or was abandoned for tax sale after Dust Bowl summers left the few struggling subsistence farms untenable. That left significant blocks of National Forest with very little graphic survey information or monument records available beyond the original GLO plat and notes. The Forest Service ("FS" or "Agency"), along with Relief organizations such as the Civilian Conservation Corps (CCC) ventured into the woods in an effort to find enough GLO corners to begin work. The result was the completion of a perhaps 30 or so "Yellow Sheets" (a standard form used by the FS to catalog the condition and description of found land corners). Many of those were inconclusive as the CCC was generally noncommittal about certifying any found monument as an original GLO corner. This and the above left scarce tangible evidence for anyone to follow, especially when compared to a more modern GLO/BLM township out West with a new plat and shiny brass caps at every corner.

ROLLA DAILY NEWS, ROLLA, MO.

Phelps County Makes Progress Past 10 Years On Roads, Mapping, Engineering

Dr. Mann in the newspaper

The Surveyor:

Elected or appointed County Surveyors were often the sole source for selection by the Agency prior to 1956, since before then there was no registration law regulating the practice in Missouri. Phelps County had County Surveyor Dr. Clair Victor Mann (1884-1974), soon to be newly licensed as Missouri Land Surveyor LS-22. Dr. Mann was a veritable polymath, being an engineer, educator, musician, genealogist, historian and author of over 300 publications. Early in his career he was an Assistant United States Mineral Surveyor for Nevada and California, later becoming a water commissioner out West among other public and private engineering ventures before settling in as a professor at the Missouri School of Mines (now Missouri S&T) from 1920 to 1946. Noteworthy among his accomplishments during his tenure was a nationwide standardization of Civil Engineering examinations.

Upon retiring from academia, he was the Resident Engineer for the Phelps County Memorial Hospital while authoring a five-volume set on the history of the Frisco Railroad and an additional tome on the history of the School of Mines. In 1951, Dr. Mann took on the roles of County Highway Engineer and County Surveyor until after his 80th birthday in 1964. At least on paper, Dr. Mann certainly appeared eminently qualified to the WO staff. Assisting Dr. Mann and his crewmen in this venture was Appointed Deputy Phelps County Surveyor Victor "Vic" Hedman, Wisconsin LS-185, the Cadastral Surveyor (one of the very first in the East) from the RO, and periodic supervision, observation and advice from engineers from the RO and WO. It should be noted here that several public meetings were held, and the project had the endorsement of both the Missouri Society of Professional Engineers and the newly-chartered Missouri Association of Registered Land Surveyors.

The Process:

What lay ahead was no easy task. Even aided with Agency copies of the GLO records, county surveys and yellow sheets, it proved difficult to determine the record title boundary against over 120 years of unchecked possession, flagrant trespasses, defective and unrecorded resurveys, counterfeit corners and questionable parole testimony, much of which would lay dormant until discovered many years later.

Field Crew pictures – Vic Hedman is the tall gentleman, Dr. Mann in white shirt (picture from the Fasset circular)

Work on the ground began November 12, 1957, and beginning that past July, the RO gathered all previous aerial photography, United States Coast and Geodetic Survey (USC&GS) map products and the GLO plat, assembling all into a mosaic for a "master" corner search sheet containing 325 corners of interest (GLO and aliquot Forest corners). The RO also supplied 300 Phelps County bronze tablets, 300 precast concrete monuments and all aerial target material along with two pickup trucks. Neither the Mark Twain Forest Supervisor's Office nor the Rolla Ranger District Office had very much direct involvement with the project, deferring to the RO and WO for technical direction.

The WO arranged for an Agency airplane, camera, crew, ground planning, and stereoplanigraph necessary to fly, shoot and plot a scale of this magnitude. The initial photogrammetric calculations were performed in Arlington Virginia by the Aerial Headquarters Unit. In short, the entire Agency brought forth every available asset to ensure success except for what they couldn't provide (and did not, for almost another decade to follow) themselves - a Missouri Land Surveyor. It may have greatly aided Dr. Mann's negotiated hourly rate of $4 to been among the first registered surveyors in the state. He was contracted to visit an estimated 250 land corners and he was budgeted 115 hours (total!) to do so.

The field crew was to consist of Dr. Mann, Vic Hedman (with an occasional helper or two from the RO), and 3 local laborers who were to visit each search location from the mosaic with full equipment and material to monument a corner and build a large aerial target. Later notes indicate the operation split, and laborers were often left alone at possible - but not obvious - GLO corners. At times there were over a dozen FS and county workers widely dispersed throughout the township planting concrete monuments and setting targets. Surprisingly, most of the local private landowners were not only agreeable to the frequent incursions onto their property, but were also quite enthusiastic to get the benefit of such an ambitious survey.

Of particular concern here already is the fact only one Missouri Surveyor is on the job at all, that one being far more the product of matriculation rather than a practicing rural boundary surveyor. Perhaps even more disconcerting was that the FS had discretion of deciding whether the Co. Surveyor was to actually visit and verify a corner location. Often it appears Dr. Mann was relegated to supervising monument installation and taking corner notes of witness trees and other site conditions.

To produce a workable scale of 1:12000 for the photos, 12-foot crossed targets with 3' centers were erected at each location with multiple attempts at a sufficiently durable target in the timber, fallow farm fields and pastures throughout the project area. A preferred option was to paint old car tires white and use for the target center, with white cloth or planed boards for the legs. Many targets had to be raised from the ground on posts or suspended from trees and fences to keep the cattle from trampling them before the overflight.

An elaborate aerial scheme was devised and flown, with hundreds of photos well overlapping the township, and a control network of a combination of known USC&GS triangulation stations, fire lookout towers previously tied by lower-order surveys, and poles placed in treetops as tertiary trig stations. In effect, 10 locations were measured by theodolite to approximate 2nd and 3rd Order values. Those results would then be applied to the remaining ground targets by scaling the photos with the aid of hand-calculated least squares adjustments. A Zeiss C-8

(continued on next page)

"A Better Way to Survey" *(continued)*

Stereoplaingraph and a brand-new IBM computer were used to generate point values to an average predicted precision of 1.7 feet (+/-).

Missouri State Plane Coordinates (NAD 27) were then assigned to the x/y values to aid in calculations to reestablish lost corners per rules in the BLM 1947 Manual of Surveying Instructions (it should be mentioned that these rules deviated somewhat from accepted and statutory methods already in place in MO). Sometimes original corners were fortuitously recovered using a single bearing/distance offset computed as a result of the calculations, with a "mean declinated compass" being the source of the search (or stake-out) bearings. When original corners were actually found, the entire model was re-computed. After a few laborious reiterations, the crew was supplied with "an electric automatic square-root calculator" to continue the process in the field. It is uncertain to what extent Dr. Mann participated in this process.

Copies of notes from Dr. Mann's "horse medicine bag" used in the field (MTNF picture)

Nonetheless, time marched on, and work steadily progressed. On November 10, 1960 the fieldwork was complete, and the plat with accompanying field notes (all "BLM style" with true bearings and chain measure) was approved by the County Court and filed for record, three years and five months after it began.

After such colossal effort, fanfare was understandably in order! The Agency created the booklet from which much of this article is generated and distributed it widely, with great expectations that they had finally cracked the code on how to survey those pesky Eastern Forest boundaries. Dr. Mann was lauded in the local paper, and an article was published by the American Congress of Surveying and Mapping extolling the virtues of the "Experiment" in their quarterly circular. Surely a new age of cadastral surveying had begun.

Regarding the final cost, the FS itemized all salary, equipment, material & incidentals (along with obvious "bargain rates" for the flight and processing countless reams of data) totaling a mere $28,529.67. The conclusion was the Agency saved over $20,000 from their estimate of a conventional cadastral survey, and with eloquent "gov-speak" the method was enthusiastically recommended not only in Missouri but elsewhere by all Federal Agencies as a better, faster and cheaper way to survey public lands.

Epilogue:

By all accounts, this procedure was never attempted anywhere again. The RO & WO were not as inclined to "donate" time and resources in an effort to guarantee a similar project's completion. And it's just as likely few private firms large enough for such an undertaking would ever bid such an exhaustive job for a nominal fee during the "Golden Age" of surveying and construction booms throughout the 1950's and 60's.

Sadly perhaps, time eventually revealed the "Missouri Experimental Cadastral Project" to be seriously flawed. By July 29, 1977 State Land Surveyor Robert E. Myers made mention of no less than 13 separate Land Survey Authority investigations in T36N, R9W in a letter to the Mark Twain Forest, none of which favored the concrete posts set for corners 18 years earlier. Following several meetings with State Surveyor Myers, MTNF Forest Surveyor Kenneth West, State Land Survey Authority Surveyor Norman Brown, Phelps County Surveyor Robert Elgin and others, it was determined likely very many corners within the township yet to be measured were incorrect as well. Correspondence internal to the Agency acknowledged the errors, and even the RO Office of General Counsel rendered opinions on how best to remedy the situation. It was even internally suggested

(continued on page 14)

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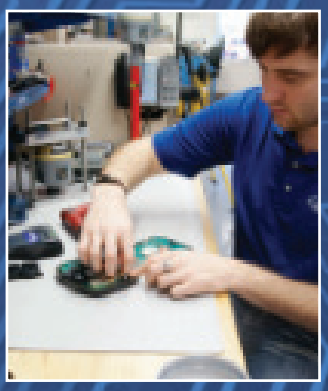

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"A Better Way to Survey" *(continued)*

Linen copy of original plat and field notes to right with Fasset circulars below (MTNF picture)

to have BLM resurvey the entire township along with their agreement to survey townships in the Lead Belt near Viburnum.

But putting the "Experimental" genie back in the bottle would not prove painless. By then the number of subsequent property and subdivision surveys (now dependent on the concrete posts as controlling corners) increased nearly twofold owing to increased demand for land near an ever-expanding Fort Leonard Wood and Rolla, a major university town in its own right and fast becoming a regional hub to several counties. Fences now rode right on top of Dr. Mann's corners, and – correct or not – they most assuredly had the appearance of legitimate "Government Corners" to adjacent landowners.

The township has for the most part languished to this day with the exception of efforts to fix defective corners in 1997 and 2007 when what was originally fairly small line posting contracts let to Robert S. Shotts, PLS morphed into extensive corner evaluation and resurveys. Significant problems were discovered not only with interior corners, but also more egregious errors along the Township and Range lines (the Missouri "double corners", not normally addressed in BLM instructions). It appeared that the earlier survey routinely misapplied "lap distances" where called for in the GLO notes. Forest Surveyors John Stevens, Johnnie Young and Ric Stewart, and MO DNR Land Survey Program Cadastral Section Chief Dan Lashley concurred with Surveyor Shotts' findings throughout. Even as recently as 2012, Forest Service Surveyors have encountered several "Experimental" corners in error and agreed with earlier findings by Bob Shotts and the ad-hoc cadastral committees convened in the 1970's without fail.

By no means would this author ever believe any intent of deception took place. Dr. Mann, a devout Methodist and loyal Mason, was a pillar of his community and by all accounts a model of integrity. Vic Hedman became the first Eastern Regional Surveyor and served with distinction until his retirement nearly 30 years later. All involved probably contributed their best efforts to the "Experiment", and likely hoped it was not only accurate but pioneered a better way to survey for the future. However, not unlike all those methods that have come before or since (I'm sure we can all think of a few…), it was not. Let this tale serve as a caution to whomever wishes to apply new technology to create a shortcut to something that can absolutely never be shortcut - a complete, professional boundary survey!

Acknowledgements:
Ray W. Fasset - *Application of Aerophotogrammetry to Dependent Corner Restoration Surveys*, USDA – FS North Central Region Miscellaneous Engineering Publication, Aug. 1963
Plats, Field Notes and misc. from Dr. Mann on file at Mark Twain National Forest Headquarters
GLO information, Township File correspondence and Land Status Atlas (on MTNF HQ)
Contract file and deliverables from Robert S. Shotts, Inc., circa 1997 and 2007 (on MTNF HQ)
Missouri University of Science and Technology Archives (Curtis Laws Wilson Library)
Website of William Gillett Family History (www.genyourway.com)

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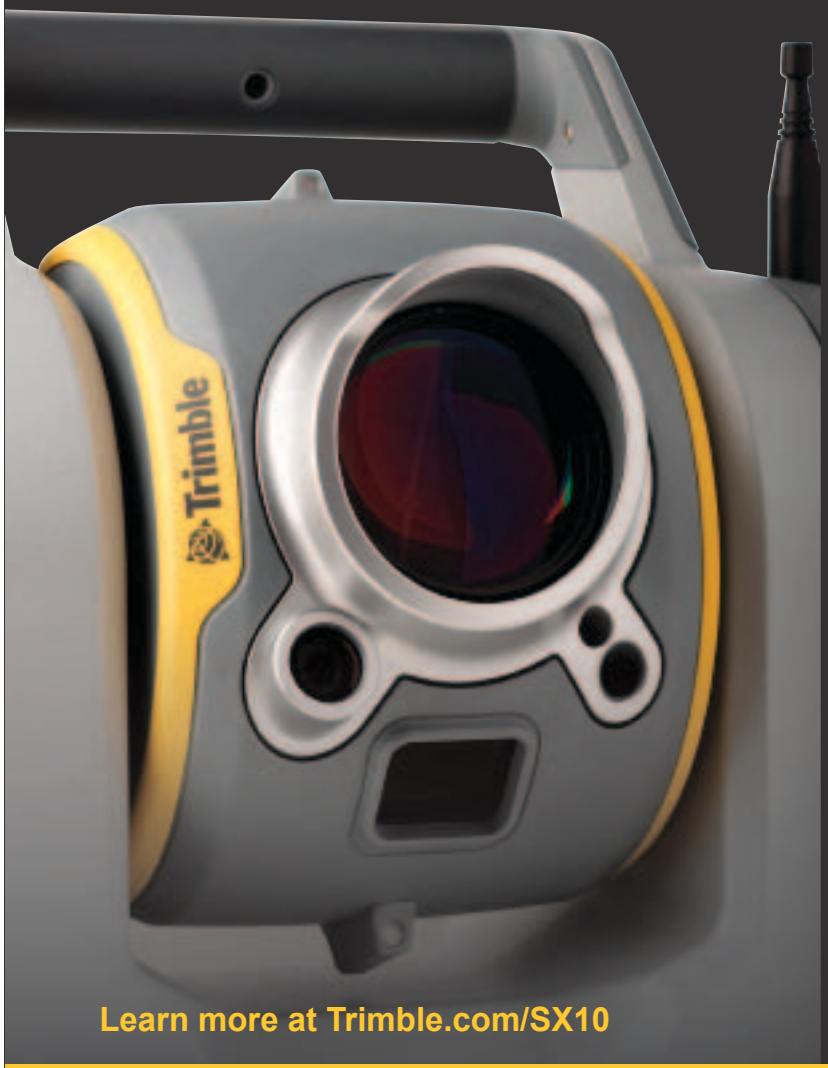

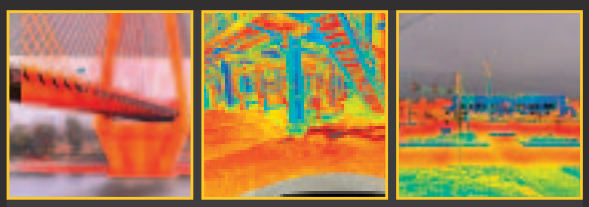

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With Tally Pins and Billhooks

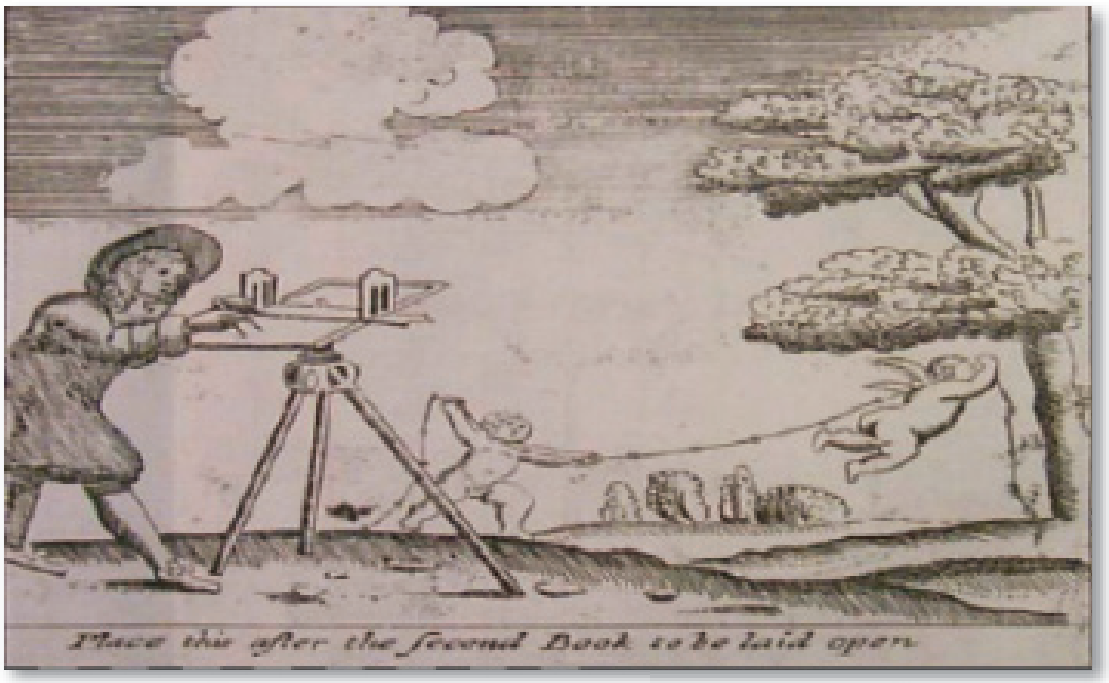
Life on an Early GLO Survey Crew

by Chris Ferguson – PLS May 2017

"The diminutive deputies and crewmen anxiously gathered outside the Survey General's Office in St. Louis. Spring was finally here – promising cool summers once again (long before global warming!) Upon issuance of their lucrative contracts, they departed for virgin wide open Ozark forests and sparse grassy expanses on the prairies and plains of the Missouri Territory.

A typical day saw these merry little elves frolicking through park-like conditions, made even better without the mosquitoes, ticks and other pests that followed European settlement and agricultural pursuits. Sometimes there was no underbrush to be found at all, since Indians regularly set vast forest fires smoking out wildlife to hunt. Normally, the daily allotted 6 miles of line were complete well in time to return to camp where the hunter and chief cook had just prepared a meal of savory game along with fresh fruits and berries supplementing the ample stores of grain in the wagon.

Relaxing by a roaring fire, the crew ate to their fill and sipped drams of rum while laughter abounded. There was not a care in the world, especially about the work at hand. No matter how misaligned or defective in distance the day's work was, their corners were accepted without question – and they all knew it. Every snap of the chain was as good as silver in their pockets. Oh, life was grand on the General Land Office crew!"



Picture from "Geodasia - the Art of Surveying and Measuring Land Made Easie", John Love, circa 1720

The only problem with the story above is none of it was true, even though many of us latter-day surveyors probably believed that all or part of it was, at one time or another.

It's difficult to find a place to begin deconstructing this myth, but maybe a good start would be stating that these crewmen were hardly runts. Given better diet and far less cramped living conditions than of Northern Europe, early American men were "half a hand" taller than their British foes by the War of 1812. In fact, the average U.S. adult male of the 1810's was 5'-8" high and 150 lbs.[6]

As for the weather, The Mini Ice Age of medieval times was long over. Only 1816 was notorious for being "The Year Without a Summer" due to the eruption of the Krakatoa volcano half a world away. The average climate during the 1800's was actually similar to ours today. It is perhaps no coincidence that settlement quickly accelerated in what is now Missouri because the region was spared the weather anomaly above[3].

While surveying contracts sometimes continued year 'round, the preferred season was from October through June, when "undergrowth and leaves were sparse and bugs and snakes were fewer"[1,2]. With the abundance of wildlife in the state at that time, certainly troublesome insects (mosquitos and deer ticks for instance) were as plentiful as in modern times. Besides, many of the crewmen were farmhands when not surveying, and crops back home required tending during summers through the harvest.

The Missouri Territory was anything but a park when the first surveys were commissioned. Frantic to complete surveys for sales to replenish the Federal Treasury and issue bounty lands to war veterans, crews were quickly dispatched to the Louisiana Purchase - some of the most inhospitable terrain the likes and expanse of which had never been encountered in the Northwest Territory (Ohio, Indiana, and Illinois' surveys were already well underway).

The Osage Treaty of 1808 had "legally" moved the majority of the Indian population beyond the west boundary of the Territory marked by Fort Clark (renamed Ft. Osage) in present day Sibley, but had not fully ensured that hostile encounters with Native Americans would cease (and did not, as several like treaties were necessary up until 1825), particularly since better hunting grounds were found on land the Indians reluctantly left behind.

Historically, Indians viewed surveyors through less than affectionate eyes anyway. They were well aware what the surveyors' work led to—more settlers. They were as threatened by the surveyor's compass as they were by a rifle, calling the compass the "thing that steals the land."[7] There is little contention that surveyors were closely watched as they progressed further west in their endeavors. This was yet another reason why fall and winter was the preferred season to survey!

Meanwhile, the future state was full of dangerous predators at a time when Mankind's place at the top of the food chain was not quite so secure. Mountain lions, wolves, stampeding buffalo, and black and brown bears (which figure prominently on our Official State Seal should one notice) were in abundance and would remain so until settlement had spread throughout the jurisdiction.

But Manifest Destiny had begun. A few occupational hazards would not deter the steely-eyed frontiersmen that came to measure the land. And what a magnificent land it was! The craggy Ozarks, rich in timber and minerals, offered white oak to build innumerable cities, whiskey barrels, and fleets of regal ships of the line with enough iron and lead to cast anchors, horseshoes, tools, and rifles with countless bullets. The bounty of the prairie had not yet been fully recognized, but it would soon be the southern reach of the "Breadbasket of the World".

That doesn't suggest any of the work was easy. The steep, rocky slopes of the south proved more than ample challenge to achieve the suggested six miles per day of surveyed line. While the forest of that time was virgin, it is believed to be similar to restored State and National Forests of today, with plenty of undergrowth, windfall, stump holes, ticks, chiggers, hornets, poison ivy and snakes. No quarter was granted in the glacier-scoured plains north of the Missouri River either, where an unadulterated "Tallgrass Prairie" offered near-infinite expanses of head-high flora, itchy weeds, briars, wasps, and hidden burrows along with its share of pit vipers and other pests. Add in the extra time and effort cutting and hauling along posts, digging pits and building mounds for corners and accessories, and it's unlikely any GLO surveyor ever seriously considered the flatlands a "break".

While the work being performed was government work (pun intended), all the tasks were performed as well as the men and equipment were capable of. No quantifiable "survey standards" one might recognize today were published before the General Instructions of 1843 where,

(continued on next page)

With Tally Pins and Billhooks *(continued)*

for instance, the acceptable closure was prescribed as one chain per mile of section line. However, beginning at least with *Tiffin's Instructions of 1815*, the deputies were admonished throughout to "take great care" and "constantly attend" to ensuring their people and equipment were performing as well as possible. Any "excessive errors" were to be remeasured. Last, and certainly not least, each of these men swore an oath of performing to the utmost their job description at a time when a man's word was perhaps the only thing of value he brought to the West with him.

The crewmen themselves were oftentimes the later-born sons of planters and farmers, from places such as Ohio, Indiana, Kentucky, Mississippi and Tennessee. A social and patriarchal order of the day prevailed where "[a] son's birth order launched them into a decreasing hierarchy of prestige and education"[4]. The farm of their birth was traditionally passed on to the eldest son who often had the benefit of a better education (regular schooling and maybe occasional private tutors).

The latter boys had an intermittent primary education ending in 6th or 8th grade at best, and were expected to strike out on their own not long after. For those so inclined, the ministry, trade apprentice, laborer, clerk, or military careers were viable options. Others perhaps saw the prestige of their local county surveyor and aspired to attain similar status in the West. What better way than to learn the new system of surveying and dividing huge swaths of land than "hands-on" out on the frontier? Regardless, with a life expectancy of 45 years[6], there was little time to waste in search of a vocation.

The General Land Office commissioned the world's largest public works project ever before undertaken. How would this labor shortage be filled? There was plenty of work for anyone willing. Immigrants (later heavily relied upon to build railroads, dig canals, etc.) were quite few in the time between the Nation's Independence and the first few decades of the Nineteenth Century, and even fewer in the West where survey help was sorely needed. Likely some of the earliest crews were composed of disenchanted fur trappers and miners, and maybe freed slaves and drifters heading west for a new start.

Fortuitously, the Treaty of Ghent ended the War of 1812, and by 1815 delivered scores of the boys mentioned above, now grizzled militia veterans, to GLO deputies eager to fill out their crews. And so they did - with acclimated, disciplined young men who had the added benefit of much of keeping their own issued clothing and equipment suited for life afield. Clad in their uniforms of stiff linen buff and buckskin, these fellows were just as anxious to begin working for a wage, and the $15 to $20 per month was at least as good as they could hope for working as seasonal farm help. Financial "Panics" of the early 1800's made regular survey work even more appealing. So off they went to the Missouri Territory packing their oilcloth haversack, bedroll, 1795 Springfield musket, and tinker goods. Another welcome item brought along was the billhook, sometimes called a Fascine Knife, a military tool which was well-suited to cutting brush[5].

War of 1812 Militiaman – Don Troiani, 2012

Picture of period billhook from www.RevWarTalk.com

The single-bit axe was fine for blazing witness trees and chopping pole stock for corner posts; it was poor at best clearing grapevines and bindweed. While the flagman (often also the axeman) went ahead to mark the line, the chain carriers had to make their way efficiently trimming saplings and limbs with the billhook, all while keeping the chain level and unbound.

Perhaps this is a good place to review survey party composition and basic methods. The Deputy Surveyor of course ran the whole show, also keeping line with the compass and making entries in the field book.

The axeman/flagman carried forward his red flag as far as the Deputy could follow him in the site vanes. The flagman then planted his flag and hiked back toward the compass, blazing trees and cutting bigger saplings. At the corners, the axeman then took out his marking irons to scribe Section, Township and Range or "1/4 S" at respective witness trees.

One can surmise that using a two-pole chain instead of a normal 66 foot Gunter's chain necessitated the Deputy having a "field set" of notes which were later transcribed into a more dressed-up submittal either in camp or at a later date. Sometimes the "work chain" and the "check chain" were lashed together to make a regular 4-pole chain on flatter ground to keep the counts easier to manage and to make up time.

The chain carriers were just that – and it's unlikely the chain rested on the ground any significant part of the day. Armed with their respective end of the chain, tally belts and pins, the fore chainman pushed or dropped pins flagged with bits of red cloth in the ground at the end of each pull then moved ahead[1]. The hind chainman held off his mark until the forward pin was set, then removed the pin, marching on and adding it to his belt until a set of ten (not including the one he was then over) was in his possession, during which time the front man would announce "Out" as all 10 of his pins had been placed. The Deputy would move his "out-keeper" on the compass (if so equipped), accompanied by a scratched note in the book. He would also keep sighting ahead from where he was, or move his Jacob Staff close behind the chain carriers to prolong the line. The chain carriers would exchange pins and the work would continue until the Section or Quarter Corner was reached where they would pull dimensions to selected witness trees. Then it was on to continue the same North-South line or proceed on a random West-East line.

Tally Pins credit http://www.oldsurveyinstruments.com/

Mindful of his rather meager budget of $3 per mile of line returned, the Deputy was loath of excess and prone to only hire those he absolutely needed. Many field books of the time only contain the names of three or four men besides himself, and while it can be debated if a camp cook and hunter were required to be sworn in, it is doubtful many

(continued on next page)

With Tally Pins and Billhooks *(continued)*

Deputies employed both at the same time. As there were few if any roads in the wilderness, horses and wagons were entirely impractical. That means the cook/hunter broke camp at the beginning of the workday and hauled his load of utensils and dry goods on a heavy pack frame behind the crew while following the cut line, preparing a campsite, starting the fire, measuring out some flour, rice or beans and readying a few pieces of salted meat by quitting time.

Work was continuous, and routinely ran 7 days a week and through holidays (only Christmas was even marginally recognized as one back then anyway). The normal schedule to completely subdivide an entire township was between 10-14 days. There were no breaks; there were no "sick days". A few accounts remain in the GLO notes of crewmen too ill to carry on being left behind at the first white settlement encountered.

Water was drank where it was found, preferably from a spring or clear creek. If the temperature were above freezing, more was carried along in wooden canteens. Rations consisted of what they brought along for the day's trip. One account reads:

"…Our food was healthy, highly relished and never gave us dyspepsia [indigestion or worse]. Our breakfast was eaten before daylight, from October to June, that we might reach our work before sunrise. This meal consisted of strong tea, fried or cold boiled pork and shortcake yellow with saleratus (sodium bicarbonate baking soda) and rich with pork drippings. Lunch, finished by 10 or 11 o'clock and eaten while walking, consisted of a bit of cold pork and a piece of bread, the latter often frozen too hard for use, until the ax was used to cut it into small pieces. We worked until dark, and arriving late in camp, the hot bean soup with bread and tea was eaten with great relish.[2]"

It almost goes without saying that after several months of this arduous lifestyle caused many crewmen to lose nearly 20% of their body weight by the time they returned to civilization. Day after day of relentless icy winds shivered their bones while grainy sleet stung their hands and faces…on good days. Only the deepest snows or torrents of rain could possibly delay the work at hand.

Precious little time for socializing and entertainment was enjoyed around the evening's campfire. Perhaps one fellow brought along a "Jew's harp" for a little music. Others may have read a few passages by the flickering light from a book they spirited along (like Mary Shelley's *Frankenstein*, inspired by "The Year Without a Summer", no less!), or perhaps a well-worn King James Bible. Veterans likely swapped tales of service against the British. The Deputy Surveyor, after tending to his notes and checking the compass for the next day's work, may regale the men of his educated upbringing, drawing from the added life experience of 10 more years in age. Memories of home and perhaps a special girl still there was a cherished topic of conversation for some. And no doubt whoever shared such fond thoughts was mercilessly teased by the other fellows!

Nonetheless, time for frivolity was brief. They rolled into blankets to get some much-needed sleep close by one another with only a piece of canvas overhead and into the wind for shelter. Depending on the perceived danger, one man may have had to forego rest, taking instead a rifle while keeping the fire going all night. Another day would dawn soon, and many, many miles of line lay ahead before crafting dugout canoes or lashing rafts together to float back down the Big Muddy, or trek back along narrow Indian trails to finally reach St. Louis (1820 population 10,049), the biggest city in the West.

Following a little office time to dress up the notes and draft a plat, the Deputy was paid from the till of the Surveyor General - if he was lucky. Other times he may have to wait until money was sent from the Philadelphia Mint after being dispatched from Washington D.C., taking many weeks. If he had it to spare, the Deputy might have paid his men beforehand so they could be on their way. Few "common folk" had much use for banks; so the long-deprived lads spent most of what they earned on the good life before summer's chores consumed their time again, saving just enough to buy new clothes and boots to rejoin the crew next fall.

We sometimes become briefly acquainted (in name and reputation only) with the Deputy Surveyor on a particular project while resurveying his lines, attempting to contemplate his methods in order to calculate a measurement index aiding in corner recovery. But

precious little is known about day to day life in the field as a member of a GLO survey party. Remarkably, some journals of these men written in their later years recall a "fondness for camp life" regardless of the privation and strenuous, isolated and dangerous nature of the calling.

While one can hardly claim that this article is the authoritative account of conditions under which all GLO crews operated, it can be argued that it is representative of the people, equipment and the environment of the era. The reader is encouraged to learn and share all they can about the bold surveyors that blazed the trail before us.

With all the modern conveniences of life and survey technologies of today, the author has often joked about being fired from the GLO crew before noon of the first day were he to be transported back their time. Not to mention the blistering pace they kept up - for months on end! Kidding aside, these hardy souls braved an unknown world and left behind a legacy enduring to this day. I can think of no greater privilege than to search for and restore their work, so perhaps future generations of Professional Surveyors appreciate what a truly monumental (pun intended) feat Missouri's true survey pioneers accomplished.

It was "indeed a much more difficult task than imagined to survey with the correctness which the laws of the United States contemplated." Josiah Meigs, Commissioner of the General Land Office, 1815

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Nominations for 2017-2018 Officers

President
Gerald Bader

Gerald is the President of Bader Land Surveying, Inc. which began operations in April of 1996. In the fall of 1996, Gerald was elected as Ste. Genevieve County Surveyor and is presently serving his 5th term. Gerald is an advocate for the protection of the Public Land Survey System and has been participating in the Missouri Department of Agriculture's County Surveyor Cooperative Remonumentation Program and the Private Surveyor Remonumentation Program since 1996. In addition, Gerald is active in several local civic and professional organizations. He is presently serving on several MSPS committees. Gerald has served as Missouri Association of County Surveyors (MACS) President from 2004-2005 and 2010 through 2012. Gerald coordinated MACS re-monumentation of the Tri-State corner in 2004 and the PK Robbins Memorial Bench in 2006. Gerald is also serving on the Board of Directors for MACS and the St. Agnes School Board.

Gerald and his wife, Denise have two children, Brett and Alina. They live in Ste. Genevieve. He is honored to serve MSPS.

President-Elect
Chris Wickern

Chris manages the survey operations for Engineering Surveys & Services Sedalia office.

Humbly serving MSPS and his profession, he does so while celebrating his most important "callings"; "We all have different things we are called to do throughout our lives. My first calling was to marry the love of my life some 42 years ago. This calling naturally lead to being called to be a father and now a grandfather."

He was introduced to surveying by the US Army Field Artillery as an Artillery Surveyor. He served as chainman, instrument operator, recorder and computer - surveying became another calling. He would go on to serve as a Party Chief, a Regimental Chief Surveyor and a Brigade Chief Surveyor. Wickern was also an instructor for the Surveyors Basic Course and later taught basic surveying and legal aspects at a community college in Arizona. In 2016, after several years of discernment and training, he answered a different call and was ordained a deacon of the Catholic Church in the Jefferson City Diocese.

Chris shares, "Surveyors presenting the truth of boundaries is best summed up with the very high regard found in the Bible, Ezekiel Chapter 40: The Man with a Measure. 3 'He brought me there, and there standing in the gateway was a man whose appearance was like bronze! He held in his hand a linen cord and a measuring rod.' This angelic vision given to Ezekiel demonstrates both the historic importance of surveying and the very high regard the public has for our noble profession. One our society continues to work to uphold and enrich."

Chris has been involved with MSPS by chairing and serving on various committee's and is just finishing a year of service as secretary/treasurer.

Vice President
Susanne Daniel

Susanne is co-owner of Daniel Surveying in Ava, Missouri. She has over 20 years of experience in surveying and earned her professional surveying license in 2001. Susanne has studied chemistry and mathematics at Missouri State University and holds a B.S. in Geology degree. She is active in state and local political organizations and serves on the MSPS legislative committee. Susanne enjoys tennis, volleyball, playing flute in her church orchestra and volunteering in a lawn care ministry. Susanne and her husband Andy currently reside in Ava, Missouri where he serves as Douglas County Surveyor and she acts as secretary for the Ava Chamber of Commerce Economic Development. Of MSPS Susanne says, "It is an honor to serve the Society and I remain committed to promoting and advancing our profession."

Secretary-Treasurer
Earl Graham

Earl is the Director of Surveying for Grimes Consulting, Inc., in South St. Louis County. He was licensed in Missouri in 1988 and over his more than 35-year surveying career has earned licenses in five adjoining states as well as Colorado. Beginning with transit and chain methods, Earl has experienced the implementation of the modern EDM, the Electronic Theodolite, the Data Collector, the Total Station, GPS, and VRS networks. Today he leads a surveying department that serves dozens of major commercial and industrial clients and leads surveying efforts for developments across the region. Earl's diverse background includes surveys of large sectional tracts for mining and timber in St. Francois, Madison, Iron, St. Genevieve, and Washington counties, as well as urban surveys throughout Northern Jefferson County, St. Louis County, the City of St. Louis and across the Midwest, including a strong background in urban redevelopment. Earl earned an Associate of Science degree from Mineral Area College and currently resides in Park Hills. He is the current chairman of MSPS State Government Liaison Committee and has twice served as the director of MSPS (MARLS) three different times.

Secretary-Treasurer
Charles Quinby

Chuck Quinby is from Northeast Ohio and has over 40 years of experience in the field of surveying, Chuck joined the Army as a Field Artillery Surveyor at age 18. He earned an Associate in Arts and a Bachelor of Science from the University of Maryland University College while on active duty. Chuck served in South Korea, Germany, Fort Bragg North Carolina, Fort Stewart Georgia and Fort Sill Oklahoma. He attained the position of Chief Surveyor in the 3rd Armored Division, customarily an E-7's position while still an E-5. His service included being an instructor of Surveying and Land Navigation as well as a Training Developer. Chuck began his civilian surveying career in Snyder, Oklahoma and has surveyed in Texas, Arkansas, Pennsylvania and Ohio. He returned to school to enhance his transition from Army surveying to civilian land surveying at Columbus State Community College. An opportunity with ABNA Engineering brought him to St. Louis in 2001. Chuck received his license in 2007 and has been surveying in St. Louis, Jefferson and Franklin Counties. Chuck is presently working for Engineering Design Source Inc. in Chesterfield Missouri as Survey Coordinator/Party Chief. Chuck was President of the Saint Louis Chapter of MSPS in 2004 and is currently President for 2017.

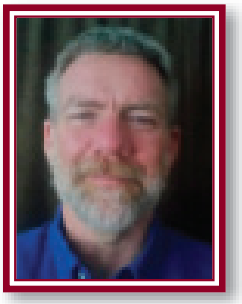
Nominations for 2017-2018 Board of Directors

Robert J. Anderson

Robert J. Anderson (Bob) is a fourth generation land surveyor. In 1993 he started his career working summers as a rodman for Anderson Survey Company. Following high school, he continued his career working full time and started taking classes at Longview Community College to pursue his professional career as a surveyor. In 2000, he was promoted to crew chief and he became a Land Surveyor in Training in 2004. Continuing to gain practical experience and knowledge, he obtained his Professional Land Surveyor license in Missouri in 2010 and Kansas in 2016. He currently serves on the membership and legislative committees and is a director on the board of the Kansas City chapter of the Missouri Society of Professional Surveyors.

Jerrod Hogan

Jerrod Hogan is a Vice President of Anderson Engineering and Principal of the Joplin office. He is a Professional Land Surveyor licensed in Missouri, Oklahoma, Kansas and Arkansas. He lives in Joplin with his wife Melissa have 3 kids. His oldest daughter Shae is a freshman at Purdue University, his middle son Miles is in 5th grade in Joplin Schools and his youngest daughter Ava is in 3rd grade at Joplin. He is a licensed private pilot and certified UAV (Drone) pilot. He was a charter member and founding president of the Southwest Chapter of MSPS. He loves his family, his community and his profession. He is honored to be a nominee and looks forward to serving the society.

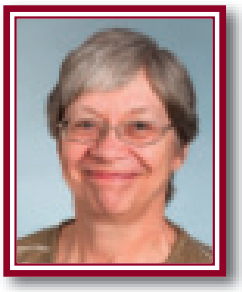


Matthew P. Thomas

Matthew P. Thomas (Matt) is a sixth-generation Missourian and a second-generation Land Surveyor. He's currently the County Surveyor for Boone County, Missouri. Matt has been surveying full time since 1988, obtaining his Professional Registration in 2000. He is the second of two sons in the surveying profession of Price S. Thomas, PLS 847. He first "surveyed" working for his father at the ripe old age of 10. That first experience convinced him that this is what he wanted to do for a career. He is also a second-generation County Surveyor following in his father's footsteps as a former Cole County Surveyor. He has worked for the City of Columbia, Brush & Associates, Miller Associates, Crockett Engineering Consultants, and A Civil Group. He has also volunteered his professional services traveling to Africa with Engineering Ministries International on three separate occasions, visiting 8 different countries including Sierra Leone, Tanzania, Zambia, Zimbabwe, and South Africa. He has been a member of the Missouri Society of Professional Surveyors for nearly 20 years and is currently a member of the County Surveyors Committee, the CST Committee, the History and Archives Committee, and the Sales and Public Relations Committee. He's also a member of the National Association of County Surveyors and the Missouri Association of County Surveyors. Matt lives in Sturgeon, Missouri with his wife, Theresa, and 3 step daughters, with one step son grown and on his own. He is also an active Mason and spends most of his time, away from work, going to his daughters' volleyball matches, or attending Boone County 4H horse shows.

In his spare time, which he admits is limited, Matt enjoys hunting, fishing, camping, floating, photography, geocaching, genealogy research, and spending time with his family.

Debrah Wolfe



Debrah received her diploma in Civil Drafting and Design in 1985. She first started taking surveying classes in New York while working there prior to moving back to Missouri and finishing her surveying course studies. She attained Professional Land Surveyor licensure in 2000.

Having worked for several engineering and surveying firms in the Springfield area, Debrah is currently with Toth & Associates in their Electrical Transmission Division. There she serves in the acquisition and updating of easements for new and existing transmission lines.

From the MSPS By-Laws

ARTICLE II OFFICERS

Section A. Elected Officers. The elected officers of the Society shall be a President, a President Elect, a Vice President, and a Secre¬tary Treasurer to be elected by the voting membership at the Annual Meeting and to serve until their successors have been duly elected and assume office. The President Elect shall automatically succeed to the Presidency.

Section B. Eligibility. Any voting member in good standing shall be eligible to be nominated and elected to any elective office of the Society.

Section C. Nomination and Election of Officers. The President shall appoint a Nominating Committee of at least three voting members who shall propose and submit to the membership at least thirty (30) days before the Annual Meeting at least one nomination for the offices of President Elect and Vice President and at least two nominations for the office of Secre¬tary Treasurer. Any person so nominated shall have given their prior consent to nomination and election as an officer. Additional nominations may be made from the floor for any office.

1. The nominee for each office receiving a majority vote shall be selected to that office.
2. Should no one receive a majority on the first ballot for each office, then the two nominees receiving the most votes for each office shall then be voted upon by the voting membership until a majority vote is received by one of the two nominees.

A Successful Dig: Surveyors Find Stone on Sherman-Howard County Border Buried in 1893

by Jeff Bahr, Aug 5, 2017 – The Grand Island Independent

On July 14, on the border between Sherman and Howard counties, a group of people went digging for history and direction. They found it.

This marker, uncovered July 14, was buried at the 12-mile point on the Sherman and Howard County border in 1893. Surveyor Robert Harvey put a number and an "M" on each side of the rock and a plus sign on top, The plus sign indicates the "true location," Casey Sherlock said.

A determined band of surveyors, undeterred by summer heat, found two limestone rocks that had been buried in 1893. Those monuments were put in the ground by Robert Harvey, Nebraska's first state surveyor, to clarify the border between the two counties. Last month's work was done by about 30 members of the Professional Surveyors Association of Nebraska, who spent their summer seminar in St. Paul and Boelus. The seminar was hosted by Tim Aitken, Sherman and Howard County surveyor.

The boundary between Sherman and Howard counties runs 24 miles. The seminar focused on the southern 12 miles. Harvey placed a stone every 3 miles along the 24-mile route. Originally, the markers were buried 2 feet deep, but time and the elements pushed some of them deeper. The surveyors set out to find three of the stones.

Working together, the group members were elated to find the rock at the 12-mile corner, which is 12 miles from the Buffalo County line. It was on property owned by Mike Curlo. The 12-mile post was well west of the county line road.

Divided into two groups, half of the surveyors also uncovered a stone 3 miles north of the Buffalo County line, on property owned by Gerald Reimers. No changes will be made to the county border. But the surveyors were still very satisfied to find it.

Some members of the Professional Surveyors Association of Nebraska said it was one of the best summer seminars they've had, said Hall County Public Works Director/ County Surveyor Casey Sherlock, who is a member of the PSAN board. The group was unable to locate the zero-mile monument, which was the corner common to Sherman and Howard counties along the north line of Buffalo County. But Sherlock, Aitken and the land owner came back and found it the following Thursday. They were assisted by a backhoe operator from Howard County. Efforts to find the 9-mile monument were unsuccessful.

The project was done partly because this is Nebraska's 150th anniversary and the 150th anniversary of the original survey. The northern part of the Sherman-Howard border was surveyed in 1868, and the southern part in 1867. The original government surveyors had issues with landowners. A surveyor probably didn't follow the correct procedures and "didn't do as good a job as he should have originally," Sherlock said.

The border between the two counties is meant to follow a township line, which is supposed to follow a true meridian, running true north. When Harvey came along, he set stones on the true meridian line.
Harvey put the markers underground to protect them from wind and the elements. Another goal was to protect the stones. Sometimes, markers are deliberately destroyed

or moved. If four people owned land in the area, the first man on the scene might move a monument. It wasn't unheard of for a landowner to increase the size of his property, Aitken said. The county surveyors asked Harvey to mark the true border. "They set out to resurvey that true meridian line to figure out where exactly it should have been," Sherlock said. "In some places it was several hundred feet different than where the county boundary actually was at."

The 12-mile monument was found in the trees of an active farmyard. Two of the family's children set up a lemonade stand to keep the surveyors refreshed.
At one point, the passage of 124 years didn't seem like that much time. Harvey, who kept very detailed notes, mentioned there were people living where he set the 12-mile marker in 1893. He wrote that he set the stone in their garden, Aitken said. In taking on the job, Harvey "was asked to see what kind of problems they had out there, and there were major problems," Aitken said.

But changing the original county line wasn't very likely. At each corner, four different landowners would have been affected, Aitken said. Another half-mile, a change would affect four more property owners. "It would have been a mess," Sherlock said.

Still, Aitken would like to read the minutes of those meetings back in 1893. Officials probably did give some thought to changing the borders. There was no other reason to hire Harvey to do the work, "other than to potentially move the county line to where it was supposed to be," Sherlock said.

Later, some of the participants plan to move the 12-mark marker to where it's supposed to be. The stone is 27 inches tall, 13 inches wide and seven inches thick. Sherlock and Aitken "had a hard time lifting that together," Sherlock said.

County commissioners from both counties joined the surveyors in their work. The group dug with shovels at mile post zero. "We dug probably two feet deep," 20 feet one way and 15 feet the other, Sherlock said. Sherman County supplied a backhoe at the 3-mile site. That stone was found about 6 or 7 feet deep. Before using a backhoe at the 12-mile location, the group first had to dig down deep with shovels to locate an electrical line.

During the seminar, the surveyors paid a visit to the St. Paul cemetery, which is the final resting place of three prominent surveyors. Harvey and the Paul brothers, James and Nicholas, are buried at the highest point in the cemetery.

(continued on next page)

A Successful Dig *(continued)*

The great-grandson of one of the Paul brothers gave a talk about the family. Aitken and his friends even produced a seven-minute video called "Dilemma at Deer Creek." Friends and relatives play the original figures who took part in the events of 1893.

Even today, the only way to find a buried stone is to dig. Metal detectors won't help. The Nebraska surveyors have a lot of admiration for Harvey, and the accuracy of his work. "When you follow his measurements, you're going to be close to wherever he says it was supposed to be," Sherlock said. Sherlock's calculated point based on Harvey's numbers was "within 6 inches of where he said it should be." Considering the equipment Harvey used more than a century ago, "the wind and the terrain they had to measure over, it was pretty amazing," Aitken said. Sherlock used a global positioning device. Harvey, meanwhile, measured the entire 24 miles with a 66-foot long steel chain, a solar compass and a surveyor's transit. Harvey used "nothing electronic. There was no such thing," Sherlock said.

Harvey's work is important to Nebraska surveyors. "He's kind of our ancestral leader," Sherlock said. At one point, Harvey was the county surveyor of Howard County. Harvey's great-granddaughter, who lives in Chicago, came to Boelus for the seminar. Harvey accomplished a lot before he died in 1923. "He probably laid out the first canal system in Central Nebraska," Aitken said. "He surveyed north to the South Dakota border and west to the Wyoming border," contending with Native Americans as he worked.

He kept great diaries, "so from day-to-day you could almost follow the man through his years. He went to the Black Hills. He was in Wyoming," Aitken said. He assisted the Union Pacific Railroad, worked in New Mexico and ran a newspaper in St. Paul. But the admiration for his surveying work is almost immeasurable. When you follow the work of an old surveyor, "you develop a certain level of comfort or respect" for their abilities, Sherlock said. With equipment today, "we can measure very, very accurately." Things were much different in Harvey's time.

If you can follow his work from 125 years ago and "be within half of foot of what he measured with a steel chain and a transit, it's really quite astounding," Sherlock said.

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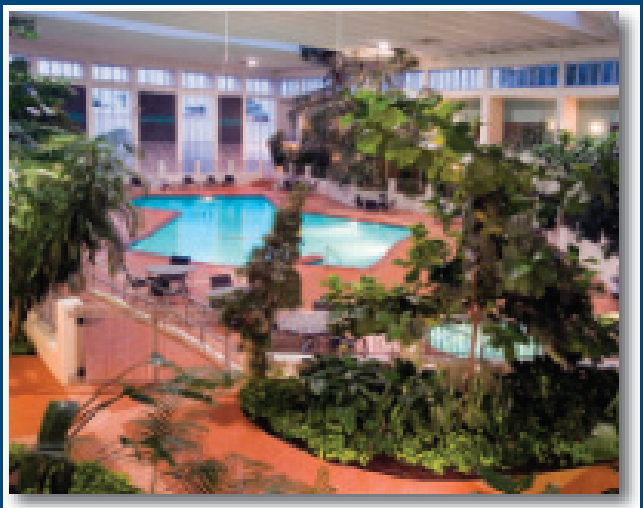


WCCC Uses $250,000 Donation to Launch Land Surveyor Program

by Phil Castle, July 19, 2017 – The Business Times

A land surveying program is scheduled to start this fall at Western Colorado Community College in Grand Junction, new instruction initiated by a $250,000 donation from a surveyors organization.

WCCC will offer the only accredited land surveyor program in Colorado and one of only a few such programs nationwide, in turn helping to meet increasing demand for surveyors, said Todd Beers, president of the Professional Land Surveyors of Colorado. "We're very excited about this."

Betty Bechtel, vice president of the Colorado Mesa University board of trustees, said she's excited as well about launching a program at a time when decreasing funding for higher education presents challenges. "This is a prime example of the private sector working with public education," Bechtel said.

The donation from the Professional Land Surveyors of Colorado will be used to recruit and train faculty, purchase equipment and cover other expenses related to starting a land surveying and geomatics program at WCCC, a division of CMU.

The program will offer a two-year associate degree and online certificate. Students who complete the degree program will fulfill the requirements to take the professional land surveyor licensing examination. Students who've already earned a four-year college degree can complete online instruction to qualify for the state licensing test.

The program will train students to use equipment and technology to gather and analyze data, complete surveying tasks and resolve boundary conflicts. Students also will gain the knowledge needed to earn state licenses as professional surveyors.

Beers said the Professional Land Surveyors of Colorado was interested in starting an instructional program and found a good match with WCCC and CMU. "There were a lot of receptive people there."

The Global Positioning System, robotics, drones and other technological advances have made it possible to handle surveying tasks with smaller crews. Tasks that used to require a four-member crew now can be completed with one person, Beers said. But at the same time, surveyors require training to understand and use that technology, he added.

And since the average age of surveyors is 58, a new generation will be needed to succeed those who will retire from the profession, Beers said. "We need surveyors across this state and across the country."

It's a matter of making more people aware of career opportunities — and now the training offered at WCCC, he said.

New State Land Surveyor Named

The Missouri Department of Agriculture named Ron Heimbaugh as Missouri State Land Surveyor. Heimbaugh was named Acting State Land Surveyor on July 1 following the resignation of Darrell Pratte. He began his official duties on August 16, 2017. Heimbaugh earned his Bachelor of Science degree in Industrial Technology from the College of the Ozarks in 1990 and later attended the Missouri University of Science and Technology for his survey course work.

Ron served as Chief of Surveys at Integrity Engineering, Archer Engineering, Archer Elgin Engineering and Surveying, and was Sole Proprietor of Heimbaugh Surveying, all in Rolla, Missouri. In 2012, Heimbaugh joined the Land Survey Program as the Field Surveys Section Chief. In this capacity Ron was tasked with the day to day operations of the cadastral and geodetic surveys performed by the Program, as well as overseeing any survey contract work let by the Department. Heimbaugh was instrumental in the organization of the Land Survey Program following a staff reduction of nearly 50 percent in 2011, and a 2013 move from the Department of Natural Resources to the Department of Agriculture. Heimbaugh comes to this position with nearly 14 years in management and leadership positions as a Professional Land Surveyor. Asked about the appointment, Former State Land Surveyor Darrell Pratte stated, "Much of what the Land Survey Program is today is due to Ron's vision, and if the future of this Program reflects Ron's philosophy and values, it will remain a very good Program, he will do well for the people of Missouri and the land surveyors of Missouri."

A lifelong resident of Phelps County, Ron attended Rolla Public Schools. He met his wife Debbie while they attended College of the Ozarks. Debbie is a high school English teacher with the Rolla Public School District. Ron and Debbie have three daughters. Married in May, Lindsey is a fifth grade counselor with the Sedalia Public Schools. Megan is a college senior at Lincoln University in Jefferson City, majoring in elementary education. Twelve year old Taylor is a seventh grade student attending Rolla Junior High. All three girls are active in sports, especially softball, which Lindsey and Megan played in high school and college. Ron still enjoys coaching and continues to coach Taylor's competitive traveling softball team.

Ron Heimbaugh

Unique Record of the Last Total Solar Eclipse Resurfaces in Charleston 47 Years Later – Just in Time for the Next One

by Caitlin Byrd, Aug. 11, 2017 – The Post & Courier of Charl

Every mark on the map has meaning.

Each line, a boundary. Each pen stroke, an intentional act.

On this particular 47-year-old document, known as a plat, three men recorded the details of 67.19 acres in McClellanville: A curved line for Jeremy Creek. Dashes for a power line.

They kept recording what they saw even when the world went dark.

It was March 7, 1970. The sun was shining overhead that Saturday until 1:25 p.m., when for two minutes and 35 seconds, it wasn't.

At that moment, the moon moved between the Earth and the sun, creating a rare total solar eclipse above the Charleston area.

Standing in the field that afternoon, land surveyor Bert Niemyer decided the event was worth noting.

"I'm going to put this on the plat," he remembers saying.

With his pen, Niemyer drew a sun, its circle completely dark except for a faint ring he left around the outside. He wrote the words "TOTAL SOLAR ECLIPSE" in all-caps next to it. He underlined it, too. To him, the "solar eclipse of the century" was worth noting.

"I remember it going dark. I don't remember for how long, but it was an event," said Niemyer, now 75 and retired. "I remember putting the little drawing on there. I didn't think about it for very long but I thought this may be something my grandchildren will one day see."

A few years ago, Mike Rourk found the plat. Then a few weeks ago, after talking with colleagues about the upcoming Aug. 21 total solar eclipse, he found it again while reviewing a title for the Dollar General store on U.S. Highway 17 near McClellanville.

Mike Rourk and Clint Tipton look over a 1970's plat that includes a notation of the total solar eclipse that fell in McClellanville.

(continued on next page)

Unique Record of the Last Total Solar Eclipse *(continued)*

As a freelance title abstractor, Rourk spends hours going through plats to determine the ownership of a particular parcel of real estate. In his 48 years of doing this work, though, Rourk said he has never found a plat quite like this.

"Good abstractors will look at notations," he said, pointing to Niemyer's sun on the original linen plat. "This notation is unique."

Rourk's index finger dragged to to the right, pausing under the names listed as witnesses to the solar eclipse during the land survey. Niemyer had written their names, starting with his: Herbert A. Niemyer Jr., James C. Rogers, Derk B.K. Van Raalte III.

Typically, Rourk said, these documents stick to the basics: Roads location, building dimensions, bearings, power lines.

"Those are the general things. Those are the things that you need to see," said Lynn Dukes, another independent title abstractor who has also looked at the plat. "I've been doing this for close to 30 years, and I have never seen something like that."

When Niemyer turned the plat over to the Charleston County Planning Board in 1970, he said his artistic commemoration almost didn't survive.

"They had all the rules in front of them, and I guess you weren't allowed to put extraneous stuff on there," Niemyer said, "but that was just a little battle of the wills."

He said a planning board representative told him he could not have the solar eclipse notation on the plat.

"Well, we're just going to have to fight it out," Niemyer responded.

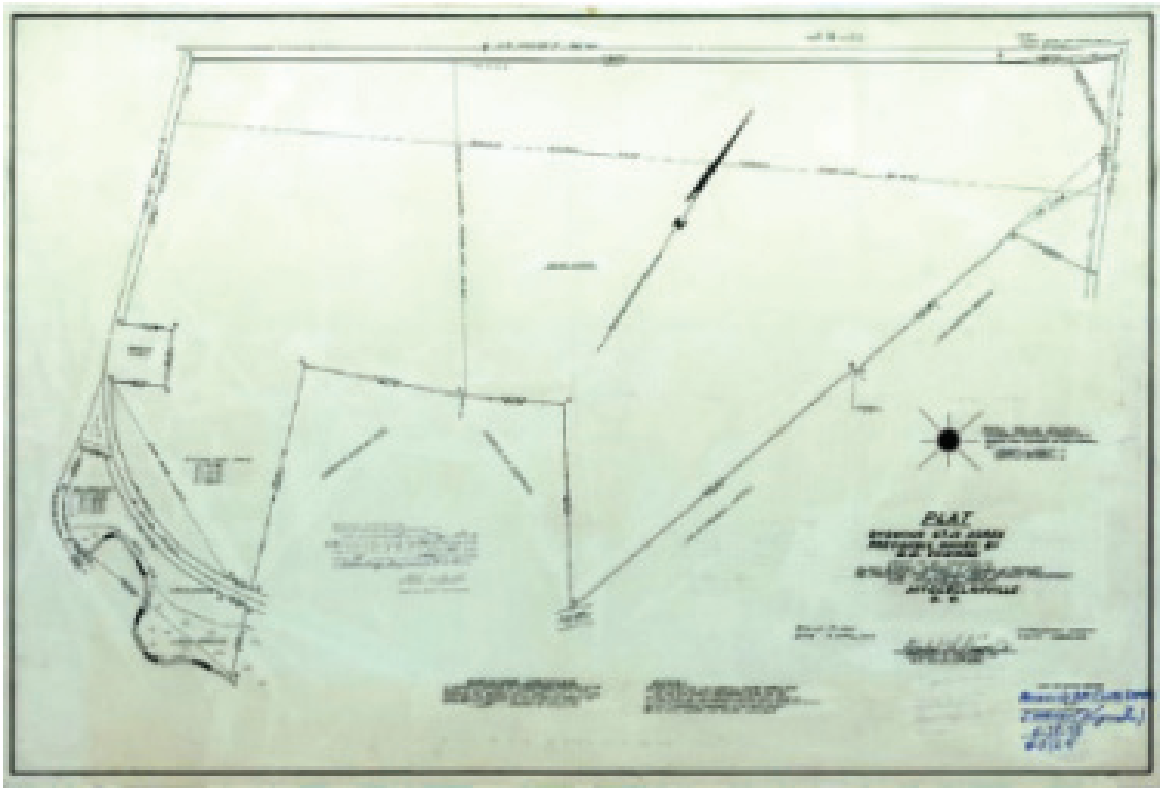
He won.

Niemyer's notation of the total solar eclipse survived. The plat, which is a public record, can be seen in the Register Mesne Conveyance Office, located on the second floor at 101 Meeting St.

Rourk smiled as he rolled up the 47-year-old document.

"The solar eclipse is on a Monday. There will be surveyors out working that day," he said, trailing off.

"I guarantee you that if people find out about this, some surveyor out there will put a solar eclipse on a plat, and I hope they do."



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NMSU Launches New Geomatics Program with National Award

by Linda Fresques, Aug. 13, 2017 – Las Cruces Sun-NewsPublished

The New Mexico State University Surveying Engineering program recently received a $10,000 National Council of Examiners for Engineering and Surveying Education Award to provide scholarships and state-of-the art instrumentation for the newly revamped surveying engineering program, which will be offered in the fall as geomatics.

The NCEES annual award "recognizes surveying programs that best reflect the organization's mission to advance licensure for surveyors in order to safeguard the health, safety and welfare of the public." "The geomatics program was developed with substantial direction and support from industry, state and national professional societies," said Tom Jenkins, engineering technology department head. "We are excited NMSU has transformed the program to meet current and future demands of our industry as well as the traditional and non-traditional student," said Debra P. Hicks, president and CEO of Pettigrew & Associates, NMSU engineering alumna and NMSU regent.

"This program re-design will stand out as a premier program in the country for anyone pursuing higher education in the geospatial industry," said C. Scott Croshaw, vice president of Wilson & Company, Inc., and NMSU engineering alum.
The geomatics four-year bachelor's degree will feature studies of new technologies and flexible ways for degree completion.

Geomatics is a two-year completion program. Students can take general education courses, along with geomatics pre-requisites such as drafting, beginning surveying, math and science online or at a community college. The remaining two years of technical coursework would be completed at the NMSU campus in Las Cruces. Updated coursework will include instruction on emerging technologies in geomatics measurement and analysis; the legal principles of boundary location; the laws related to boundaries and land use; and applicable mathematical and computational theories and principles.

Also new, the degree requires only 120 hours to complete, rather than 128, which was formerly required. The reduction in hours for degree completion is being implemented throughout NMSU to align with peer institutions' requirements and to enable full-time students to graduate in four years. The program is accredited by the Engineering Accreditation Commission of ABET.

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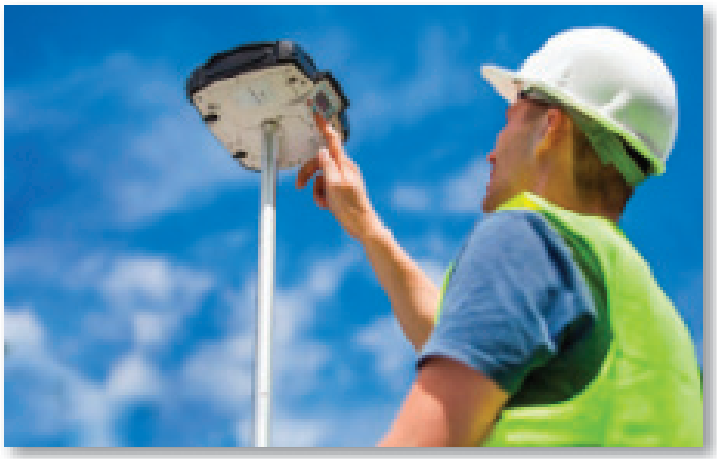
The Future of Surveying? Quantum Computing and Blockchain

by Rober W. Foster, Wednesday, July 26, 2017 – From MultiBriefs (http://exclusive.multibriefs.com)

GPS for the surveyor in private practice has become ubiquitous.



GPS for the surveyor in private practice has become ubiquitous.

Forty-four years ago, the U.S. government introduced the global navigation satellite system — what's known today as GPS. I remember attending a seminar where this amazing technology was described with speculation about its application in surveying.

The primary purpose of GPS was as a navigation system, but in its ability to solve positioning with precision, some futurist thinkers in the surveying profession could see an application, not only for the geodesist but for the land surveyor as well. To a flat-land surveyor familiar with chains and links, this was Buck Rogers stuff and highly theoretical.

In those early days from 1978 to 1985 during which the first constellation Block 1 satellites were launched, our own ACSM futurists — like Larry Hothem — were explaining to us how GPS was about to change our world.

Since then, a total of 70 satellites have been launched into the system with 32 currently in healthy orbit. GPS for the surveyor in private practice has become ubiquitous; the rest is history.

Now fast-forward to 2017 when things like quantum computing and blockchain technology are being discussed with wonder and speculation that these could be the beginning of something big, like the advent of GPS all over again.

Quantum mechanics is that branch of theoretical physics that seems to contradict everything about classical physics upon which computer technology is based. We read about quantum flexibility theory, string theory and quantum fluctuations and the new D-Wave Computer. One writer has called it "the black box that could change the world," able to process unheard of volumes of data at ever greater speeds.

As an example of the possibilities, our attention is drawn to the challenge of dealing with the so-called Big Data produced by "the internet of things." In the (theoretical) smart cities of tomorrow, thousands of sensors will collect millions of bits of data for municipal administration over everything from traffic control to voting patterns. Only the processing marvels of quantum computing, it is said, will be able to handle the information overload.

Blockchain technology is no less exciting and equally mysterious in its potential applications for us. The block chain has been described as an electronic digital auditing system in the cloud. One of its anticipated applications aside from bitcoin and other cryptocurrencies is a virtual cadaster-in-the-cloud in which property records will be maintained and made accessible from any location with perfect accuracy and security. Several FIG commissions have added blockchain to their areas of study.

In the mid-1970s we watched and wondered at a technology that might or might not have relevance for the surveying profession. But with the global satellite navigation system, we could understand that measurement — a subject dear to our hearts — was part of the promise.

With quantum mechanics and block chain technology, it is more difficult to see clearly how the surveying world will be affected.

But stay tuned: Our new wave of young, tech-savvy surveyors will see it and adapt to everything new as we once did with the digital computer and GPS. And somewhere there's a young Larry Hothem who will explain it all to the rest of us.

Robert W. Foster, PS, PE, of Hopkinton, MA, is in private practice, offering professional consulting services nationally in arbitration, dispute resolution and litigation involving surveying and civil engineering issues. He is past president of the International Federation of Surveyors (FIG).

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Unique Surveying Project Helps Pinery Bushfire Victims Get Properties Back into Shape

by Courtney Fowler, Australian Broadcasting Corporation – Rural News (www.abc.net.au/news/rural)

Across two weekends the group were able to accurately determine property boundaries for eight landholders around Pinery. (Supplied: The Set Up.)

For third generation Pinery farmer Paul Guerin, his unfenced property remains an everyday reminder of the devastating blaze that passed through the area just over 18 months ago.

The Pinery fire left two people dead, 97 houses destroyed and 83,000 hectares blackened on November 25, 2015. A new volunteer surveying project is helping farmers get their properties back into shape following the Pinery bushfire. "I mean life goes on and you just turn the page and keep going, but I don't want to go through it again," Mr Guerin said. And for landholders like Mr Guerin, redefining hundreds of kilometres of boundaries that go back to the 1870s has proven a tireless challenge. "I'm the third generation person to own the land at Pinery in my family line," he said. "I was around when my father refenced the boundary perimeter and internal fences of the property about 40 years ago. It was a family affair to do it together. It was the destruction from the trees that destroyed the fences, and it took out the two major strainer posts on the western boundaries and corners of the property."

Mr Guerin said a new volunteer project that had brought together licensed surveyors and students was helping farmers get their properties back into shape. "When the opportunity came up [to] get it resurveyed, I thought why not, before I go and replace the fencing, and that's what's happened today. And by god I tell you what, the forefathers were pretty bloody close because the pegs have gone back in the same spots." After six months of planning, the group was able to accurately determine property boundaries for eight landholders across hundreds of square kilometres, to enable fence lines to be re-established.

Licensed surveyors and students in South Australia have finished a 6 month project to help farmers to get their properties back into shape following devastating losses in the Pinery bushfires .

(continued on page 38)

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Unique Surveying Project Helps Pinery Bushfire (continued)

Licensed surveyor Beau Thorley was one of seven surveying firms approached by the Pinery Recovery Committee to lead the volunteer project with 12 Masters of Surveying students from UniSA. Mr Thorley said it was a rare moment for the profession to give back to the community. "Today for the surveying profession to help in our own small way, has been amazing," he said. "What's really shook me the most was actually being able to stop and have a chat with some of the landholders [and] hear some of the stories and emotion. I'm glad we can help in our own small way but I really can't imagine what they went through that day."

Mr Thorley said the project was the first of its kind, which was not only a great opportunity to help affected farmers but also provided valuable experience to the next generation of surveyors. "It's been amazing actually, the amount of support from the industry has been overwhelming," he said. "A key focus of the project was also to work alongside the University of SA and Masters of Surveying program and get some of their final year grads to come and get involved.
"To be able to give them some experience on projects they would rarely otherwise see, to come out and hear the stories and try and instil some of the values of helping community into the students, that's been incredible. So I'm really proud of the surveying profession at the moment. Seeing the appreciation [for our work] is excellent."

Licensed surveyor Beau Thorley says the project was a rare moment for the profession to give back to the community. (Supplied: The Set Up)

Surveying and mapping committee member Tom Jeffery said with some boundaries not surveyed since they were first drawn up in the early 19th century, it was a lesson in history and a rare opportunity for emerging surveyors in the industry. "Our job is to mark the boundaries where they were intended to be when the first surveyor set them out," he said. "Some of the plans in this area date back to the early 1800s, so of course our measuring techniques are a lot more accurate than they had back then. For us to retrace those footsteps, it is sort of like going through history and working out where they were coming from and what the intention was."

Some property boundaries in Pinery have not surveyed since the early 1800's. (Supplied: The Set Up)

And for landholders like Mr Guerin, the project offered him some certainty and closure with re-fencing his property.
"It's one of those times of recognition I think, especially in your business line," he said. "A lot have decided since they don't do livestock, they won't replace the fencing, but those of us who do livestock obviously will. And now that today's happened and the pegs are in the ground, I know where to put the posts and I can get going."

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Ask the Contractor: Get Future Home Surveyed Before You Buy

by Sandy Griffs, August 13, 2017, The Prescott Valley Tribune (Arizona)

So, you think you know everything there is to know about the legal description of your property. If you had to, you could dig up that old plat and calculate precisely where your property begins and ends — well that does not seem to be the case with many of the calls that have been coming in lately.

How can I find my property pins? I found a mark in the street — does that belong to my lot? I have a pink ribbon in my back yard on a stake — is that my property marker? My neighbor built their fence on my lot — now what?

We have mentioned many times over the years that you should know where your property boundaries are before a problem arises. The location of boundary lines and other lines of occupancy or possession is a critical piece of information to have before you build a fence, add a sun-room or install a driveway. All too often we have seen issues where neighbors were operating under the wrong assumption about the placement of the boundary line between properties. Before you have that fence erected, you want to make sure it will be built on your property, not your neighbor's. The boundary line certification will also tell you whether the legal description of your property is accurate.

The importance of getting your future home surveyed has never been greater. In these trying times, along with all the red tape involved in purchasing a home, it is especially important when it comes to your property and knowing if there are issues that should be disclosed before you take the leap of purchasing a home.

Why do I need a land survey? Possible encroachments on your potential property can become bigger issues down the road. A property corner pin could be missing and this would be an issue if you ever plan on putting up a fence. You will need to know exactly where your property line is located. If you don't, you could possibly build on your neighbor's property and end up with the financial burden of having to remove and rebuild the fence in the correct location.

A land survey will help protect your investment. A survey can reveal the exact property dimensions, size and location of the home on the property, as well as any other improvements on the land, such as a driveway that may be crossing a property line.

So here is a quick and dirty backstory why surveying the same point over and over again can seem pointless but is very much the point of the story as written by Thomas A. Liuzzo, RLS, Granite Basin Engineering:

So you want to buy a residential lot and build a house, or you turned the corner and saw that dream house already built waiting for you to move in. You have the money, you find a real estate agent, and you sign the deed and you're home. Maybe while you were touring the property for the first time, the realtor pointed to the fenced yard and said that's your property boundary, that fence is fairly new so I wouldn't bother with a survey. You decided that was sufficient for you and you kicked back and relaxed on your patio with your little piece of the American dream enjoying a lazy summer day.

Two days later you see a funny person wearing an orange vest with an "Indiana Jones" hat peeking over the fence. You ask, "Whatcha doin?" He replies, "Looking for your neighbor's property corners and my measurements are telling me its 5 feet into your yard." Your heart skips a beat and you greet him and allow him to come in. The nice surveyor goes on to explain, "I found my clients (your neighbor that you haven't met yet) front property pin along the street and the back property pin is supposed to be 150 feet from there." He has a nice yellow thingy that beeps as he waves it around and all of a sudden it squawks louder than a room full of church ladies at Sunday Bingo. Lo and behold, there is an old rebar under the surface about a foot deep. Suddenly your little piece of the American dream is looking like a large pile of garbage.

Fortunately your neighbor hired a surveyor that is a reasonable sort and has some experience in the neighborhood. He says, "I've seen this before 'cause this ain't my first rodeo … by the way, you're new in town? You're looking at him like he's got four heads at this point but you are a patient person. The surveyor says, "You see my client lives in the North Subdivision and you live in the South Subdivision. Each were monumented some 40 years ago from the street that fronts the lot at different times and the dang field crew just set the points they were given

and paid no mind to what came first or even if there was a chance of other monuments being here. As it turns out we have seen overlaps along this line upwards of 10 feet. Do you mind if I go out and locate your front property pins?" You come back down to earth although you are still a little agitated while you walk with him to the front of your property. The surveyor says, "Well lookie there, right at the back of the sidewalk where it should be." As he is taking the shot on the point with his fancy measuring device, he punches in some numbers and says, "Now if I was a betting man, I think we'll find a pin 5 feet onto my clients property, so let's go take a look." You think at this point, how does he know all this? How can he be so calm, if he knows all this why hasn't someone fixed this. Your mind is racing as you walk to the back of the property and cross into your neighbor's yard.

"Well howdy neighbor!" Your neighbor exclaims. As your neighbor introduces himself, you wish it was under different circumstances as the surveyor explains to him what is going on. Once the surveyor finished his explanation, he punches in some numbers to his magic box, moves a few feet, and then moves a few more feet, takes out the yellow thingy and in seconds it starts that squawking again and he finds another rebar 2 feet under the surface. "Yep! Just like I thought, the overlap is about 9.8 feet so not quite 10 feet." You are not at all relieved and you ask, "what happens now, what do we do? My lot is supposed to be 150 deep, not 140 feet or 145 feet." Your neighbor chimes in, "wow I am sure glad I called you to survey my property after my neighbor down the street used you, do you think we can find a solution?" The surveyor says, "Sure we can find a solution, just as long as you and your neighbor can agree to it. I have seen this before, these two subdivisions had a starting point opposite from one another and when they were platted, there was a 10 foot overlap in the parent properties; no one ever fixed it before the subdivisions took place. As you can see both pins were buried so the surveyors that set the second set of monuments missed it. Unfortunately, all of these lots were conveyed with the overlap. What we need to do is develop a property line agreement that states the location you both agree on is the fence that was represented to each of you as the property line by your Realtor." You are very frustrated about it and for a second think that it's not bad, I still get what I was shown as my property, "Why wasn't I told this?" you ask. The surveyor replies, "Did you ask for a survey when you spoke to your realtor?" "No," you reply.

The moral of the story is that before you invest your hard earned cash on the home of your dreams take the time to get a proper survey to understand where your boundaries really are.

Anyone can go to the Yavapai County website and pull up your lot to see the lot dimensions that have been assigned and this is a good starting point for information, however, to have your corners professionally marked and surveyed would be the responsibility of the licensed surveyor and these maps are only for reference only.

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"How" you may ask? By sharing photos, stories and news with Missouri Surveyor! It is really that simple. Just as this edition's cover features Missouri surveyors you and your work may be featured as well. All content is welcome! For the cover, high quality images in landscape format at an aspect-ration comparable to 17"x11" work best; stories and articles merely need to be in Microsoft Word.

Corrections, Missouri Surveyor June 2017 Edition

Page 24 of *One Sloppy Land Surveyor* incorrectly refers to Joseph C. Brown as "John".

Page 26, *In Memory of David Clark*, the Editor misprinted a line to start the article with remnants from a previous report. Humblest of apologies to the family of David Clark who's memory was honored with the remaining portion of the memorial in proper form.

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