Missouri Surveyor

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri December 2024

What's in this issue...

CALENDAR OF EVENTS

2025

February 12, 2025
Zoom Call, Board Meeting
Jefferson City, MO

March, 2025
USPLSS Webinar via zoom

April 30, 2025
Board Meeting
Lodge of Four Seasons, Lake Ozark, MO

May 1-2, 2025
47th Annual Spring Workshop
Lodge of Four Seasons, Lake Ozark, MO

July 11, 2025
Zoom Call, Board Meeting
MSPS Office, Jefferson City, MO

August 11-13, 2025
Review Course, Missouri S & T
Rolla, MO

October 2-4, 2025
68th Annual Meeting and Convention
Stoney Creek Conference Center,
Independence, MO

December 5, 2025
Zoom Call, Board Meeting
MSPS Office, Jefferson City, MO

Cover: Donald Diehl, PLS from Bartlett & West's Rolla MO Office uses a T-post puller and vise grips to help re-monument a broken concrete corner monument in conjunction with the Missouri Dept of Agriculture, Land Survey Program's County Surveyor Cooperative & Private Surveyor Cooperative Programs.

Donald R. Martin, Editor

Notes from the Editor's Desk

Donald R. Martin

Remembering Rich Barr

Former MSPS President Rich Barr passed away in September; may he rest in peace. Mr. Barr was a giant of Missouri surveying with a remarkable history of service and leadership to this profession and our association. Nationally renowned in the community of surveyors, for MSPS he was our *President* in 1971, recipient of our *Robert E. Myers Service Award* in 1992, honored as the *Missouri Surveyor of the Year* in 1995, and presented with our *Lifetime Achievement Award* in 2021.

Also a successful engineer and businessman, Mr. Barr's legacy proudly included the development of multitudes of accomplished land surveyors and engineers who learned from this master in his roles as owner of *The Clayton Engineering Company* and as a member of the *Board For Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects*.

This Society was fortunate to have Rich as a member and we are forever thankful for his service and friendship. His presence among us was a gift and we will recall his memory with favor.

Mark Nolte Elected!

Fellow surveyor and MSPS Past President Mark Nolte of Higginsville has been elected to the Missouri House of Representatives. Nolte will serve District 51 which covers Lafayette and Saline counties. He prevailed in the 2024 General Election of November 5th and assumes office on January 8, 2025. A Republican, he will be serving the same area where he grew up.

Mr. Nolte was previously the County Surveyor of Lafayette County for twenty-four years. He will be relinquishing his role as Board Chair for the Professional Land Surveyors division of the Missouri Registration Board for Architects, Professional Engineers, Professional Land Surveyors, and Professional Landscape Architects to serve in the General Assembly.

Mark was the MSPS President in 2011. He was Surveyor-of-the-Year in 2011 and received the Legislative Appreciation Award in 2011.

Donald

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President's Message

Chuck Quinby, PLS

As I started the first full week as president of the Missouri Society of Professional Surveyors, I couldn't help but look back along the path that brought me here. It was my 4th Great Grandfather, Ephraim Quinby, who planted the seed long ago. Ephraim, a true pioneer, led a group of people out of the Connecticut Territory and into the Fire Lands of Northeast Ohio in 1798. He named the new 441-acre tract of land Warren, Ohio after Moses Warren, a Surveyor in the Western Reserve.

Warren, Ohio was my place of birth and where I went to school until I turned 18. Note, there was no mention of graduation. I joined the Army as an Artillery Surveyor instead of finishing High School. I wouldn't graduate until I was forced to by my Company Commander while serving in South Korea. One day a group of us "High School Dropouts" were marched up the hill to the Education Center. The education center became my place of business for the next 3 months. I took classes in English, Math, Science and Geography which prepared me for the Ohio version of the GED exam. I received a High School Diploma from the Saint Louis High School, Honolulu, Hawaii Adult division.

The very next day I was accepted to the University of Maryland University College under a probation period for students with less than a traditional academic history. It would be another 10 years before I receive my Bachelor of Science. With my bachelor's degree in hand, I really thought I could leave the military and make millions as a civilian surveyor. We all know how that worked out. Instead, I went to work as an instrument operator for North Fork Surveying in Synder, Oklahoma making $5.00 an hour.

Immediately I encountered some major differences between military and civilian surveying. I went back to school to learn more about the civilian side of surveying. I took another 56 hours of college credit in areas such as Principals of Boundary Surveying, Route Surveying, Land Development, Drafting (by hand and CAD based drafting). I brought all this knowledge to Missouri in 2001 only to find out Missouri does things a little differently. So, it was back to school to learn about the USPLSS in Missouri and Tiffin's instructions.

I say all that to say this; I've spent a good portion of my life learning, both formally and informally. In the coming year there will be more learning and with your support I'm convinced the society will continue to thrive and I'll be able to pass on to the next President a society full of promise and stability for years to come.

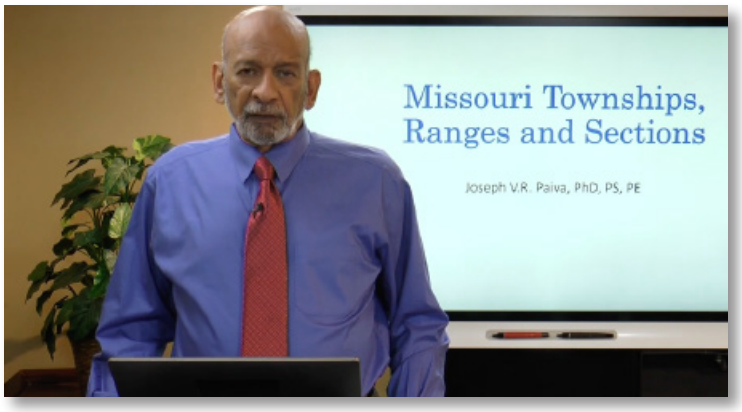
Chuck Quinby

Midwest Geospatial Academy (MGA) Launches with Success in Fall 2024

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

We're thrilled to announce that MGA's inaugural semester, Fall 2024, launched with a robust enrollment of 50 students across three courses. We extend our gratitude to the surveying profession and to the employers supporting their employees in furthering their education.

Course Offerings



For Fall 2024, MGA introduced:

- ***Surveying I***
- ***Land Records: Researching and Using***
- ***Elements of Surveying Practice***

This spring, MGA will expand its offerings with:

- ***Surveying II***
- ***Legal Aspects of Boundary Surveying***
- ***Elements of Surveying Practice***

Surveying I and *Surveying II* are hybrid courses, blending online instruction with in-person lab sessions. Tuition is set at $850 for hybrid courses and $800 for fully online courses. Self-funded students may opt for an installment payment plan—available in three or four equal payments with a $25 setup fee and zero interest. Students who complete *Elements of Surveying Practice* and meet all requirements will earn a **Basic Certificate in Surveying.**

Professional Engagement and Support

We're proud to report that several students have joined the Missouri Society of Professional Surveyors (MSPS), and some even attended the MSPS annual meeting. Some employers provided support to some of the students, demonstrating industry support for MGA students. We were also excited to represent MGA at the MSPS exhibit hall, engaging with students and professionals alike.

Spring 2025 Enrollment Open Now

Registration for Spring 2025 is open at www.geospatialacademy.us. Visit the Academics page to explore detailed course descriptions, register, and complete the process entirely online. For guidance, contact Land Surveying Program Advisor Mike Oetterer at mike@geospatialacademy.us or send general inquiries to info@geospatialacademy.us.

If you have prior college coursework, submitting unofficial transcripts with your application is recommended. Later, we may request official transcripts to be sent to admissions@geospatialacademy.us or by mail to Admissions, MGA, P.O. Box 22453, Kansas City, MO 64113-0453.

Plan Ahead for Fall 2025

Thinking ahead? Surveying I and other courses offered this fall will be available again in Fall 2025. Take advantage of an early enrollment discount of $75 per course if you register and pay by March 7, 2025. Early enrollment opens in February.

Stay tuned for updates and feel free to reach out with questions or feedback. Your insights are invaluable as we grow and serve the professional community.

Hybrid Courses at Midwest Geospatial Academy:
A Flexible Approach to Hands-On-Learning

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

Wondering what a "hybrid course" means at Midwest Geospatial Academy (MGA)? Our hybrid format for *Surveying I* and *Surveying II* combines online lectures with hands-on field labs, giving students flexibility while ensuring practical experience.

How Hybrid Courses Work

For both *Surveying I* and *Surveying II*, students engage with lectures and coursework online but complete essential field labs in person. This allows students to gain real-world experience using survey equipment and completing projects critical for their professional development.

(continued on next page)

Hybrid Courses at Midwest Geospatial Academy *(continued)*

MGA offers two options for completing the required field labs:

1. **Remote Field Mentorship**
   Students can work under a licensed land surveyor (PLS) who supervises, mentors, and provides necessary equipment. This mentor assists or assigns an assistant for fieldwork, as most tasks require teamwork. Both the student and the PLS sign a mentorship agreement with MGA, clearly outlining roles and responsibilities. The mentor initials all field book entries to confirm support and accountability.

2. **On-Campus Labs**
   Students may choose to complete their labs in person. For Fall 2024, MGA labs are hosted at Missouri University of Science and Technology (Missouri S&T), utilizing their classroom spaces, equipment, and nearby field sites, including the S&T grounds and Rolla City Park.

Regardless of location, all students submit lab reports that are graded against uniform criteria, ensuring consistency and quality across both mentorship and campus-based labs. Each student's work reflects the same rigorous standards and practical outcomes.

(continued on page 8)

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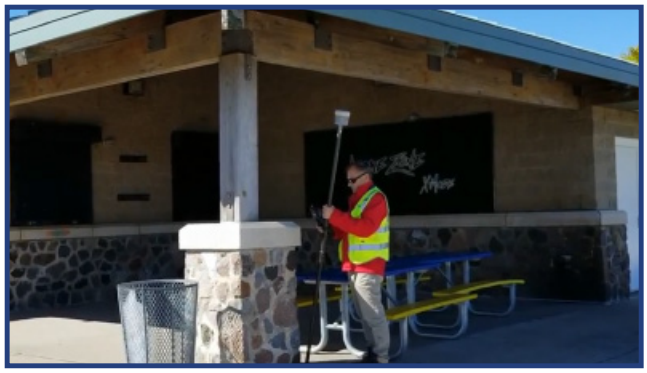

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Hybrid Courses at Midwest Geospatial Academy *(continued)*

A Balanced Option for Today's Surveying Students

Currently, about 50% of MGA students choose the remote mentorship route, while others attend labs on campus. This flexibility lets students decide the best fit for their needs, whether they prefer the independence of remote fieldwork or the resources available on campus.

Explore how our hybrid courses can fit into your professional journey at www.geospatialacademy.us.

The Purpose of Surveying Education at Midwest Geospatia Academy

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

At Midwest Geospatial Academy (MGA), we prepare students to succeed as licensed professional land surveyors, equipping them with the deep knowledge and analytical skills essential for their careers. Unlike on-the-job training, our courses target the foundational knowledge and critical thinking needed to pass licensing exams and excel professionally—not just mastery of equipment.

Building Professionals, Not Just Technicians

The MGA curriculum is designed with the ultimate goal of licensure in mind. Our courses align with the three essential exams for Missouri surveyors: the FS (Fundamentals of Surveying), PS (Principles of Surveying), and the Missouri-Specific Exam. Our priority is teaching the theory and analytical skills that help students understand surveying on a fundamental level—skills essential to their role as surveyors.

We don't train students on equipment specifics or button-pushing sequences; instead, we teach them how to compute, adjust data, and apply theoretical knowledge manually. This level of understanding prepares students to handle unexpected challenges, identify and avoid blunders, and contribute effectively from day one.

Education Plus Mentorship: The Employer's Role

While MGA provides the academic foundation, growth into a skilled surveyor requires hands-on experience, mentorship, and exposure to diverse projects. As employers, you play a vital role in bridging the gap between classroom knowledge and field readiness. Many of our successful students benefit from company-led learning opportunities like seminars, discussions, and direct mentorship with seasoned surveyors.

Become Part of the MGA Mission

At MGA, we're not just shaping surveyors; we're cultivating well-rounded professionals who understand ethics, client relationships, and big-picture issues. If you're an experienced surveyor or technician and want to give back to the profession, we invite you to share your expertise. Join us in educating the next generation by reaching out to us at info@geospatialacademy.us.

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2024 Newly Licensed Land Survey Interns

Benjamin Thomas Cannefax
Springfield MO

Travis Dill
Buffalo MO

Brandon Kurtz
Warrenton MO

Ridge McCarty
Greentop MO

(Not pictured)

Phillip Becker
Kansas City MO

Edward Carroll
Overland Park KS

Joseph R Geile
Perryville MO

Clinton T Jones
Pana IL

Joshua Ty Lisle
Trenton MO

Trever Ostermann
St Charles MO

Jade John Pavia
Springfield MO

Elizabeth G Porterfield
Edwardsville IL

Casey Lee Strouse
Clinton MO

Zach Vahle
Canton MO

Chad T Weber
St Louis MO

Kris Wheeler
Wright City MO

Nicholas Wilde
St Elizabeth MO

2024 Newly Licensed Professional Land Surveyors

Chris Knowlton
Ava MO

Timothy J. Devaney
Columbia MO

Jacob Mattson
Maryville MO

John A. Moll, Jr.
North Little Rock AR

(Not pictured)

James S. Aunspaugh
Tontitown AR

Nicholas J. Bowers
Harrisonville MO

Chad P. Carron
Farmington MO

Henry H. Huynh
St. Louis MO

Matthew P. Jaspering
O'Fallon MO

Adam M. Papa
Thibodaux LA

Timothy C. Quigg
Jacksonville IL

Josh L. Powers
Stillwater OK

Colton C. Schulte
Eldon MO

Mark C. Williams
Brownfield TX

O. Dan Lashley Memorial Scholar – Wyatt Edwards

The 2024 Dan Lashley Memorial Scholarship has been presented to Wyatt Edwards of Rolla. Wyatt is in his second year of the Civil Engineering program at State Technical College.

Mr. Edwards has long-term plans to become a Land Surveyor. He completed a summer internship with Bartlett & West of Rolla in 2024. He graduated from high school as a Missouri A+ scholar. Active in his congregation of Tabernacle of Praise, Wyatt is a hard-working young person who has had part-time jobs throughout his teens to help fund his educational ambitions.

To Whom It May Concern:

Just a note to thank you for the generous scholarship in memory and honor of Mr. Dan Lashley. I have used it to help with my college expenses for this semester. It has been a blessing! Thank you for your kindness.

Sincerely

Wyatt Edwards

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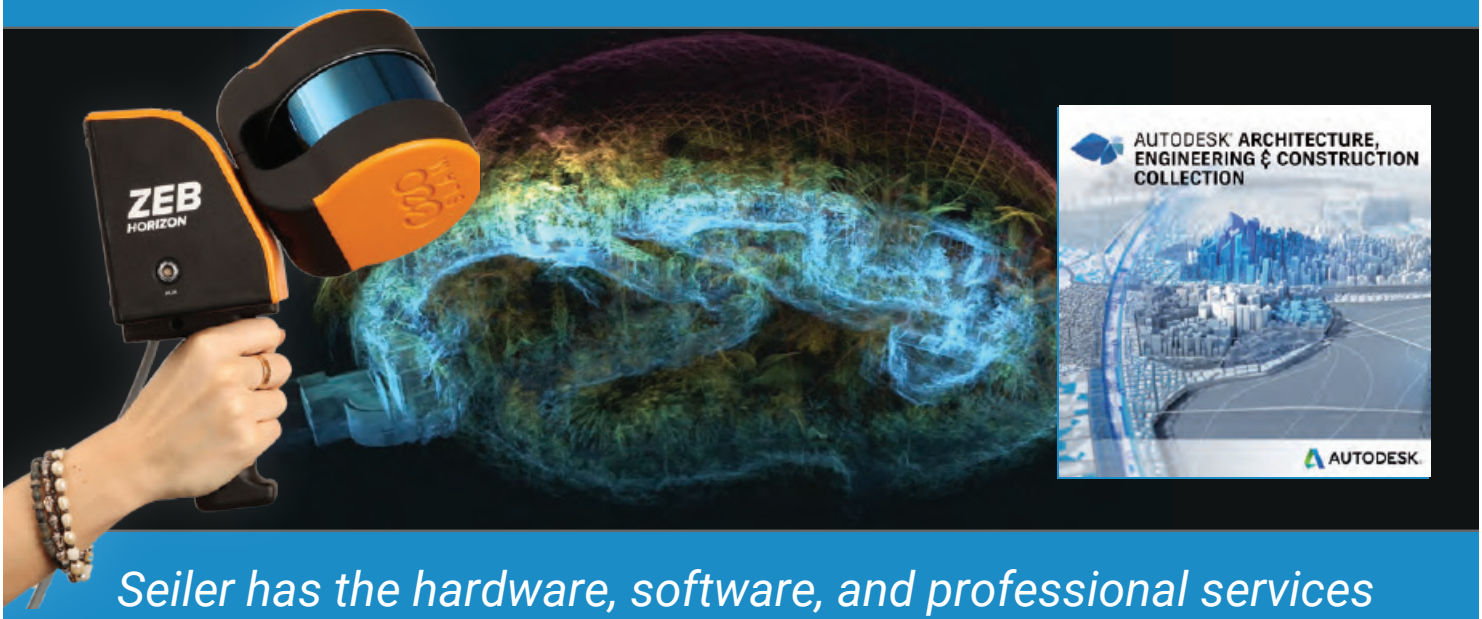

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Tale of a Troubled Township

by Chuck Whitten, PS, August 24, 2024, The American Surveyor

I'm sure many surveyors doing research have occasionally looked for one thing and ended up unexpectedly finding something else. About ten years ago, I experienced that very situation which led to this story.

I was doing some research about the original survey of Township 10 South, Range 7 East, Willamette Meridian in Oregon. This particular township was surveyed by a fellow named William Bushey in 1892. He had been awarded a contract to survey 3 townships in the Detroit area, about 60 miles east of Salem. That contract was welcome news for him because there was a country-wide recession going on from the late 1880s to the mid 1890s. Work was scarce in those years, much like the recession in the 1930s when FDR inherited them from Hoover.

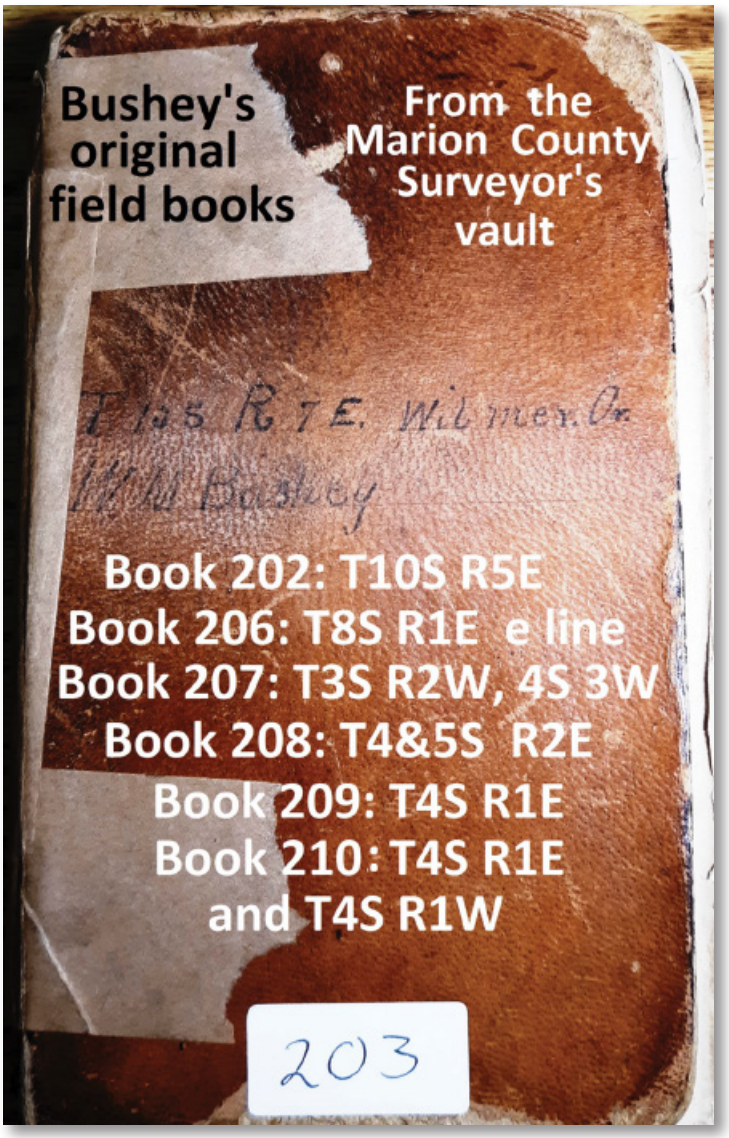

Figure 1

I downloaded the notes and township plats for them from the BLM website and started reading the "calls" Bushey had made as he surveyed the lines in his contract. Those notes were so neat that I started to doubt that they were a direct return from the field. In my own experience, when I went out to search for an original corner, many times by myself, if and when I found it, in my field book I would write down the "pertinent poop" such as size of a stone, bearing trees alive or dead, and the new BTs I scribed and tagged, date, etc. Usually, I would make a primitive sketch of the corner area and head back to the rig a ½ mile or mile away. Within a week or two at home, I would make a much neater sketch with all the "pertinent poop" and then fill out a "corner recovery form" to file with the County Surveyor.

I was talking with a fellow surveyor (about 10 years ago) and mentioned that I was going to retrace William Bushey. To my surprise, he told me that he had seen some old field books in the Marion County Surveyor's vault that had Bushey's name on them. Sometime later, I was going through Salem and decided to stop in and see what was in those books. (see ***Figure 1***) It turned out to be a "Eureka Moment".! I had my cell phone along and proceeded to get pictures of the pages in the book.

When I had a chance to sit down and read them it was mind boggling. When Bushey was awarded the contract for the 3 Townships noted earlier, the exterior lines of Township 10 South, Range 5 East and Township 10 South, Range 6 East had already been run in 1891 by

(continued on page 24)

In Remembrance of MSPS Past President Rich Barr

In Loving Memory to a Life Well Lived and a Man Well Loved

Richard Joseph Barr of Kirkwood, MO, quietly passed away in hospice at Garden View Care Center in St. Louis. He was 91 years old and had struggled with dementia for years following a stroke. On September 15, 2024, after being surrounded by his daughters and wife, he quietly left this life for peaceful rest.

Rich was born on March 26, 1933 to Raymond and Lucille Barr (nee Besancenez) in Chesterfield, MO. He is preceded in death by his parents, his sister Dorothy "Dot" (Bob) and a brother, Rolla. He is survived by his beloved wife, Barbara Rose (nee Borbein), children Wendy (Tom Blair) and Megan, his brother Donald (Barbara), nephew Bryan (Cheryl), nieces Kathy (Terry), Michelle (Tom); his sister-in-law Norma (nee Borbein), Harry Menke, and nieces Betsy (Brian) and Amy (Steve), plus numerous cousins and friends.

Rich had a full and happy life. He worked hard but always with a positive attitude and a smile on his lips that made his blue eyes twinkle. He was active in sports at Mercy High, both on the baseball and football teams. After graduating from Mercy, Rich enlisted into the United States Air Force and proudly served his country in the Korean War. After his military service, he finished his formal education at the University of Missouri-Rolla, obtaining a degree in Civil Engineering.

In the summer of 1962 he met his future bride, Barbara. The two were married in 1963, had a baby girl they named Wendy, and not long afterwards, Rich became a full partner in The Clayton Engineering Company. Soon the family would welcome a second baby girl, a beauty named Megan, and move to Kirkwood, MO.

Rich lived to work hard and was just as passionate about his first favorite pastime, baseball. He was highly involved in the George M. Khoury League baseball program, whose motto "The Khoury League Is Interested In The Child That Nobody Else Wants," and minor league baseball, managing several teams in both. He was proud to help youth find a positive path in life by doing their best in school while honing their skills on the baseball diamond.

Although best known as the President and owner of The Clayton Engineering Company, and later, R. Barr Consulting, Rich was noted for serving on the Board of Directors for several associations, including The Amateur Baseball Hall of Fame, into which he was inducted in 1986. He was involved with the SITE Improvement Association, the National Society of Professional Engineers, the Missouri Association of Registered Land Surveyors, and many more. An avid golfer, Rich was a member and past president at Algonquin Golf Club.

Passionate about politics, he proudly accepted his appointment by then governor Christopher "Kit" Bond to the National Society of Professional Surveyors, which participated as a PAC (political action committee) both in Jefferson City and Washington, D.C., spending countless hours lobbying for legislation. He also proudly served as a council member for the City of Kirkwood, MO.

In his spare time, he loved fishing, hunting, shooting pool, playing poker with his brothers and best friend John Larsen, attending St. Louis Cardinal baseball games and socializing with family and friends.

MSPS Young Surveyors Committee Meet

by Kellan Gregory, Young Surveyors Committee Chair

On Friday (October 5, 2024) during the MSPS' 67th Annual Meeting, the *Young Surveyors Committee* hosted a breakfast event for the Society's young surveyors. The Committee worked closely with Sandra Boeckman to reserve a private room at the venue for the meal. The Committee's goals for these breakfasts are to create a setting for the Society's young surveyors to not only meet one another, but also meet those in key leadership roles in land surveying across the state. Once food was served, time was allotted for the young surveyors to just chat with one another along with the 'seasoned' surveyors seated throughout the room. As the meals were finished, some of our 'seasoned' surveyors got up and spoke briefly to introduce themselves and describe their roles in the land surveying profession. They were Mark Nolte (State Registration Board chairman), Scott Faenger (Missouri State Land Surveyor), Bob Anderson (then-president of MSPS), and Norm Ellerbrock (CST Committee chairman). Many on our committee had neither met or known of these speakers, having never sat down and had a conversation with them.

The Young Surveyors Committee seeks to be a resource for the young surveyors in our profession. Part of this mandate is to increase the networking and education opportunities for our young surveyors. Dick Elgin (who attended the breakfast sporting a shiny new "New PLS" ribbon attached to his name tag, I might add) was quoted after the breakfast as saying, "This was a great event and it needs to keep happening. I think a lot of these younger surveyors see us 'old guys' like Mount Rushmore: you can come and look at them from a distance, but don't get too close. That perception needs to change and these types of events are great for that. It was great to be around them and get to know them this morning."

Kansas City young surveyor Justin White attended the event that morning. When asked what he liked best about it, he replied, "I like that I was introduced to the older generation of surveyors. It was also nice seeing some of my peers from my land surveying education classes. Most of them I had only known from meeting over virtual Zoom calls, so meeting them face-to-face was great. The camaraderie in the room was terrific."

The Young Surveyors Committee felt that this latest breakfast at Margaritaville was the best one yet since starting it three years ago. There has already been a "lessons learned" debrief and plans are in place to make this even better next year. For 2025, the Young Surveyors Committee is planning on working closely with the Education Committee in offering specific coursework geared towards young surveyors and having more young surveyor-focused events held at our spring and fall conferences. Many thanks go out to all those who attended and made this event possible.

A Webinar Sponsored by
MISSOURI SOCIETY OF PROFESSIONAL SURVEYORS

LEGAL PRINCIPLES 101: THE LEADING BOUNDARY CONTROL LEGAL PRINCIPLES IN 4 HOURS

by Dr. Richard Elgin, PLS, PE
Rolla, Missouri

MARCH 2025
8:30 - 12:30 (CST)
(webinar login begins at 8:15 am)

WEBINAR ABSTRACT

In surveying education and mentorship the legal principles of boundary location seems to not have the priority that it once did. But this aspect of the boundary survey is just as important as it ever was...if not more important. The webinar examines the leading boundary control legal principles: sequence and simultaneous conveyances, construing and writing boundary descriptions, prescriptions, acquaintance, dedication, easements, reversions, the USPLSS and riparian boundaries. This webinar is meant for the surveying student or one on the path to licensure and also the PLS seeking an interesting, informative continuing education topic.

DR. RICHARD L. ELGIN, PLS, PE

Dick Elgin is a rare surveyor: A practitioner, having owned and operated a surveying and mapping firm for 24 years. An author, having written "Legal Principles of Boundary Location for Arkansas," "The U.S. Public Land Survey System for Missouri" and "Riparian Boundaries for Missouri." An educator, being Adjunct Professor Emeritus of Surveying at Missouri University of Science & Technology (Rolla). Semi-retired, he works for Archer-Elgin Engineering & Surveying (Rolla, MO).

The Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects has reviewed and approved this course for 4.0 PDU's

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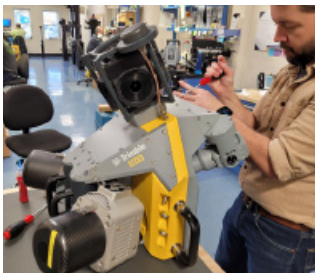

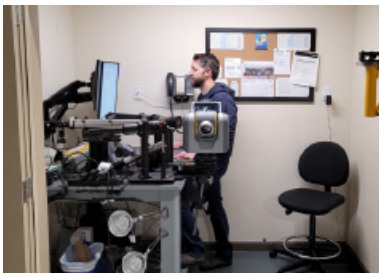


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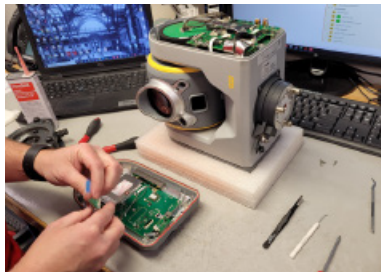


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2024 MSPS Surveyor-of-the-Year

Surveyor of the Year; a member that gives freely of their time and efforts to our association and toward the betterment of the surveying profession. Criteria for this honor calls for knowledge, integrity and competency as qualifications.

This year, we honor a colleague for his contributions to our association, to our profession, to our state. Like many, our designee's career in surveying began as a laborer after answering a want ad. Also like so many others in surveying, he made the most of the opportunity, learning along the way while contributing to his own success and those of his employers. After a decade as a technician, he joined some of the best in surveying, Missouri's State Land Survey Program. There he found and flourished in that unique mixture of field and office, history and math, and the past and the present which are the stock and trade of that program. Moving beyond his role of being a reliable hand, he undertook the serious study of surveying under the time-honored tutelage of master surveyors accompanied by academics and increasing responsibilities.

It was a 2005 transfer into the Cadastral Section of the LSP that made all the difference. He there found more than work…he found his calling. The applications of bearing and distance now served the greater whole of section, township and range. He too would become a master of the cadaster, bringing to bear his expertise in the ever-important work of corner restoration and reestablishment. His mark became the sign of validation for range lines, township line, county lines, and even state lines. From points, pins and pistons, he marked our most significant lines. In 2022, he continued another significant line, that of State Land Surveyor with his rightful accent to the position of Director of the Land Survey Program.

Beyond his own career, he has served this Society and profession. Now an officer of MSPS, he has been on the Board of Directors, active in committees, and stood before us a presenter and continuing educator. Along the trails of his traverse, LSP Technician Jamie Elliot has been a steady presence and partner in practice. All the while, the living of life has been led by his love for and from Patty.

In recognition of:

- Service to this Society, this State, this profession of Surveying

We honor our 2024 MSPS Surveyor-of-the-Year:

Missouri PLS #2015000227, Scott Faenger

2024 MSPS Robert E. Myers Service Award

The Robert E. Myers Service Award; our career achievement award. It honors a member with "more than 10 years of exemplary service and dedication to the surveying profession and in particular to the Society."

We recognize a fellow surveyor who has been one of the most devoted members, answering the call to take on special challenges on behalf of MSPS and guiding problem-solving teams. He even "stepped-up" when called on three separate occasions to serve on our Board of Directors! In 2021, he was our *President* and our *Surveyor-of-the-Year*.

Hallmarks of his answers to serve included his leadership of the Highway Liaison Committee in the 1990's. A special taskforce established to work on the problems created by MoDOT's non-compliant boundary practices along highway rights-of-way, this effort required many volunteer hours, extra travel and meetings, meetings, meetings. Indeed, he met with the state so many times he should qualify for a government pension! Secondly, his presidency was during the heights of the COVID pandemic. It was another challenge undertaken for MSPS. Leading our affairs and business while herding the committees is never easy, but this honoree did it during a tough time for us all. He was "there" for us during that trying term. And today, we are here for him, to recognize his service.

Approaching four decades of MSPS membership and repeatedly "steeping-up" when called upon, we recognize him now.

The 2024 MSPS Robert E. Myers Service Award is presented to:

Missouri PLS #2262, Earl Graham

(continued on next page)

2024 MSPS Lifetime Achievement Award

The *Awards Committee* has completed its work for 2024, the work of naming recipients of our traditional two awards:

The Survey-of-the-Year Award…
…and the Robert Myers Service Award

This is a task made difficult because so many of our members are accomplished and acclaimed. MSPS has many who are deserving of recognition and honors. Imagine our challenge.

Sometimes, we have someone worthy of recognition outside of our traditional awards. This year, the Committee has advised the Board of Directors that special recognition is called for and our Directors and Officers have agreed. Today, we so recognize such a member:

Recently retiring from a 42-year career in surveying, this LS is a third-generation surveyor. He is James B. Boles of Clayton Engineering in St. Louis. Having learned under the direction of Ray Melly, Jim succeeded his father as president of R. Dan Boles & Co. in 1990. In 1994 he joined The Clayton Engineering Company where he remained until his retirement except for a brief tenure with Volz Inc. in 2004 – 2006.

Mr. Boles is renowned for his thorough knowledge and understanding of the original survey records of St. Louis City and County as well as the adjoining counties of the metropolitan region spanning Missouri and Illinois. Through his integrity, his lore and knowledge will not be lost within the community of surveyors in the St. Louis region thanks to his legacy of teaching and sharing his expertise with peers. He continues serving his fellow surveyors in his 3rd term as a Director in the St. Louis Chapter of MSPS.

To honor this surveyor for his long and successful career affirms the eternal truths and values of our trade. The honoring of attention to detail, precision in calculations, continuation of historic precedent, the careful following in the steps of our predecessors…is to honor us and all we do. Therefore, we recognize this member with our ***2024 Lifetime Achievement Award*** to:

Missouri PLS Jim Boles, LS #2127

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Tale of a Troubled Township *(continued)*

William E. Campbell, who also ran the "Second Standard Parallel South" from the southwest corner of Township 10 South, Range 5 East to the southeast corner of Township 10 South, Range 7 East in the summer of 1891. Bushey would only need to run the east and north lines of T10S R7E before he could start subdividing it. He would have to start at the southeast corner of Section 36, set by Campbell in 1891.

Bushey's field notes looked "normal" as he described running due North for 6 miles, setting section corners and quarter corners, noting topog calls and creeks along the way and ending at the northeast corner of T10S, R7E, which he then monumented. In 1892, there were no trails within 5 miles of the corner he had just established.

John Minto, an early settler who came to Oregon in 1844, joined one of the first wagon trains to leave St. Louis for the "Oregon Country". After farming in the Willamette Valley near Salem for about 25 years, he moved easterly about 35 miles to a little town called Gates, along the North Santiam River. In the 1870s, he started exploring the river upstream and blazed a trail along it for about 30 more miles, ending at the summit of the Cascade Mountain Range at a spot now known as Minto Pass.

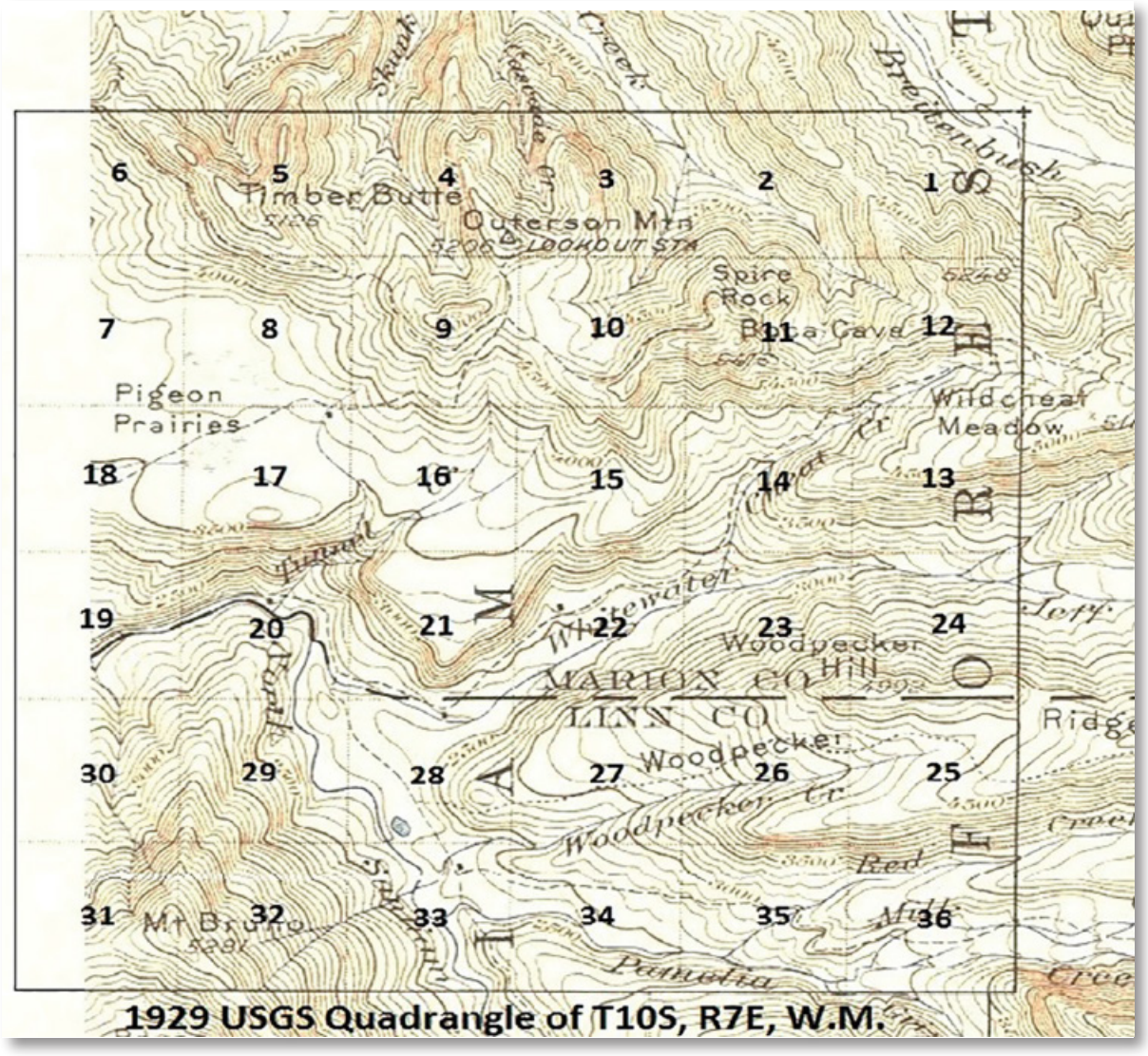

Figure 2

His trail passed through what would later become Sections 20, 28, and 33 of T10S, R7E. In Section 33, there was another existing trail running east along Pamelia Creek, which ran through Sections 33, 34, 35, and 36. If you were to draw a line from the SE corner of T10S, R7E to its NW corner, all the ground to the northeast (18 square miles) was rough, steep, and unexplored. (see ***Figure 2***)

The remaining 18 square miles to the southwest was comparably gentle, with the exception of sections 19, 30, 31, and 32. By the time Bushey reached the NE corner of T10S, R7E, he could see that running the random line west was going to be over very rough and steep terrain. (see ***Figure 3***) The routine GLO instructions were to run the random line West and set temporary corners every 40 chains until the north quarter corner of the "future Section 6" was reached. Then the "deputy surveyor" was to continue on the "random line" west, a half mile and note the distance west and the "falling" at Campbell's 1891 Township Corner. (see ***Figure 4*** for the overall "scheme)

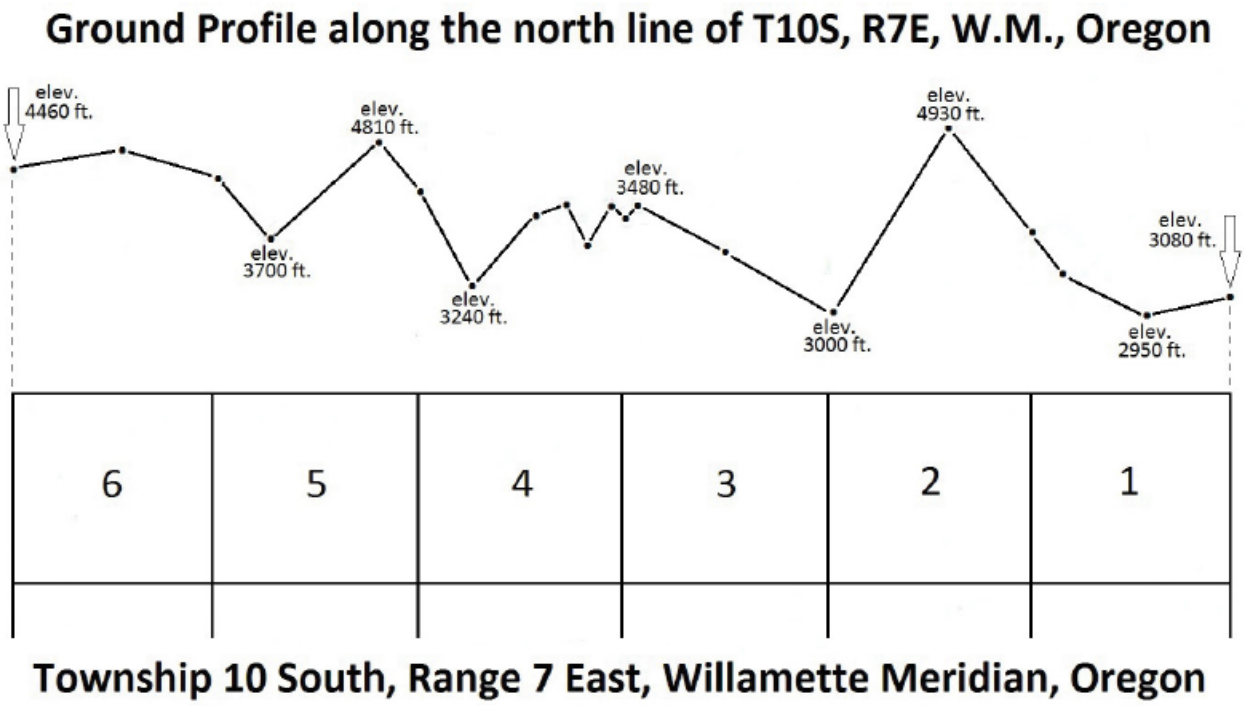

Figure 3

Bushey's notes on July 25th (see ***Figure 5***) show the last "half mile" to be 76.90 chains. (the ".90" was crossed out for some reason), but the 76.90 was way out of limits anyway. He also noted the "falling" to be 2.02 chains south of Campbell's 1891 Township Corner, which makes the True Line bearing to be S 89° 46' East. On his "true line notes (picture 5) he changes the overall distance for the north line of Section 6 to "79.00 chains" (A survey by a private surveyor in 1968 finds the bearing on the north line of Section 6 to be South 89° 24' East.)

In looking at Bushey's notes, he did set temporary corners every 40 chains on his random line running west, but in addition, he also recorded all the creek calls, ridge calls etc. for those 6 miles. It appears that he then moved all his random corners north to the true line for the appropriate distances, but left the creek calls, etc. intact for "easting." Bushey then had to change the chainage for his "true line notes" to conform with "protocol."

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Tale of a Troubled Township *(continued)*

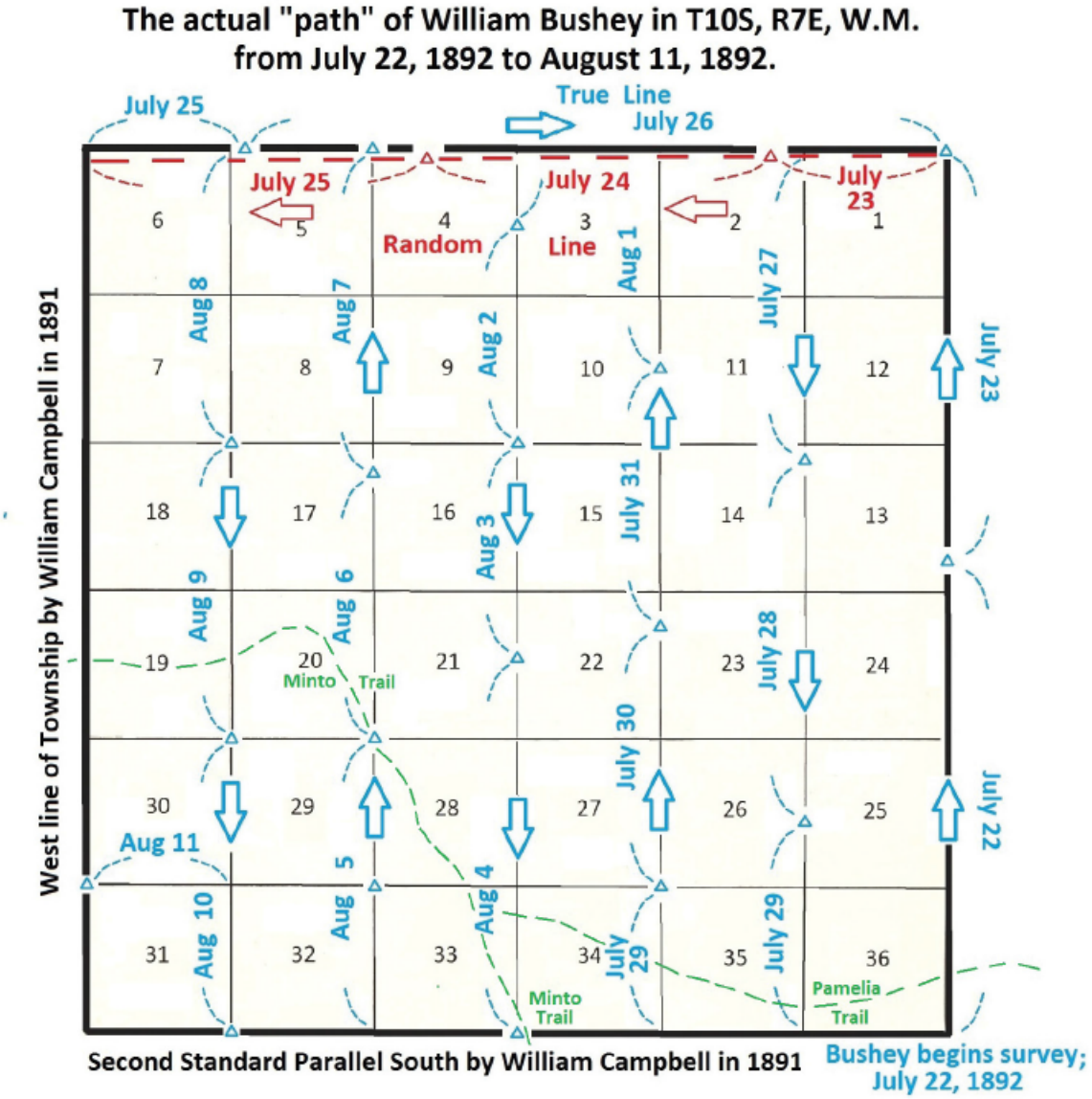

Figure 4

For example, if he made a creek call at 55.20 chains in the random line notes going west, he had to change it to 24.80 chains for his true line notes going east. All he had to do on his "true line" going east was move the random line "temp corners" north the appropriate distances, set a post or stone, and mark some bearing trees. He ran those 5 miles in one day! On July 26th he reached the end of the true line at the northeast corner of Section 1, T10S, R7E which he had set 3 days earlier.

I was expecting the next page to then show him begin subdividing the Township, beginning at the existing corner between Sections 35 and 36. (set by William Campbell in 1891 on the Second Standard Parallel South) To my complete surprise, on July 27th Bushey instead was headed south between Sections 1 and 2! (see ***Figure 6***) (It is obvious that Bushey did not write the field notes that are in the Surveyor General's records. Bushey's handwriting is vertical while the GLO notes are slanted and much "neater")

(continued on page 28)

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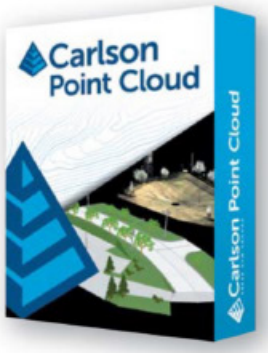

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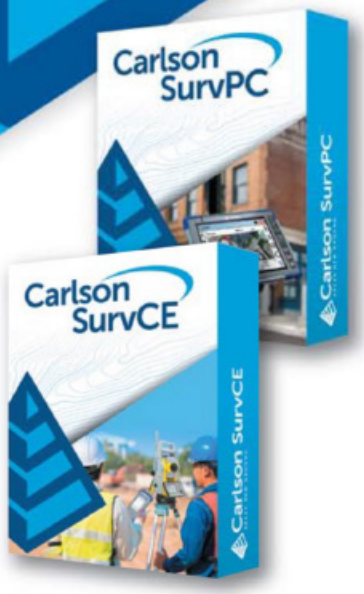

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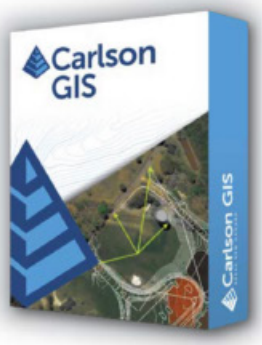

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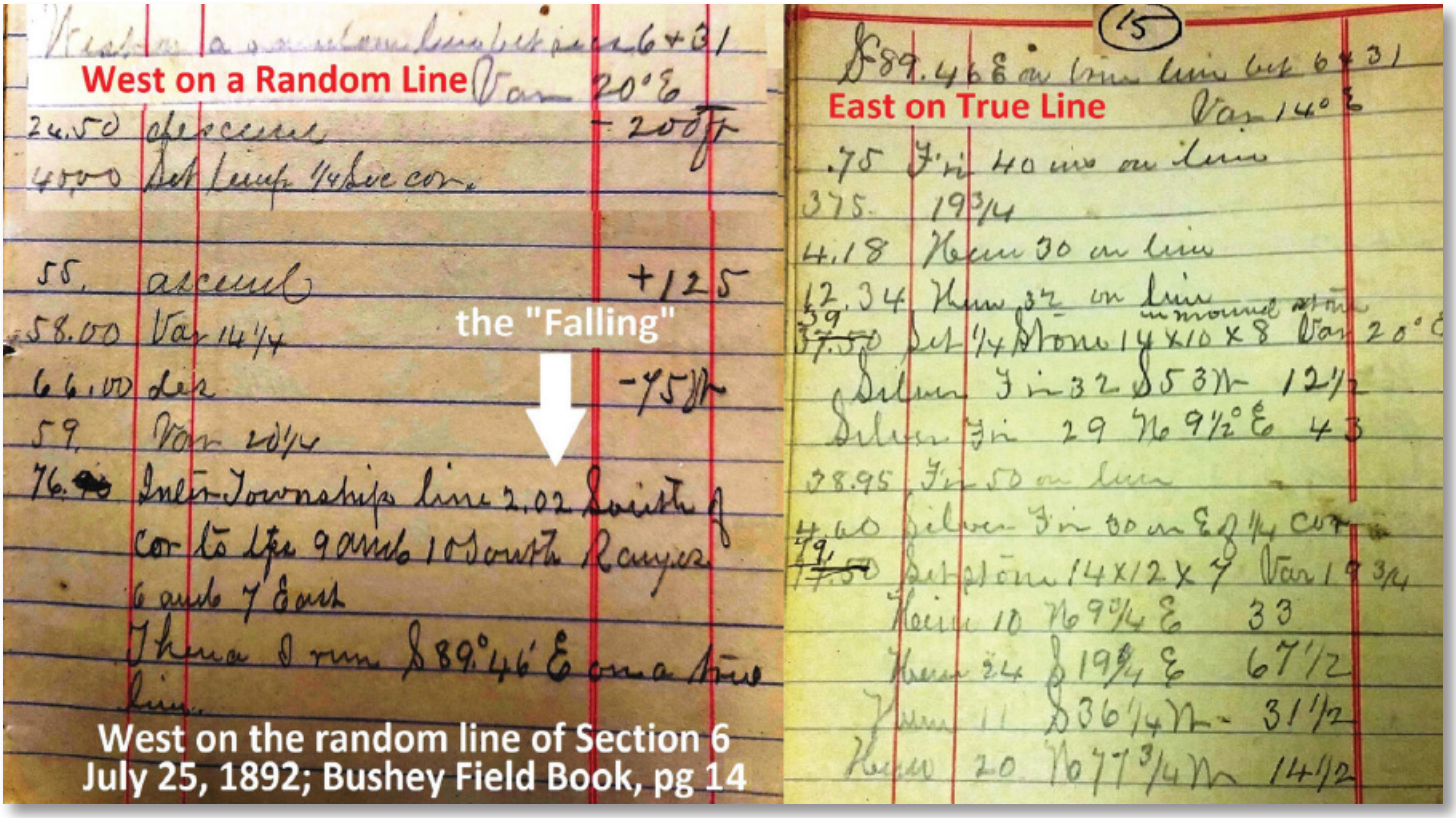

Figure 5

He then proceeded south for 6 miles, setting section and quarter corners, marking BTs, and noting creeks, cliffs, line trees and other normal "calls" till he reached the section corner between Sections 35 and 36 on the south line of the township 3 days later. It was then a fairly level walk going west a mile to Campbell's 1891 corner between Sections 34 and 35. (Campbell had brushed and surveyed that whole 6 miles the year before, so it was an easy stroll compared to the 6-mile jaunt they had just finished.

Bushey then runs north, making creek calls, etc, and setting the quarter corner between Sections 34 and 35 and then continuing north to set the northwest corner of Section 35. He then runs east on a random line for a mile, closes and notes the "falling" at the northeast corner of Section 35, noting creeks, etc. along the way. He then returns west and sets the quarter corner at the midpoint and marks 2 BTs. Returning to the northwest corner of Section 35, he surveys North again and repeats that scenario for 5 more miles and "closes" on the corner between Sections 2 and 3 on the north Township Line.

His random line between Sections 2 and 3 was N 00° 02' West, 80.60 chains with his "falling" being 125 links east of the actual corner. This was obviously far out of the limits for closure, which was probably about 50 links. In the "doctored notes" turned in to the GLO, the random line bearing is "North" with the distance being 79.62 chains and the "falling" listed as "40 links west of the corner".

Bushey and his crew then walk west a mile and start running south on the line between Sections 3 and 4, for 6 miles to "close" on Campbell's corner for Sections 33 and 34. He also ran east on random lines to close on his prior corners on the way south. Then the crew walks a mile west and starts north again between Sections 32 & 33 for 6 miles as before.

This time Bushey's field book shows his random line running N 00° 03' W between Sections 4 & 5 for a distance of 81.10 chains and noting that his "falling" is 2.50 chains west of the actual corner! However, his "doctored GLO notes" show the random line to be N 00° 14' E, 80.18 chains with his "falling" being 37 links West of the corner.

Bushey's "survey procedure," while being "illegal," was obviously very efficient, saving him over 30 miles of "deadheading" if he were to run all the interior lines north and then walk 6 miles back south with all their gear, food, tents, etc. to start north all over again. There were no trails in the "northeast half" of this township so horses couldn't be used to haul camp gear, etc. Normally in July and August, there are usually 5 or 6 rainy days per month which would make surveying and moving camp even more challenging. That made me start wondering how many other deputy surveyors used similar "tactics" to some degree…? Of course, the "Benson Syndicate" took the idea to a higher level. They had many "surveyors" who didn't even have to go to the field since they could just made up fictitious survey notes for many of their "surveys" in a tavern.

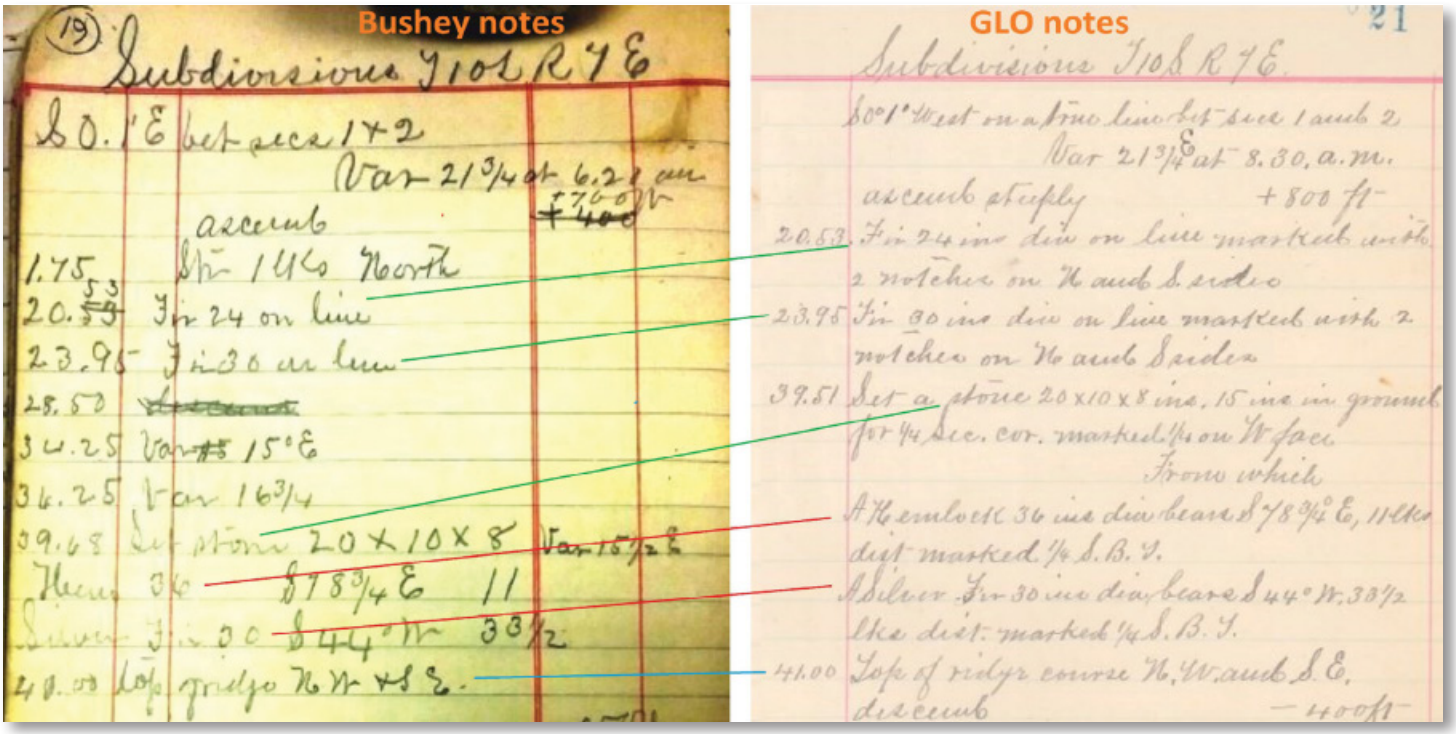

Figure 6

In 1894, William Bushey was awarded a contract to survey Township 11 South, Range 7 East, the Township just south of T10S, R7E discussed above. He started in 1894, but his "surveys" were not accepted until 1900. (6 years is a bit long to wait for approval and payment) A plethora of situations including communications between Bushey and GLO inspectors, etc, shed further light on his "creative" ways to survey a Township. That, of course, is "another story." Stay tuned…

C.E."Chuck" Whitten went to Oregon State University and graduated in Forest Engineering in 1967 and then was hired by the Washington Department of Natural Resources from 1967 to 1972, working on road location and surveying for timber sales. From 1972 until retirement in 2009, he was a project manager and vice-president for Hagedorn, Inc., of Vancouver, WA. Since then, he has enjoyed retracing original GLO surveys. In June, 2021 he was hired by the Marion County Surveyor in Salem, OR to recover section corner evidence in 6 townships devastated by the Beachie Creek and Lionshead Forest Fires of 2020.

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https://amerisurv.com/2024/08/24/tale-of-a-troubled-township/

The Marking of Michigan:

Earliest surveyors laid it all on the line in untamed wilderness

by Keith Matheny, August 21, 2024, Detroit Free Press

In the quiet farmland of Pleasant Lake, near the border of Ingham and Jackson counties, down a wooded trail and into a swamp swarming with mosquitoes, lies a bit of mostly unnoticed Michigan history that still affects us all — everywhere, every day.

There, at Meridian-Baseline State Park, visitors will find round, flat cement slabs with a bronze plaque adorned, marking the initial survey point of Michigan — points, actually. There are two of them, separated by 935.88 feet, because surveyor Joseph Wampler in 1824 disagreed with the earlier point set by surveyor Benjamin Hough in 1815.

Surveyors marked a north-south meridian line that runs from Defiance, Ohio, at the confluence of the Maumee and Auglaize rivers, due north through Michigan to Lake Superior at Sault Ste. Marie. An east-west baseline coincides with the city of Detroit's northern boundary, 8 Mile Road, and extends to Lake Michigan at South Haven. The two lines cross at this swamp near Pleasant Lake.

The north surveyor Marker inside of the Meridian – Baseline Historic State Park in Lesslie on Friday, August 24, 2024. This park is the first survey point with the spot for the north-south meridian and east-west baseline from which all other property marks in the state are derived. Eric Seals, Detroit Free Press.

From these initial points is based every township boundary in Michigan, every property section, from the state's southern borders with Ohio and Indiana on up to the far western Upper Peninsula. Because so much surveying work had already been done off of the initial point Hough set, his serves as the initial point for all township boundaries marked east of the meridian line in Michigan; with Wampler's point the beginning for all townships set west of the meridian.

Population growth and expanding economic opportunity in the early United States spurred a desire to expand the country westward. Thomas Jefferson's Land Ordinance of 1785 called for marking the untamed western territories, including Michigan, in a uniform way for land sales and private ownership — 6-mile-by-6-mile squares, further divided into 36 sections per township — and the eventual creation of several new states.

Every public land state west of the original 13 colonies has at least one initial point, said Joseph Fenicle, a professional surveyor in Ohio and Michigan and a professor heading the surveying and mapping program at the University of Akron.

"This was Thomas Jefferson's grand plan of dividing, separating and ultimately disposing of these public lands," Fenicle said. "He created the grid network we all know.

"In Detroit, you have all the Mile roads, and everything is square or rectangular. You've probably flown out west, looked out the window of an airplane and everything looks like a checkerboard, right? That's all thanks to Thomas Jefferson."

The adventurous surveyors who took on the task of marking these grids usually had no roads to follow, and often couldn't even use existing Indian or wildlife trails, instead having to go where the lines took them and make their mark. They endured harsh conditions, disease and conflict with the Native Americans, who were often being displaced.

The surveyors and their work live on in the names of more places than people may realize, from Houghton County in the U.P. to Houghton, Burt and Mullett lakes in the northern Lower Peninsula; to Meridian Township and Baseline Road.

"It was tough; these guys were hardcore people to survey in these conditions," Fenicle said.

A Michigan historical marker at the entrance of the Meridian – Baseline Historic State Park in Leslie on Friday, August 2, 2024. The park is the first survey point with a spot for the north-south meridian and east-west baseline from which all other property marks in the state are derived. Michigan is the only state with two such spots and they are marked by historical markers about 1000 feet apart because of a disagreement between the early surveyors. Eric Seals, Detroit Free Press.

The mission: Finding farmland for war veterans

Less than 30 years after the Revolutionary War, the United States found itself fighting the British for a second time in the War of 1812. Congress approved that noncommissioned officers and soldiers serving for five years, unless discharged sooner, or their heirs, would be entitled to 160 acres of public land in partial compensation for their military service.

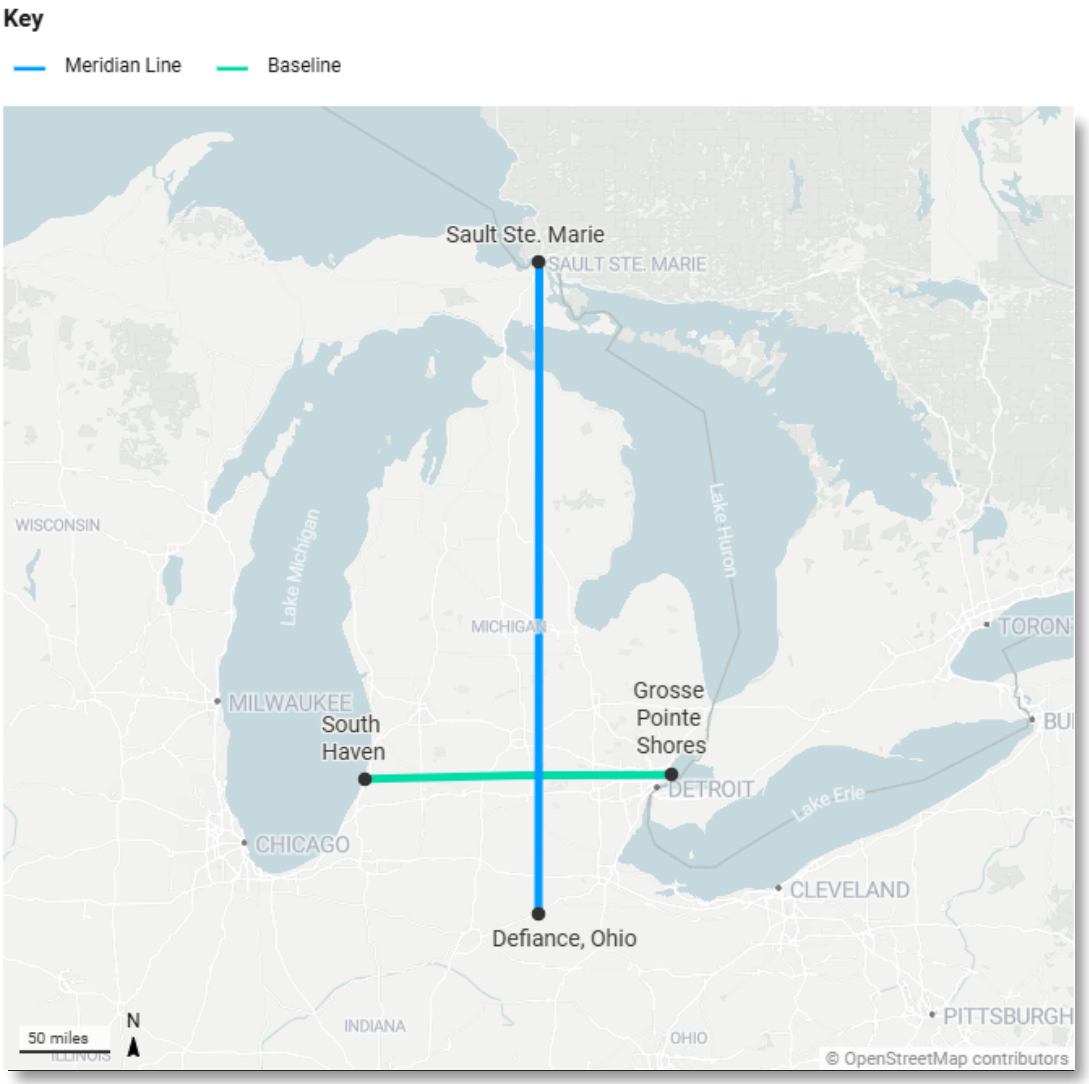
The Act of May 6, 1812, gave the U.S. president authorization to survey 6 million acres of public lands in the west, including 2 million acres in the Michigan territory, lands "fit for cultivation, not otherwise appropriated, and to which the Indian title is extinguished."

(continued on next page)

The Marking of Michigan *(continued)*

Commissioner of the General Land Office Josiah Meigs, in a March 23, 1815, letter to Surveyor General Edward Tiffin, stated, "Let the 2 million acres in Michigan be as near the north boundary of Ohio and the western shore of Lake Erie as convenient. The northern boundary of Ohio not having yet been determined, you will be careful not to extend the surveys so far south as to encroach on that boundary."

Tiffin contracted Benjamin Hough to survey the Michigan meridian line in the Michigan Territory. Cost: $2.50 per township and $3 per mile of meridian surveyed.



Map: Brian McNamara, Detroit Free Press • Created with Datawrapper

At a spot in eastern Jackson County (Michigan), in Henrietta Township near Pleasant Lake, lies the land point from which all Michigan townships are divided. It was there in 1815 that surveyor Benjamin Hough set Michigan's meridian line, a north-south line coinciding with the western boundary set in the 1807 Treaty of Detroit between the U.S. and local American Indian tribes. The east-west base line coincides with the city of Detroit's northern boundary, Eight Mile Road.

The survey teams used a Gunter's chain, a device used by surveyors going back to the early 1600s. The 100-link chain, 66 feet in length, had brass rings every 10 links to facilitate partial measurements. The chain would be stretched out by two men at the

direction of a surveyor using a compass and a type of tripod, with the desired line marked often by a simple cedar stake. Because the stakes were such impermanent markers, the survey teams would also mark nearby trees on all corners around a stake, to help future visitors find the relevant spot even if the stake was gone.

In the colonial period and throughout the 19th century, most American surveyors measured distances with chains. The favored form was the Gunter, introduced by the English mathematician, Edmund Gunter, in 1620. The standard Gunter chain has 100 links and measures 66 feet (or 4 poles) overall. Thus 80 chains equal a mile, and 10 square chains equal an acre. Gurley Historical Services, Smithsonian Institution.

"They had a whole party with them: ax men, cooks, hunters. Sometimes they had a security force," Fenicle said. "They had a rear chainman, a forward chainman and somebody who ran the compass. It wasn't uncommon to have a dozen or more people in a crew."

Earliest reports on Michigan weren't positive reviews

Those first contracted surveyors entering the Michigan territory did so in a particularly wet year in 1815, said Morris Thomas, a retired professor of geography from Michigan State University. As a result, they encountered swamps and mud; not the potential quality farmland they sought for War of 1812 veterans.

"One of the surveyors working on the baseline just west of what is now Woodward Avenue reported, 'We have been wading in ice and water for three days and are completely worn out. Quit and went to Detroit about nine miles distant,' " Thomas said.

Hough provided a not particularly rosy update for Tiffin in a letter on Oct. 12, 1815.

"I found thus far exceeding bad ground to run lines over, being very thick of underbrush, and in many places for a great distance almost impassable," Hough stated. "Our situation is at this time very unpleasant. ... We have suffered almost every hardship and encountered almost every difficulty that could be expected of mortals to endure."

(continued on next page)

The Marking of Michigan *(continued)*

Tiffin, on Nov. 30, 1815, wrote a letter to Meigs that would change the course of history. His report of the poor quality of Michigan land sent such shockwaves through Washington that Congress passed a law in April 1816 repealing the authorization of military bounty lands for War of 1812 veterans in Michigan, "So that the brave men who had periled their lives for their country should not be wronged and insulted by the donation of lands which, according to the surveyors' reports, not one acre in a hundred was fit for cultivation."

The result was military warrant lands for veterans going to Illinois, Indiana and other locations, and a nearly 20-year delay in Michigan becoming a state.

Pushing back on Tiffin's findings was Michigan territory Gov. Lewis Cass, who said Michigan's lands were "grossly misrepresented." Cass sought further surveys of the territories beyond Detroit, and helped spearhead more positive press about the area in influential Eastern newspapers.

Survey teams typically preferred to work in the winter, when swamps were frozen over and easier to traverse and bare trees allowed for clearer sightlines, Fenicle said. Tiffin required surveyors to keep detailed notes, noting not only the location of their stakes and mark-bearing trees but soils, plants, water bodies and other land features they encountered. The notes have since proven valuable to researchers seeking to compare plant and other life in an area to how it was in the past, he said.

The completion of the Erie Canal in 1825 and the Ohio Canal seven years later connected East Coast and Western commerce in an unprecedented way, and spurred a westward population boom. But it also spurred a "war" between Michigan and its southern neighbor, Ohio.

Michigan 'loses' the Toledo Strip War — but what a consolation prize

The signing of the Northwest Ordinance of 1787 allowed for the future creation of the states of Ohio and Michigan. But there was a problem.

Per the ordinance, Michigan would be created "north of an east and west line drawn through the southerly bend or extreme of Lake Michigan." But the map relied on for years, drawn by John Mitchell, was more artistic than accurate. It showed the mouth of the Maumee River as part of Ohio. In reality, a straight line from the southernmost point of Lake Michigan would put it — and Toledo — in Michigan. This became no small matter as the Miami and Erie canals would join there, creating one of the country's biggest commercial hubs in the West at the time.

Both Ohio and Michigan claimed the 468-square-mile strip, and things got heated. Both states formed militias, and occasionally did raids into the other's territory, usually resulting in no more than some shoves and insults. Survey crews from Ohio were scared out of the territory by Michigan men. Per historical accounts, the "war" consisted of one gunshot, probably fired into the air, and a Monroe County sheriff's deputy suffering a nonfatal stab wound when he attempted to arrest a man on an incursion into Toledo.

Congress was eager to resolve the dispute, and by the summer of 1836 offered Michigan a compromise: Give up the Toledo strip, receive the remaining three-quarters of the Upper Peninsula and become a state. This, at the time, was seen as a resounding loss for Michigan. A recent federal report had described the Upper Peninsula lands as a "sterile region on the shores of Lake Superior destined by soil and climate to remain forever a wilderness." The Detroit Free Press at the time called the U.P. "a region of perpetual snows — the Ultima Thule of our national domain in the north," meaning a distant unknown region; the extreme limit of travel and discovery.

In a September 1836 convention, Michigan delegates rejected the deal. But Michigan's 24-year-old governor, Stevens T. Mason, saw the necessity of resolving the matter. A second convention with a new slate of delegates was convened on Dec. 14 of that year, dubbed "the Frostbitten Convention," and the congressional deal was approved.

Michigan, with its new Upper Peninsula lands, became the 26th U.S. state on Jan. 26, 1837.

"They had no idea of the grand scale of the natural resources that were there in the U.P., the natural beauty. And, obviously, they couldn't predict the tourism potential," Fenicle said. "One of my favorite T-shirts has a picture of the U.P. and says, 'Michigan: Toledo War champions.' "

Michigan-Ohio border disagreements would continue for another 75 years or more, until both states agreed to fund a new survey in 1915, marking the boundary with sturdy granite pillars.

For Michigan's Native Americans, a matter of survival

Thomas Jefferson emphasized that the Western lands newly marked for sale and settlement be clear of Indian ownership claims. In Michigan, that occurred through treaties between the U.S. government and the tribes. But the context in which those agreements were reached is important, said Eric Hemenway, the director of repatriation, archives and records for the Little Traverse Bay Bands of Odawa Indians in northwest Lower Michigan.

"A lot of tribes didn't have a choice; if you didn't sign the treaty, they were going to come in and remove you," he said.

The Indian Removal Act of 1830, signed into law by President Andrew Jackson, provided "for an exchange of lands with the Indians residing in any of the states or territories, and for their removal west of the river Mississippi," typically to designated Indian Territory in Oklahoma or Kansas. Though more southerly tribes such as the Cherokee were most impacted — leading to the infamous "Trail of Tears" — Michigan tribes were not spared, Hemenway said.

"In southwest Michigan, the Potawatomi were removed out to Kansas," he said. "We were slated for removal up in Little Traverse in 1838; they wanted to take us to Kansas."

But Michigan tribes throughout the 1820s and 1830s entered into treaties with the U.S. government, typically ceding huge amounts of land in exchange for the establishment of nearby reservations and retained rights such as to hunt and fish on their historic territories.

"That was the backdrop for these earlier treaties: removal," Hemenway said. "So you had to get into some type of agreement to try to retain what you can, to try not to lose everything. You are going to make some pretty hard concessions to stay whole. In order to do this, you had to make treaties."

Odawa tribal leaders left northern Michigan in October 1835 and paddled birch bark canoes to Washington, D.C., to make their treaty with the federal government. "That's a tough trip," Hemenway said. "(But) they were fighting to stay home."

Michigan's initially set Meridian Line, north from Defiance, Ohio, was set on the western boundary established in the 1807 Treaty of Detroit, in which the Ottawa, Chippewa, Wyandot and Potawatomi tribes of Michigan ceded large portions of southeast Michigan and northwest Ohio.

In some cases, tribes failed to understand the specific boundaries they had agreed to hand over to the colonialists or simply resented the coerced concessions. This occasionally led to conflicts with the early surveyors marking the lands.

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The Marking of Michigan *(continued)*

In March 1825, Col. John Mullett and a party of men were surveying a portion of land in southern Michigan at a creek that flowed into the Kalamazoo River. Native Americans in the area, angered by their incursions and worried about the arrival of more colonial settlers, would disrupt their work, pulling up survey stakes and attempting to cover the marks surveyors left on trees.

On March 14, the surveyors were working near a grove of maple trees from which local tribal members derived sugar. With a survey party out in the field, only two men were left in camp, a cook named Taylor and a packer named Edward Baldwin.

The stories of what happened next evolved over time depending on who was telling them. But a general consensus is that two local tribesmen came into the camp upset and ultimately struggled with the two survey party members there. As the story goes, a rifle fired by one of the Native Americans was knocked away by Baldwin as the trigger was pulled, and Baldwin then struck both Native Americans on the head with the rifle. The Native Americans then retreated.

In a map drawn from a resurvey of the area in 1826, the incident gave birth to a new name for the nearby water body: Battle Creek.

“That incident probably shouldn’t have been enough to give us that name; it was more of a kerfuffle,” said Jody Owens, a volunteer and board member with the Historical Society of Battle Creek.

Why did the westward-expanding colonists care about getting legal, clear titles to the lands the Native Americans were ceding, when the intention was to displace them regardless? Hemenway has a theory.

“They called us the vanishing race,” he said. “There was this expectation that we would just kind of fade away into the sunset.

“When you see this in primary sources from the men themselves, and you put that together with these agreements ... maybe you can make an agreement with somebody, but if their successors aren’t going to be there 100 years from now, it doesn’t matter.”

But the tribes have endured. Michigan has 12 federally recognized tribes, and those treaties established long ago set important, nation-to-nation precedents recognized by presidents, Congress and the U.S. Supreme Court.

“They had a way of life here for thousands of years,” Hemenway said of his ancestors. “It was very much in rhythm with the environment, everything around you, the other communities. Within a very short period of time, the world was turned upside down. It’s amazing that the tribes of MIchigan were even able to weather the storm and stay here.”

Detroit’s reluctant mayor, an Up North trailblazer

Michigan became a U.S. state at noon on Jan. 26, 1837. By 2 p.m. that same day, the state’s new Legislature had passed a bill calling for a geological survey of the state, to learn what valuable natural resources, in what quantities, the new state had in its mostly unknown outlying lands.

Gov. Mason named Dr. Douglass Houghton as Michigan’s first state geologist and put him on the task of the survey.

Houghton, then 27, was already a renaissance man. Schooled in science and chemistry at what became Rensselaer Polytechnic Institute in his home state of New York, Houghton was a practicing physician by age 19. He was immediately hired by Rensselaer as a teacher of chemistry and natural history upon receipt of his bachelor’s degree there.

City leaders in Detroit, seeking a science lecturer, reached out to a mentor of Houghton's at the Rensselaer school, who enthusiastically recommended the young man. He came to Detroit in 1830, working as a doctor, dentist and surgeon, in addition to his public lecture work, and quickly become popular in the city's higher society.

Henry Rowe Schoolcraft, an Indian agent with the U.S. government, tapped Houghton to join excursions to Lake Superior and down the Mississippi River as a physician and botanist in 1831 and 1832. Houghton recorded more than 200 previously unknown plant species and helped immunize Native Americans against smallpox on those trips.

Douglas Houghton painting from "A History of Michigan in Paintings" by Robert A. Thomas. Clarke Historical Library.

'The wild and primeval forest'

Houghton set off on his first geological survey expedition of Michigan in the fall of 1837, with a party consisting of himself, Columbus C. Douglass, Bela Hubbard and a dog.

"The latter was no inconsequential member of the corps, and had, like the rest, his appointed duties to perform. Dash was his name, indicative also of his nature," wrote Hubbard in his rich account of his travels with Houghton, "Memorials of a Half Century in Michigan and the Lake Region," published in 1887.

"Loading into a wagon at Detroit our few traps ... a tent, provisions, an axe and a gun, in the afternoon of Sept. 13, 1837, we proceeded as far as Royal Oak, where we encamped by the roadside," Hubbard wrote.

As they reached the Saginaw River area and points farther north, the settler cabins, Indian reservations, villages and trading posts became more and more infrequent, before stopping altogether. Hubbard wrote of being startled awake by the howling of wolves.

"We had now entered upon the wild and primeval forest," he wrote.

"We could appreciate, in its full extent, the solitude, the boundlessness, the sublimity of this earliest of earth's offspring — the grand, old, untutored forest. He who has only traversed woodlands where, at every few miles, he meets a road leading to civilized belongings, knows little of the sense of awe inspired by a forest solitude that has never echoed to the woodman's axe, and where every footstep conducts only into regions more mysterious and unknown."

In the first of his annual reports back to the governor, Houghton described encountering promising deposits of iron "bog ore," gypsum and saline springs to produce salt. He also noted that the best salt finds "occur chiefly in those portions of the Peninsula which are but little settled or known."

"They have been searched out with the utmost difficulty ... pushing my investigation through a perfect wilderness, where the sufferings from fatigue, mosquitoes and want of the common necessities of life were almost insupportable."

In a Jan. 22, 1838, letter to Gov. Mason, Houghton further lamented the difficulty of the job and the lack of adequate resources.

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The Marking of Michigan *(continued)*

"Those portions to which the immediate interests of the state call our attention have no avenues by which they can be reached, excepting by the streams or the trails of the Indians," Houghton wrote.

"The ascent of a rapid stream by canoe, the only feasible mode of traveling, and the only manner by which examinations can be satisfactorily conducted, is attended by fatigue, labor and hardships of the most severe kind. Wading the streams by day, and annoyed by mosquitoes at night, separated for weeks together from all society, were it not that the mind is constantly occupied in the contemplation of objects which, from their symmetry and beauty, furnish a constant mental feast, there would be nothing which could possibly compensate for the hardships endured."

He signed, "I have the honor to be, sir, Your obedient servant, Douglass Houghton."

It was Houghton's 1840 trip to the Upper Peninsula and his findings of abundant copper deposits there that caused a firestorm of interest. As his companion Hubbard recounted in 1887, Hubbard's 1840 report "first made known the immense value which Michigan possessed in its hitherto despised Upper Peninsula; and its immediate effect was to arouse an interest in this then wild and uninhabited Indian country, which has led to the opening up of its mines and its present teeming prosperity."

"It sparked the first major mineral mining rush in North America — even before the famous California Gold Rush," said Ted Bornhorst, a retired geology professor at Michigan Technological University in Houghton. Bornhorst was also the former executive director of the university's A.E. Seaman Mineral Museum.

Houghton returned to Detroit something of a hero. He was elected mayor of Detroit in 1842 — a big surprise to him, and not a particularly pleasant one.

"During my absence from the city, and without any knowledge whatever on my part, I have been elected mayor. Upon first hearing the result, I had determined to refuse to serve. But my friends advised differently, and I have consented to qualify," Houghton wrote to a friend.

By 1845, compelled by his sense of adventure and a desire to further outline the vast store of mineral wealth in the U.P., Houghton returned for further surveying work, this time both to further examine mineral deposits and to set U.P. township boundary lines. On Oct. 13, 1845, Houghton and two other crewmen encountered a storm while in a boat on Lake Superior near the Eagle River on the Keweenaw Peninsula. The boat capsized, and the three men drowned. Houghton was 36.

Houghton's outsized legacy, packed into only about 15 years in Michigan, lives on today. A county, township and cities in both the Upper and Lower Peninsulas are just some of the things and places named for him. Memorials to Houghton are erected at the shores of Lake Superior near the Eagle River where he died, and at the University of Michigan, where he taught. The next generation of thinkers is cultivated at Douglass Houghton Elementary School in Waterford. And along the northern shores of both lakes Michigan and Huron, beach walkers can encounter Houghton's goldenrod, Solidago houghtonii, a threatened species of yellow-flowering plant.

"He was well respected and he deserved it," Bornhorst said of Houghton. "He was an adventurous guy who used his training to educate people about the new state of Michigan."

Surveying changed greatly, but is as necessary as ever

The surveying of Michigan was largely completed by 1851, the decades preceding slowed by sometimes inaccurate or outright fraudulent work through the central and northern parts of the Lower Peninsula, Fenicle said.

"It was a real mess," he said. "That happened all across the country; it wasn't just Michigan. There were always fraudulent surveyors that existed out there. They found out they could sit in town all day and drink whisky, fabricate these plats, turn them in and they would get paid per mile."

Surveyors encountered further difficulties when, as they traveled north in Michigan, their magnetic compasses were thrown off by the iron ore deposits.

One of the contracted Michigan surveyors, William Austin Burt, out of necessity, invented a nonmagnetic, solar compass that allowed him to continue his work without magnetic interference.

"The solar compass went on to be used all across the West after Michigan was done," Fenicle said. "It was the go-to instrument for all General Land Office surveyors. It was so accurate. It was an amazing device."
Burt Lake and nearby Mullett Lake, near Indian River in the northern Lower Peninsula, are named for Burt and fellow surveyor John Mullett — he of the earlier Battle Creek incident — who surveyed the area from 1840 to 1843.

Surveying is one of the world's oldest professions. Now, more than 200 years since Benjamin Hough trekked north from Ohio, GPS instruments using satellites and electronic equipment have dramatically transformed surveying, Fenicle said. Gone are the 66-foot chains and large survey teams. Many surveyors now go out alone, he said.

"We are always going to have to have on-the-ground land surveyors dealing with title disputes, construction layouts, topography," Fenicle said. "Drones are doing a lot of our work now, and robotic instruments. But surveyors will always be here. We have to be.

"It's a very noble and honorable profession."

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