

VOLUME 48 ISSUE 4

HOOSIER SURVEYOR

August 2022

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- Early American Surveying Equipment
- Workplace Development
- NSPS Student Competition



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Cover Image

USI Consultants' Jeff Pierson watches his putt take a bead on the cup on the 9th green at the Central Indiana Chapter Golf Outing. Teammates lending support in the background are (from left) Tim Brown, Bill Neumeier and Sean Murphy. More coverage of the October 7 event is on pages 14 and 15. (Photo by Mike Davis)

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From the Editor

Deadlines for the Hoosier Surveyor:

- Winter: February 1
- Spring: May 1
- Summer: September 1
- Fall: November 1

The Hoosier Surveyor is published quarterly by the Indiana Society of Professional Land Surveyors to inform land surveyors and related professions, government officials, educational institutions, libraries, contractors, suppliers, and associated businesses and industries about land surveying affairs.

Articles and columns appearing in this publication do not necessarily reflect the viewpoints of ISPLS or the Hoosier Surveyor staff, but are published as a service to its members, the general public, and for the betterment of the surveying profession. No responsibility is assumed for errors, misquotes, or deletions as to its contents.



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President's Message

Eric Meeks, PS, ISPLS President

I type this today as temperatures hit the fifth consecutive day of high 80s humid weather, and one can't help but miss the cold weather of the last few months, at least until the second cold day of winter. For some, Professional Surveying is much the same as the changing weather, each day bringing a moment of something a little unique and different with stretches of consistent work struggling for a break. As summer begins so continues the mission of ISPLS.

Returning in the early morning hours from a joint meeting of two ISPLS Chapters, St. Joseph Valley & Northwest, and last month attending the Central Indiana Chapter meeting, I am filled with excitement for our profession. In the coming months I challenge every ISPLS member to attend at least one ISPLS Chapter, Young Surveyor's Network, or similar function that will put you in the company of Professional Surveyors and associates

alike, in person. Sometimes we forget just how much we have in common and with such great company what a good time can be had.

Workforce Development continues to be at the forefront of the efforts put forth. As efforts progress, we are finding the challenge is finding a winning equilibrium between resources and a valid audience. Many events have been attended and as summer break approaches there will be a shift to summer social activities. The first-ever Surveying Summer Camp for high school students, organized and implemented by Jessica Hess at Vincennes University, was scheduled for June 8. A recent report was a near capacity sign-up and steady support as the onset approached

As we diligently and thoughtfully move forward, make sure to set aside time for summer and fun, and make it happen.



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Legal Surveys 2022

Bryan F. Catlin, PS

The goal of this column is to provide brief summaries of recent Indiana Court of Appeals and Supreme Court cases involving topics related to surveying practice, certainly not to provide legal advice. Because of the recent changes to the court's website, I use Google Scholar to search for Indiana cases. Once cases are found, I search for a case by a party's name or case number on the Indiana site to obtain a more conveniently formatted document at www.in.gov/judiciary. Comments or suggestions for future columns are welcome by email to: Bryan.Catlin@indy.gov.

Todd Thalls, Trustee of the M. Todd Thalls Revocable Trust, and Robert Conrad, v. Elizabeth A Draving, Co-Trustee of the Leonard R. Draving and Elizabeth A. Draving Joint Revocable Living Trust dated July 26, 2004, Indiana Court of Appeals Case No. 21A-PL-1138, February 9, 2022

Here Thalls and Conrad own waterfront lots (20 and 19 respectively) on Big Chapman Lake in Kosciusko County. The 1924 plat of Waw-Wil-A-Way Park shows a six-foot walk between the lots with no lines separating it from the street. The plat dedicated the street but did not mention the six-foot strips shown between twenty-four of the twenty-nine lots. A 1944 Second Addition to the plat showed lots 19-B and 20-B across the street from lots 19 and 20. The Draving family has owned lots 19-B and 20-B since 1959, built a cottage about 1960, and has used the walk as their private access to the lake since then. Various Draving owners over the years had put in concrete block steps initially, built a pier, installed wooden steps, landscaped, built a seawall and maintained the area. No taxes were assessed on the walk and a title search indicated Daniel Robert Shroyer owned the walk area based on a 1945 deed conveying eighty

acres except for the lake lots already sold. In 2019, Thalls, the new owner of lot 20, notified the Draving family that he was objecting to the placement of their pier.

On April 22, 2019, Draving filed a Complaint for Quiet Title Action, Adverse Possession, and Prescriptive Easement against Thalls, Conrad, and Daniel Robert Shroyer, and his heirs or devisees. Lowell A. Shroyer filed an Answer and Disclaimer on May 17, 2019, disclaiming any interest in the walk. In February 2021, the Kosciusko Superior Court held a two-day hearing where evidence was presented that the Draving family has kept a boat on the lake since 1959 or 1960 and Conrad had not objected to placement of a pier at the end of the walk when a Draving asked his permission around 1968. Conrad and Thalls did not make any claim of ownership of the walk area. The trial court found that Draving and her family had occupied and used the walkway for over sixty years, improved and maintained the area, paid to have a section of the seawall refaced, installed and removed the pier on a seasonal basis and moored boats to it every year, all of which together showed control, intent, notice and duration for adverse possession. Daniel Robert Shroyer or his descendants did not appear to object to the claim of adverse possession. Since the walk had never been put on the tax rolls or assessed, Draving had satisfied the burden of having a reasonable and good faith belief that all real estate taxes owed had been paid. The trial court found that Draving had acquired title to the walk area by adverse possession. The trial court further found that if that decision was later overturned, Draving had also established an exclusive prescriptive easement over the walk.

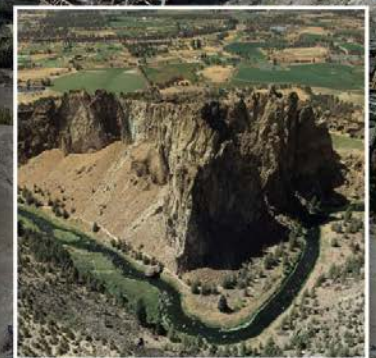
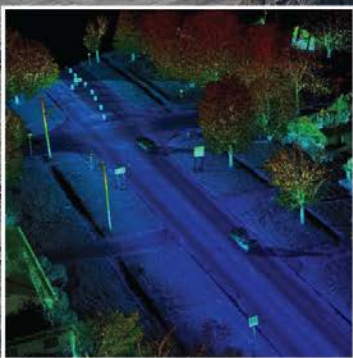
This appeal followed with the appellants arguing the trial court erred in concluding the walk was

not a public way and that Draving acquired it by adverse possession, that the evidence shows a valid common law dedication of the walk had occurred, that Draving could not have reasonably believed she owned the walk without having an obligation to pay taxes on it, and that as Draving had failed to show she had acquired the walk by adverse possession or prescriptive easement, she is not a riparian owner and the placement of the pier is unlawful.

The Appeals Court agreed there was no dedication language for the walk areas on the plat and that the plats do not indicate they were signed or accepted by the Kosciusko County Commissioners as dedicated to the public. The Appeals Court also found that the requirements for adverse possession as established in *Fraleay v. Minger* had been met and the judgment of the trial court was affirmed.

Barry S. Ring v. Bharatkumar Patel, Indiana Court of Appeals Case No. 21A-CP-1367, January 20, 2022 - MEMORANDUM DECISION - not regarded as precedent

Here Ring was interested in purchasing property in Hobart from Patel and sent a letter of interest. Patel, after negotiations, sent a revised letter of intent which stated final terms were to be formalized in a sales contract and approved by their attorneys. Ring and Patel both signed this letter. Negotiations continued without final agreement, Patel did not sign a purchase agreement and Ring did not tender any earnest money. Ring filed a complaint in the Lake Superior Court for specific performance alleging Patel refused to convey the property for \$75,000 and grant him a right to place an advertising sign on the premises. After a hearing, the trial court granted Patel partial summary judgment finding the letters were at best an agreement to agree, not a contract. The judgment of the trial court was affirmed.



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Joseph A. Pazanin, Janice L. Pazanin, Robin R. Cheshier, now Gillenwater, and Jay B. Cheshier, v. Susan Pattee, LaGrange County, Indiana, and Any Person, Their Heirs, Successors, and Devisees, Claiming an Interest in Property Described as a 20 foot Private Roadway Lying Between 1520 S 485 E, Lagrange, IN, and 1510 S, 485 E, LaGrange, IN, to the West and 4975 E 160 S, LaGrange, IN to the East, Indiana Court of Appeals Case No. 21A-PL-1448, February 3, 2022 - MEMORANDUM DECISION - not regarded as precedent

Here is a case that shows knowledge of past practices in an area is important. Also, even though water access is not an issue here, the west lots are on a waterfront.

In 1934 Cecil and Lydia Cook purchased land in LaGrange, Indiana. In the 1940s they sold off adjacent plots to the Pazanins' and Cheshiers' predecessors-in-title. To reach a public road,

the Cooks granted an easement giving them an ingress-egress easement to these parcels from the road. In 1965, preparing for a sale of a larger parcel to Pattee's predecessor-in-title, the Cooks employed a surveyor to plat the land to be sold. The survey showed the now Pazanin and Cheshier parcels to the west, an area labeled "20' Pvt. Roadway" east of them, and a 1.225-acre parcel (now Pattee's) east of that. The Cooks, having sold the parcels on both sides of the Roadway Parcel, stopped paying property taxes on the Roadway Parcel but had never sold it. In 2014 Pattee purchased the east parcel and began having a house built. On May 22, 2019, the Pazanins and Cheshiers filed a Verified Complaint to Quiet Title against Pattee and LaGrange County, seeking to quiet title to the Roadway Parcel.

After a bench trial in the LaGrange Circuit Court where evidence of use of the parcel by all three families, utilities, and many persons involved with building Pattee's home was presented, as



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well as expert testimony by Rex Pranger, who was County Surveyor for thirty-four years, that the "20' Pvt. Roadway," meant that it was a public roadway, not maintained by the county, the trial court determined that the Roadway Parcel was property of LaGrange County because it had been dedicated to the public by means of a common law dedication. This ruling noted the manner in which the Roadway Parcel was created by selling off the surrounding parcels as well as the Cooks' ceasing to pay property taxes were all indications of the intention to dedicate the Parcel, among other conclusions.

The Pazanins and Cheshiers appealed and the judgment of the trial court was affirmed.

Crossroads Bank v. Mary Sparling, Indiana Court of Appeals Case No. 21A-PL-1221, February 9, 2022 - MEMORANDUM DECISION - not regarded as precedent

A part of this case has been considered here before. My prior summary follows in italics.

Heather M. (Varner) France v. Mary Sparling, Indiana Court of Appeals Case No. 85A02-1710-PL-2472, June 26, 2018 MEMORANDUM DECISION

This case from the Wabash Circuit Court began after a survey showed that France's fence, permanent wooden shed, part of a house addition, and most of a pool sit on neighbors' land. Sparling filed a complaint of trespass against France and France filed an answer admitting Sparling "holds legal title of the property" while claiming adverse possession. At trial Sparling presented evidence on her case and rested. Her attorney moved to dismiss France's counterclaim. The trial court granted the motion and entered judgment for Sparling. France was not allowed to offer any evidence and this appeal followed.

The trial court dismissed France's adverse possession claim based on France's "conclusive and binding judicial admission" in her answer. The appeals court does not condone "gotcha" litigation. Also, this admission was paired with an adverse possession claim. In total, it is clear that France intended to admit that Sparling

is the title holder of record while maintaining herself as the legal owner based on adverse possession. The judgment was reversed and remanded for further proceedings.

On remand, Crossroads Bank intervened because they owned France's mortgage and had filed a separate action since she was in default. Now that evidence was presented it turned out that Daniel Schul and his wife had owned the France property from 1987 to 2010 and had obtained a staked survey at the time of their purchase. By the time Schul erected a fence in 1994 at what he believed was the back property line, the stakes were no longer visible, either due to disintegration or Schul's removal. Schul relied on his memory of the stake locations in placing the fence, intending to place it on the back property line. Schul added other improvements, a shed, a home addition, an above-ground pool and deck and a relocated septic system in the fenced area. Duane and Lori Miller bought the property from Schul in 2010, and France purchased it from them in 2012. In 2016, Sparling purchased an adjacent property and had a survey performed in May of that year which showed Schul's improvements sat on Sparling's land. The 2016 survey differed somewhat from Schul's 1987 survey which also showed that Schul's boundaries are within the area he later fenced. Sparling demanded France remove the fence, shed and part of the pool deck allegedly encroaching on about one-fifth of an acre of Sparling's land. France refused, and the case went to trial.

At a bench trial, the parties evidently did not dispute that at least some of the improvements constructed by Schul were outside of his boundary. The central argument was whether Schul had obtained title by adverse possession which was passed on to the Millers and then to France. The trial court found for Sparling but did not specify which elements of adverse possession France did not meet, aside from finding France did not reasonably believe she was paying taxes on the disputed area.

On appeal, the court found that Schul had not intended to place the fence over the boundary, but on the boundary as he remembered it. The

improvements were then built within the fenced boundaries without challenge, proving intent. The fence itself was enough to prove notice. The appeals court found Schul had met the ten-year duration for adverse possession. As far as the tax requirements that the trial court had found France did not meet because a realtor showed her a photograph of the property excluding some or all of the disputed land, the appeals court found that was irrelevant because Schul had already acquired the property by adverse possession. Schul owned and paid taxes on a half-acre parcel which he believed included all of the land within the fence he erected. No one told him otherwise and there is no reason to question whether it was reasonable for Schul to believe he was paying taxes on the now disputed property.

The judgment of the trial court was reversed and remanded for entry of judgment in favor of France.

Patrick T. Lattner and Susan L. Lattner, v. Daniel J. Emerson and Carrie B. Emerson, Indiana Court of Appeals Case No. 21A-PL-822, February 24, 2022 - MEMORANDUM DECISION - not regarded as precedent

Here the Emersons wanted to build a pool on their property on a small peninsula surrounded by water on the west, south and east in the Lake Talahi Subdivision. The east side of the Emersons' lot is a common boundary with the Lattners' lot. There are restrictive covenants that no structure can be built nearer than twenty feet to the side line of any lot. The initial plans prepared included a pool house that would be about ten feet from the side lot line. Even though it was planned next to the Lattners' garage which did not have doors or windows facing it, the Lattners objected and the plans were redrawn. The Emersons had new pool plans prepared which avoided the setback area and which were approved by the Lake Talahi Club's Building Committee. The Emersons had a surveyor identify and stake the property line and later had the surveyor return and verify the line. Because of topography, the pool project required regrading and leveling for the planned construction. Due to elevation changes, non-structural retaining walls would

be required about eleven feet from the lot line. Before the pool project, the Emersons' lot contained decorative brick retaining walls including some within twenty feet of the property line. The surveyor also found the Lattners' house was 17.6 feet from the lot line, and their roof was 16.3 feet from the lot line. The Lattners' driveway, two fences, a firepit, a concrete pad for HVAC equipment and a second floor wooden deck were also within twenty feet of the lot line. When the footers for the retaining wall were installed in the fall of 2020, the Lattners objected and sent a cease-and-desist letter to the Emersons. The Lattners also expressed concerns about drainage issues the project might cause on their property since it is lower than the Emerson property. The Emersons had a twelve-inch underground pipe and drainage system installed to divert water from the retaining wall area all the way to the lake. Construction of the pool project continued, and substantial portions were complete. On December 22, 2020, the Lattners filed a complaint in the Vanderburgh Superior Court asking for several forms of relief which were consolidated for trial and also asking for an emergency expedited hearing. The trial occurred on March 17, 2021, and on April 8, 2021, the court issued its "Findings of Fact, Conclusions of Law and Judgment" in which it found the Lattners did not carry their burden of proof on their claims and entered judgment for the Emersons. The trial court found that the Retaining Wall is not a structure, so it does not violate the restrictive covenants. The Lattners appealed.

On appeal, the court affirmed the judgment of the trial court while noting that because restrictive covenants restrict the free use of property, they are strictly construed, and doubts as to their meaning are resolved in favor of the free use of property and against restrictions.

Bryan F. Catlin, PS has been registered as a Land Surveyor in Indiana since 1991. He holds B.S. Land Surveying Engineering and M.S. Engineering (Geodesy) degrees from Purdue University.



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Indiana BOR April 2022

Announcement

Jacob T. Hoffman, EI, PS

The Indiana Board of Registration held a meeting on April 8th and while I was not in attendance, I wanted to let you all know about a change that was announced at the meeting that will impact this year's renewal. In the past, registrants were required to check a box stipulating that they met the continuing education requirements during the renewal cycle. Starting this year, the Indiana Professional License Agency (PLA) will begin requiring registrants to upload evidence of the continuing education hours that they are claiming in order to complete their renewal. So, when surveyors are going through their renewal, they will be given access to a portal in which they can upload their continuing education documents. Once the portal is opened the upload documents will remain open so that in the future when someone completes a course, they will be able to immediately upload their evidence and not have to worry about finding the documentation a year or more later during the next renewal.

I would like to stress to the membership that this submittal is NOT an audit. The PLA will check to see if documents have been uploaded, but the contents will not be reviewed in depth unless that individual is selected for an audit. I would also like to stress that the audit process will not change. The PLA will select a certain percentage of registrants at random for the audit and will at that time review the contents that were uploaded from those registrants.

For those who do not have a computer or scanner or the ability to take a digital picture, they will be able to mail the documents to the PLA via USPS mail.

Acceptable evidence of the claimed continuing education is outlined in 865 IAC 1-15-10 which says:

865 IAC 1-15-10 Proof of course completion

Sec. 10. (a) The registered land surveyor is responsible for obtaining the evidence necessary to demonstrate that:

(1) any course for which continuing education credit will subsequently be claimed was completed; and

(2) the course met the requirements of this rule.

(b) The registered land surveyor shall retain the evidence required in subsection (a) for not less than three (3) years as provided for in IC 25-1-4-3(a)(2).

Jacob's Notes:

While this seems like a major change for the membership, the PLA is not requiring us to do much more than we already do. We currently keep records of all of our CEUs in case we get audited, so uploading them should not be a big deal. We don't really know exactly how this system is going to work until we start using it in a couple of months, so I don't have answers like how long the PLA keeps the records we submit, how the PLA is going to handle carry over credits with this system, or exactly what kind of information we might need when we go to renew. I found a Continuing Education Tracking Worksheet on the PLA's website that included the following information: Date, Sponsor/Provider, Course Title, Total CE Hours, Mandatory Hours, Elective Hours. So, I would be prepared to provide that information at a

minimum for each of your CEUs as well as any sort of certificates or evidence of completion. For the majority of registrants, you will need to just upload your certificates and for those with more complex CEUs (like teaching collegiate surveying courses) upload whatever evidence you see fit. If you end up getting audited, and if the information you submitted is deemed insufficient, the PLA will reach out to you to obtain additional information regarding your CEUs, and you will have a chance to defend yourself and present additional evidence before the Board. If you have any questions relating to this change, I would direct them to the PLA:

pla10@pla.in.gov

317-234-3022

The next Board meeting will be on July 22 at 402 West Washington Street, Room W064, Indianapolis, Indiana.

Respectfully Submitted,

Jacob T. Hoffman, EI, PS

hoffmanj@weihe.net

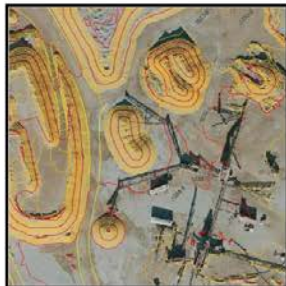
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Central Indiana Chapter Golf Outing Proves to be a Day to Remember

Mike Davis

Twenty-two foursomes enjoyed mid-70s temperatures and a bit of relaxation at Dye's Walk Country Club for the October 7 Central Indiana Chapter Golf Outing.

The day also turned special on the 13th hole for Chad Haneline with Buckingham Companies, participating on a team sponsored by Rowe Professional Services Co. His 136-yard tee shot hit the flagstick and bounced, ending up several feet from the hole. That won the closest-to-the-pin competition that was being held on that hole — and also earned him a \$50 award.

A Beam, Longest and Neff team of Rick Brost, Tom Mattingly, Dewey Witte and Cody Young captured the Low Gross Scramble on the Greenwood course with a score of 52, which is 19 strokes under par. Mattingly also won the longest drive award with his shot on the 4th hole. Each member of the winning team received an \$80 award, and Mattingly took home an additional \$50 for having the longest drive.

Three teams tied for second place with scores of 55:

- Beam, Longest and Neff #3 (Cory Fozdick, Clint Nalloy, Jay Scanlan and Nick Tanner).
- HNTB Corporation (Chris Buergelein, Billy Jones, Lane Lyday and Hagen Yungwirth).
- Northpointe Engineering and Surveying, Inc. (Chris Smithers, Phil Moore, Andy Stapp and Danny Smith).

Proceeds from the annual event benefit the Central Indiana Chapter Scholarship Fund.





Beam, Longest and Neff's team of (from left) Dewey White, Tom Mattingly, Rick Brost and (not pictured) Cody Young won the Central Indiana Chapter golf outing on October 7 at Dye's Walk Country Club. They finished with a score of 52 and a three-shot lead. Mattingly also took longest drive honors on the 4th hole. (Photos by Mike Davis)



Totaling their scores at the Central Indiana Chapter golf outing are a Banning Engineering team of (from left) A.J. Hopkins, Eric Moore, Cole Young and Rory Bryndal. They tied for eighth place.



Chad Haneline of Buckingham Companies bounced his drive off the flagstick on the 13th hole and captured the closest to the pin award with that shot.

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Early American Surveying Equipment

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America's Requirements

Much of America's surveying practice descended from the English, but our early surveying equipment did not. The Old World used the delicate, expensive theodolite to divide its lands, sighting on points and measuring angles on a divided, graduated circle. American surveyors needed to establish boundaries over vast wildernesses which were difficult to traverse, and they needed to do it quickly and cheaply. Enter American innovation, technology and craftsmanship to improve a device used by mariners for hundreds of years, a form of which was being made in England, the magnetic compass. The result was the rugged, inexpensive standard American compass. As one commentator said of the American compass, "where accuracy can be sacrificed to speed and cheapness."

The Compass

Rugged, the compass with its body of wood or brass, two sight vanes, a leveling device and placed on a staff or tripod, required only a balanced magnetized needle resting on a sharp point. The needle aligned itself with the earth's magnetic field and pointed to magnetic north. Magnetic north was known to move and hence was a poor direction with which to reference boundaries. This movement was well known, being noted in some 1746 instructions that it "... may in time occasion much confusion in the Bounds ... and, Contention." Variation, the angle between True Meridian (a line of longitude) and Magnetic North, was known to differ at different locations on earth and the angle was known to change in amount over time and location. True

North was a better reference direction and in 1779 Thomas Jefferson wrote that the plats of surveys were to be drawn "protracted by the true meridian" and the variation noted.

The first standard American compasses were "Plain" compasses. They used magnetic north and had no mechanism for applying the variation angle, converting magnetic direction to true direction.

David Rittenhouse (1732-1796) was an American man of science. He is generally credited with adding a vernier to the plain compass so one could "set off" the variation, the needle still pointing to magnetic north, but the bearing to the object sighted read on the compass circle being the true bearing. Thus the "plain compass" became the "vernier compass," a great advancement in the American compass.

The Land Ordinance of 1785 specifies that all lines be surveyed "by the true meridian ... the variation at the time of running the lines thereon noted." Tiffin's Instruction of 1815 (the first written instructions issued by the GLO to its Deputy Surveyors) specified "a good compass of Rittenhouse construction, have a nonius division" This is a vernier compass, "nonius division" meaning a vernier. Thus, the vernier compass became the standard instrument for surveys of the USPLSS. Until ...

William Austin Burt and his Solar Compass

William Austin Burt (1792-1858) was a GLO Deputy Surveyor, who, in 1835 while laying out townships in Wisconsin noted unusual deviations in the lines surveyed using his

compass. He began work on a method and form of compass that would determine the direction of the true meridian independent of magnetic north. He invented an ingenious device that uses the observer's latitude, the sun's declination and local time to determine true north. The device mechanically solves the PZS (Pole Zenith Star) Triangle. The prominent Philadelphia maker William J. Young (1800-1870) built the device, and Burt was awarded Patent 9428X on February 25, 1836.

Burt made improvements to his solar compass and an improved version was patented in 1840. In 1850 Burt's patent expired which allowed other makers to produce the solar compass. (The circumstances of the expired patent are a sad story.) There are about 12 known post 1850 makers of solar compasses. All the solar compasses made prior to 1850 are marked "Burt's Patent" and "W.J. Young" or "Wm. J. Young," he having made them. They are not dated or numbered. Those made by Young after about 1852 are numbered.

Is it a transit or a theodolite?

Generally the theodolite refers to an instrument with divided circles to measure both horizontal and vertical angles to high precision; the telescope is relatively long and will not transit (rotate 360 degrees) about its horizontal axis. The more common term "transit" refers to an instrument with both horizontal and vertical circles (only horizontal on early transits), a 4 screw leveling head, bubbles for leveling and a telescope that will transit. William J. Young is credited with building the first dividing engine in America. That allowed him to cut circles and he is credited with building the first American transit in 1831.

The transit developed and attachments, such as a variation on Burt's solar compass, were added by many manufacturers. For mining applications, parallel telescopes were added, thus allowing sightings at large vertical angles into steep mine shafts. Large precise transits were constructed for control surveys and astronomical observations. Horizontal circle diameters can be as large as 18 inches.

Collecting and Values

Early and vintage surveying equipment is highly collectible. It is the surveyor's heritage, it represents about 200 years of advancing measurement technology, and some illustrate incredible craftsmanship and artistry (especially of the early makers). As with other collectibles there are highly desirable, usually rare instruments (such as the solar compass). And, there are the early Virginia and Pennsylvania makers that made compasses that are works of art. But, even instruments by the prolific makers like W. & L.E. Gurley and Keuffel & Esser are desirable.

There are many collectors of early American surveying equipment, some with very large collections. Most collectors buy and sell instruments, research makers and surveying equipment, and a few offer repair and restoration services. Most collectors focus on a particular maker (or two), and others focus on the makers of a particular city (St. Louis, for example), and others are interested in a particular instrument form (transits with unusual attachments, for example). There are online resources for early surveying equipment. Some are: www.surveyhistory.org run by David Ingram; the Facebook page, "Antique Surveying Instrument & Ephemera" run by Dale Beeks; and www.compleatsurveyor.com by Russ Uzes. Among the collector community there is broad and deep knowledge of early American surveying equipment, but that knowledge is not well documented. There are not many reference books on the makers and their equipment. A few have been covered in articles and short treatises but there are not good reference materials on the broad topic.

What are we going to do with grandpa's surveying stuff, and what's it worth?

Regrettably, there is not a national museum or repository where surveying equipment can be donated. Beloved equipment left to families or owned by old surveyors and seeking a home have limited options. The Smithsonian will not accept any such equipment, except for historically important equipment with known

provenance. Most such equipment is not highly valuable. It is likely 90 percent of such equipment would be worth less than \$1,000 per piece. Eight percent would likely be worth up to \$10,000. One and one-half percent up to \$100,000. And the last 0.5 percent over \$100,000. Most collectors will have no interest in about 90 percent of the equipment offered to them (they already have plenty of early to mid-1900s Gurley and K&E transits and levels). The best recipient for most low- to mid-level surveying equipment may be a local museum, particularly if the equipment was used in the area by a local surveyor.

As with most collectibles, old or vintage surveying equipment is not worth what it was 10 or 20 years ago. The rare, unusual, historically important pieces have not lost their value during that time period and can easily be sold.

The Future

Boundary surveyors, being mensurators, detectives and historians, have an appreciation for the equipment that laid out America. The equipment is our heritage, to be preserved, admired, studied and displayed. Every boundary surveyor needs an old compass and a chain proudly displayed on their desk.

Dr. Richard L. Elgin is a surveying practitioner, educator, researcher and author. He owns a large collection of early American surveying equipment. He is expert in the Chandlee family of makers, John S. Hougham (Indiana) and the St. Louis makers. He's written several books including "Riparian Boundaries for Missouri," "Legal Principles of Boundary Location for Arkansas" and "The U.S. Public Land Survey System for Missouri." He coauthored the Sokkia (Lietz) Ephemeris. He can be reached at: elgin1682@gmail.com

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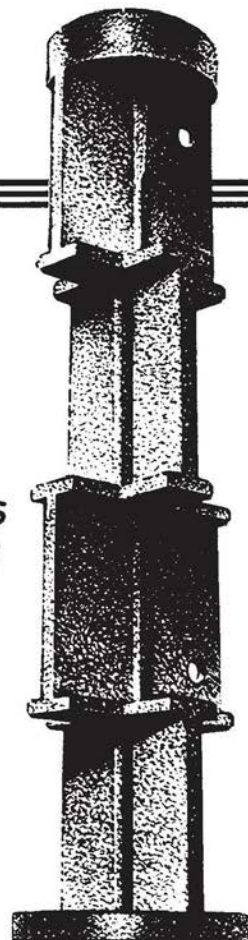
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Meet a Young Surveyor

Cara Morman

My name is Cara Morman and I was asked to share a little about myself as a young surveyor. Although I have passed the FS and graduated with my bachelor's degree, I decided that I am not finished with school quite yet and am currently enrolled as a student at The University of Florida working toward my master's degree in geomatics. Prior to that, I graduated in 2021 from Cincinnati State in the first year's class of the school's new Bachelor of Applied Science degree program in Land Surveying. While continuing with school, I am working at LJB Inc. in Dayton, Ohio where I work as a survey technician, am working on fixing up my new house with my fiancé, and am working on planning our wedding for later this year.

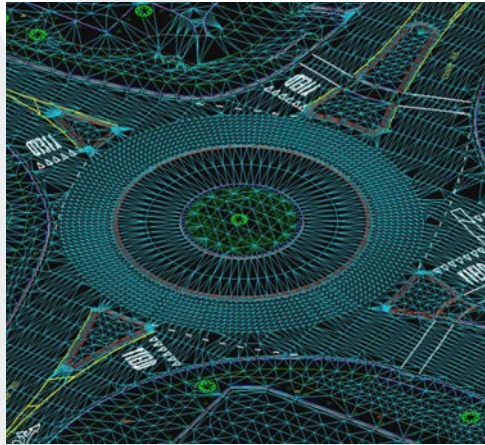
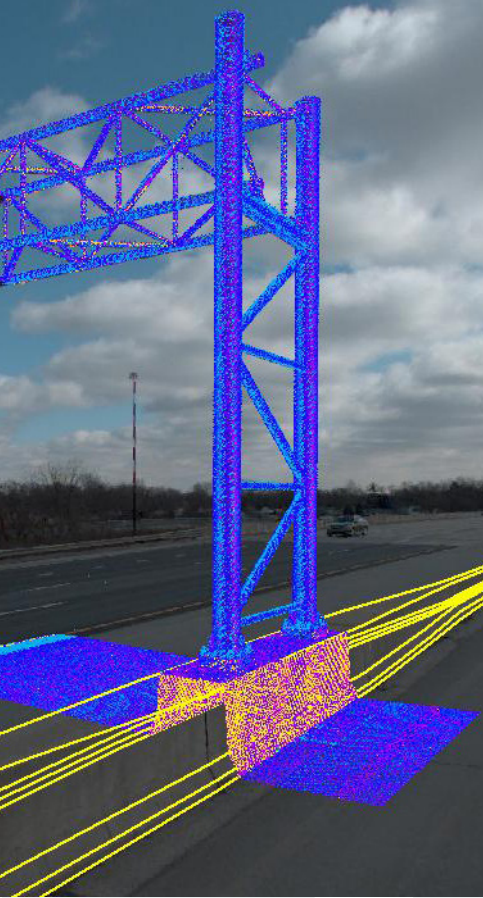
I was introduced to surveying as a child through my parents who are both surveyors. I grew up watching my mom and dad prove to me that anything is possible. My mom is a licensed land surveyor and civil engineer which made me begin life thinking that I didn't want to do that at all. But life had a different idea. During my second semester of college as an audio-visual major, I decided to take an introductory surveying class just to see what it was really all about and almost instantly fell in love with it. Since then, I have continued on the path to becoming a surveyor by working with my parents, interning for Schneider Geomatics, and now working at LJB Inc. Through working and my schoolwork, I have enjoyed the path because it has given me many surprises along the way.

My favorite part of being a young surveyor is telling people what I do. I usually get a look of confusion and then excitement from people because I am young and a female on top of that. There are very few women and young people, in general, coming into our field so it is fun for me to show that anyone can do what they



want to no matter what. I had an opportunity to help with an introductory survey class for construction management, surveying, and architectural majors as a teacher's aide and was able to talk to students about what we actually do as surveyors, why I love being one, and why they should consider changing majors and become surveyors as well. The best part of that experience was after that semester a few people actually changed to surveying and are working towards their degree and, hopefully, licensure.

My hope for the future of surveying is that more young people see all of the opportunities in this field. At the moment there are fewer people coming into the profession while more are retiring. We are an important profession and, yet, still so unknown. I want to try and help encourage people, especially young girls and women, to see that there is diversity in our field. Two years ago, I made a series of YouTube videos, Women in Surveying, where I spoke to several women about why they became surveyors, what we do, and why others should become surveyors as well. The videos are still available to view. I am looking forward to what the profession has to offer me and what I can do to help the profession move forward. I love my



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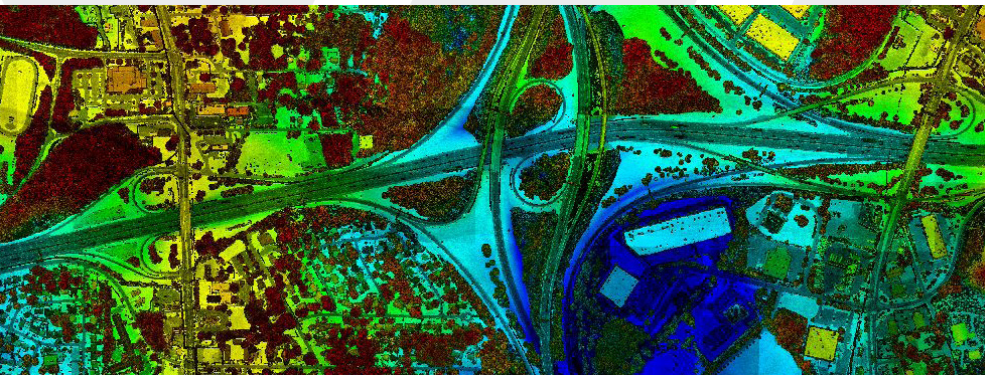
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Workforce Development

Rodney Kelly, PS, Committee Chair

In January of 2022, in his final days of holding his position with ISPLS, outgoing president Norman Hiselman took the initiative of officially forming the Workforce Development Committee in efforts of recapturing the surge of momentum the society had prior to the pandemic. In doing so, approximately 30 individuals from across the state coming together with only three days' notice. It was evident during that meeting, all individuals were all aligned in their goals: To increase the number of professional surveyors, technicians, and others that service the community in Indiana and to positively promote awareness of the surveying profession.



Michelle Slack and Shane Turay at Penn High School's Job Fair March 3

Why now?

There are many contributing factors to help explain why there is a perceived land surveyor shortage. (Wait...what?) Let me say that again. There are many contributing factors to help explain why there is a perceived land surveyor shortage. Yes, perceived. There aren't

necessarily less surveyors across the United States according to the U.S. Bureau of Labor Statistics; however, there is a looming reality that the profession is only expected to grow 2% by 2030. And with the advancement of technology where there used to be three to four surveyors working in the field, there is now only one and sometimes two. The use of drones and other technologies has increased worker productivity and may therefore limit employment growth. When you couple those facts with markets trending upwards, increased land development, housing demands and new construction projects starting every other day it seems...there is a current higher demand.



Ryan Selby with ISPLS's new pop-up canopy tent at CSA New Tech on April 21.

So, what has happened so far?

It was very evident that with such a large attendance at the Indiana Student Counselor's Association in November of 2021, there was clearly a shift in opportunity for our profession. The first thing the committee to charge of was collecting as much information from the past so we can capitalize on positive outcomes of previous endeavors and not repeat mistakes

of the past. This was achieved by a series of meetings with individuals who were involved in workforce initiatives over the past two or three decades within the society.

Then over the next three months, a blitz occurred in schools, events, career / job fairs with additional meetings sprinkled in between creating more opportunities by identifying aligned professions and individuals such as the American Council of Engineering Companies (ACEC), Indiana Construction Roundtable (ICR) and Build Your Future (BYF) and Building Contractors Association (BCA) to name a few. The results have been astounding.



High Schools such as Hamilton Heights look for industry partners like surveyors to showcase opportunities.

Some of the events attended:

- Indiana School Counselor's Association Conference
- Hamilton Heights High School
- YMCA Avondale Job Fair sponsored by Build Your Future (BYF)
- Penn High School
- Southwest High School
- Hendricks County College & Career Fair

- Triton High School
- Morristown Elementary School
- Martinsville High School College & Career Fair
- STEAM Night Indianapolis Indians
- Shelbyville High School
- Dream Alive Presentation
- North Central High School Career and Job Fair
- South Vermillion High School Career Day
- CSA New Tech High School

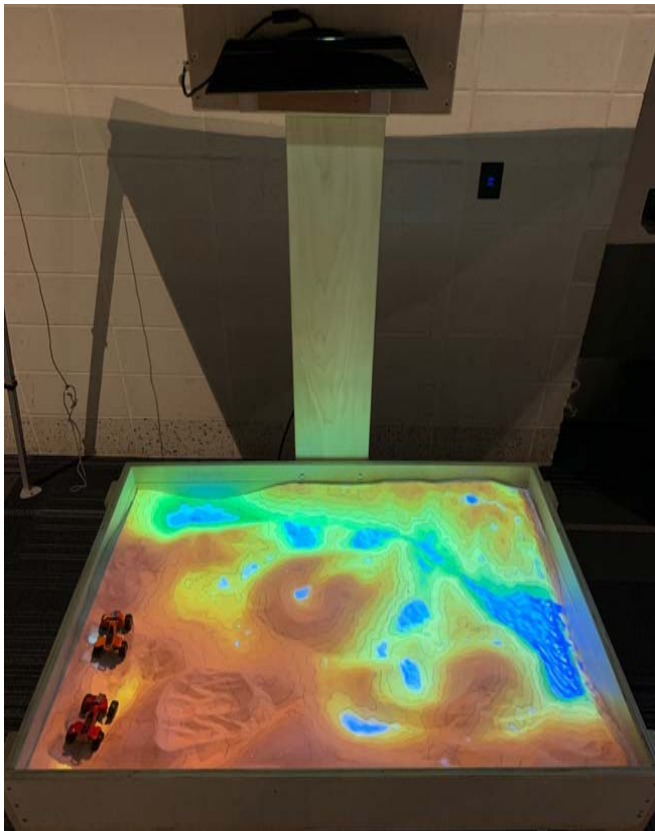


Jacob Hoffman (right) in a panel discussion at Martinsville High School on March 30.

The committee has also really started to forge strong relationships and ALL the events the committee attended added value on many levels. Whether it was a classroom presentation or attending Workforce Development training with other aligned professions, we are starting to become noticed and that is a VERY good thing.

So, what is next?

We are already schedule for a few larger events in the fall and we have started ordering more supplies and materials for the events like additional tents, table clothes, and more swag. We have outline what will be needed for putting together presentation kits together that will easily allow someone to share our incredibly awesome profession to the next generation of surveyors. Several surveyors have already



Have you seen ISPLS's augmented reality sandbox? Ask us how to get it for a presentation.

started reaching out to schools to get on their schedules.

Finally with assistance from the board of directors, the committee is working on revamping our <http://futureindianasurveyor.com/> website to be better suited for sharing future events.

Upcoming Events:

- Junior Achievement (JA) JobSpark (September)
- Hendricks County College, Career, Apprenticeship, & Trades Fair (October)
- Cincinnati State Survey & Geomatics Seminar (October)
- Indiana School Counselor's Association Conference (November)
- Many, many more schools will be scheduled in the coming months. If you have a school you would like to attend and need our assistance, please let us know!

It would be remised if we didn't give credit to all volunteers and partners so far. They have done a fantastic job (some on very short notice) in positively promoting our profession and being excited when sharing stories of their careers along the way.

For more information or suggestions of places you think we should attend, please contact us at workforce@ispls.org or our website <http://futureindianasurveyor.com/> website.



Rodney Kelly oversees Indianapolis Indians mascot Rowdie during STEAM Night on April 9.

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Matthew Marsh

Washington, D.C., is a place chock-full of history. Being there is almost like stepping back in time. That's what it felt like during my four days spent there in March and April competing in the NSPS Student Competition while representing my school, Cincinnati State.

NSPS, in conjunction with Young Surveyors Network (YSN), hosted a two-day event in Arlington, Va., where students from 12 schools competed in various surveying field exercises in addition to an eight-hour monument hunt. I, along with two of my classmates, Greg Bryant and Ellen Swallow, and our instructor, Carol Morman, PS, PE, had the privilege of attending thanks to donations from four charitable engineering/surveying firms in association with ISPLS and YSN.

It was a once in a lifetime opportunity and something I'll look back on for years to come when I think of my early days in surveying. From walking the Washington Mall to navigating the Washington Metro system, I feel like we did so much in those four days. Not only did I learn more about the profession of surveying, but I feel like I gained an appreciation for D.C. that I might not otherwise have gotten if it had been a normal visit to the nation's capital.

After departing our hotel early Tuesday morning, March 29, most of our team headed to Washington with the intention of getting a head start on the competition. We started by heading to the Washington Mall to locate benchmarks. There we found a few on the corners of the Washington Monument and then headed west toward the Lincoln Memorial in search of more. Using a Benchmark app, we found two small round steel disks drilled into the side of the columns that flanked the stairs leading up to the building itself. We later found out from David Doyle, retired chief geodetic surveyor of the National Geodetic Survey, that these were

elevation benchmarks that are used to measure the change of the building's elevation over time.

Before heading back to the Metro station, we had one more stop: the Jefferson Pier Stone, a prime meridian marker Thomas Jefferson requested during his presidency in 1804, though it was never recognized. We didn't know it at the time, but this would be the monument whose coordinates we would calculate for our triangulation exercise two days later.

Upon returning to the hotel, we met with the rest of the teams, as well as NSPS and YSN, for a meet and greet and to discuss the rules for the monument hunt the next day. Lisa and Les Van Horn had set up the instruments we would use in the exercises so students could look at them and learn how they function. For our traverse we would use a surveyor's compass that gave us bearings, which we would use to calculate the interior angles. The lengths of the sides would be measured with a half-chain. For our three-wire level loop we would use a standard automatic level and rod. Finally, we would use a T2 theodolite for our triangulation exercise, and its angles would be read on its vernier scale. This was my favorite instrument we got to use, as its use of mirrors was particularly interesting compared to modern instruments. For this competition there was a big emphasis placed on old surveying techniques, ones that are not used very often in today's field work.

From that meeting, we learned that each team would be given an ArcGIS map that would track our location and mark all the monuments and points earned. The boundary stones were worth more points but were farther away, so we took time to decide our best possible route. The following morning we left at 8 a.m. and had eight hours to find as many benchmarks as we could. The whole day was characterized by Metro rides and sore feet, but I'm proud to say

we kept our pace up until the very end, intent on finding as many as we could. We developed quite a rhythm throughout the day and worked well as a team together, along with our YSN representative from the Kentucky Association of Professional Surveyors, Luke Woodyard, EIT. Our final Metro ride back to the hotel was well over 40 minutes, and everyone was exhausted after a hard day's work walking the city.

We met again in the conference hall that night, and David Doyle, who has surveyed most, if not all of Washington, D.C. (along with finding many of the benchmarks we looked for), made a special appearance, speaking at length about the monuments and the stories behind them. It was very interesting to hear him speak, with him recalling his days of surveying and the work he did. Afterward, each team was asked to tell their best story from the monument hunt. Whether it was Idaho State hitching a ride in the back of a farmer's pickup truck, or Ferris State doing 30 miles on bikes, each team had good stories to tell. Being in the surveying profession for over 15 years, my classmate Greg joked, "This wasn't easy for a 12th year senior."

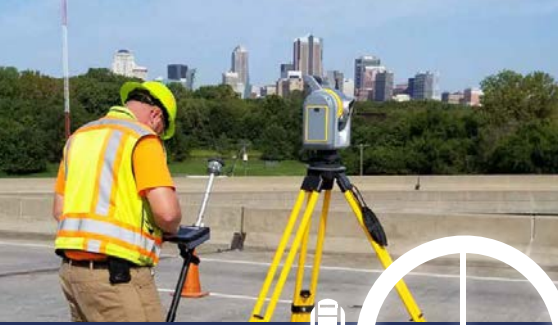
On Thursday morning we reported to the Washington Monument at 8:30 a.m. to perform our triangulation exercise. From two known coordinates we would backsight the Washington Monument and then sight Jefferson Pier Stone, taking the difference of both the angles to use in our calculations. It was incredible using the T2 to take the measurements. I felt a comfortability in using the instrument that I did not expect, leaving me wanting to use it more.

From there we made our way over to Banneker Park (named after Benjamin Banneker, a free Black man during Colonial times who helped set some of the original boundary stones we found the previous day). There we performed our level loop and then completed our traverse with the guidance of Les Van Horn, who donned a thick

white coat and Indiana Jones style hat that looked like something out of a Western movie. My classmate Ellen led our team in the traverse, using the scope level to tell us where to hold the chain and keeping the front chain person in line with each point. Back at the hotel we finished our calculations and submitted our work, then made our way to the Punch Bowl Social which NSPS had graciously rented out for the night. There we talked with other students about the day's exercises and relaxed after two days of strenuous competition.

The final day was the awards ceremony. Each team was given an honorable mention, but it was Ferris State that took home the win. Tim Burch, PS, executive director of NSPS, remarked how close all the teams had been in their scores and commended everyone for their efforts. We were able to talk with Nolan Mark, PS, who sat with us at the ceremony and seconded Burch's statement about how close all the teams had been. We later found out we placed fourth out of 12 teams and were only two points away from third, which I am extremely proud of.

All in all, it was an amazing experience, and I and my team members are extraordinarily grateful for the opportunity, which was made possible by funding from Weihe Engineers (on behalf of Norm Hiselman), Paul Primavera & Associates (on behalf of Jason M. Copperwaite), Diamondback Land Surveying (on behalf of Trent Keenan) and On The Mark Land Surveying (on behalf of Nolan Mark) — and the coordination of NSPS and YSN for organizing the event. It was the first time our school competed in an NSPS competition, and I am honored to have represented my school. We finished our trip with a visit to Arlington National Cemetery, finding yet another monument on the flagpole at the Robert E. Lee House. We arrived home later that night, exhausted and ready for some much-needed R & R.



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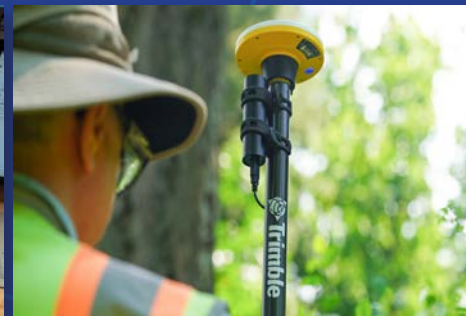
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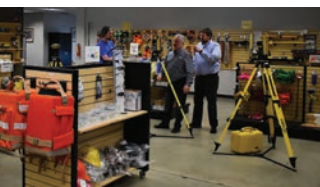
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