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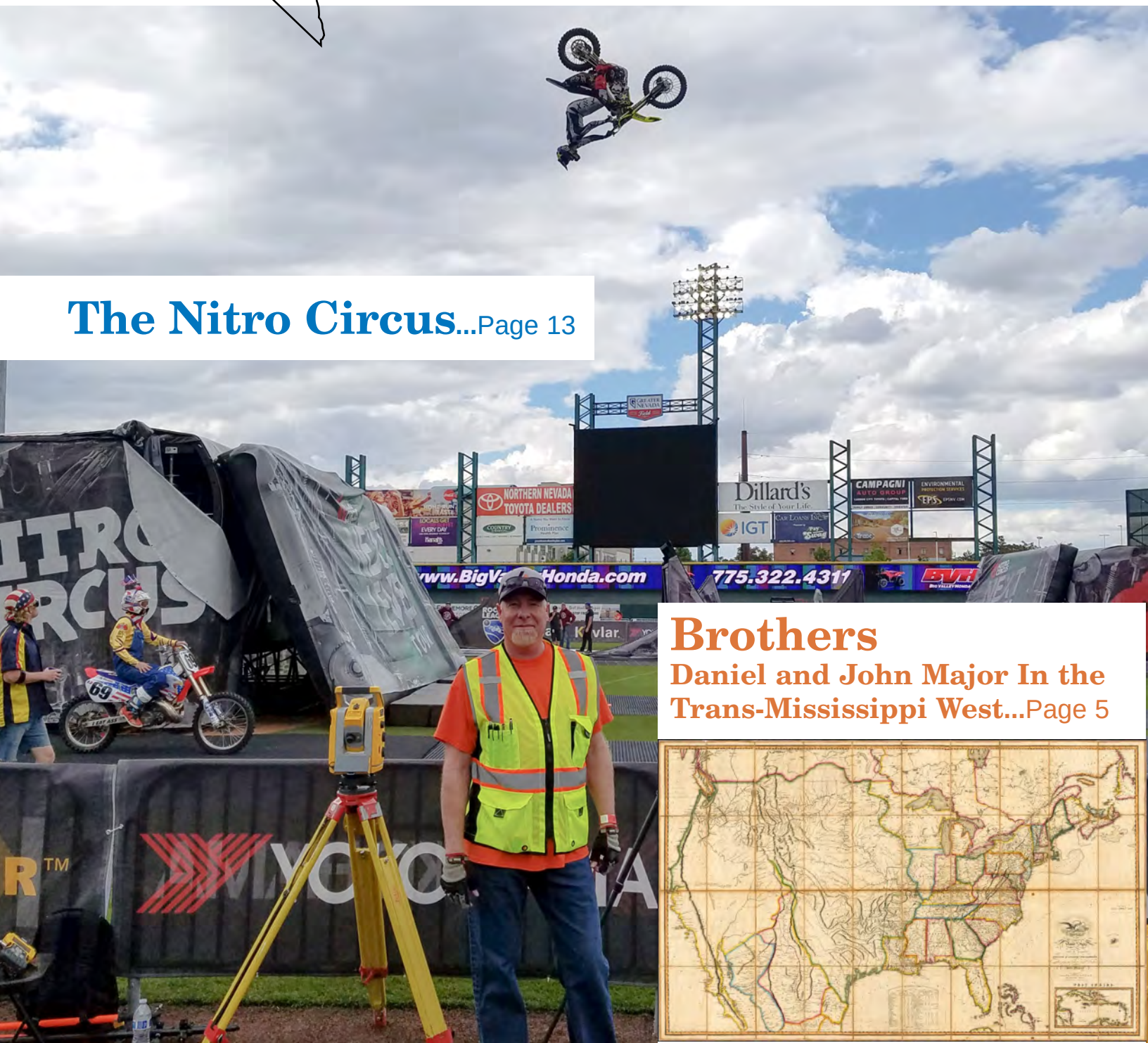

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The Nevada Traverse

This publication is issued quarterly by the **Nevada Association of Land Surveyors** (NALS) and is published as a service to the Land Surveying profession of the state of Nevada. *The Nevada Traverse* is an open forum for all Surveyors, with an editorial policy predicated on the objective of NALS and Bylaws, Article II, which reads:

"The purpose of the association shall be to promote the common good and welfare of its members in their activities in the profession of Land Surveying; to promote the common good and welfare of the public in terms of professional land surveying activities; to promote and maintain the highest possible standards of professional ethics and practice; to promote public awareness and trust in Professional Land Surveyors and their work.

This organization, in its activities and in its membership, shall be non-partisan, non-sectarian, and non-discriminatory."

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The Editor's Corner

by Carl C. de Baca, PLS

Community Outreach – How do we do it? How do we acknowledge our achievements, promote our accomplishments, celebrate our contributions to the fabric of the nation, the integrity of our state, the stability and development of our local communities? This is the central problem in what many of us refer to as our 'identity crisis'. We know who we are, what we have contributed and what we are capable of achieving, but does anyone else?

Over the years and across the country we have engaged in any number of schemes, employed any number of tactics to increase public awareness of our noble profession. We've tried press releases, public television segments, high school outreach, Boy Scout outreach, competitive exams and annual requests to municipal, state and federal entities for recognition of our national week. I'd have to say, the results

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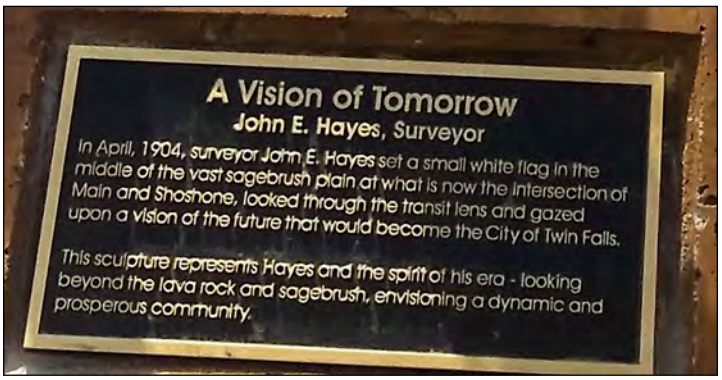
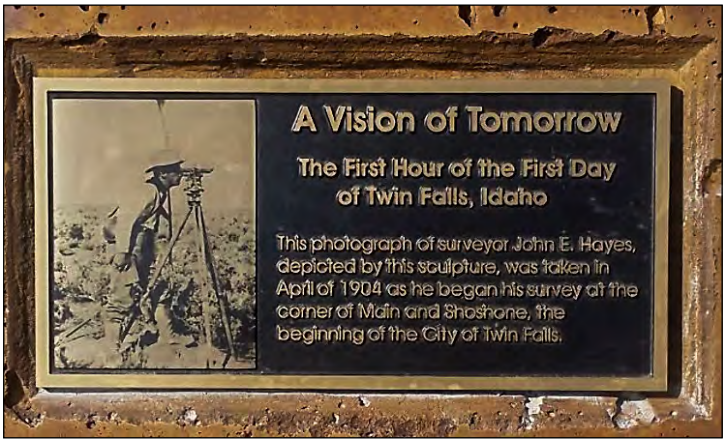
are middling, at best. We just can't seem to break through the ice which has formed in the 150 years since the last time one of our own played a prominent part on the national stage.

I've come to the conclusion that we are going about this all wrong. The old ways may have more merit in moving forward, than we realize. They say charity begins at home. So does outreach.

Recently Laurie and I found ourselves in downtown Twin Falls, Idaho killing time over an extended weekend while we awaited the arrival of our newest grandchild. Twin Falls is a farming community of some 45,000 souls perched along the south bank of the Snake River in southern Idaho. This is a place with a strong sense of community and pride in its founding. You might know it as the place where Evel Knievel tried to jump the Snake River gorge in his rocket bike (and failed), or as the home to Chobani yogurt.





I have spent a reasonable amount of time in small communities in southern Idaho and it seems all of them have charming old down towns in various state of gentrification. Twin Falls is no different. Following are some photos I took after encountering a terrific gentrification project completed earlier this year. This is the kind of outreach we should be striving for, at least as an introduction to Surveying.

We weren't in Twin long enough to look into the story behind the inspiring statue so I went a-googlin' and got a brief glimpse of how this great sculpture came about. The artist, David LaMure was part of a team that pitched the idea to the city three and half years ago. The grand opening was July 6th so I only missed it by a couple of weeks. John E. Hayes, the surveyor being honored in the sculpture, was a pretty accomplished guy. According to the Magic Valley News "Hayes conducted topographic surveys of dams, canals and laterals for the 240,000-acre Twin Falls irrigation project, the 70,000-acre Salmon Dam project, the 50,000-acre Oakley Dam project and the 25,000-acre Cedar Creek project, in addition to site surveys of Buhl, Burley, Milner, Hansen, Jerome, Wendell and Hollister. Prior to coming to Idaho, Hayes was on the crew that surveyed the boundary for Glacier National Park in Montana, including the 49th Parallel…"

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The President's Message

by Jerry Juarez, PLS

What a busy few months since my last Presidents report! The land surveyors of NALS have made it their charge to be and stay involved with important issues of our time, from the 2022 Datum change to how we're going to handle the issue of the 4-year degree requirement. If you don't know, we've had less than ten people sit for the Nevada PLS exam in the last year. Those are not the kind of numbers that can sustain a profession. And that low number trickles up through our ranks as well. We are having fewer and fewer NALS members volunteer to take on the responsibilities of the organization. It's very hard to continue to help the membership when there are only a few doing the job of many. If you're passionate about something; if you think you see a better way to accomplish some of our goals; if you have any ideas that would better our profession, please get involved. Nothing is going to change if you continue to sit on the sidelines and not do anything about it. We're constantly seeing the same small group of individuals working diligently on the important issues facing the land surveying community. That is very frustrating for them and for me. If you want to help, I would challenge you to pick one issue you feel your involvement would help with and contact any one of us on the board so we can point you in the right direction. I truly believe you can make a difference. Get involved, make your ideas known. It's the only way to effect change.

Let's move on to some things NALS is working on across the state.

I would be remiss if I didn't mention an issue that came up recently, an issue that has raised some hackles on local surveyors. As you all know, the County Surveyor position, especially in the largest counties in Nevada, serves an important role. That person is there both to assist the public with things like finding data about their property to overseeing the review and approval of record mapping, to working with land surveyors on contentious boundary issues. They work with the Recorder's office to ensure technical correctness of legal descriptions and maps before they are put into record. We can go on and on about the role of a county surveyor but I'm confident the professional land surveyors in our state know how important it is to retain a county surveyor with a sufficient staff of technicians and professionals. Right now the Washoe county Surveyor's office is undergoing a reorganization that some local surveyors feel is a threat to the high quality service we have come to expect from that department.

I know there are other very important goings on with NALS but again, I feel I should spend some time discussing another issue we've been talking about for at least the nearly 40 years I've been at this. I'm talking about how to get young people to become land surveyors. Let's be honest, we haven't been very good at this. With the surveyor shortage becoming more acute, this is starting to look like one the most important charges for us professionals. As I write this, what comes to mind is maybe there aren't so many professionals that feel this way. Perhaps they feel that becoming a license land surveyor doesn't come with that responsibility. Am I wrong to think it does? I guess that's just another issue to add to the growing issues of this great profession.

One way for professionals to help find a new generation of surveyors is to get involved in some aspect of youth outreach. There are a handful of national youth outreach and land-surveying-awareness programs operating throughout the country and embraced in parts of Nevada. I'm so grateful for the amazing job guys like Jason Caster and Dan Church are doing with high school career fairs and Todd Enke and Larry Grube with their involvement with the Boy Scouts (my apologies for not knowing who their counterparts are in the Southern Chapter or Great Basin Chapter). And then there is Trig-Star. So, Trig-Star…it is an awareness program never designed to be a recruitment tool for Land Surveying programs at universities

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About the Cover...

In 1818 Scottish cartographer John Melish produced one of the most influential and historically significant maps published in the 19th Century. It compiled the surveys of Lewis and Clark, Alexander Humboldt, Zebulon Pike, Arrowsmith and others in a single map, depicting the region from coast to coast. Secretary of State John Adams, and his Spanish counterpart Don Luis de Onis, used this map to negotiate the boundaries of the Louisiana Purchase in the 1819 Adams-Onis Treaty. Unfortunately, the 100th Meridian, a portion of the new international boundary between the U.S. and Mexico, was mapped 90 miles east of its actual location, which later caused controversy. Courtesy the Barry Lawrence Ruderman's Antique Maps, Inc.

Chris Heliotes of Lumos and Associates, in between scanning riders at the Nitro Circus event in Reno.

Brothers

Daniel and John Major In the Trans-Mississippi West

By: Paul S. Pace, PLS

The Immigrants

19th Century Ireland was fraught with religious and political unrest, periodic famines and uprisings. Widespread poverty brought misery for the working class and tenant farmers. The destitute were forced into workhouses. As the century wore on, successive crop failures led to the Great Potato Famine. One million Irish starved to death or perished from disease. Nearly two million more emigrated, many coming to these shores. They came here as most did, to find opportunity, freedom from want, and begin a new life. Some started as navvies, building works like the Erie Canal in New York and the New Basin Canal in New Orleans, others worked on the railroads or in the trades. Many enlisted in the Army.

In 1838 members of the Major family arrived in New York from their native Ireland. Twenty-five year old James Major and his three sisters, Margaret, Mable and Mary all settled under one roof. With them were their young nephews, Daniel G. Major and John J. Major. Later, a sister to Daniel and John named Susan was born into the family.

James Major came to the United States as an educated man, taking his higher learning at an academy in Belfast, Ireland. Very soon after his arrival he entered the U.S. Navy as an instructor of mathematics and navigation. At that time, these instructors were not commissioned officers, as there was not yet a Naval Academy. And all such instruction was conducted on board ships at sea. Major was assigned to the sloop of war *Cyane*, serving in the Mediterranean. He later served aboard the warships *Independence*, *Potomac* and *Falmouth*.

In 1844 the Navy reclassified James Major as a Professor of Mathematics, though still serving at sea. In 1846 he was re-assigned to the newly constructed Naval Observatory in Washington, D.C. He moved the family, including his nephews Daniel and John and niece Susan, to the nearby Georgetown neighborhood. In 1848, James was commissioned as an officer in the U. S. Navy. He was engaged with astronomic observations and later co-authored several scientific papers.

In 1851 James enlisted his nephew Daniel to work with him at the observatory. Daniel had an aptitude for astronomy and was offered a permanent position at $18 per month. Daniel and his uncle James are mentioned in the Observatory's publications, and credited for their work with the observatory's meridian circle, a large instrument for timing the passage of stars across the observatory's meridian. During that time, Daniel also attended Holy Cross College in Washington, D.C., where he earned a bachelor's degree.

Daniel was then named Acting Master for the Observatory and assigned to the Nautical Instrument Department. He was charged with care of chronometers and all astronomical instruments for naval vessels, overseeing the repair of instruments returning from sea and the purchase of new ones for the Navy. He also had charge of dropping the Observatory's time ball, precisely at noon.

The Old Naval Observatory, Washington, D.C.
U.S. Naval Observatory Archives

Prior to taking the position with the Naval Observatory, however, very little could be found regarding the Major family. What can be found is often contradictory. No one is certain, for example, of the identity of Daniel and John's mother, or the whereabouts of their father, known to be a lithographer. Yet as adults, Daniel and John, as well as their uncle James, regularly appeared in the public record for over thirty years.

The Navy's Astronomical Expedition

In 1848 the U.S. Congress appropriated $5000 for the U.S. Navy to conduct an astronomical expedition to the southern hemisphere. One of the stated purposes was to determine a more accurate distance from the Earth to the Sun, and thus the scale of the solar system. This would be accomplished by measuring the solar parallax. The expedition was conceived and led by Navy Lieutenant James Melville Gilliss, a noted astronomer and published scientist. It was Gilliss who is credited with, among other things, founding the Naval Observatory in the 1840's and was recognized for his valuable support to the Office of the Coast Survey. His expedition was part of a larger, international campaign to determine the solar parallax. Gilliss called his expedition the *United States Astronomical Expedition to the Southern Hemisphere in 1849-'52.*
Despite enormous effort, the Gilliss astronomical expedition failed in its primary mission. But according to the Navy, it nevertheless provided wealth of positions for southern stars, so critical for navigation at the time. It also represented a significant advancement in American astronomy.

Upon his return to the United States, Gilliss began publishing the results of their observations. In his report, Gilliss credited Assistant Daniel G. Major with compiling all the expedition's observations of Venus for publication and checking their accuracy. Gilliss also credited Professor James Major for his co-observations with the mural circle at the Naval Observatory, providing a basis for comparison of the declinations of selected navigation stars. Gilliss would later be promoted to Commander and named Superintendent of the Naval Observatory.

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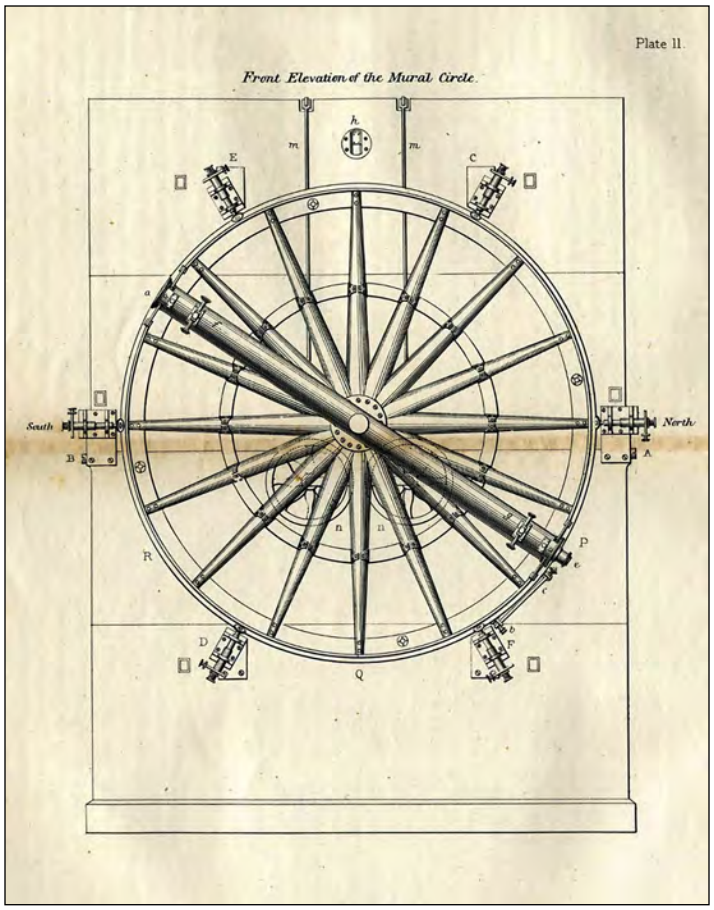

Drawing of the eight-foot diameter mural circle constructed in 1832 at Cambridge University Observatory, similar to the one used by the Naval Observatory. Courtesy of the Science Museum Group, Cambridge Observatory, U.K., Science Museum Group Collection Online.

The Indian Territory

Daniel Major was still at the Naval Observatory when his career took a turn in the Autumn of 1857. He accepted a project from the Commissioner of the Bureau of Indian Affairs, Department of the Interior, and was named a U.S. Astronomer. Major was directed to determine the position of the 98th and 100th Meridians west from Greenwich, where those meridians crossed the Red River. Those positions were in the Indian Territory, now Oklahoma. The Interior Department also conferred on him the additional title of Examiner of Indian Boundary Surveys. Daniel went to the field in 1858.

Major's arrangement with the Indian Bureau called for him to set the initial points on the two meridians, but not run and mark the lines. That task was awarded to U.S. Deputy Surveyors A. H. Jones and H. M. C. Brown. Major made the arduous 1200-mile journey from Georgetown to Fort Arbuckle, in the Indian Territory. The fort's buildings were arranged in a rectangle around a large parade ground. They included a large number of well-equipped log barracks, a hospital, commissary and sutler's store.

Major established an observing site and began a long series of observations to determine its latitude and longitude. From there Jones and Brown would survey to the 98th Meridian, the western boundary of the Chickasaw Nation, and mark the meridian. Lands between the 98th and 100th Meridians were, by treaty, to be used for the relocation of other Indian tribes, the so-called Lease Territory.

Major wasn't at Fort Arbuckle merely for convenience. Constant warfare between Texans and the Comanche created dangerous conditions all over the region. Fort Arbuckle, built on a tributary of the Washita River called Wild Horse Creek, was established by the Army to prosecute campaigns against Kiowa and Comanche raiding parties, which were then active in the area.

Portion of a U.S. War Department map showing the Major's Initial Monument on the 98th Meridian and the western boundary of the Chickasaw Nation. David Rumsey Map Collection

Major determined his longitude by the lunar culmination method. He observed the Moon and selected stars through January, February and March of 1859. When Major's astronomy was completed, Jones and Brown ran a line some forty-two and a half miles due west, to a point on the 98th Meridian. From there, they ran and marked the meridian north and south, between the Canadian and Red Rivers.

For the initial point on the 100th Meridian, Major established an observatory at Camp Radziminski, a primitive temporary outpost on Otter Creek, near the meridian. Once again Major made lunar culmination observations over several months. He and the surveyors Jones and Brown wintered over at the camp before they set the initial point on the Red River.

Jones and Brown wrote in their field notes that, "The Initial Monument for the 100th Meridian West Longitude-boundary line between the State of Texas and the Choctaw and Chickasaw countries, is established 30 chains dist. from the North Bank of the Red River on an elevation near 50 ft. above the bed of the same…The monument is built of dirt composed of gypsum, clay and sand, hard almost as stone itself. Cut deep trenches, with post, marked per instructions: Besides, erected 4 other monuments 4 links dist. from trench of initial monument…". Major, as well as Jones and Brown, understood the 100th Meridian, as they marked it, to be the east boundary of the Texas Panhandle.

Jones and Brown ran the meridian north from Major's initial point at the Red River a distance of 109 miles, 56.54 chains to the Canadian River, then *CONTINUED ON NEXT PAGE ▶*

For Better or Worse, Part III... *continued from previous page*

extended the line a further nineteen miles. At the completion of their work, Major wrote to the Commissioner of Indian Affairs stating that he approved the survey.

The Long Season ~ Lunar Culmination

The quest to find longitude consumed the energies of a great number of very bright people for centuries. Success however was scanty. In the Middle Latitudes, the Sun was usually the surveyor's friend, a convenient means to determine direction, time and latitude. But accurate longitudes from the Sun were not possible. Night observations on celestial bodies were the rule. Even then, accurate longitude was elusive.

With the invention of the first practical marine chronometer in 1761, the task was greatly facilitated, at least at sea. But terrestrial navigation remained a difficult challenge prior to, or in the absence of, the use of the telegraph for accurate time. And even then results were inconsistent. Communications traffic over telegraph lines was often heavy and reception on the wires was sometimes poor or non-existent. Various other methods were used to find longitude, including the use of Jupiter's moons, the Moon at its greatest altitude, the transportation of chronometers paired with astronomic observations, determination of the lunar distance, lunar occultation and lunar culmination.

Lunar culmination for determining longitude was first conceived by a German astronomer in the 1820's. By the 1830's the method was in wide use and thought to be most practical for use by surveyors in the field. There were several variations on the method. The Majors preferred observing the moon at meridian transit, together with observations on two known and so-called "moon culminating" stars nearby, preferably one on either side of the moon.

In short, this method required timing the first star's crossing of the observer's meridian, then the leading edge of the moon, and finally the meridian crossing of the second star. Since the positions of those "fixed" stars were known from an almanac, the position of the moon could be interpolated between them. The moon's right ascension (akin to longitude on the celestial sphere) was derived, after applying corrections, and compared to the almanac data. The result is a measure of time, from which the longitude is gained.
Observations for terrestrial longitude were generally made with the use of an astronomical transit designed for the purpose. These instruments were furnished with seven vertical wires allowing the observer to take an average of seven pointings. But the possibilities for error were numerous. The slightest maladjustment of the instrument or in sighting the meridian could greatly affect accuracy. And the moon's proper motion, upon which the method depends, is such that a slight error in observation will be greatly magnified, on the order of 21 to 35 times the error of the observation. Errors in almanac and ephemeris data were common, as well.

The greatest drawback to the method was the three months' worth of observations required for a single longitude; it cost an entire season. And, individual observations on moon culminating stars across such a time span do not provide a check on each other. Considered best practice at the time, it was later determined that such lengthy observations were detrimental to accuracy.

Even the most skilled observers had difficulty getting consistent results with the method. For example, the Coast Survey's chief on the Pacific Coast, George Davidson, spent months observing for longitude at San Francisco in the early 1850's. Davidson made 3,760 separate observations on moon culminating stars and the moon's leading edge called the "limb". But his longitude was nevertheless in error by nearly a mile. The error was not discovered until a telegraphic connection between San Francisco and the observatory at Harvard University was completed in 1869.

19th Century astronomical transit

Notwithstanding the huge effort required, surveyors went to the field in increasing numbers during the middle 19th Century to find and mark state and territorial boundaries, as the United States fulfilled its self-described Manifest Destiny. Congress called for the meridional boundaries of these lands to be coincident with lines of longitude on the Earth's surface. This simplified the process for lawmakers anxious to establish these jurisdictions, but it presented the surveyors with a greater challenge.

Conflicts in Texas

Congress defined the boundary of the Texas Panhandle and the state's western and southern boundary lines in 1850, in large measure to settle a boundary conflict with the U.S. Territory of New Mexico. For $10,000,000 in compensation from the federal government, Texas relinquished its claims to lands to her north and west. Conveniently, at least for Congress, the new boundaries ran on meridians and parallels to the Rio Grande River and then down the river to the Gulf of Mexico. No effort was made to mark the lines on the ground until 1858, when Congress appropriated money for that purpose.

Major's initial point on the 100th Meridian, and the line run north from it, were to form the east line of the Texas Panhandle, by an act of Congress: "Beginning at the point where the one hundredth degree of longitude west from Greenwich crosses the Red River, and running north to a point where said…longitude intersects the parallel of thirty-six degrees thirty minutes north latitude…". But neither Congress nor the State of Texas approved the survey based on Major's initial point.

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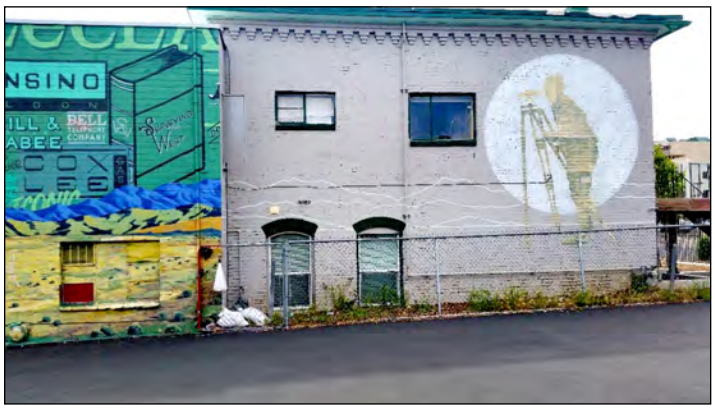
The Hudson Project

Contributed by Carl C.de Baca

In the spring of 2018, our field crew discovered an art project in midtown, Reno. The site is the east-facing wall of a building, or rather two buildings, adjacent to a parking lot on State Street, near the intersection of Sinclair Street. The artist is a Reno resident who has completed colorful and thought-provoking projects around the world. His name is Erik Burke. You can check out his work at Eriktburke.com.



The project consists of a silhouette of a surveyor, in a circular spotlight on one building. He is peering through his transit lens in the direction of the other building and if you look closely into the mural on the second building, you will see his rodman. Also included in the mural is a book with an inspiring title.

According to Burke's website, from which the artist has graciously allowed the Nevada Traverse to plunder:

"The Hudson Project is a block of mixed use urban infill development between Center and Lake on State St. The mural graces the East side of the development and is a visualization of all the people and business that inhabited this block dating back to 1890."

"The two survey figures are cut from original blueprints serendipitously salvaged from the Hudson Plant in New York. The dates on the blueprints range from 1937-1950."

The Nevada Traverse would like to express our profound appreciation of Mr. Burke's Hudson Project, recognizing as it does our small part in the history of the city. We would also like to expressly thank the artist for letting us borrow from his website. And finally, we would like encourage all you readers to go to his website and check out his work and above all, find a way to support artists in your community!

⊗

See Page 17 for one more look at Erik Burke's art.

Concerns Regarding the Washoe County Surveyor's Office

by Justin Moore, PLS

I am concerned about the clear erosion of the authority and responsibility of the Washoe County Surveyor's office. This office is responsible for providing a fair and unbiased review of all minor and major subdivision maps, certificate of amendments, separate documents (i.e. dedications and/or easements) legal descriptions and other land surveying and planning related maps, documents and exhibits in not only their own jurisdiction but also under an interagency agreement, for the City of Reno and the City of Sparks. This is a challenging and demanding position, traditionally held by a qualified professional overseeing a staff of professionals and technicians whose primary duties are to safeguard life, health and property and to promote the public welfare.

Recently, it has been revealed that Washoe County intends to cut the already skeletal County Surveyor's staff even more and outsource technical map review to a private firm. Not only that but that the firm has already been selected and that there was no Request for Qualifications issued prior to selection. Who is to say that a local firm might not have been interested in providing these services? Who's to say a local firm with knowledge of local customs and standards, with respect to map preparation and content, might not have been better qualified to provide these services?

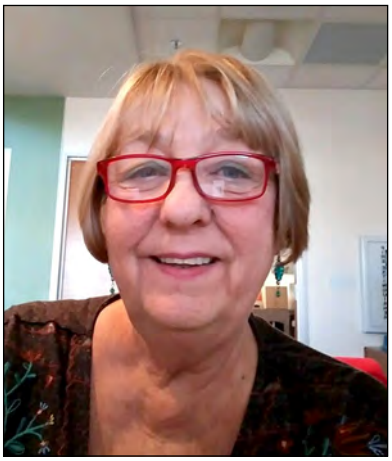
In discussions with other surveyors and engineers and with people at the City of Reno and City of Sparks, I have observed that there are many concerns that Washoe County's delegation of duties could be detrimental to providing a consistent, unbiased, local, oversight of property boundary and development issues. Washoe is a rapidly growing county within Nevada, and the proper oversight and critical support from a County Surveyor and their technical staff is critical for the orderly development of our land. As Professional Land Surveyors we are held to a high standard set forth within the Nevada Revised Statues, Nevada Administrative Code, and County and City Codes. Proper knowledge and guidance can only be maintained and passed along by the steady presence of a County Surveyor with adequate local in-house staff.

I have further concerns regarding outsourcing technical review. First would be the status of existing fee schedules. Currently citizens and developers of Washoe County pay a reasonable fee for technical review ($310). As this service is outsourced it would appear that current fee schedule would not be realistic to preserve and would add additional costs to land development. My second concern would be the status of our digital data, which would now be in the hands of a potential competitor. This could present a unique and unfair advantage to the selected firm, which by the way, has previously practiced and solicited engineering services within Reno and Washoe County. Partnership with the County would give them full access to every public and private firm's digital files submitted to the County for technical review.

Washoe County has undertaken this decision to outsource their technical review , without soliciting the opinion of the local area consulting firms and practicing professionals. Furthermore, they have undertaken this decision in apparent disregard for and possible violation of their interagency agreement with Reno and Sparks. And as previously mentioned, no RFQ was issued, which may be a violation of the Brooks Act. For these reasons, I believe this should be a NALS issue and that we should demand a forum with the County to air our concerns.

⊗

Rae Ann Loving Rest in Peace



It is with great sadness that the family of Rae Ann announces her passing after a brief illness. Rae Ann Loving, of Sparks, Nevada, born on August 31, 1951, passed away at the age of 66 on July 25, 2018. Rae Ann was preceded in death by her father, Raymond and mother, Marie Knefelkamp. She was an Administrative Assistant at Tri State Surveying for 30 years until retiring in 2018. Rae Ann will be sadly missed by her daughter, Tracy Ellison; Son in law, Brad Ellison; brothers, Karl and Kurt Knefelkamp; sister, Sandy Walsh; and her three grandchildren, Kirstyn Harris, Kaitlyn Harris, and Madison Ellison.

There will be no services held per Rae Ann's request.

Heb 11:1 Faith is being sure of what we hope for and certain of what we do not see.

⊗

The Grey Area Surrounding Nevada's Recording Laws

by Shane Trotter, PLS

In Nevada there are under specific circumstances under which a land surveyor is required to file a record when conducting land surveys. However, there are still some government agencies that are finding a way around these laws. Nevada requires a surveyor to record their land surveys in order to preserve property rights, help the public and future surveyors. These laws have been interpreted differently by state, county, city and district agencies and the outcome is that there is a lot of survey information that cannot be used as evidence in a legal survey.

There are several laws that govern surveyors, throughout the Nevada Revised Statutes, but NRS 625.340 and NRS 329.140 are most commonly applicable to survey records.

NRS 625.340 *Record of survey: Filing; disclosures. After making a survey in conformity with the practices of land surveying, a professional land surveyor shall, within 90 days after the establishment of points or lines, file with the county in which the survey was made a record of survey relating to land boundaries and property lines, which discloses:*

1. *Material evidence which, in whole or in part, does not appear on any map or record previously recorded or filed in the office of the municipal engineer, county recorder, county clerk, county surveyor or in the Bureau of Land Management of the Department of Interior.*

2. *Evidence that, by reasonable analysis, might result in alternate positions of points or lines.*

When a county, city or state agency retraces an old road or monuments a newly built road they typically establish or reestablish road alignment monuments. These survey monuments would fall under 625.340 1. During an alignment retracement a surveyor may locate private property monuments that abut the road alignment. Any material discrepancy in these monuments would also require a record under the same law.

NRS 329.140 *Recording of corner record required; exception. Except as otherwise provided in NRS 329.145, a surveyor shall complete, sign and record or cause to be recorded with the county recorder of the county in which the corner is situated a written record of the establishment or restoration of a public land survey corner. Except as otherwise provided in NRS 329.145, such a recording must be made for every public land survey corner and accessory to the corner which is established, re-established, monumented, remonumented, restored, rehabilitated, perpetuated or used as control in any survey. The survey information must be recorded within 90 days after the survey is completed.*

County, city and state agencies commonly use public land survey corners as control in surveys for their material withdrawal sites. These material sites are located by aliquot part of the PLSS on public lands. In order to determine the boundary of the material sites the surrounding public land survey corners must be surveyed, and then the material pit boundary is located using the surveyed corners as control. The newly monumented, restored, rehabilitated and perpetuated public land survey corners would all require a record as described in NRS 329.140.

Currently there are state agencies that are not abiding by NRS 329 and NRS 625 due to their interpretation of exemption to the law.

NRS 625.096 *Applicability of chapter: Persons exempt from provisions concerning practice of land surveying. The following persons are exempt from the provisions concerning the practice of land surveying:*

3. *Any state, county, city or district employee directly responsible to a professional land surveyor.*

4. *Any subordinate to a professional land surveyor of this State if he or she acts as a subordinate.*

This law can be looked at from a couple of different viewpoints. The way that it is currently being viewed by most state, county and city agencies is that all of their employees, including employees that are Nevada licensed professional land surveyors, are completely exempt from all laws and administrative codes concerning land surveyors. Although the law states that the person practicing land surveying is only exempt to Chapter 625, some agencies are still not abiding by Chapter 329 either.

Putting aside the fact that the law is only applicable to Chapter 625, the language can be readily interpreted that the exemption is not for professional land surveyors, but rather their subordinates. The law makes no exemption for a professional land surveyor in any capacity. The duty to record documents and abide by NRS 625 is that of the professional.

One state agency that keeps a record of their survey control points is the Nevada Department of Transportation (NDOT). NDOT has created an online interactive web application where a user can access geodetic data and survey control points. This interface is called LOIS, which stands for Location Information System. Using LOIS one can find information on almost every control point established or used in the course of a survey. These monuments include Aerial Control Points, Boundary Monuments, Highway Reference Monuments, Land Section Corners (PLSS Monuments), Construction Control Points, Property Corners, Street Monuments, High Accuracy Reference Network (HARN) extensions and Government Control Points. LOIS provides detailed information on each control monument. For example by clicking on control point 1043009L, I can obtain that it is a Land Section Corner, the Area Combined Factor is 0.9997780493, horizontal datum is 83/94, units are feet, zone is west (2703), and the description reads that it is "Believed to be N ¼ of sec 24 T18N/R24E." By clicking on the point name I am given a data sheet on the monument that has coordinates in Ground (Feet), State Plane (Feet), UTM Zone 11(Meters), Geodetic position as well as an orthometric elevation, geoid height and ellipsoid elevation. All of the derived factors to calculate the position are provided as well.

Unfortunately LOIS is not an officially recorded survey and before one can access the data they are presented with a dialogue box which contains a statement that reads, "This geodetic data was developed for use by the Nevada Department of Transportation (NDOT) under controlled conditions of software maintenance, input quality, processing configurations and output data utilization. Any use of this data by other than NDOT would be under conditions not necessarily

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The Grey Area... *continued from previous page*

subject to such controls. Therefore, NDOT makes no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability for any particular purpose of the data furnished. **By closing this dialog, you accept these terms of use.**" If the data was an officially recorded survey it would have to be able to be reliable for use by other surveyors. LOIS is currently falling under the interpretation that a State agency does not have to abide by NRS 625 and 329.

Looking at the LOIS point described above (1043009L), it is described as being believed to be a PLSS monument (the North 1/4 of section 24). If a private surveyor used this PLSS monument in the course of their survey they would be required to file a minimum of a corner record per NRS 329.140.

NRS 329.140 *a surveyor shall complete, sign and record or cause to be recorded with the county recorder of the county in which the corner is situated a written record of the establishment or restoration of a public land survey corner. Except as otherwise provided in NRS 329.145, such a recording must be made for every public land survey corner and accessory to the corner which is established, re-established, monumented, remonumented, restored, rehabilitated, perpetuated or used as control in any survey.*

Throughout my research of private survey records, I have found several records which are using and referencing NDOT LOIS monuments. The latest record of survey that I found called the monuments out as NDOT LOIS monuments, and used their coordinates as the basis of bearing for the survey, rather than the most recently recorded survey document from the county recorder's office. This puts the next surveyor in a pickle on what should be used. Should they use the last legally recorded document which contains a reference to a web application that is self-proclaimed to be unreliable, or should they use the record prior to this which references all of the other recorded survey documents?

Another downfall to not lawfully recording the location of a survey monument and only establishing coordinates on a web application is that one cannot see how a monument was established or calculated. For example, when a state agency calculates their material pit boundary/aliquot part boundary from PLSS monuments, there is no way to examine the calculation and check the accuracy of the result. Sadly, these shortcomings of the cadastral data contained within LOIS limit the use of the data, by surveyors, to developing search coordinates only. Although it would always be good practice to physically tie such a monument, there are circumstances where it would be critical for a surveyor to be able to rely on those coordinates. For instance, as the best available evidence of a monument that has since been destroyed. How the monument was located is not available to the user, no field notes for the point are available, LOIS is not a public record, as noted elsewhere herein, and NDOT does not file Records of Survey or Corner Records. Reliance by the surveyor on a coordinate position for a PLSS corner without a substantiating field tie, is therefore a legal stretch. How can one know if proper methods were used when points are established, without a record? There is a similar control network in Carson City, known as the Carson City Control Network. It can be accessed online, and viewed via Google Earth. The difference between the two sets of data is that the Carson City Control Network survey, even though it was done by a city agency, was legally recorded with the Carson City Recorder's office (Map #2749 File #403435), so it is routinely referenced and used as a basis of bearing by professional land surveyors in Carson City.

The beauty of NDOT already creating the LOIS web application is that the data is there, it just needs to be certified, filed and recorded in each respective county. Most of the monuments could be filed in the same way that Carson City Control Network was recorded in Carson City. In regards to PLSS monuments it would be more beneficial to take the time and create a record of survey when establishing aliquot part corners of the PLSS. This would allow for future surveyors to rely more heavily on newly established land section corners, because they could view the methods and procedures used when breaking down the PLSS. The initial costs, to the public, of recording all of the past survey information would be somewhat substantial, but it would pay off over time. One of the reasons surveyors are required to file records is because it is a service to the public and future land surveyors. By recording a survey one is showing the path they took to future surveyors, so that they will not have to blaze a new trail. Recording a survey also allows future surveyors to check past work, if they find a shorter or more accurate trail, they can blaze a new trail and collaborate with a past surveyor to resolve any differences. It would be nice if all surveyors could have perfect careers, free of error, but this is typically not the case. Having ones work available for review by other professionals is a good way to ensure that the work was done correctly and check its accuracy.

Making LOIS a recorded survey would allow private survey firms to rely on the data, which would in-turn lower the costs of land surveys to the public. Imagine, for example that a needed PLSS monument for a private survey is destroyed, and there is no other collateral evidence left except for what was tied and shown in LOIS. As it currently stands, with LOIS being unofficial and unrecorded, one would not want to use the data as collateral evidence in the re-establishment of the monument. This would cause a surveyor to take the time to reestablish the monument by finding and collecting the nearest corners, which could amount to thousands of more dollars spent for the client. However, if LOIS was an officially recorded survey, the data could legally be used as collateral evidence and reestablishment of the point is easily completed.

Clarification or an update of NRS 625, or enforcement of NRS 329 would provide for a change in the current recordation and usage of survey data. Currently portions of NRS 625 are being interpreted as a waiver by some government agencies to freely survey without ever making a record. In my opinion the law clearly states that the Professional Land Surveyor in responsible charge is responsible for the survey record, and the waiver is only provided to their subordinates. If NRS 625 was meant to exempt Professionals Land Surveyors, it clearly states that it is only applicable to that Chapter (NRS 625), and does not provide an exemption for the other NAC and NRS that govern Professional Land Surveyors in Nevada, such as NRS 329. After becoming licensed, one can feel the heavy responsibility to the public and other land surveyors when it comes to recordation. I would not perform a survey, even under the auspice of a city, county, state or district agency, if I was unable to record it. Likewise I would not use unrecorded data as my only means to support a survey.

Editor's Note:
Shane stakes out a bold position on a touchy subject that has been avoided for too long. The Nevada Traverse greatly appreciates him stepping up to the plate.

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NALS Helps Out at the Food Bank of Northern Nevada!

Contributed by Doug Larson

Our Lahontan Chapter of NALS family and extended family on Saturday, May 19th worked for 2 hours at the Food Bank of Northern Nevada.

"The Food Bank of Northern Nevada provides emergency food services to families through a network of more than 140 partner agencies in a 90,000 square mile service area throughout northern Nevada and the eastern slope of the sierra in California. We serve more than 95,000 people each month, half of whom are children and seniors. Last fiscal year, we provided more than 13.3 million meals to neighbors who were hungry. The Food Bank also plays a leading role in collaborating with other committed northern Nevada community members and organizations to address the root causes of hunger.

Our awesome volunteers were tasked with several jobs relating to sorting and packaging the food from the Letter Carriers Stamp Out Hunger Food Drive which was held a week earlier. We did everything from sorting food, to packaging and weighing boxes of food to loading pallets. The event was a huge success with thirteen NALS members or their families showing up to help out those less fortunate that ourselves. Once we got started the time flew by and when our shift was up several people commented that they didn't want to stop. We were able to pack roughly 4.5 TONS of food!

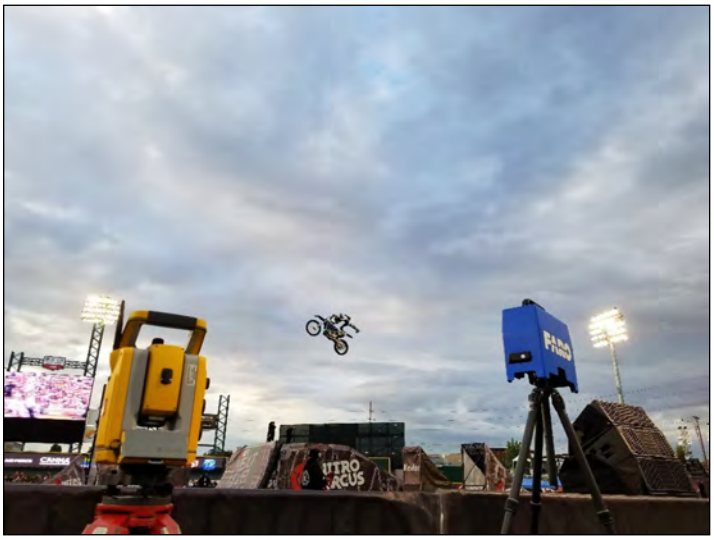
Pictured Dave Crook, his grandson Clayton Busha, Doug and Lisa Larson, Mark Boge, Steve Parrish his wife Gloria and their granddaughter Aryelle, Kyle Killian, Tom Potts, Nick Montoya, Brady James, and Nick's wife Emily.

⊗

The Nitro Circus

by Chris Heliotes

After many years specializing in 3D laser scanning I have had the privilege of working on a wide variety of interesting and challenging projects. These surveys have run the gamut from more familiar areas such as topographic and as-built products, to more obscure fields such as marine and forensic work. While these projects varied wildly in scope and procedure, they all had one thing in common, the subject features to be collected were stationary. Scanning personnel tend to go to great lengths to avoid or remove transient objects from their data sets. Recently, Lumos team member, Nick Montoya and I were presented with an altogether alien task; the 3D capture and measure of objects in motion.



By referral from a fellow Reno area surveyor, (thanks Kevin German!), we were contacted by a representative from the traveling extravaganza known as the Nitro Circus. For those who are not familiar, the Nitro Circus is a traveling stunt show that I can only describe as an episode of "Jackass" live. Their request was quite intriguing. They had recently constructed a new motorcycle jump that was significantly larger than any they had ever used before. In order to determine the feasibility of using this jump in indoor venues, they asked us if we could accurately measure the height of the highest extremity of the riders at the apogee of the flight between ramps. I said of course we can, though in reality I had no idea how. As soon as I got off the phone, I consulted with my co-workers and started spit-balling ideas. The methodology that we came up included a two-part approach. First, we would set our Faro scanner to scan at a very high resolution in a very narrow swath in hopes of capturing the artifacts of the rider passing through the beam. Simultaneously, Nick would rough site the rider for a comparative result with our Trimble S6 total station. The total station would have to be all 'trig' work, since getting a reflectorless shot on a rider in the split second he spends at apogee is pretty much impossible. Since the riders would not be practicing on the new jump, we had to noodle the procedure on the smaller jumps. During the practice session we tried various methods until we settled on a final workflow. The results between the data collected by the 2 instruments was consistently plus or minus 6 inches.

There was a lengthy wait between practice and the event we were there to capture. We whiled away that time eating and enjoying pre-show activities. When it came time for the actual event, the Nitro Circus crew inflated a bladder under the landing ramp and raised it about 10 feet. We were informed that this was done because the drop would be too great for the riders to absorb with the standard configuration. As the first rider hit the jump we had to quickly adjust to the new altitude. The height reached was really impressive. We took measurements throughout the session and when it was over examined our results while still on site. The highest rider measured an amazing 55 feet above the ground. It was truly impressive to behold. We reported our findings and headed out.

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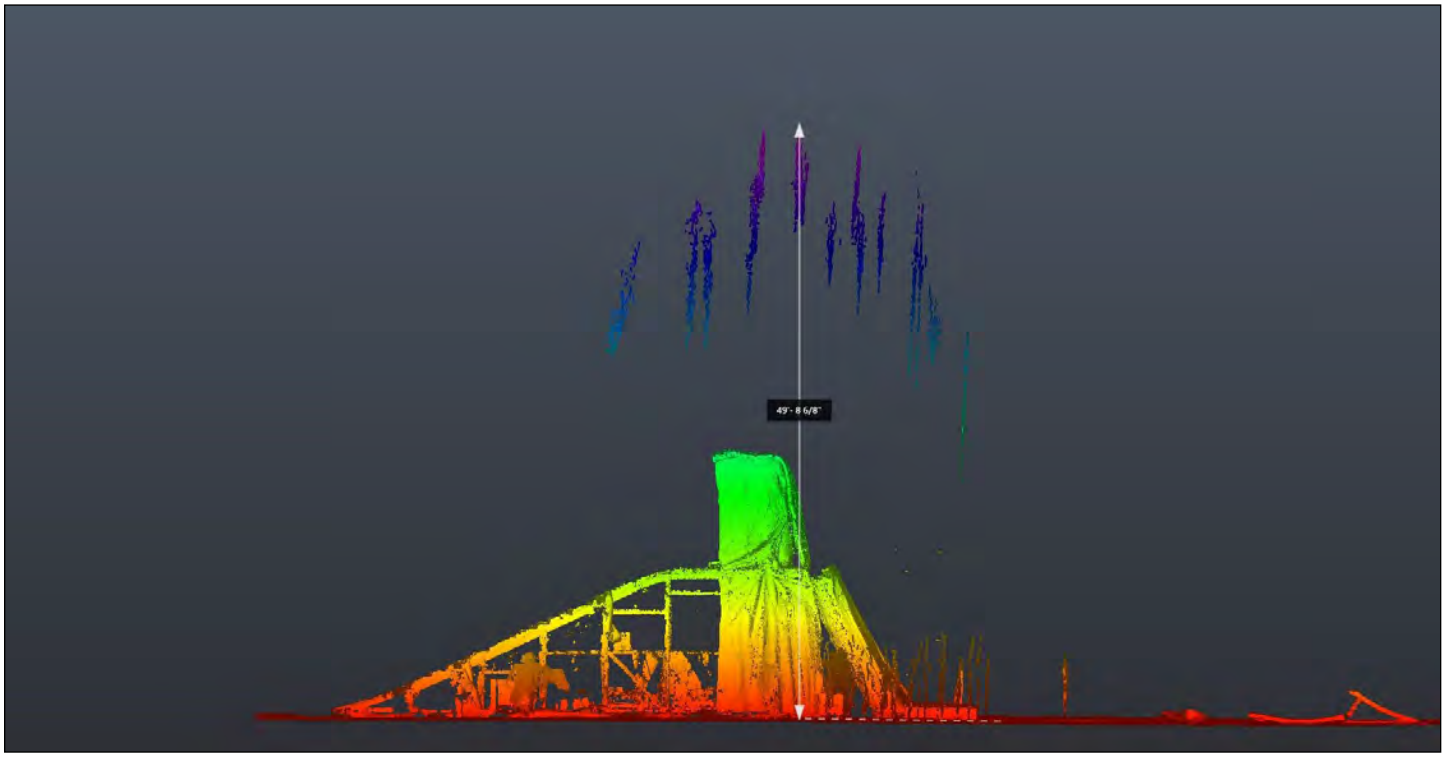
The Nitro Circus... *continued from previous page*



I am astounded that after so many years working in this discipline that we keep finding new uses and applications for this technology. As scanning and other forms of remote sensing evolve, I am sure that new and exciting opportunities will continue to present themselves.

What is going on with Boy Scout Troop 411 in the Carson Valley?

Contributed by Todd Enke PLS

2018 saw the re-establishment of Troop 411 in the Carson Valley. Long established and for many years being one of the primary Boy Scout Troops in the area, Troop 411 was unable to sustain itself in our current times. Late in 2017 the Nevada Area Council was contacted by Carson Valley Lions Club the sponsor organization for Troop 411 to see if they knew of anyone interested in bringing Troop 411 back to life and this how I got involved. Over the last seven years my wife and I have engrossed ourselves in the Cub Scout experience being Den Leaders, Popcorn Kernels, Committee Chairpersons responsible for putting on the annual Pack 33 Pinewood Derby. To go along with this, my participation through the NALS Lahontan Chapter with Home Depot days left me the easy mark for the Nevada Area Council to take on the future of Troop 411. After a few talks with Carson Valley Lions Club and the parents of our older son's Pack 33/Den 10 mates, one still in scouting and two recently out of scouting, we decided to give it a go.

Troop 411 with the Vietnam Moving Wall in the background

In January of this year we put the wheels in motion and brought Troop 411 back to life, with four boys that had known each other from their years in scouts and in school. Lions Club handed us the keys to the troop which included a bank account in need of attention, a trailer that had seen better days and a few other items to get us going. The task at hand seemed a little overwhelming but doable with the help of a few of the dedicated parents, Home Depot on Topsy Lane in Carson City who supplied us all the materials and help to build needed patrol Boxes, Tires Plus in Gardnerville who provide us three new tires and bearing repack for our troop trailer, Lincoln Young an Eagle Scout from Troop 495 who provided welding expertise to fix the band trailer tongue that had been improperly installed and finally the Lahontan Chapter of NALS that provided us a much needed infusion of capital ($500) that got the troop on its feet.

Since our January start Troop 411 has grown carefully from four boys to six boys that are at the core of what we seeing as the strong foundation for measured growth and strength. The goal of Troop 411 is to build a strong foundation by accepting boys and families that support the qualities that most in society look up to and to place the principles of Boy Scouts of America outlined in the Boy Scout Law. These being that a Scout is: Trustworthy, Loyal, Helpful, Friendly, Courteous, Kind, Obedient, Cheerful, Thrifty, Brave, Clean and Reverent. January 2019 will mark our one year anniversary and with this comes my younger son's Den's crossover from Cub Scouts to Boy Scouts and a few more boys being accepted in to Troop 411. Enough with how, what, where and when of Troop 411 coming into existence and on to what we did last year.

Finnon Lake near Placerville, CA

2018 saw Troop 411 hit it's stride with activities including camping trips to Walker River Resort in the Smith Valley, Davis Creek in Washoe Valley, Finnon Lake in Placerville, CA and trips to Grover Hot Springs in Markleeville coming up in August. Additionally, Troop 411 volunteered at the Vietnam Moving Wall in Minden, setting up and taking down two-hundred flags of our country along US 395 in Minden and Gardnerville on July 4, participating in the Nevada Area Council Merit Badge Day and just this week they got back from the troop's first summer Camp at Camp Fleischman outside of Chester, CA. The troop's trip to camp saw all six boys go, four dads spending time at camp to provide the required two-deep leadership and close to thirty Merit Badges be earned. Another exciting event that happened so far this year is the rank advancement of all six boys to the next level of scouting. Recently, we advanced two boys to First Class, one within in a month of advancing to First Class, two boys advancing to Tenderfoot and finally one just completing his Eagle Scout Project and preparing for his Board of Review to obtain the rank of Eagle Scout. With five months of the year to go we still have many more camping trips left, the popcorn fundraiser and the Court of Honor to celebrate the boys advancements in scouting. EXCITING YEAR!

Next year we have many exciting things on the horizon with new scouts entering the troop, camping trips, community service projects, fundraising, next year's summer camp trip to Camp Meriwether on the Oregon Coast and maybe an appearance at the opening ceremonies for the 2019 NALS Survey Conference in Reno. We look forward to many more exciting experiences in the future and realize that with out the support of Home Depot, Tires Plus and our Lahontan Chapter it would have been a far more difficult road to getting the troop heading towards many years of fun and growth.

Editor's Note:
Let's hope all these boys achieve their Surveying Merit Badge under Todd's tutelage!

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LSG PROGRAM HIGHLIGHTS

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NATIONAL SOCIETY PROFESSIONAL SURVEYORS

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Phone: (775) 753-2344
www.gbcnv.edu

NEVADA ASSOCIATION OF LAND SURVEYORS

Sustaining Members

Following is a listing of sustaining members of the Nevada Association of Land Surveyors. Please remember that these firms and businesses, through their NALS membership, are supporting the aims and objectives of our association.

Aerial Mapping Consultants
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♦

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NALS Board of Directors Meeting

Executive Office: 526 South E Street • Santa Rosa, CA

MINUTES

CALL TO ORDER
President Jerry Juarez called the meeting to order at 10:00 AM.

ROLL CALL
Jerry Juarez, President
Jason Higgins, President-Elect (by phone)
Jason Fackrell, Treasurer (by phone)
Doug Larson, Director
Justin Moore, Director
Todd Enke, Alternate Director
Gene Sawyer, Director (by phone)
Crissy Willson, Executive Director

Guests
Matt Gingerich, Past President, WestFed Chair
Carl C.de Baca, Past President, Nevada Traverse Editor

PLEDGE OF ALLEGIANCE
President Jerry Juarez led the Board in the Pledge of Allegiance.

PRESIDENTS REPORT
Report included in the agenda.

President Jerry Juarez reported participating in discussions with Conference Chair Nancy Almanzan and representatives of CLSA to discuss a joint conference in Reno, Nevada.

PRESIDENT-ELECT'S REPORT
Report included in the agenda.

President-Elect Jason Higgins reported on activities over the last quarter. Jason has held several Legislative Committee meetings and attended NVBPELS Board meetings.

TREASURER'S REPORT
Financials included in the agenda.

Treasurer Jason Fackrell reviewed the financial statements as included in the agenda. It was noted that the cost of travel has increased, and the budget originally allocated for Board meetings would not be sufficient to cover the remainder of the year.

MOVED by Justin Moore and **SECONDED** to increase the Board meeting budget to $4500. **MOTION CARRIED.**

MOVED by Todd Enke and **SECONDED** to accept the Treasurer's report. **MOTION CARRIED.**

EXECUTIVE DIRECTOR'S REPORT
Executive Director Crissy Willson reported on the actions over the last quarter. As requested by the Board, the guidelines and policies previously adopted by the Board were compiled and distributed to the Board.

Action Item: Jason Higgins to forward combined PDF. Board to review the guidelines for possible revisions and inclusion in the Board Handbook.

Crissy discussed the need to establish a reserve account. With increased membership and successful conferences, NALS has realized a profit each year. It is recommended that some of these funds be invested to establish a reserve using laddered CDs.

MOVED by Jason Higgins and **SECONDED** to authorize Crissy Willson to open investments accounts using a laddered CD approach. **MOTION CARRIED.**

NALS FOUNDATION
Report included in agenda.

The NALS Education Foundation has established a scholarship application that will be posted on the website and distributed to students and professors. The deadline for submission is September 15th.

The NALS-NSPS Foundation fund is currently earning between 5-7%. The Equipment Fund has been used to fund students to attend Conference and NSPS Student Competition.

ADVANCED EDUCATION COMMITTEE
Report distributed. (Attached)

Carl C.de Baca discussed the progress of the Great Basin College (GBC). Enrollment continues to increase. As the enrollment increases so does the need for a second professor. Carl reported that New Mexico received a grant from a utility company of $200,000 to assist the Geomatics program. Carl suggested that NALS investigate potential grants.

ADVANCED TECHNOLOGY
The Board discussed the importance of participation in the NGS Bench Marks program.

Action Items: Advanced Technology Committee Chair Jason Fackrell to provide information on the program for an email blast to the membership. Chapter Presidents to promote the program to their local members.

BOARD OF REGISTRATION LIAISON
Reports included in agenda.

BPELS is moving forward with their proposed legislation. They will be holding a networking event in October. Information posted on the BPELS website.

PUBLICATIONS
Report included in agenda.

Editor Carl C.de Baca reported that the Traverse is on track to break even if we secure a few more advertisers.
Action Item: Board members to help solicit advertisers for the Nevada Traverse.

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NALS BoD Minutes... *continued from previous page*

LEGISLATIVE COMMITTEE
Report included in agenda.

Legislative Committee Chair Jason Higgins reported that the committee has held conference calls.
Draft legislation to address the 2022 datum has been circulated and the committee is in the process of reviewing.

After reviewing the timeline, the Committee has determined that it is not the right time to hire a lobbyist. However, the process of interviewing was beneficial in establishing connections. Nancy Almanzan recommended contacting Tyre Gray as a potential lobbyist or for recommendations. Tyre provided a session on lobbying and legislation at the conference.

Action Item: Jason Higgins to draft a letter to be signed by President Jerry Juarez to the lobbyist indicating that NALS is postponing retaining a lobbyist at this time.

CONFERENCE COMMITTEE
Conference Chain Nancy Almanzan reported that an MOU has been negotiated with CLSA for a joint conference at the Silver Legacy in 2019. The CLSA Board of Directors still needs to vote on the MOU.

MEMBERSHIP COMMITTEE
Report included in agenda.

The Membership Committee has developed a draft questionnaire. The questionnaire will be finalized and sent to the membership. This will help gather information regarding member demographics as well as determine the issues that are most important to the members.

NSPS
Report included in agenda.

After reviewing financials the NSPS Executive Committee has determined that a dues increase is necessary. NSPS is requesting a $10 dues increase which will be voted on by the NSPS Board of Directors at their fall meetings.

WESTFED
Report included in agenda.

WestFed Chairman Matt Gingerich reported on the activities of WestFed. A Foundation for disaster relief and scholarships has been setup through the NSPS Foundation. WestFed has also adopted a resolution supporting the continuation of Boards of Registration.

CHAPTER REPORTS
Chapter reports included in agenda.

Lahontan Chapter has confirmed a fall seminar with Landon Blake which will be held November 3rd.

Southern Nevada Chapter will hold their annual golf tournament on October 5th.

MEETING CALENDAR
To coincide with the SNALS Golf Tournament the fall Board of Directors meeting will be moved to October 4th.

ADJOURNMENT
President Jerry Juarez adjourned the meeting at approximately 3:30 PM

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Welcome New Members!

Mike Hill

Richard Smedley

Shane Trotter

Craig Wilson

NALS Historic Committee Search

The Historic Committee is searching for pictures and narratives on past presidents and prominent contributive members. The presidents are known, but a list of contributive members needs to be developed. This year we hope to collect an overview of recollections, contributions and photos for both categories for future use. Respondents need not worry that two or more reply; information and photos received will be compiled by the committee.

Please respond to:
NalsHistory@GMail.com

Thank you!

Brothers... *continued from page 7*

The original boundary work separating Texas and New Mexico was done under the auspices of the United States and the Texas Boundary Commission. John H. Clark was named U.S. Commissioner and Surveyor. Texas appointed William Scurry, a lawyer and former Army officer as Boundary Commissioner. They undertook the long east-west line in western Texas in 1859. Clark and his party began at the eastern bank of the Rio Grande River near El Paso, then ran east along the 32nd Parallel. But the arrangement quickly unraveled and the Texas delegation resigned.

Clark's party continued working, despite protests that he now lacked the authority to do so. They ran 211 miles to the 103rd Meridian. The longitude for the 103rd Meridian was based on Clark's chained distance from one of the Army's U.S.-Mexican Boundary Survey astronomical stations. At the 103rd, the surveyors turned north and chained along the western boundary of the Panhandle. But in May of 1859, only twenty miles on, they entered the arid Staked Plains and were forced to turn back for lack of water.

Clark then proceeded around the Staked Plains to the northwest corner of the Panhandle and established his initial point there in September of 1859. Its latitude at 36° 30' North was determined in the field with a zenith telescope and the longitude was derived from a monument previously set on the 37th Parallel by Lt. Col. Joseph E. Johnston, an Army Topographical Engineer. Johnston surveyed a lengthy portion of the 37th Parallel 1857, and the same John H. Clark was Johnston's astronomer.

Portion of an 1855 map of Texas showing the Panhandle and the negotiated boundary with the Territory of New Mexico. David Ramsey Map Collection

Clark then turned south along the 103rd Meridian and ran 156 miles before halting the work. This left a gap of some 130 miles between his two surveys along the meridian.

In 1860 Clark resumed surveying, this time along the 100th Meridian, beginning where the meridian crossed the Canadian River. He picked up the Jones and Brown survey, extending it north to 36° 30', the northeast corner of the Panhandle. There he turned west and ran along the parallel to the northwest corner. At that point Clark concluded his work on the boundaries of Texas. The Civil War began the following year and Clark's maps and reductions remained unfinished.

But nothing about the boundaries of Texas could be called straightforward. Subsequent surveys to locate the 100th Meridian followed. None were accepted. Texas nevertheless maintained her claim to lands that the U.S. argued belonged to the new Territory of Oklahoma. From the 1890's until 1930, Oklahoma, Texas and the federal government were in and out of the Supreme Court, feuding over the intent of the Adams-Onis Treaty, the Melish map, the location of the Red River and the several lines purporting to be on the 100th Meridian. The Supreme Court ordered still another survey in the late 1920's. In 1930 the Court accepted the results of that effort, and rejecting all previous surveys including Major's initial point, finally settled the matter in favor of Oklahoma.

The General Land Office

Continuing with its program to delineate western boundaries, in 1860 the U.S. Congress appropriated $4500 for the survey of the non-riverine portion of the boundary between the State of Oregon and the U.S. Territory of Washington: the 46th Parallel between the Columbia and Snake Rivers. However, the appropriation was thought so inadequate that no surveyors were interested. That same year, the U.S. Senate Committee on the Territories directed the G.L.O. to accept proposals for the survey of the eastern boundary of California, so as to define the western limit of the U. S. Territory of Utah.

Several surveyors and engineers offered estimates, including Theodore Judah, engineer and promoter of the Central Pacific Railroad, who offered to do the work for $150,000. Daniel Major and I. M. Fairbanks proposed to do the project for $55,000 and without any military escort. The pair stated they could complete the work with a party of 34 men in 15 months. The Commissioner of the G.L.O. met with Daniel Major to discuss the details. He was happy with Major's proposal but the matter was not pursued. In April of 1861 Confederate forces bombarded Fort Sumter in Charleston Harbor. The attention of the Congress was quickly diverted elsewhere and the matter was shelved. At some point after 1861, Daniel Major ended his affiliation with the Naval Observatory.

In April of 1863, a flotilla of nine Union ironclads steamed into Charleston Harbor and attacked Forts Sumter and Moultrie, now occupied by Confederate forces. Rebel shore batteries shelled the attackers and the heavily damaged ironclads were forced to withdraw. That same month, the new G.L.O. Commissioner James Edmunds awarded a contract to Daniel Major for the survey of the 46th Parallel on the Oregon-Washington Territory line. Edmunds threw in surveys for six adjacent fractional townships to sweeten the deal. On this project Daniel's brother John assisted as a compassman and the supervisor of the monumentation crew.

Whether the two Major brothers were aware of the terrain they and their party would encounter is not known. But the country was difficult and the weather unpleasant in the extreme. The G.L.O. Annual Report for 1867 referenced Major's survey along the 46th Parallel, in part with these words, "From the head of Walla-Walla valley, thence to the Snake River, that line traverses a continuous succession of precipitous ridges of the Blue Mountains, heavily covered with timber, through which the astronomer and party found it a slow and laborious task to work their way, made the more difficult by almost impassable barriers of fallen timber and embanked snow." The Report also noted that Major was an astronomer of experience and energy.

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Brothers... *continued from previous page*

Portion of a U.S. Army Topographical Corps map of Oregon and the Washington Territory from 1859, showing the 46th Parallel between the Snake and Columbia Rivers forming part of the northeast corner of Oregon. David Rumsey Historical Map Collection.

The G.L.O.'s Commissioner J. S. Wilson was prone to recommend Daniel Major above others. In a letter to the Secretary of the Interior, Wilson wrote, "Mr. Major as an Astronomer is known to this office…he established the boundary on the 46th parallel of north latitude between Oregon and Washington Territory to the entire satisfaction of this office…Mr. Major's capacity and faithfulness were displayed under the small appropriation of $4,500 in the service he rendered to the government by the survey of the boundary reflecting credit on this Astronomer and conferring solid benefit on the people of the State of Oregon and Washington…It is believed that his scientific attainments, if called into requisition in the service contemplated, would subserve the best interests of the public."

That same year, Daniel's uncle James Major resigned his commission in the U. S. Navy and entered the Society of Jesus, the Jesuits, a scholarly religious order of the Catholic Church. While James was completing his studies for the priesthood, he taught chemistry at Boston College, a Jesuit university. After his ordination, James taught at Loyola College in Baltimore, Maryland. Meanwhile, upon his return from the Indian Territory, Daniel enrolled at Georgetown College, now called Georgetown University, where he earned a Master of Arts Degree.

Meanwhile, Daniel's younger brother John had been following in his elder sibling's footsteps. In March of 1857, at the age of 16, John signed on with the U.S.-Canadian Boundary Commission, just as fieldwork began on the boundary. He was appointed clerk to the Commissioner and went out with the first survey party to begin delineating the boundary. Their mission was to complete the boundary survey along the 49th Parallel, from the Rocky Mountains to the Pacific Ocean. The U.S. Army's Topographical Corps and Britain's Royal Engineers jointly performed the fieldwork.

John Major assisted the U.S. Commission's Chief Astronomer and Surveyor, Lieutenant John G. Parke, with calculations at the astronomic stations along the boundary. They stayed in the field until the end of 1861. Parke, Major and two others were the last of the U.S. contingent to leave the field. They returned to Washington, D.C. via the Isthmus of Panama with forty-one crates of instruments, records and personal baggage, and twenty-four boxes of natural history specimens.

Survey crew from the North American Boundary Commission, prolonging the 49th Parallel, at the west bank of the Mooyie River, 1861. From the Public Archives of Canada

Lieutenant Parke was soon called away for war duty, but John stayed on with the Commission, assisting with the preparation of the final reports. Major resigned from the Commission in 1864. A few years later, he enrolled at Georgetown College and earned a Bachelor's Degree, soon followed by a Master of Arts Degree.

But soon the Major brothers turned their eyes once again to the West. The pair would begin their work marking the 42nd Parallel, surveys totaling almost seven hundred miles in length.

The 42nd Parallel

In 1803 President Jefferson argued that Spanish Florida was part of the Louisiana Purchase. Spain strenuously objected. The next three U.S. Presidents tried to acquire Florida with the same argument, all without success. But by 1818 Spain was badly weakened by her endless European wars, the recent abdication of her king and constant uprisings in her American colonies. She was concerned that she could no longer defend her claims to Florida or fend off U.S. ambitions in Texas. She was also concerned by the extremely vague nature of the boundaries of the Louisiana Purchase, which she feared overlapped Upper California, at the least. Spain agreed to discuss terms with the United States.

In 1819, U.S. Secretary of State John Quincy Adams met with the Spanish Minister Plenipotentiary to the United States, Don Luis de Onis y González Vara López y Gómez. They negotiated a treaty establishing lines of demarcation between Spain's territorial claims and those of the United States. And Spain finally ceded Florida to the U.S. These lines were based on a compilation map prepared in 1818 by cartographer John Melish.

CONTINUED ON PAGE 27 ▶

NSPS Executive Director Mid-Year NSPS Activities Summary

by Curt Sumner

June 6, 2018

NSPS Bid for 2022 FIG Congress

During the 2018 FIG Congress in Istanbul, Turkey NSPS presented its proposal to sponsor the 2022 FIG Congress in Orlando, Florida. FIG has not held an annual meeting (Working Week, or Congress) in the Western Hemisphere since the ACSM/ASPRS-sponsored Congress in Washington, DC in 2002. Unfortunately, the FIG member countries chose Cape Town, South Africa as the location for the 2022 meeting.

Promotions

NSPS will again this year have a booth during the American School Counselors Association conference which is being held July 14-17 in Los Angeles, California.

New or updated brochures that are available under the "PR/ Brochures" tab on the NSPS website include: *Should You Hire a Land Surveyor; Professional Surveying; Certified Survey Technician.*

An updated version of the *Be A Surveyor* (www.beasurveyor.com) can also be found under the "Resources" tab on the NSPS website. NSPS has agreed with the North Carolina Society of Surveyors Foundation to manage the site henceforth.

NSPS is the North American distributor for the *Get Kids into Survey* posters created by Elaine Ball (UK). The most recent poster "Smart Cities" includes a NSPS flag and *Evan the* (NSPS) *Eagle*. Posters can be ordered thought www.getkidsintosurvey.com. Contract Trish Milburn (trisha.milburn@nsps.us.com) in the NSPS office with questions.

NSPS is in discussions with the A&C International Exchange Center regarding an invitation for NSPS to participate in a *Sino-America Surveyors Competition* (between China and the US) which is tentatively scheduled to take place in the Washington, DC area in November 2018.

Licensing Issues

NSPS participated this year in the opposition to a proposal by the Governor of South Dakota to establish an agreement among a group of states that would have allowed licensed professionals in those states to practice in other states for up to a year without obtaining a license there. The proposed agreement was defeated.

NSPS is participating in the ongoing dialog regarding whether licensing for Surveyors should be all-encompassing, or if it should be task-specific as is currently the case (at least to some degree) in some states. NCEES has begun a discussion on what is referred to as "divisional licensing".

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Outreach/Collaboration

NSPS continues discussions with UNAVCO regarding common interests and collaboration. UNAVCO is a non-profit university-governed consortium which facilitates geoscience research and education using geodesy.
UNAVCO was created in 1984 in response to the challenge of applying GPS to the geosciences. At that time it was called the University NAVSTAR Consortium (UNAVCO).

NSPS has agreed to an *Association Partnership Agreement* with the Association of Unmanned Vehicle Systems International (AUVSI) to engage in mutually beneficial promotional exchanges and engage in mutually agreed upon lobbying efforts.

Through an arrangement with the NSPS Foundation, Inc., Smart Vent Products Inc.| Risk Reduction Plus Group has developed a National Survey Floodplain Resource Center (NSFRC) intended to better inform the public and Surveyors regarding flood issues.

NSPS is in discussions with the Association of Professional Pipeline Surveyors (APPS) regarding how the two organizations might work together to contribute to, and promote, the fledgling Pipeline Surveying Certification program recently established by APPS.

NSPS is in discussions regarding an affiliation agreement with the Pan American Association of Surveying and Topographic Professionals (APPT).

NSPS continues its quarterly meetings with the National Geodetic Survey (NGS) for discussions on collaboration and information on common interests; such as the 2022 datum change and how state legislation will need to be revised in some states to indicate compliance with the 2022 datum.

Government Affairs Activities/Issues

Geospatial Data Act - NSPS continues to oppose this otherwise good legislation as long as it does not include language regarding the use of licensed professionals, nor the use of qualifications based selection of services, where required by licensing and procurement laws.

Ligado Networks - NSPS has taken the lead in drafting language for a letter to be sent to the FCC on behalf of the Coalition of Geospatial Organizations (COGO) outlining the negative impact on the geospatial community, and the public, were the Ligado Networks proposal would significantly interfere with GPS signals. Readers will likely recall CONTINUED ON NEXT PAGE ▶

NSPS... continued from previous page

that Ligado Networks is the successor to Lightsquared in this endeavor.

Government Affairs Highlights, cont'd

Specialty Licensing-NSPS continues to monitor and participate in discussions on both the state and national levels regarding whether state licensing laws and procurement laws, as currently written, are appropriate for addressing the use of technological advancements for land data collection, processing, interpreting, and dissemination. This issue comes up repeatedly in legislation that is impacted by the use of geospatial data concerning whether there should be "specialty" categories in licensure (if licenses should be required at all) instead of the long-established overarching definitions. The topic is under discussion on many levels, including within NCEES where a group is discussing the concept of licensing "divisions" (categories).

Technical Mapping Advisory Council- NSPS is contesting a recent proposal that would eliminate private sector participation in FEMA's TMAC. Former NSPS President Wendy Lathrop has represented NSPS and the surveying profession on the TMAC since its inception as part of the Biggert-Waters Act. Although Wendy's participation limit has expired, NSPS has nominated Jim Nadeau as its representative. A meeting has been scheduled for June 7 with one of the legislators who proposed the change in composition of the TMAC to discuss the importance of private sector participate, especially for participation from the professional surveying community.

National Geospatial Advisory Committee - This entity, sponsored by the Department of the Interior, is another important opportunity for the voice of the professional surveying community to be heard. Gary Thompson, a NSPS Past President, previously admirably served two terms on the NGAC as a NSPS nominee. After a required absence, Gary is now eligible for reappointment. Preparations are underway for a NSPS nomination for Gary's appointment.

Annual "Day on the Hill"- On April 11, NSPS experienced another successful day of visits with legislators in both Houses, and in both political parties to discuss issues of importance to the surveying profession. Plans are underway to hold the Day on the Hill each year immediately preceding the NSPS Spring business meetings. This strategy will save time and money by allowing NSPS Officers, Directors, Committee Chairs, etc. to participate in both activities in one trip from home. Of course, all NSPS members are encouraged to participate in the Day on the Hill and to visit with their national legislators when they are "back home".

NSPS Student Competition 2018

The 2018 competition format returned to the "head-to-head" structure that was utilized in its early days. The teams and instructors were very pleased with the return to this format. A really good article by Carl CdeBaca, Editor, The Nevada Traverse, and NSPS Director- Nevada was printed in the May 2, 2018 edition of *NSPS News & Views,* http://multibriefs.com/briefs/NSPS/NSPS050218.php.

Another highlight of the competition was the announcement that the first-place award will henceforth be named for Student Competition pioneers Mike and Ann Besch.

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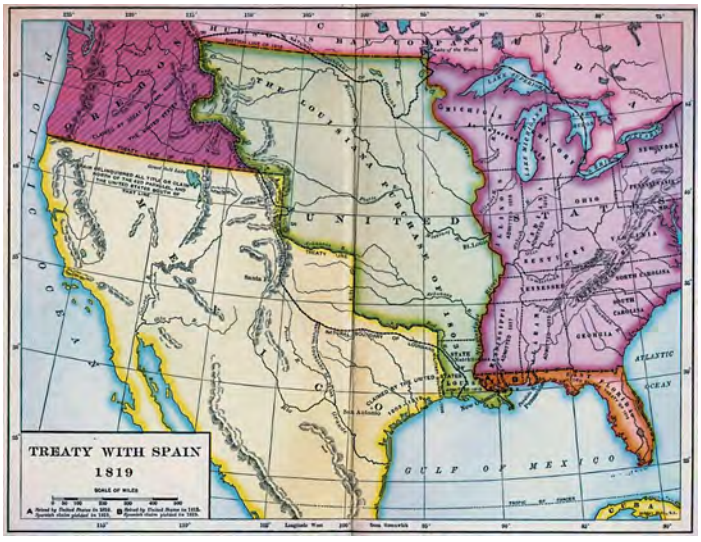
Brothers... continued from page 25

The Adams-Onis Treaty, officially called the Transcontinental Treaty, defined the western boundary of the Louisiana Purchase, thus fixing the limits of the U.S. Beginning at the Gulf of Mexico, at the mouth of the Sabine River, the line proceeded northerly along the western bank of the Sabine to the 32nd Parallel. From that point the boundary went due north to the Red River and, "… *then following the course of the Red River Westward to the degree of Longitude 100 West from London and 23 from Washington, then crossing said Red River and running thence in a Line due North to the River Arkansas…".* The boundary proceeded north and west along the southerly and westerly bank of the river, to a point due south of where the river's source touched the 42nd Parallel.

Once the boundary reached the 42nd, just west of the 105th Meridian, it followed the parallel to the Pacific. Spain reluctantly relinquished claims to all lands north of the 42nd, but she was satisfied Upper California was safe. In return the United States acquired Florida and won international recognition for a firm boundary of the Louisiana Purchase. It is also clear from the language of the treaty that the Washington and Greenwich Meridians were understood to be an exact number of degrees apart.



Map showing the 1819 Adams-Onis Treaty lines delineating the boundaries of the Louisiana Purchase, in particular the 42nd Parallel

The 42nd Parallel was important then in ways large and small, and to a degree still is. To the north lay the Oregon country, at that time sought by the United States, Russia and Great Britain. In those lands lay the vast Colombia River Basin, whose waters flow to the Pacific, Cascadia with its towering volcanoes and lush forests and the rugged coastline with its numerous bays and sounds. To the south were the lands of His Majesty, the King of Spain, including verdant California, the isolated Great Basin and the Colorado River Basin, all so very different in character, climate and culture from the lands north of the Parallel.

The 42nd Parallel of Latitude was then a natural and convenient choice to define the boundaries among the western territories the U.S. acquired through the first half of the 19th Century. But it was never a friend to the Major brothers. They deviated from it in every attempt to delineate it, despite possessing a far better than average knowledge of how to find it on the ground. Regardless, over their long careers working for the Interior Department, they labored along the Parallel for years.

End of Part I

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Lahontan Chapter Report

by Doug Larson, PLS, President - Lahontan Chapter

Spring 2018

2018 Officers:
President - Doug Larson, P.L.S.
dlarson@nvenergy.com
President Elect - Todd Enke, P.L.S.
tenke@roanderson.com
Secretary - Ken Mandryk, P.L.S.
kmandryk@gmail.com
Treasurer - John Gomez, P.L.S.
jgomez@WoodRodgers.com
Director - Kevin Almeter, P.L.S.
kalmeter@woodrodgers.com
Director - Dan Church, P.L.S.
sierrasurveying@sbcglobal.net
Director - David Crook, P.L.S.
dcrook@lumosinc.com
Chapter Representative - Justin Moore, P.L.S.
justin@odysseyreno.com

Past Activity

April Meeting:
As has become customary, our monthly meetings are held the 2nd Wednesday of the month at the Twisted Fork restaurant at 6 p.m... Edmund Quaglieri and Christopher Thorson of the Nevada Division of Water Resources gave a fascinating talk on the dam failure at 21 Mile dam near Wells, Nevada.

May Meeting:
Our March meeting was held March 14 at 6 p.m., at the Twisted Fork. An engaging talk by Gary Roeder the Assistant State Conservationist for the USDA for Programs in Nevada on land conservation easements and other programs by the USDA as they relate to land development.

Other Activities
The Food Bank of Northern Nevada hosted 13 volunteers from the Lahontan Chapter to sort 4.5 tons of food over the course of two hours. This community outreach effort is something our chapter had been talking about for years. It is great that it finally happened.

The Aces Family Baseball night, on June 1, 2018 was a sellout success with over 100 members, family and friends in attendance. The Aces did a delicious job catering the event. Thank you Justin Moore for organizing this standout event.

The annual NALS Golf Tournament, occurred on June 15, 2018 at the Toiyabe Golf Club in Washoe Valley on a beautiful, if slightly windy, day. I think a good time was had by all and much money was raised for the Lahontan Chapter. Justin Moore went all out in organizing this awesome opportunity for vendors and surveyors to have a little fun.

As is our chapter's tradition, June-August no meetings were held due to the summer rush.

Future Activity

Our September meeting will be held at the Twisted Fork on Wednesday the 19th at 6 p.m. (one week later than usual to accommodate our speaker). Sean Fernandez P.L.S. State Cadastral Surveyor for the State of Utah, will speak on the Nevada Virtual Reference System that Utah is now administering. We are so excited that he is able to make the trip to speak with our chapter on this important and timely subject.

The Twisted Fork will again host our monthly meeting on October 10that 6 p.m... Speaker and NALS Life Member, Paul Pace P.L.S. will present a historical perspective of the U.S. – Mexico Border. Paul is a dynamic speaker and his talks are always packed, so get there early for a seat!

Our Fall Workshop will be held between 8 a.m. and 5 p.m. on November 2, 2018 at the Associated General Contractors – NAM West Training room.
Our speaker will be Mr. Landon Blake P.L.S. whose topics will include "Tools to Solve Boundary Survey and Land Title Problems" and "Assessing and Communicating Risk and Uncertainty in Boundary Surveys" Cost will be $125 for members, $175 for non-members, which includes a continental breakfast and a catered lunch.

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Southern Nevada Chapter Report

by Jeff Miller, PLS, WRS
2018 President Southern Chapter

July Meeting:
We had a luncheon at Fogo de Chao with Duane Price, PLS from the BLM as the speaker. We had a great turnout with over 45 members attending. Mr. Price discussed a variety of topics from his experiences at the BLM. It was very entertaining and provided some great insight as to how the BLM set monuments along the international border between the United States and Mexico.

August Meeting:
We will again be having our meeting at Fogo de Chao on Thursday, August 17th and the speaker will be Mike Janssen, who is the Director of Public Works for the City of Las Vegas. With another great speaker lined up we expect to have another well attended luncheon.

September Meeting:
The September meeting will be at Fogo de Chao on September 20th with our annual lineup of City and County Surveyors giving their State of the City/County address to the members. This meeting is always a great way for all of us to stay updated with any current events or changes that may be occurring.

October Meeting and SNALS Golf Tournament:
There will be an informal meeting at the SNALS Golf Tournament Banquet, which will be held after golf on Saturday. The tournament will be held on October 5th and 6th at the Rising Star Sports Ranch in Mesquite. There will be an outdoor cocktail and food party at the resort Friday evening and golf will be held the following morning.

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2018 Lahontan Golf Tournament

by Justin Moore, PLS

On June 15, 2018 the Lahontan Chapter celebrated our 22st annual golf tournament at Toiyabe Golf Club in Washoe Valley. 60 golfers (15 teams) made their way around this beautiful course enjoying special challenges such as the closest to the pin, and longest drive competitions. Additional perks to our tournament included a swag bag full of goodies, stainless steel travel mug, baseball cap, raffle prizes, cash prizes, and a taco buffet dinner to conclude the event.

Our big winners of the day were Diamondback Land Surveying/ US Geomatics retaining their Championship Title and taking home the trophy and $200 cash prize. Odyssey Engineering retained their status of the worst golfers and took home the last place trophy for the 2nd year in a row. Our grand prize raffle winner was Deane Scheiber of CFA. She won 2 tickets to Nugget Rib Cook Off in September. Congratulations to our winners!

The Lahontan Chapter's annual golf tournament is the chapter's largest fund raiser of the year. Proceeds from the tournament go directly back into our local and surveying community. Scholarships, memorials, youth outreach, continuing education workshops, monthly meetings and other gatherings are all made possible by events such as this.

A very special "Thank You" must go out to all our sponsors: Monsen Engineering, Lumos And Associates, Odyssey Engineering, Wood Rodgers, CFA, Diamondback Land Surveying, US Geomatics, and Robison Engineering. Without their support and dedication this tournament would not be the success that it is year after year.

THANK YOU to each and every one of you that participated in this special event! Your participation and support is what keeps the Lahontan Chapter of NALS the leading advocate of Land Surveyors in Northern Nevada.

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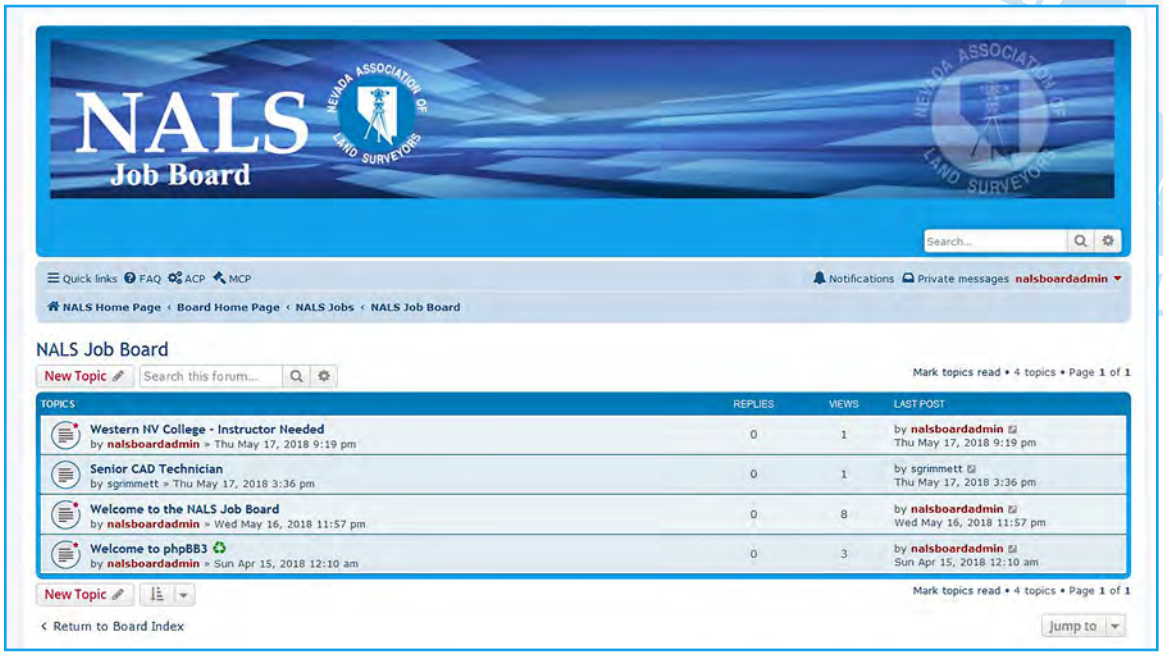
Photo *of the* Month

NALS Launches Job Board

Visit the NALS Website at: NvLandSurveyors.org



NALS has launched a new job board to help employers fill vacancies and members search for new opportunities. The job board is a separate system from our members' portal, to post you will need to register and follow the onscreen prompts. Registration is free. You do not have to register to view postings.

This monument is the centerpiece of a half-block urban park containing a great splash pad (with a huge compass rose in the center) and murals on the exposed wall of the preserved building next door. Hundreds of people everyday visit this place and come away with a little knowledge about surveying that they would not otherwise have. So that's one way to do outreach.

Elsewhere in this issue you'll see a photo-essay of another piece of survey-related art, this one in midtown Reno. Also in this issue, we recognize the Lahontan chapter of NALS for work with the local food bank. Taken together, these sites and events point a way forward for to make connections with the public. We can reach out to city planners, city councilmembers, the Elks, the Lions, Kiwanis, Historical Societies, etc. Get our past into public squares, museums, murals and events.

Another creative outreach moment is profiled in this issue. Lumos and Associates recently assisted the Nitro Circus in determining how deep into the sky their gonzo riders were penetrating off the Travis Pastrana-designed jumps. That this is a form of outreach is a stretch but Lumos personnel were able to use laser scanning to capture the riders at apogee. So at least some motocrossers now know we are the measurement professionals. Hey – it's a start!

In this issue, Paul Pace takes us on another journey into the early days of American surveying and Shane Trotter opines on the Nevada Revised Statutes and some possible misinterpretations thereof. Both pieces are excellent. And we take a quick look at the Lahontan Chapter celebrating itself with the annual golf tournament. The chapter also had a family night at Aces Field, with over a hundred members, family and friends taking in a Triple A baseball game on a beautiful summer night. Sadly, with everyone's hands full of hotdogs and beer, no one had the wherewithal to snap some photos.

Lastly, a late-breaking piece of sad news as we say goodbye to Rae Ann Loving, longtime stalwart office gal of TriState's Reno office, who passed away at the end of July. Rae Ann was there from almost the very beginning. She signed on over there in 1986 or 1987 when Hickerson first began building his surveying juggernaut and stayed on long after Barry sold the company, through the upturns and downturns, retiring very recently. A lot of surveyors came and went through their doors over these 30 plus years and she unfailingly treated every one of them as a friend. She called us all 'Sweetie'. Rae Ann will be missed.

Here's hoping that by the time you read this the awful heat wave will have broken and we can all enjoy the rest of the summer and fall! Take care.

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Electronic BLM Manual
The Manual of Surveying Instructions 2009

Currently available on the BLM website:

http://www.blm.gov/pgdata/content/wo/en/prog/more/cadastralsurvey/2009_edition.html

What Land Surveying Means to Me

by Jeff Miller, PLS, 2018 SNALS President

I felt compelled to write this article for a couple of reasons; First, in today's world, where everything needs to be done right now, there's needs to be some time for people to sit back and enjoy their chosen profession. Secondly, I will always have a strong respect for the backbone of our work, which are the Surveyors who came before us, who worked before GPS and drones. The men and women who broke down Sections with Theodolites, closing a traverse using long hand math.

I take great pride in currently serving as the Southern Chapter President. There are many duties that are performed behind the scenes where only other board members are present. Some are rewarding and some you do just because it's part of your job. In this position, it has provided me with many opportunities to meet other members, whether it's at the annual picnic or each month at the General Membership Meetings. At the July meeting, one of the members (Mr. Tom Hellums, PLS) pulled me off to the side and said he "had" something for me. My mind began to wander as I've known Tom for awhile but could not understand what he "had" for me.

I've been surveying for over 27 years, I started out as an 18-year old kid from Detroit who didn't know what surveying was. Throughout the years I've learned and experienced a lot and have always been fascinated with the history of Land Surveying. Sure enough, Mr. Hellums added to my experience when he handed me a book titled "Robert's Rules of Order". Being on the board for a while now, I currently have a copy of this book and am very familiar with its contents. But it wasn't the title that really hit me, it was what Tom said when he gave it to me. He said, "This was given to me by Mr. Cuddy and I'd like to give it to you". It's the 1876 edition and has certain "important" pages marked by Mr. Cuddy.

As almost of us who belong to the association can attest to, Mr. William "Bill" Cuddy, was a true legend in our field. He was a true pioneer who was known to go door to door asking other Surveyors to join the association or make a donation.
I can say without hesitation, that this gesture by Tom made my day. At some point in the future, I will find a SNALS President to pass it on to as well.

At the end of the day, we are all Surveyors and we are all busy, but taking 5 minutes out of your day to acknowledge a peer and give them the chance to carry on certain parts of our history is what life is all about.

I hope you enjoyed this article as much as I enjoyed receiving a part of our history.

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or colleges (I bet you wish you had a nickel every time you heard that from me). Young people must know who we are, what we do and how much money can be made from becoming a land surveyor before they can be excited to obtain a degree in this field. That is where Trig-Star comes in. Since starting the Trig-Star program in Nevada in 2004 several individuals have helped make the Nevada Trig-Star program what it is today. I would especially like to recognize Sean Corkill from the Southern Chapter, who has been an amazing Trig-Star advocate and has recruited some of the top schools in the state.

Since its inception, Trig-Star has reached around 5,000-6,000 students and 200-300 teachers across Nevada. Can you imagine what the numbers would be if we had 15-20 land surveying professionals involved and not just two or three? Or if this program is not the answer, in your opinion, imagine if someone among our ranks would come up with another way to reach students? There are quite a few surveyors who feel we need to reach students earlier than high school. Are you one of them? Are you willing to help develop with a large-scale program to reach elementary or middle school students? What is the answer?

Where do we go from here with regard to the current requirement of Nevada's four-year Land Surveying degree? There seems to be some discussion out there regarding this issue. Is it time to revamp that requirement and bring something to the table that actually produces Nevada Land Surveyors? Or, is it time. After the last five years to go all in with the existing requirement of state law? The optics are not very good since the requirement is coincident with continued low graduation rates for surveyors in our own state. Perhaps this issue needs to fleshed out some more at chapter meetings this year and next.

So, given our declining numbers of graduates, technicians, practicing professionals, and NALS members willing to participate, I'd have to say we are in crisis, fellow land surveyors. We have been for quite some time and It's not going to get better unless we come together to figure it out. Before it's too late I hereby challenge each and every one of you to get involved in some way, to help this profession regain its self-confidence, purpose and sense of well-being. ⊗

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