The Power of Ideas
France’s Geodesic Mission to Peru
1735-1744, Part II...Page 6
AND THEN THERE WAS ONE

THE TRIMBLE SX10
A robotic total station plus a high-speed color 3D scanner in one revolutionary instrument.

Call for your demo today!

Bill in Las Vegas
(702) 220-6505

Jeff in Reno
(775) 359-6671

MONSEN ENGINEERING

Trimble
21st Annual USER’S GROUP CONFERENCES

January 24, 2017
Reno, Nevada

January 25, 2017
Las Vegas, Nevada

January 26, 2017
Salt Lake City, Utah

Visit www.monsenengineering.com for more details!
2016 State Association Officers

Alan W. Dill, PLS, President
Stanley Consultants, Inc.
4625 N. Buffalo Drive
Las Vegas, NV 89129
Email: lvdill@msn.com

Jerry D. Juarez, PLS, President-Elect
Manhard Consulting
9850 Double R Blvd., Ste. #101
Reno, NV 89521
Email: JJuarez@manhard.com

Halana D. Salazar, Secretary
1746 Maple Creek Lane
Carson City, NV 89701
Email: razalas4@gmail.com

Doug Wood, Treasurer
Diamondback Land Surveying
6140 Brent Thurman Way, Ste. 230
Las Vegas, NV 89148
Email: DWood@DiamondbackLandSurveying.com

Carl CdeBaca, PLS, Immediate Past President
P.O. Box 1586
Elko, NV 89803
Email: alidade.nv@sbcglobal.net

The Nevada Traverse

Carl deBaca, PLS, Editor, The Nevada Traverse
P.O. Box 1586
Elko, NV 89803
Email: alidade.nv@sbcglobal.net

Executive Office

NALS Executive Office
526 South E Street
Santa Rosa, CA 95404
Email: nals@nvlandsurveyors.org

NSPS Director for Nevada

Paul Burn, PLS
G.C. Wallace, Inc.
1555 South Rainbow Blvd.
Las Vegas, NV 89146
Email: Pburn@gcwengineering.com

Jeff Miller, Director – Southern Nevada
Wallace Morris Kline Surveying, LLC
5740 S. Arville St., Ste. 206
Las Vegas, NV 89118
Email: JMiller@WMKSurveying.com

Jason Fackrell, Director – Southern Nevada
5901 Shining Moon Court
Las Vegas, NV 89131
Email: JasonCordFackrell@gmail.com

Greg Phillips, Director – Lahontan
800 East College Pkwy.
Carson City, NV 89706
Email: GPhillips@LumosEngineering.com

Directors continued...

Justin Moore, Director – Lahontan
Odyssey Engineering, Inc.
895 Roberta Lane, #104
Email: Justin@OdysseyReno.com

Carl CdeBaca, Director – Great Basin
P.O. Box 1586
Elko, NV 89803
Email: alidade.nv@sbcglobal.net

Great Basin Chapter Officers

Christopher S. Konakis PLS, President and Chapter Representative
Email: c_konakis@yahoo.com

Norman Rockwell, PE, PLS, President-Elect
Email: jolenehoffman111@gmail.com

William Nisbet, PLS, Treasurer
Email: tenke@lumosinc.com

Lahontan Chapter Officers

Justin Moore, President
justin@odysseyreno.com

Jeff Miller, President-Elect
JMiller@MKSurveying.com

Russ Wonders, Treasurer
RWonders@GCWEngineering.com

WFPS Delegates from Nevada

Nancy Almanzan, PLS
City of Las Vegas
333 N. Rancho Dr.
Las Vegas, NV 89106
Email: nalmanzan@lasvegasnevada.gov

Matt Gingerich, PLS
NV Energy
P.O. Box 10100 S4B2O
Reno, NV 89520
Email: mgingerich@nvenergy.com
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.”

The publication is mailed to NALS members and similar organizations on a complimentary basis. The Nevada Traverse is not copyright protected. Articles, except where specifically copyright noted, may be reprinted with proper credit. Written permission to reprint copyrighted material must be secured either from the author directly, or through the editor.

Articles appearing in the publication do not necessarily reflect the viewpoints of NALS, its officers, Board of Directors, or the editor, but are published as a service to its members, the general public, and for the betterment of the surveying profession. No responsibility is assumed for errors, misquotes, or deletions as to its contents.

Advertising Policy & Pricing
(Effective September 1, 2016)
The Nevada Traverse is published quarterly by the Nevada Association of Land Surveyors and accepts advertising. Contact the editor for submittal specifications for advertisements. The rates per issue are as follows:

<table>
<thead>
<tr>
<th>MEMBER PRICE</th>
<th>NON-MEMBER PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Issue</td>
<td>Yearly (4x)</td>
</tr>
<tr>
<td>1/8 Page</td>
<td>$70.00</td>
</tr>
<tr>
<td>1/4 Page</td>
<td>$100.00</td>
</tr>
<tr>
<td>1/2 Pg (horiz or vert)</td>
<td>$175.00</td>
</tr>
<tr>
<td>3/4 Page</td>
<td>$240.00</td>
</tr>
<tr>
<td>Full Page</td>
<td>$315.00</td>
</tr>
<tr>
<td></td>
<td>$350.00</td>
</tr>
<tr>
<td>1/10 Page</td>
<td>$200.00</td>
</tr>
<tr>
<td>1/8 Page</td>
<td>$290.00</td>
</tr>
<tr>
<td>1/4 Page</td>
<td>$320.00</td>
</tr>
<tr>
<td>1/2 Pg (horiz or vert)</td>
<td>$400.00</td>
</tr>
<tr>
<td>3/4 Page</td>
<td>$580.00</td>
</tr>
<tr>
<td>Full Page</td>
<td>$610.00</td>
</tr>
<tr>
<td></td>
<td>$405.00</td>
</tr>
<tr>
<td></td>
<td>$730.00</td>
</tr>
<tr>
<td></td>
<td>$950.00</td>
</tr>
<tr>
<td></td>
<td>$1045.00</td>
</tr>
<tr>
<td></td>
<td>$1740.00</td>
</tr>
<tr>
<td></td>
<td>$1745.00</td>
</tr>
<tr>
<td>Inside Front Cover</td>
<td>$810.00</td>
</tr>
<tr>
<td>Inside Back Cover</td>
<td>$290.00</td>
</tr>
<tr>
<td>Outside Back Cover</td>
<td>$400.00</td>
</tr>
<tr>
<td>Web Link - Added to Digital Version</td>
<td>$50.00</td>
</tr>
<tr>
<td>CALL FOR QUOTE</td>
<td>$100.00</td>
</tr>
<tr>
<td>Insertions - Tear Outs</td>
<td>$200.00</td>
</tr>
</tbody>
</table>

SUSTAINING MEMBERSHIP $195 Annually

INCLUDES:
• Complimentary business listing in the Traverse
• Complimentary listing on NALS website
• Member pricing on ads in the Nevada Traverse

Deadlines for submittals are the middle of January, April, July, and October. Business cards of the members will be published in each issue unless otherwise requested.

Running an ad does not imply endorsement of that advertiser by NALS, and the editor reserves the right to not accept ads which may be in poor taste or objectionable to the policies of NALS.

Send ad requests to:
The Nevada Traverse
PHONE 888.994.3510 • FAX 707.578.4406
email: nals@nvlandsurveyors.org

The Editor’s Corner

by Carl C. de Baca, PLS

This issue, prepared in the depths of winter, has a melancholy tinge to it and for that I must apologize. It’s been a cold, wet, gray winter making it hard to avoid Seasonally Affective Disorder. Let me get this out the way before moving on to brighter things. It seems an inordinate amount of death has visited the surveying world in the past year. The Nevada surveying community saw the passing of Gil Patterson, Jerry Tippin, Barry Hickerson, Laura Weatherston and Mark Chilton and we just got word that we have lost longtime NALS member Bart Dalton. Additionally, two NALS members, Jim Rackley and Greg Bigby lost their fathers in 2016. And at the time of this writing, early January, 2017, news has come out that one of the victims of the Fort Lauderdale airport shooting on January 6, Michael Oehme was a surveyor and business owner from Omaha, Nebraska. His wife Kari was a shooting victim as well, though she is expected to make a full recovery. We may not have known him, but he was one of us. Our prayers go out to the widow and may all those we lost rest in peace.

In this issue we continue to follow the exploits of the hardy...
About the Cover...

Upper photo description: A GPS base station sits on the side of Stormy peak in the Snake Range at 8000 feet above sea level. Camera is looking southwest toward the Rubies which are 40 miles distant.

Detail from an 1812 map showing Quito and the double cordilleras ranging south.

eighteenth century French scientist/surveyors who traveled to Peru in Part 2 of Paul Pace’s “The Power of Ideas”. We also take another look at the on-going dust up between the Bureau of Land Management and the State of Alaska Department of Natural Resources regarding public land surveying methods. The issue has reached a new low and impacts could be felt in all PLSS states, including ol’ Battle Born.

It’s time to start talking about the new NGS datum, coming in 2022. This is a whole new animal and signifies the death of state plane, as we know it (good riddance). There are numerous issues for NALS to sort out and come to grips with, including understanding the mechanics, changing portions of the Nevada Revised Statues and Nevada Administrative Code, working with local agencies across the state to help with the adoption of the new datum and boilerplate methods for conversion from old datums. The brief article herein is just an introduction and a request that interested parties please volunteer to help the Advanced Technology and Legislative committees achieve these goals.

We introduce a new feature to the pages of the Nevada Traverse with this issue: the Flash Poll. It represents a chance to hear from the Surveyor on the street. Hope you like it and please, offer feedback on future polling questions.

Electronic BLM Manual
The Manual of Surveying Instructions
2009

Currently available on the BLM website:

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!
The President’s Message

by Alan Dill, PLS

As we begin 2017 there are many things to be thankful for. If we look back to 2009, and remember what had become of our economy, our profession, and our membership, one can easily feel great about where we stand now. Not only has the economy let us get back to work, but many of those who suffered during those times are back in the game. Let’s strive to continue our new growth, sustain a growing membership (220 +) and continue to improve this organization. I am honored to serve as President this year, and work with all of you in keeping the momentum going and keeping the Association strong.

We would like to Thank Carl C. de Baca for his energetic, passionate, and dedicated leadership over the past year, and the rest of the Board for their many contributions. I also want to personally thank Jerry Juarez for his willingness to switch roles this year so he can come back next year and make a fine president. Many of the decisions made over the past year have and will make a lasting difference for the organization. The decision to engage Association Management, create a new NALS Education Foundation, continued strong support of the Great Basin Degree Program, and a strong Conference Committee are just a few. We are as stable as we can expect financially and as mentioned above, we are growing again!

We strongly encourage every member to continue helping to get their peers involved and become members once again. Although we have grown, there are still too many resident Professional Land Surveyors in this state that are not members. The cost of membership is well worth the benefits, and those of us who have been involved for many years know the value of getting to know those peers, and what it does for your career. Those that think it’s not worth the cost are simply losing out.

The conference will be held at the Silver Legacy in Reno April 1st-4th, and we are going solo this year. Please do all you can to attend and join us at this great event. When we do it on our own we need great attendance. If you haven’t been to one of the conferences at the Silver Legacy in the past you simply missed out. The ones I have attended were fun and well worth the cost and trip. The conference committee has once again built a great program for us, so don’t miss it.

One of Carl’s ideas and interests is the Professional Practice Committee (PPC). We did have some discussion about this concept, but further discussions are needed to educate ourselves as to what the role of this committee would be and how it would function. As Carl has mentioned in the past other western states have successfully created these committees. I believe that there could be a benefit to creating this committee, but it needs to be discussed at the chapter level, and further in general before we move forward. One concern I have is the close-knit survey community we have and its small size. Other states that have such a committee have a much larger base and much more to oversee. They simply would have more to professional practice issues that could use mitigation and peer involvement.

As all of you know technological advancements are drastically changing the way we work and how we build our teams. Not only is it changing how we work, but how we think, plan, and approach a project. One of the most drastic impacts of these changes is how we introduce new people to the profession. This remains one of the biggest challenges we face, It has been the dominant discussion over all the years I have been involved in this association. The four-year degree requirement was pushed for all the right reasons, but has proved to be a challenge when it comes to getting new Professionals into the ranks. It is essential that we continue to support the Great Basin Program and get new applicants in the system. We also need a non-professional path and training system for those who are not seeking professional licensure. The CST Program was one of the pathways, but we need other options, and or local solution. We have open chairs for our Advanced Technology Committee, and Continuing Education Committee. Should anyone be interested in helping with either committee please let us know. There is obviously plenty of need for a continued emphasis on attracting new people and adapting to this ever-changing profession.

In closing I would like to thank all of the existing members for their continued support and involvement. I do believe the Land Surveying Profession has a future and will remain an important and vital part of the engineering and development industry. There are challenges as we so well know, but that is why we as Professionals must continue to be involved, adapt, and help develop the future of this fine profession. ☺
NEVADA ASSOCIATION OF LAND SURVEYORS
Meet the Board

NALS President Alan Dill  PLS 7808
Alan was licensed in 1988, and is currently in his twenty-ninth year of Professional Practice. Alan is currently in his fourteenth year as the Survey Manager at Stanley Consultants Inc. in the Las Vegas Office. He is a past President of the Southern Chapter, and current President of the Nevada Association of Land Surveyors. Alan has been active in the association in a variety of roles over the past ten years, and has been a member of the association for over thirty years.

NALS President-Elect Jerry Juarez  PLS 12140
Jerry is in his 36th year of experience and 21st year as a professional beginning his career in Las Vegas with the Bureau of Reclamation. After 5 years in public service he continued his career in the private world. In 1993, an opportunity to manage multiple crews at one of the largest multi-disciplined engineering firms in Las Vegas presented itself which was a turning point in his career. He was licensed in 1996 and continued his career as Survey Manager leaving his home town of Las Vegas in 2003 and moved to Reno. Jerry became involved with NALS while in Las Vegas serving as director, treasurer and secretary of the Southern Chapter and later, in 2008, served as President of the Lahontan Chapter. By far his proudest achievement is starting the NSPS Trig-Star program in Nevada in 2004 and continues to serve as the Nevada Chair and in 2012 was appointed NSPS Chair.

NALS Secretary Halana Salazar  PLS 19042
Halana has served on the Lahontan Chapter Board as Treasurer, Secretary, President Elect, President and most recently as Chapter Representative to the State Board. She recently retired in 2015 as Manager, R/W Engineering for NDOT and is now working part time for Jacobs Engineering. Halana became licensed in 2007.

NALS Treasurer Doug Wood  PLS 16809
Douglas Wood started drawing maps as a title inspector while attending Occidental College in Southern California. After moving to the Las Vegas valley in 1989, Wood attended survey classes at the College of Southern Nevada (then Clark County Community College) and the following year began working in the survey department of G.C. Wallace, Inc. Over the next decade, he specialized in determining property boundaries, researching and writing legal descriptions, ALTAs and AUTOCAD mapping. Wood became a licensed Nevada Land Surveyor in December 2004, and he has been an active member of the Nevada Association of Land Surveyors (NALS) since that time. In 2012, he joined the Board of the Southern Nevada Chapter of NALS as a Director and remained on the SNALS Board until 2016, when he served as President after having held three of the four officer positions. Doug is currently the Director of Mapping at Diamondback Land Surveying.

Has Your Contact Information Changed?
Change in your address, email address, or telephone? Please contact NALS with your updated information.

You may log onto the NALS Website at: www.nvlandsurveyors.org
Go to: Update Contact Info.
Fill in your information and submit.

Help your NALS Board to keep you current.

Thank You!
The Power of Ideas
France’s Geodesic Mission to Peru
1735-1744, Part II
By: Paul S. Pace, PLS

In Part I we saw that the French sought to put to rest the debate over the shape of the Earth. They proposed a survey expedition to the Equator for the purpose of measuring a meridional arc. Comparing this survey with earlier ones done in France should solve the issue.

Sailing For the New World

In May of 1735, the Academy members set sail aboard two French ships, intending to rendezvous with the Spaniards at Cartagena, on the north coast of modern day Columbia. The Spanish officers arrived on time, but the French were delayed in Saint Domingue, today’s Haiti, for three months. Bouguer hired a personal servant, while Godin, who had a reputation as a ladies’ man, wasted little time involving himself with a prostitute. He lavished expensive gifts on the woman and provided for her upkeep. Those expenses he took from the expedition’s operating funds, an accusation he later denied. He ordered Morainville to paint her portrait and purchased for her a diamond worth 3000 livres, or about $27,000 today. That extravagance was the last straw and caused a serious rift between Godin and the others.1

Moreover, Godin was proving ineffectual as a leader. Everyone chaffed under his management, including Verguin, an experienced surveyor and cartographer for the French Navy. He found Godin’s behavior increasingly insufferable and said so. Despite the clash of personalities, they continued to make observations for latitude and longitude, magnetics, etc. Completing their observations, they once again got under way. After making a difficult crossing of the Isthmus of Panama, they boarded a Spanish merchantman bound for Peru.

Putting in on the Peruvian coast, the expedition broke up, with teams working inland via different routes to Quito, administrative center for Spain’s Viceroyalty of Peru. Bouguer and La Condamine remained behind to construct a plane table map of the area’s coastline. At Cape Lorenzo, which they mistakenly believed to be the westernmost point of the continent, they observed a lunar eclipse for longitude. The two men also made careful studies of atmospheric refraction, knowledge which would be useful to them later. 2 They determined where the Equator crossed the coastline, inscribed a large boulder to mark the place, and made for Quito.

The entire expedition was reassembled in Quito by summer of 1736, just over a year after leaving France. At that time Quito was still in Spain’s Viceroyalty of Peru. Figure 4. Once there, they found themselves behind schedule, caught up in some ugly local politics and short on cash. One thing they did not lack for, however, was hubris. They saw themselves as enlightened, better educated and more cultured than the locals. Some of them were particularly ungracious about it. There would be deadly consequences as a result. Fortunately for the expedition, La Condamine brought along letters of credit, making sums of his personal fortune available until more funds could be sent from France. The project inched forward. Bouguer assumed tacit leadership of the expedition, as Godin was clearly incapable of continuing in that role.

Settling in at Quito, they began astronomical observations for latitude and longitude. They surveyed the city and Morainville constructed a map. In June, Verguin and his young assistant Jacques Viruier-Couplet, set out to find a location for the initial triangulation baseline. After a two-month reconnaissance, they found it on the plains of Yarurqui, about twelve miles north of Quito, and very near the Equator. There was an 800-foot difference in elevation between the end points, but it was the flattest place they could find.

Indigenous locals were hired on as porters and laborers. Under the relentless equatorial sun, they cleared the baseline and set posts on the line. The expedition seemed to be moving in the right direction, but in September, Viruier-Couplet contracted an undiagnosed illness. Despite Jussieu’s best efforts, he died two days later. They soldiered on, observing for longitude the same night they held young Viruier-Couplet’s funeral.

Figure 4. Detail from an 1812 map showing Quito and the double cordilleras ranging south. David Rumsey Map Collection

CONTINUED ON NEXT PAGE
In October of 1736 they went to the field to measure the baseline. Bouguer and Louis Godin agreed to divide into two measuring teams, each equipped with three 20-foot long wooden measuring rods, their ends protected from wear by copper sleeves. These rods were painted in different colors and were laid down in the same sequence throughout the measurement. The rods were also checked daily against a standard, the iron bar La Condamine brought from France, which they christened the Toise du Perou. The baseline’s termini were marked with large millstones. The teams measured the baseline from opposite ends, 20 feet at a time. The total length came to 7.9 miles, with a difference between the two parties’ lengths of 0.25 foot.

The site for a second baseline was selected at the south end of the proposed chain of triangles, at Tarqui, near the town of Cuenca. All parties agreed to the location. This baseline would eventually be measured in the same fashion as the northern one. The actual measurement was put off until the triangulation was completed and the baseline could be used as a final check on their work.

With the northern baseline complete, siting the triangulation stations was next. Bouguer began a reconnaissance north of Quito, while Verguin went south along the towering, parallel cordilleras, to set out instrument marks and prepare campsites. After returning to Quito, the teams compiled the layout and strength of figures for the chain of triangles. The hard work was now at hand.

**Setbacks**

In November of 1736, La Condamine received a letter from France bearing disappointing news. The Academy decided to mount another expedition, this time to Lapland, near the Artic Circle. Measuring a meridional arc in this remote, northern region would provide a larger contrast with the results from Peru. An expedition to Lapland would be in and out before the Peruvian expedition could even complete their triangulation work. Their thunder would be stolen.

The expedition to Lapland was launched in May of 1736. Pierre Maupertuis, member of the Academy of Sciences, noted French mathematician, man of letters and former cavalry officer, led the expedition. With him went Alexis Claude Clairaut, another mathematician of standing, the cartographer Charles Étienne Louis Camus and the scientist Anders Celsius, of thermometer fame. They put to sea at Dunkirk, France and made for Tornio, in northern Finland.

All through the preliminary work in Peru, the massive volcanoes loomed in the distance. Now the teams would have to scale the peaks, taking their extremely heavy instruments, and all other necessities, with them. The rift between the members of the expedition persisted. Bouguer and La Condamine formed one team, content to leave Godin and the Spaniards to form another. This icy and counterproductive situation would cloud the work for years. The relationships were so strained that they found separate living quarters in town and resorted to writing letters to one other to communicate.

Angular measurement was done with the quadrants. These instruments ranged in radii from 21 inches to 36 inches and were fitted with telescopes. The instruments were reported to have an angular precision of 20”.4 They were mounted on heavy cast iron stands, with the larger quadrants weighing as much as 300 pounds. The teams built targets of wood, guyed with ropes, covered with canvas and whitewashed with lime. These were large enough to be seen through their instruments’ modest telescopes at 30 miles or more.

The first triangle in the chain started with occupations of Pichincha and Pambamarca volcanoes, which both had clear lines of sight to the base line at Yarurqui. Pinchincha is 15,695 feet above sea level and remains an active volcano to this day. Pambamarca is an extinct volcano whose summit reaches 13,500 feet.

Ascending Pichincha, Bouguer and his team trudged the last mile to the summit through the permanent snow and ice fields. Upon arriving they found a small hut prepared the year before by the advance team. They set to work building sights and making meteorological observations. It was cold, very cold at night. And it was cloudy. So cloudy, in fact, that despite remaining on the peak for most of September 1736, Bouguer and his companions could not record a single angle. The baseline and all the other stations were obscured with clouds or fog. They had no way of knowing that they were in the Intertropical Convergence Zone, a region of a more or less permanent band of clouds, frequent thunderstorms and heavy precipitation that circles the Earth at the Equator.

After 23 consecutive days of low clouds and fog, Bouguer and his company called it quits and returned to Quito, as did Juan and Godin’s team on Pambamarca. Enduring harsh conditions, the teams also were suffering from something far more insidious, something they had no idea existed: altitude sickness or high altitude pulmonary and cerebral edema. Attempting to work in diminished oxygen and low barometric pressures, the men dealt with swelling brains, nausea and vomiting, confusion, bleeding gums and lethargy that was at the edge of life threatening.

The indigenous workers they hired to assist them did not suffer like the Europeans. While acclimatized to the altitude, they nevertheless descended to a lower elevation each evening, while the Europeans remained encamped at the triangulation stations. They also chewed coca leaves, or drank mate, the tea made from coca leaves, which alleviated some of the symptoms of edema. The French mission was so abstruse to them as to be pointless. Eventually, tired of fighting the cold and the strange ways of the Europeans, they deserted the project. Ascending above 14,000 feet, the surveying teams had climbed higher than any European had, on any mountain, anywhere. Still more summits awaited them.

After several days of rest in Quito, the men reconsidered their plan. They now realized the summits were too cloud-bound to be occupied. Instead they would attempt to site new stations a little lower on the volcano’s slopes, still high enough to take sights on the distant stations but below the cloud cover. Bouguer lowered his mark on Pambamara to an elevation of 13,500 feet and again attempted to cut angles to the baseline and Pichincha. For two months they waited in the cold for the clouds to clear away and again were denied. Adding to the frustration was the frequent disappearance of the backsights, blown down in high winds or removed by local indigenous people, happy to find rope and a little wood in the treeless highlands. By November of 1736, all the teams were back in Quito, frustrated and empty-handed.

In early 1737 they set out again, nearly two years on and not a single angle turned. By now they had packed up the steep sides of Pambamara and repaired or replaced the sights seven times. Eventually, the exasperated
Bearing Trees in the Sky – Follow up one year later

Last year we ran an article entitled “Bearing Trees in the Sky”. It discussed a controversial memorandum from the BLM’s Chief Cadastral Surveyor to the State of Alaska’s Chief Cadastral Surveyor. The BLM was proposing to essentially stop setting monuments on new surveys in Alaska in favor of establishing and publishing geographic coordinates for corner positions. For reasons that should appear obvious to any surveyor who works with boundaries and understands the position that monuments occupy in the hierarchy of land adjudication, Alaska, NSPS, WFPS and NALS all expressed opposition to this proposal.

This magazine predicted that if this battle was not won on the ground in Alaska, that non-monumented BLM Original Surveys, “may someday rear [their] head in a township near you.”

Well, that someday is here. Outgoing BLM Director Neil Kornze has announced that in Alaska and “nationwide” they are going to start performing original surveys in such a fashion as to all but eliminate normal monumentation by implementing their Direct Point Position Survey or DPPS, whereby geographic coordinates take the place of monuments, and take on greater importance than platted bearings and distances. Following is a letter from December 2016 from the Director of the BLM (since resigned) to the Governor of Alaska outlining the new method and noting that they will be rolling it out across the nation. Also contained is a press release from the Alaska Department of Natural Resources opposing the new BLM plan. Readers are encouraged to review the documents and form their own opinions as to what this all means to us in Nevada, where 30 percent of the state is still unsurveyed.
Why NALS Should Oppose...

Why NALS should oppose the DPPS policy outlined in the letter from BLM Director Kornze to the Governor of Alaska

One Nevada surveyor’s opinion.

Some 86% of Nevada is comprised of Public Lands and of that 60.8 million acres, according to the BLM’s own website, an estimated 30% (18.2 million acres) has never been surveyed by the BLM or its predecessor, the General Land Office. Nevada therefore has a huge stake in any policy that the BLM adopts with respect to how new surveys will be completed and monumented. (Although let’s face it, much of the Silver State is likely to remain unsurveyed until the sun has shrunken to nothing more than a warm rock.)

Nevada is sparsely populated and even more sparsely fitted with the kind of GPS control and continuously operating base stations needed to accommodate real-time coordinate establishment. But that is hardly the main reason why DPPS is a bad idea.

Datums change and continents drift. Nevada’s rough and beautiful terrain is largely the result of a thinning, spreading crust pushing up wrinkles that we call mountain ranges. True, this takes place over millions of years, but movement continues to occur nonetheless and it can be tracked over time measured on a human scale. A coordinate is a poor substitute for a monument when it represents a different point on the earth as time goes by.

When establishing his policy of “bring[ing] cadastral survey into the 21st century”, outgoing BLM Director Neil Kornze apparently did not read or read but did not comprehend the following passage taken from his own agency’s bible, the 2009 BLM Manual of Surveying Instructions:

4-2. The law provides that the corners marked during the process of an original survey shall forever remain fixed in position, even disregarding technical errors that may have passed undetected before acceptance of the survey. The courts attach major importance to evidence relating to the original position of the corner, such evidence being given far greater weight than the record relating to bearings and lengths of lines. The corner monument and its accessories constitute direct evidence of the position of the corner...

The legal importance of the corner makes mandatory the workmanlike construction of lasting monuments skillfully related to natural objects or improvements so that the greatest practicable permanence is secured.

News Flash Neil: a coordinate is not “direct evidence of the position of the corner” no matter how badly you want it to be so. And if selected cadastral staff supported this idea, as Kornze’s letter asserted, they must have bent linear reasoning into a Mobius strip to do it.

Now the sad truth of all this is that the government wants to spend less money on surveys than it has traditionally spent. It’s that simple. The DPPS is a scheme to cut costs, masquerading as a high-tech advancement in cadastral survey methods. Let’s hope that most of BLM cadastral staff are not drinking the Kornze Koolaid, and let’s also hope that the new director, when appointed, has at least a rudimentary ability to understand and appreciate the importance of physical monumentation with respect to our nation’s 250 plus years of accumulated boundary case law.

But just in case, let’s remind them. Provide your contact information and submit your comments to: director@blm.gov.

Carl C.de Baca January 2017

BLM Announces Kornze Resignation

WASHINGTON, D.C. — The Bureau of Land Management on Friday announced two key leadership positions, including a replacement for Director Neil Kornze.

BLM veteran Kristin Bail will serve as the agency’s acting director upon completion of Kornze’s tenure, and Jody L. Hudson has been selected as the assistant director for Human Capital Management.

Kornze is stepping down on Jan. 20 with the transition to the new administration, and Hudson succeeds Carole Carter-Pfisterer, who retired from the BLM last month.

Kornze, who was raised in Elko, was nominated in 2013 by President Obama to be director of the agency. He had been the BLM’s principal deputy director and previously served as a senior policy adviser to U.S. Sen. Harry Reid.

-excerpted from the Elko Daily Free Press
**FLASH POLL**

*What’s the Word on the Street? Find out with the new Traverse Flash Poll!*

**WHAT DOES THE TERM ‘MATERIAL DISCREPANCY’ MEAN TO YOU?**

**Respondent 1:** Material discrepancy means to me, most often, a difference between a plan location and an actual measured location that is, in my professional opinion, too great to accept as being within acceptable tolerance. My personal litmus test is “could I defend this in court?”

**Respondent 2:** I consider material discrepancy to be ambiguity within a document; 2 or more documents that contradict each other; or monuments on the ground that do not match the recorded document.

**Respondent 3:** For position of a monument, it’s like Justice Potter Stewart’s definition of pornography, “I know it when I see it.” I guess that means case-by-case analysis. When you’re talking about a tenth of a foot or less in measurements, calling another surveyor out seems presumptuous. Also I believe ‘material discrepancy’ can apply to the character of a monument. The map says capped 5/8” rebar but I find a ¾” iron pipe with no tag. That’s a discrepancy that I’m going to have to consider.

**Respondent 4:** What Material Discrepancy mean to me is when I’m following the footsteps of previous surveyors and finding that they don’t agree with each other by a tenth or two. I just want to laugh and think what are we doing, building a Swiss watch? It just makes me think oh I can measure better than you because I have the latest and greatest bells and whistles of a new piece of equipment.

**Respondent 5:** A difference in the character, (rebar, pipe, scribe, capped, tagged) of a monument placed as an original or retraced monument. // A difference between a record deed call or platted line and the measurements between original monuments. This is subject to the individual surveyor, which is a discussion for a different time. // If you find or set something that is not shown in the public record.

**Respondent 6:** Material Discrepancy has many different parts as I see it. The one that come to mind first to me is the physical characteristics of the actual monument. I believe that the monument found in the field should match what is purported to have been set by the surveyor. For Instance, the type of material, its size and the land surveyors registration number are all key components in your analysis of whether the monument can be classified as original. All too often in the last few years I have run a cross monuments set in the field that do not match the character of the original surveyor and have nothing filed that can explain how their position was determined. I am ashamed to say that my mentoring had led me to do this on more than one occasion. I have since seen the error in my ways. I ask you this question, How is another surveyor supposed to confidently rely on this monument? Material discrepancy also commonly seen in the bearing and distance of measured lines. What your tolerances are seems to vary from surveyor to surveyor.

One of the responses to this poll was so comprehensive that it justified its own separate place in the magazine, along with the lifting of the veil of anonymity. I refer of course, to the excellent editorial on Material Discrepancy by Dan Church, found elsewhere in this issue. -Ed

**NV-BPELS Meet and Greet**

NALS in conjunction with NvSPE held two Meet and Greet Events with the Nevada Board of Professional Engineers and Land Surveyors (NV-BPELS) in the Fall of 2016. The first was held at Sierra Gold on Jones in Las Vegas on September 7. The second event was held November 9th at Silver Legacy in downtown Reno.

The Las Vegas event, which saw attendance of over 50 professional engineers and land surveyors, was hosted by NvSPE and drinks and hors d’Oeuvres were served. The Reno event was hosted by NALS and saw attendance of 30 plus professionals. A cash bar and salads/prime rib were served. Both events allowed attendees to sit in an informal environment and chat with the board members while enjoying the food and beverages.

Patty Mamola, the newly installed BPELS Executive Director emceed the proceeding and chair Christopher Roper P.E. spoke in both locations as did Surveyor members Robert LaRiviere and Michael Kidd. Attendees were introduced to new Board Compliance officer Ryan Mulvany who described some coming changes in the random auditing of continuing education reporting.

Both events were very worthwhile and worked toward fostering a closer relationship between the two host organizations and the Board. Thanks go to Dr. David James of NVSPE, BPELS Executive Director Patty Mamola and our own NALS Central Office for putting this all together. -Ed

---

**Western Federation of Professional Surveyors<br>Visit our website for more info<br>www.wfps.org<br>**
Program Statement

The Land Surveying and Geomatics program is committed to addressing the diverse and constantly changing needs of students throughout Nevada and in other locales who are preparing for a geomatics career by improving teaching methods, techniques, and content for delivering high quality educational experiences and achieving student success.

- 2 year AS Degree in Land Surveying and Geomatics
- 4 year BAS Degree in Land Surveying and Geomatics
- Quality of Instruction: 100% pass rate on the NCEES Fundamentals of Surveying Examination
- Competitive Wages: average graduate mean salary $50,000 - $75,000
- Affordable: average graduate student loan debt $0 - $5,000
- Accessible: program offers 100% of the courses online and through mentoring programs.
- 2015 LSG graduate survey ranked the quality of this program as “excellent”

Great Basin College
Land Surveying/Geomatics Program
Great Basin College
1500 College Parkway, HTC 130
Elko, Nevada (USA) 89801
Phone: (775) 753-2344
www.gbcnv.edu
DATUM 2022: NALS Needs you!

Ahhh, The new NGS Datum. 2022 Seems like a long way off but given the amount of work to do between now and when it becomes the national datum, NALS, like other state organizations across the country, needs to get busy. Doing what, you might ask. This is a change to horizontal coordinates and to the vertical datum throughout the country. A look at the illustrations at the NGS Website https://www.ngs.noaa.gov/datums/newdatums/WhatToExpect.shtml indicate that our elevations will be dropping by something less than a meter. This will have impacts in FEMA mapping and flood certifications.

NALS, through its Advanced Technology Committee, will need to develop a complete understanding of the ramifications of implementation and then in conjunction with the Legislative Committee will need to evaluate needed changes to Nevada Revised Statutes (327 and 625 and more…) and develop language to introduce as legislation. That could be a long process and if we wait any longer, we might not meet the goal of being ready when NGS rolls this datum out.

What else needs to be done? Local coordinate systems including Low Distortion Projections already in use will certainly be impacted if not made outright obsolete. The time to start having discussions with local agencies is now, while we have time to work out strategies for conversion to the new datum.

Here is a link to the Frequently Asked Questions page of the NGS new datum website: https://www.ngs.noaa.gov/datums/newdatums/FAQNewDatums.shtml

NALS encourages you to get involved. The two committees cited above will need guidance and assistance throughout the process and liaisons between these committees and local agencies will be critically important. Now is the time for the chapters to start discussing this and developing a strategy. Don’t put your head in the sand!

Food for Thought

Excerpted from the 1885 Nevada Surveyor General’s Report to the United States Surveyor General’s office.

370 REPORT OF COMMISSIONER OF GENERAL LAND OFFICE.

CONCLUSION.

Nevada is not by any means a “played-out mining-camp,” as some of the great New York dailies endeavor to make it appear. She is rich in all the precious minerals, has cattle upon a thousand hills, and sheep with fleece as white as snow. The climate is perfectly lovely and cannot be excelled, and as the seasons come and go they are regretted and welcomed. Ten thousand children bless the public schools and good society is enjoyed by all adults. The cost of maintaining a state government, including all expenditures for public charities and public schools, does not exceed $20,000 per annum, and if the actual property of the state was assessed at anywhere near its cash value the rate of state taxation would not be 20 cents on each $100. The people of Nevada are hardy and brave. They ask no sympathy from their neighbors. They will carve their own way to prosperity and aid and assist others as they pursue their journey.

Very respectfully, your obedient servant,  
C. C. POWNING,  
United States Surveyor-General for Nevada.

Hon. Wm. A. J. SPARKS,  
Commissioner General Land Office, Washington, D. C.
New Datums Are Coming!

NOAA is Replacing NAD 83 and NAVD 88. NOAA’s National Geodetic Survey (NGS) will be replacing the datums of the National Spatial Reference System (NSRS) in year 2022, including the North American Datum of 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88). NGS will provide the tools to easily transform between the new and old datums. Read the NGS Ten-Year Plan and visit the New Datums Web page on our site to learn more.

Benefits
The new reference frames (geometric and geopotential) will rely primarily on Global Navigation Satellite Systems (GNSS), such as the Global Positioning System (GPS), as well as on a gravimetric geoid model resulting from NGS’ Gravity for the Redefinition of the American Vertical Datum (GRAV-D) Project.

The target accuracy of differential orthometric heights (heights relative to sea level) in the geopotential reference frame will be 2 centimeters over any distance, where possible.

What You Can Expect
The magnitude of change with the new datums will vary depending on the datum you are using and your geographic location. The new geometric datum will change latitude, longitude, and ellipsoid height between 1 and 2 meters. In the conterminous United States (CONUS), the new vertical datum will change heights on average 50 centimeters, with approximately a 1-meter tilt towards the Pacific Northwest.

How You Can Prepare
- Learn if legislation or other formal documents referencing NAD 83 and NAVD 88 need to be changed in your state.
- Transform existing data to the latest NSRS datums and realizations; i.e. NAD 83 (2011), GEOID12B, and NAVD 88.
- Obtain precise ellipsoidal heights on NAVD 88 bench marks, and visit the GPS on Bench Marks Web page to learn more.
- Require and provide complete metadata on all mapping contracts. See our website at geodesy.noaa.gov for more details.

The new datums will extend across CONUS and U.S. territories. The geometric datum replacing NAD 83 will be consistent with geocentric global reference frames defining latitude and longitude. The geopotential datum replacing NAVD 88 will be based on a gravimetric geoid model, enhanced by data from NGS’ Gravity for the Redefinition of the American Vertical Datum (GRAV-D) Project.
The Nevada Traverse Vol. 44, No. 1, 2017

Godin hit upon an idea: they could use their tents as sights, as the locals seemed to understand that the tents were not to be disturbed, while they regarded the sights as fair game. The plan worked and together with lowering the marks, they soon closed their first two triangles. Three months later they had completed four more triangles. In the process they scaled lofty Cotopaxi, the second highest peak in the area and at 19,347 feet, one of the world’s tallest active volcanoes. They set their instrument mark at 14,485 feet.

While the teams waited on the mountains for a break in the perpetual clouds, they suffered from the intense cold, made worse by fierce winds. Their journals are filled with descriptions of the wretched conditions they were all enduring: miserable rations, swollen feet, chapped and broken lips and racked by symptoms of mind-numbing altitude sickness. Bouguer, for his part, tried to occupy himself during the delays by working on his theories regarding the design of sea-going vessels, birthing the new science of naval architecture.

The expedition’s medics were busy elsewhere. Their services were sorely needed in the understaffed hospitals of Quito. The expedition had encountered the cinchona tree on the initial pack into Quito. Jussieu, the team’s physician and botanist, together with the young surgeon Seniergues and the draftsman Morainville, continued to study the tree’s properties, begun earlier by the ever-curious La Condamine. The Peruvian Indians, who introduced it to Jesuit missionaries in 1620, had long before known the uses of the cinchona tree. The tree’s powdered bark was the source for quinine, known then as now, as a treatment for malaria. La Condamine had also seen the Indians tapping other trees for their unusual sap, which they fashioned into long burning torches and unbreakable bottles. La Condamine sent a sample of the rubber to France for further study.

After a frustrating season in the field, trudging up the steep slopes into the frozen hell awaiting them at altitude, enduring the cold and edema, the teams returned to Quito at the end of 1737. They had made progress, but only with great sacrifice. Much more daunting work lay ahead of them. Yet despite all this, they were no closer to resolving their personality issues. Still, Juan and Ulloa managed to keep the grumpy Frenchmen working more or less together and toward their common goal. For their part, the Spaniards maintained frequent contact with their superiors, appraising them on their progress. They also advised them of the appalling treatment of the indigenous peoples by their colonial overlords.

In the summer of 1738 both teams left Quito and made their way to the 15,720-foot Corazón volcano. Packing up the steep slopes, they reached their mark at 14,150 feet and began joint observations. Bouguer turned angles from the station on Corazón for a month before wrapping up. He then crossed the wide valley and hauled the gear up the much easier slopes of Papa-Urco, reaching the mark at 11,670 feet. With the parties now separated, they began leap-frogging their way south through the network, Bouguer’s party on one side of the cordilleras and Godin’s on the other. Advance teams hauled the tents and camp gear ahead of the observing teams.

In August of 1737, the team that went to Lapland completed their survey and returned triumphantly to Paris. Without the data from Peru, but using previous triangulation results in France, they could state with some certainty that the Earth was indeed oblate, as Hooke and Newton predicted. Aided by a platoon of soldiers from the Swedish Army, they completed the triangulation in just three months. However, on the return voyage they were beset by a storm that threatened their boat. The pilot deliberately ran the boat aground to prevent it from sinking. It took a week to repair the boat, but no lives were lost and they returned to France in good order.

Trumping the hapless Peruvian expedition, Maupertuis quickly published the results of the team’s survey in his book, *La Figure de la Terra*, in 1738. His English language edition of “The Figure of the Earth” was printed in London the following year. Figure 5.

In September of 1738, La Condamine learned of the Lapland expedition’s return to France. The northern mission had surveyed only fifty-seven miles of arc, just under a degree of latitude, far shorter than the two hundred plus miles of survey underway in Peru.

Word of Maupertuis’ triumphant return from Lapland was grim news for Bouguer. For years he believed that Pierre Maupertuis...
SURVEY MARKING PRODUCTS

- SURVEY MARKERS & MONUMENTS
- CONCRETE MARKERS & DRILL BITS
- SURVEY NAILS & WASHERS
- REFLECTIVE TARGETS & PRISMS
- FLAGGING & WITNESS POSTS

THE CHOICE IS YOURS

- You save time
- You save money
- Get everything or one thing from one trusted source.

Shane Gardner, Western Regional Sales Director, 442-444-0119, sgardner@carlsonsw.com
REGISTRATION FORM
Use the form below or register online at: NvLandSurveyors.org/conference.html

NAME

ADDRESS

CITY        STATE   ZIP

PHONE        EMAIL

TEAM NAME: __________________________________________

NAMES OF OTHER BOWLERS IN YOUR TEAM:

2ND NAME __________________________________________

3RD NAME __________________________________________

4TH NAME __________________________________________

5TH NAME __________________________________________

PAYMENT INFORMATION:

Total Enclosed $__________

☐ Check Enclosed (Make checks payable to NLS Education Foundation)

Charge to: ☐ Visa ☐ MasterCard

____________________________________________________
Cardholder Name

____________________________________________________
Account #

TRANSPORTATION
The bowling tournament will be held at the National Bowling Stadium which is across the street from the Silver Legacy. Please meet at 6:00 PM near valet to walk with group to bowling alley.

REGISTRATION

☐ Team Registration (5 people) - $199
  - 2 games of bowling & shoe rentals for 5 people
  - Dinner & Prizes

☐ Individual Bowler - $45
  - 2 games of bowling & shoe rental
  - Dinner & Prizes

☐ Sponsor a Student Bowler - $45
  - 2 games of bowling & shoe rental for 1 student
  - Dinner & Prizes

☐ Gutterball Tickets - $5 each
  - Roll a gutterball for an opponent of your choice
  - Support surveying education

☐ Raffle Tickets – $5 for 10 tickets

Mail to: NLS Education Foundation
526 South E St., Santa Rosa, CA 95404
Phone: (888) 994-3510
Fax to: (707) 578-4406

Authorized Signature

____________________________________________________
Expiration Date - 3 digit ID Code (on back of card)
Our Commitment to Quality and Service Will Always be Our #1 Goal

AERIAL PHOTOGRAPHY
DIGITAL PHOTOGRAMMETRY
DIGITAL ORTHOPHOTOGRAFFY
GEOGRAPHICAL INFORMATION SYSTEMS

NAMO
NORTH AMERICAN MAPPING

2175 Green Vista Dr.
Suite 207
Sparks, Nevada 89431
Tel: 775-673-6000
Fax: 775-673-6010

4011 W. Cheyenne Ave.
Suite B
No. Las Vegas, Nevada 89032
Tel: 702-646-1732
Fax: 702-646-2050

88 Inverness Circle East
Suite B103
Englewood, CO 80112
Tel: 303-792-5510
Fax: 303-792-5512

QUALITY BEYOND MEASURE

EASY ONLINE ORDERING!
Your Satisfaction, Guaranteed.

SURV-KAP.com
SURVEY MARKERS, CAPS AND ACCESSORIES
800-445-5320
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
4011 W. Cheyenne Avenue, Ste. A
North Las Vegas, NV 89032
T. (702) 286-8389
amc.jb@cox.net

Monsen Eng. Supply
1140 Financial Blvd., #400
Reno, NV 89502-2381
T. (775) 359-6671
F. (775) 359-6693
marty@monsenengineering.com

North American Mapping, Inc.
David Gray
2175 Green Vista Dr., #207
Sparks, NV 89431
T. (775) 673-6000
F. (775) 673-6010
dgray@namapps.com

AeroTech Mapping
2580 Montessouri St., Ste. 104
Las Vegas, NV 89117
T. (702) 228-6277
F. (702) 228-6753
leotorres@atmlv.com

Berntsen International, Inc.
PO Box 8670
Madison, WI 53708
Reno, NV 89511
T. (608) 249-8549
www.berntsen.com

NDOT
1263 S. Stewart St.
Carson City, NV 89712
T. (775) 888-7034
F. (775) 888-7203
dhamlin@dot.state.nv.us

Spencer B. Gross of Nevada
Andy Daniels
475 Hill St., Ste. #C
Reno, NV 89501-1816
T. (775) 826-4240
F. (775) 826-5369
andy@sbgreno.com

Paul R. Wolf’s Artisan Surveying Group
Las Vegas Pioche McGill
PO Box 38434
Las Vegas, NV 89133
T. (702) 233-3451
TWolf@ArtisanSurveying.com
www.ArtisanSurveying.com

Nevada Transit & Laser
Mike Riley
5720 S. Arville, #110
Las Vegas, NV 89118
T. (702) 505-3451
mike@rmtlaser.com

Tri-State Photogrammetry
Mitchel E. Bartorelli
1925 E Prater Way
Sparks, NV 89434-8938
T. (775) 358-9491
F. (775) 358-3664
mbartorelli@tristateltd.com

Nevada Transit & Laser
Joe Schneiderwind
745 E Greg Street, #2
Sparks, NV 89431
T. (775) 691-4221
joe@rmtlaser.com

Vertical Mapping Resources, Inc.
Joseph Bartorelli
18140 Wedge Parkway
Reno, NV 89511
T. (775) 737-4343
bartorelli@verticalmapping.com

Become a Sustaining Member Today!
NvLandSurveyors.org
MINUTES

Nevada Association of Land Surveyors Board of Directors Meeting was held on January 13, 2017 at the offices of Manhard Consulting in Reno, Nevada.

CALL TO ORDER
The meeting was called to order by President Carl CdeBaca at 9:20 AM.

PLEDGE OF ALLEGIANCE
President Carl CdeBaca led the Board in the Pledge of Allegiance.

ROLL CALL
Carl CdeBaca, 2016 President
Alan Dill, 2017 President
Jerry Juarez, President-Elect
Doug Wood, Treasurer (present via telephone conference)
Jason Fackrell, Director, Southern Nevada Chapter
Jeff Miller, Director, Southern Nevada Chapter
Justin Moore, Director, Lahontan Chapter
Greg Phillips, Director, Lahontan Chapter

Absent:
Halana Salazar, Secretary
Mark Boge, Director, Great Basin Chapter

Guests:
Matt Gingerich, Past President & WFPS Delegate
Crissy Willson, NALS Executive Office

INSTALLATION OF OFFICERS
Outgoing President Carl CdeBaca installed the 2017 Officers and passed the gavel to President Alan Dill. Alan thanked Carl for his service.

APPROVAL OF MINUTES
MOVED by Carl CdeBaca and SECONDED to approve the minutes of the October 2016 meeting. MOTION CARRIED.

PRESIDENT’S REPORT
Report included in agenda.

President Alan Dill discussed his plan for the year including continuing to grow membership and revitalize committees. Alan made the following committee appointments:

Advanced Education - Carl CdeBaca
Advance Technology - Kevin Almeter, Ryan Martina
Bylaws Committee - Carl CdeBaca
Communications - Jason Fackrell
Conference/Continuing Education - Nancy Almanzan
Ethics - Dave Crook
Legislative Committee - Carl CdeBaca
Membership Committee - Alan Dill
Publications - Carl CdeBaca, Editor

OUTREACH - Jerry Juarez
NOMINATING COMMITTEE - Chapter Presidents
NSPS Director - Paul Burn
WFPS - Matt Gingerich, Nancy Almanzan

The Board of Directors confirmed the following four Principal Directors to the Education Foundation:

Carl CdeBaca
Alan Dill
Jason Fackrell
Jerry Juarez

MOVED by Jerry Juarez and SECONDED to approve President Alan Dill’s committee and Board Education Foundation appointments. MOTION CARRIED.

TREASURER’S REPORT
Financial statements included in the agenda.

MOVED by Carl CdeBaca and SECONDED to accept the financial statements as included in the agenda. MOTION CARRIED.

MOVED by Jerry Juarez and SECONDED to authorize Alan Dill, Doug Wood, Dorothy Calegari, and Christina Willson as signors on the association bank accounts. MOTION CARRIED.

LAHONTAN CHAPTER
Report included in agenda.

Justin Moore and Greg Phillips reported on upcoming meetings of the Lahontan Chapter.

WFPS REPORT
Report included in agenda.

Matt Gingerich reminded the Board that it is time to start looking for teachers to participate in the Teaching with Spatial Technology (TwiST) program. The TwiST program is a great way to introduce teachers to the land surveying profession as a potential career path for their students.

In addition, WFPS will be offering state associations the opportunity for profit sharing on webinars. If you have a webinar topic or speaker recommendation, please contact the WFPS Executive Office. Carl CdeBaca suggested a webinar on the 2022 Datum.

EXECUTIVE OFFICE REPORT
Crissy Willson reported NALS realized a 30% increase in membership in 2016. A list of all licensees has been obtained and a membership drive will be conducted.

The new NALS website has been completed and is in final

CONTINUED ON NEXT PAGE ➤
testing. Upon launch of the site an email notice will be sent to the membership. The new site will provide better functionality and enhanced features.

At the October Board of Directors meeting, the Board authorized a NALS logo store to be developed. The purpose was to provide members an opportunity to buy logo items without having to purchase and store inventory. Crissy Willson reported the store has been developed and it offers items such as jackets, polo shirts, t-shirts, hats, coffee mugs, and more.

Crissy distributed the 2017 “Who’s Who” which lists the contact information for the NALS Board of Directors and the Chapter Officers. (Attached) If you have any changes to the Who’s Who please forward to the Executive Office.

DELEGATION OF DUTIES
Delegation of duties for Treasurer and Secretary were included in the agenda.

MOVED by Doug Wood and SECONDED to delegate duties of Treasurer as outlined in agenda to the Executive Director. MOTION CARRIED.

MOVED by Jerry Juarez and SECONDED to delegate duties of Secretary as outlined in agenda to the Executive Director, pending approval of Halana Salazar. MOTION CARRIED

BYLAWS
Bylaws Chair Carl CdeBaca will be working with the Executive Office to redraft the NALS bylaws. Carl reported there are several items that need to be updated such as NSPS membership and the bylaws need to be reorganized. Draft bylaws will be sent to the Board for review/modification. Once approved by the Board the bylaws will be sent to the voting membership.

CONFERENCE
Crissy Willson reported that the NALS Conference program was close to being finalized. Featured speakers will include Dennis Mouland and Joe Paiva. Crissy reported neither of the featured speakers are available for the Saturday workshop and requested the Board provide suggestions. The Board suggested a workshop on CAD be held as the Saturday workshop. Crissy Willson and Carl CdeBaca to contact CADMasters.

NALS Conference
April 1-4, 2017
Silver Legacy
Reno, NV

AWARDS
A surveymonkey will be sent to the Chapter Presidents for nominating and voting on 2016 awards. It was noted that life memberships were not given for several years and there is more than one member that should be recognized with life membership.

MOVED by Carl CdeBaca and SECONDED to suspend the award guidelines so that each chapter may nominate one life member from their Chapter area. MOTION CARRIED.

MOVED by Justin Moore and SECONDED to grant life membership to Paul Pace from the Lahontan Chapter. MOTION CARRIED.

MOVED by Carl CdeBaca and SECONDED to grant life membership to Bill Nisbet from the Great Basin Chapter. MOTION CARRIED.

ADVANCED EDUCATION
Report distributed. (Attached)

Professor Byron Calkins provided a detailed report on the status of the Great Basin College survey program. The program, completely online, continues to grow.

Carl CdeBaca discussed the need for a second professor which will also allow the program to receive ABET accreditation. The Education Foundation will discuss possible endowments to facilitate a second professor.

LEGISLATIVE COMMITTEE
The Board discussed the budget and the contract amount for lobbyist Nina Laxalt. Although NALS is pleased with the services provided by Nina, NALS does not have the budget for a contract lobbyist. The Board discussed alternatives such as a bill tracking service.

Crissy Willson to draft letter to Nina Laxalt and research bill tracking services.

GREAT BASIN CHAPTER
Report included in agenda.

Chris Konakis is working with Professor Byron Calkins and GBC students on setting a monument at the geographic center of Nevada.

SOUTHERN CHAPTER
Report distributed after the meeting. (Attached)

Jason Fackrell reported on the SNALS Holiday Party which had a good turnout and raised funds for scholarships.

SNALS will continue to meet the third Thursday of the month. A picnic will be held at the end of April and a golf tournament in Mesquite is being planned for October 20th.

NEXT MEETING
President Alan Dill reported that the next meeting will be held in conjunction with the NALS Conference.

ADJOURNMENT
President Alan Dill adjourned the meeting at approximately 3:00 PM. ☺
NALS ANNUAL CONFERENCE & EXPO
April 1-4, 2017
Silver Legacy Resort & Casino
Reno, NV

UNLEASH YOUR INNER SUPERHERO!

FEATURED SPEAKERS:
• JEFF LUCAS
• DENNIS MOULAND
• JOSEPH PAIVA

CONFERENCE HIGHLIGHTS:
• 26 HOURS CONTINUING EDUCATION
• EXHIBITS & VENDOR DEMOS
• SILENT & LIVE AUCTIONS
Does not include preconference workshop.

Monday & Tuesday Luncheons, IceBreaker Reception & Scholarship Auction.

Includes Conference Registration (Sunday thru Tuesday),
Must attach current student ID.

Full-time Student Registration $180 $_________
Includes Conference Registration (Sunday thru Tuesday),
Monday & Tuesday Luncheons, IceBreaker Reception & Scholarship Auction.

Does not include preconference workshop.

Tuesday Lunch and Scholarship Auction
Includes entrance to Exhibit Hall, Icebreaker Reception, Monday Lunch,
Spouse Registration  $180 $_________

OTHER REGISTRATION
Includes entrance to Exhibit Hall, Icebreaker Reception, Monday Lunch, Tuesday Lunch and Scholarship Auction
Full-time Student Registration $180 $_________
Includes Conference Registration (Sunday thru Tuesday),
Monday & Tuesday Luncheons, IceBreaker Reception & Scholarship Auction.

Does not include preconference workshop.

BEFORE AFTER AMOUNT
PreConference Workshop $185 $235 $_____
PreConference Workshop: Saturday (all day) and Sunday (morning)

Conference Only $275 $325 $_____
Conference Only Registration: Sunday (afternoon) thru Tuesday
Includes Monday & Tuesday Luncheons, IceBreaker Reception & Scholarship Auction.

Conference & Workshop $425 $475 $_____
Full Conference Registration: Saturday thru Tuesday
Includes all preconference workshop and conference registration.

Conference One Day $155 $205 $_____
Select Day: Sunday Monday Tuesday
Includes event(s) for day (Sunday/Monday Luncheon, IceBreaker Reception & Scholarship Auction.)

BEFORE AFTER AMOUNT
PreConference Workshop $235 $285 $_____
PreConference Workshop: Saturday (all day) and Sunday (morning)

Conference Only $325 $375 $_____
Conference Only Registration: Sunday (afternoon) thru Tuesday
Includes Monday & Tuesday Luncheons, IceBreaker Reception & Scholarship Auction.

Conference & Workshop $475 $525 $_____
Full Conference Registration: Saturday thru Tuesday
Includes all preconference workshop and conference registration.

Conference One Day $205 $255 $_____
Select Day: Sunday Monday Tuesday
Includes event(s) for day (Monday/Tuesday Luncheon, IceBreaker Reception & Scholarship Auction.)

Optional Activities
Extra Monday Lunch Ticket ______@ $46 $_________
Extra Tuesday Lunch Ticket ______@ $46 $_________
Extra Sunday Icebreaker Ticket ______@ $46 $_________
Extra Monday Auction/Dinner Ticket ______@ $46 $_________
Continuing Education Certificate $25 $_________
Student Assistance Donation (Suggested Donation $15) $_________

Total Enclosed $_________
Check Enclosed (Checks payable to NALS Conference)
Charge to: Visa MasterCard Gov. Purchase Order

Cardholder Name
Account # Exp. Date CID #

Authorized Signature
Billing Address
Mail to: NALS Conference
526 South E Street
Santa Rosa,CA 95404
nals@nvlandsurveyors.org
Fax to: (707) 578-4406

Questions?

PHOTO/VIDEO DISCLAIMER: By registering for and attending this conference, you agree that your image may be taken during the conference and used at any time, without further notification, for printed materials, websites, social media and other marketing purposes.

CONTACT DISCLAIMER: By registering for and attending this conference, you agree that your contact information may be provided to exhibitors for a one-time use in providing you information regarding their products/services.

CANCELLATIONS: To receive a refund on registration fees (less a $35.00 cancellation fee), all cancellations must be received in writing no later than March 1, 2017. Substitutions welcome - additional fees may apply. Contact the conference office at: (888) 994-3510 for more information.
Laurie Nelson Weatherston
Rest in Peace

Members of the South Lake and Carson Valley communities lost a dear friend in October 10, 2016 to an unexpected complication of surgery. Laurie, age 64, passed quietly October 10th at U. C. Davis Medical Center with her husband Scott at her side.

Laurie was born and raised in the Los Angeles area. After successfully battling cancer in her early twenties she completed her studies at Sonoma State earning her BA in Psychology in 1976.

Her interests in running, hiking, skiing, snowshoeing led her to Lake Tahoe in the early 1980s, where she met her future husband Scott Weatherston, and her soon to be stepson Sean. Scott and Laurie celebrated their 27th wedding anniversary on September 17, 2016.


Laurie loved her mountains, often venturing out solo to hike, run and snow shoe in the upper Kingsbury area. She trekked the mountain sides of Virginia City and Kingston to plot out properties for her clients. She would happily share photos of wild horses, goats and fowl she spotted while there to her friends. She was also an avid San Francisco Giants fan, played the piano, acoustic guitar, and flute.

Her love of the out of doors led her to being an active and valuable member of the Douglas County Sheriff’s Search and Rescue (DCSAR) team for 12 years. Along with responding to persons in need she also managed the first aid program for DCSAR and took the lead in providing first aid teams for the many bicycle and running events at Lake Tahoe. Never turning down an assignment, she met the challenges with enthusiasm, in spite of her small stature, all of 95 lbs and 4’11” height. Her close friends often called her “pea-nut”.

Laurie leaves behind her loving husband Scott, sister Kathy Nelson, step-son Sean Weatherston and step-mother Marilyn Nelson. Laurie is preceded in death by her parents Don Nelson and Barbara Eiler, part of a landmark entertainment family headed by her uncle and aunt, Ozzie and Harriet Nelson, and her step-father Martin Sperzel. She leaves behind numerous cousins, friends and her beloved cats, Persia, Wolfie and Yoda.

A memorial and celebration of life for Laurie was held on December 10th, 2016 at 2pm at the Edgewood Tahoe Resort in Stateline, Nevada.

Mark Chilton
Rest in Peace

Mark Chilton PL/PE, of Elko passed away on Nov. 9, 2016 at age 89.

As you no doubt recall, the Traverse profiled Mark earlier in the year, and noted his long service in engineering and surveying in northern Nevada and his generous donation to the Great Basin College, Engineering & Surveying Scholarship Fund.

Mark Chilton was born in St. Joseph, Missouri in 1927. He entered the U.S. Army Air Corps in 1944 and served in the Air Corps for 3 years, stationed in the Philippines as a photo lab technician and aerial photographer. He enrolled at Colorado University in Boulder, Colorado under the G.I. Bill. In 1959 Chilton joined a civil engineering and land surveying consulting firm in Elko, owned by William Settelmeyer PE/LS No. 11. Eventually, he bought the firm from Settelmeyer and rechristened it Chilton Engineering. Chilton specialized in Civil Engineering services and Land Surveying in Northeastern Nevada and was elected as the Elko County Engineer for three terms, and served many small communities in Northern Nevada over the years as either County or City Engineer. Chilton Engineering grew from a two-employee business, one being Mrs. Chilton as secretary, to a firm with more than a hundred employees with offices located in Elko, Reno and Las Vegas, Nevada and Lake Havasu, Arizona.

Under Chilton’s direction the firm had many notable accomplishments including the $45 million Railroad Relocation Project in Elko commonly known locally as Project Lifesaver and the negotiations for funding, and supervision of the design and construction of a $20 million Southfork Recreation Reservoir in Elko County. Chilton retired in the early 2000’s and the firm was acquired by Farr West Engineering in 2012.

Chilton served as the Nevada State President of the National Society of Professional Engineers and served on two boards of the Desert Research Institute of the University of Nevada System. He was a founder and co-donator of land for the campus of the Great Basin College in Elko, and served on its Foundation Board. In 2015, to encourage and support the Civil Engineering and Land Surveying professions, Mark donated the sum of $100,000 to GBC for engineering and surveying scholarships to be awarded to qualified and eligible applicants. To continue Mark’s dedication & service to his adored community of Elko, please consider a donation in his name to Great Basin College, Engineering & Surveying scholarship fund. ©
Your Career Opportunities

Become a Certified Survey Technician (CST)

This four-level certification program indicates official recognition by NSPS that a person can perform surveying tasks at a specific technical level. Certification provides employers with a method of determining job assignments and advancement since certification is an indication of one’s ability to perform specific job tasks. Increase Your Skills. Enhance Your Career Opportunities. Set a Straight Course to Your Future. Become a Certified Survey Technician (CST)!

Training now available at www.learncst.com

ENHANCE YOUR CAREER OPPORTUNITIES

BECOME A CERTIFIED SURVEY TECHNICIAN (CST)

learn more at nsps.us.com
+1 (240) 439-4615 Ext. 112
Lahontan Chapter Report

by Greg Phillips, PLS, President

Wrapping up the last quarter of 2016 the Lahontan Chapter had a good end to the year. We have a 2017 board in place with a couple of fresh faces that I am very excited about. We are looking forward to their input for the coming year. I want to thank the members for allowing me to serve on the board and look forward to continuing my service as the Chapter Representative as well as on special committees.

2017 Officers:
President
Justin Moore, P.L.S.
justin@odysseyreno.com

President Elect
Doug Larson, P.L.S.
dlarson@nvenergy.com

Secretary
Todd Enke, P.L.S.
tenke@lumosinc.com

Treasurer
John Gomez, P.L.S.
johngomez@qdconstruction.com

Chapter Representative
Greg Phillips, P.L.S.
gphillips@lumosinc.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@tristateitld.com

Past Activity
October Meeting: October 12, at the Twisted Fork in Reno. Pat Tami, P.L.S., the President Elect for the NCEES was our guest speaker. This was a well-attended meeting and Pat led a very engaged discussion on the future of the NCEES.

Fall Workshop: November 4th, at the AGC Building in Reno. Gary Kent gave an 8 hour workshop on the 2016 ALTA/NSPS Land Title Survey updates. There were approximately 35 attendees and Gary did a great job as always. Thank you to Gary and the all the volunteers who made this a huge success.

November Meeting: November 9th, at the Silver Legacy in Reno. This Meet & Greet with the NV-BPELS and their new Executive Director, Patty Mamola, P.E. was an introduction to some of the new board members and employees. We as a Chapter are looking forward to closer correspondence with our State Board in 2017.

Holiday Party: December 1, at Pinocchio’s in Reno. Halana Salazar coordinated a fun evening of food and entertainment. The local magician, Justin Impossible, put on a comedy and magic show after dinner. The members that attended donated $350 and the Chapter added $650 for a total donation of $1000 to the Food Bank of Northern Nevada.

Future Activity
January Meeting: January 12, at the Twisted Fork. Our NALS State President, Alan Dill, will be swearing in the new officers and give a “State of the State address.

February Meeting: February 8, at the Twisted Fork. Speaker will be Nick Johnson, NDOT Project Manager. Nick will be speaking about the Lake Tahoe Shared Use Path currently under construction from Incline Village to Sand Harbor.

March Meeting: March 8, at the Twisted Fork. Paul Pace will be giving a presentation on the history of the boundary survey between the United States and Mexico border.

Great Basin Chapter Report

by Christopher S. Konakis, PLS, WRS, President

PAST ACTIVITIES

October Meeting: October 17, 2016 at the Gold Dust West Casino, Elko, NV; 5 members present.

November Meeting: November 14, 2016 at the Gold Dust West Casino, Elko, NV; 5 members and 1 guest present.

December Meeting: December 16, 2016 at the Star Hotel in Elko, NV; Great Basin Chapter 1st Annual Christmas Party.

PLANNED ACTIVITIES

Time and dates for 2017 meetings to be determined by incoming chapter president after officer elections commence on January 8th, 2017.

FUTURE ACTIVITIES

Summer 2017: The Great Basin Chapter plans on monumenting the geographical center of Nevada in a joint activity with Great Basin College. Currently the activity is still in the planning stage but the chapter may request some resources from the state this upcoming year.
Southern Nevada Chapter Report

by Jason Fackrell, Chapter President

Quarterly report for October -December of 2016

1. October General Membership Meeting had the Public entities had our best turn out 50 member attended.

2. November General Membership Meeting had mapping contest Russ Wonders won free room at out Christmas Party

3. December Christmas Party was held at the Sun Coast had in attendance 78 members and wives. Gave away lots of great prizes and gifts. We swear in our new board. Jason Fackrell President, Jeff Miller President Elect, Gene Sawyer Secretary, Russ Wonders Treasure, directors are Nichols Ariotti, Russ Jamison, Dustin Crowther, Russ Hyatt, Randy Mrowicki.

Upcoming activities

1. Our General Membership meetings will be at Arizona Charlie’s on the third Thursday of the months held
   A. January Meeting Speaker Josh Greer speaking on Solutions is building customized solutions designed to automate field collection and processing, freeing companies from being held hostage by their data.
   B. February Meeting Speaker Mike Grill
   C. March Meeting Speaker

2. Survey picnic end of April first of May

3. This year golf tournament is in October in Mesquite October 20th and 21st. We are going to have a pool party, the night before and golf on Saturday. ☺

The Power of Ideas... continued from page 12

news for Bouguer. For years he believed that Pierre Maupertuis had deliberately undermined him professionally, and now his completing this quick, second mission felt like yet another affront. The fact that the Lapland expedition’s effort ultimately paled in comparison to theirs was slim consolation. ☺

End of Part II

(Endnotes)
2 Bouguer sent his refraction observations to Paris, where they were published as “On Astronomical Refractions in the Torrid Zone in 1739.
3 A map attributed to A rowsmith and Lewis, published by Thomas & Andrews, Boston, in 1812 at 1:8,800,000. From the David Rumsey Map Collection and Cartography Associates.

Bart Dalton Rest in Peace

Bartlett C. Dalton, 59, passed away peacefully at home on February 8, 2017 due to complications stemming from his seven year battle with Multiple Myeloma, a blood cancer. He was surrounded by his wife, children, and loved ones.

Bart was born in Cedar City, Utah on November 22, 1957 to Fred and Claire Dalton. He was the third of four children. He had two older brothers Michael and Russell, and a younger sister Cara, whom he loved to pick on. He spent the early part of his youth in Parowan, UT before moving to Washington, UT. He graduated from Dixie High School in 1976. He loved playing sports, cruising the boulevard with his friends, and working on cars. Bart married the love of his life, Patricia Hobbs on May 20, 1978 and sealed for time and all eternity in the St. George Utah LDS temple on November 22, 1985.

Bart was a highly regarded land surveyor licensed in both Nevada and Utah. He worked in the private sector for a number of years, but ended his career as the City Surveyor for North Las Vegas. He loved his job and was dedicated to it until he was forced by illness to take a medical retirement in 2014. He was a longtime member of the Nevada Association of Land Surveyors and served NALS as a past president of the Southern chapter.

He was an active member of the Church of Jesus Christ of Latter Day Saints and held many callings. His favorite was being a leader in the Young Men’s at the time his sons were in the program. He also enjoyed being a leader in the Boy Scouts and taking the young men and his sons on campsouts and hikes as their father and leader.

His greatest accomplishment was his family. He loved spending time with his wife and children, and was always there to support every milestone and success. He is preceded in death by his infant son Brandon and his father Fred. He is survived by his loving wife Patty, his daughter Amanda (Ryan) Stewart, his sons Joshua and Mathew, his mother Claire, and his pride and joy, his grandson Holden.

Funeral Services under the direction of La Poloma Funeral Home were held on Friday, February 17, 2017 at the LDS Chapel in North Las Vegas, NV.

A very sad day. Bart was one of the best. A fine person first and a great member of our Survey community. He will be missed by all who knew him. I will never forget the day he told us in one of our board meetings of his cancer diagnosis. A very emotional and touching moment. Not only was he battling his own cancer but at the same time his wife of 30 plus years was diagnosed with terminal illness at the same time. My thoughts and prayers go out to his children and family. Life sure isn’t fair sometimes.

-‐Alan Dill

CONTINUED ON PAGE 32
Material Discrepancy
by Dan Church, PLS

Editor’s Note (to Dan):

If you go to a corner expecting to find a 5/8" rebar and find an untagged iron pipe there instead, that is a material discrepancy, period. If it fits, and there isn’t evidence to the contrary, then certainly you are free to accept it, even though it has no pedigree – how was it set, when, by whom? I see it very black and white that a material discrepancy, even one that revolves around monuments of unknown origin, triggers the need to file a record of survey. I would tag that untagged pipe, show it on my map as found and accepted (and tagged) and I have now given that pipe some sort of pedigree, beyond what it had before.

So the question is: Does a difference in monument character from the called-for description imply a material discrepancy? This untagged iron pipe in the example is of a different “material” than the 5/8" rebar that was expected and the fact that it does not match the description given on the map is a “discrepancy”, but this does not rise to the legal standard of “Material Discrepancy”.

Material Evidence, That quality of evidence which tends to influence the trier of fact because of its logical connection with the issue. Evidence which has an effective influence or bearing on question in issue is “material”.

Material Evidence is evidence which is material to question in controversy, and which must necessarily enter into the consideration of the controversy, and is determinative of the case.

Blacks Law Dictionary

Things being different is not the standard for material discrepancy. These differences must rise to the level of being “… determinative of the case”. Finding a monument of a different description does not in and of itself change the outcome of the survey. It must be “… evidence which tends to influence the trier”.

Here’s another definition of Discrepancy from The Electric Law Library.

DISCREPANCY
A difference between one thing and another, between one writing and another; a variance.

Discrepancies are material and immaterial. A discrepancy is material when there is such a difference between a thing alleged and a thing offered in evidence, as to show they are not substantially the same; e.g., when the plaintiff in his declaration for a malicious arrest averred, that ‘the plaintiff, in that action, did not prosecute his said suit, but therein made default,’ and the record was that he obtained a rule to discontinue. An immaterial discrepancy is one which does not materially affect the cause; e.g., where a declaration stated that a deed bore date in a certain year of our Lord, and the deed was simply dated ‘March 30, 1701.’

“An immaterial discrepancy is one which does not materially affect the cause…” so it must rise to the standard of affecting the cause.

In the example, you claim that finding a corner that is not marked by the type of monument that is expected is a “material discrepancy”.

So let’s think about this scenario. The first thing that comes to mind is, what is the nature of the monument? It is “original and controlling” or is it simply monumenting a retracement of a prior survey?

A Nevada Boundary Line Adjustment is a fitting example. I say Nevada BLA rather than a California LLA, because a California LLA does have an “original” line, but it does not have “original” monuments, because the LLA is a “paper” line. A surveyor can monument the resulting line and file a Record of Survey but the Record of Survey is not a part of the transaction. Therefore any monuments set are a retracement of the LLA and NOT original to the actions of the property owners. There are no owner’s certificates on the map agreeing to the adjusted line.

In Nevada, we by statute NRS 278.5693, 2 (a) (2) have to monument the adjusted boundary line, which is “original” and the monuments set by the survey creating the adjusted line are “controlling”, when they are: (1) called for (2) identifiable and (3) undisturbed.

So back to our scenario, if the found monument that does not match the physical description given on the recorded map or deed is a point on the “original” line, the differing character of the monument is clear and convincing evidence that someone has “retraced” that line and reset the missing monument. Now this monument is evidence of a “retracement” survey and no longer controlling.

Typically if the monument, that does not match the physical description, is on the exterior boundary it is neither “original” or “controlling” it is just that person’s “retracement” of the boundary of that parent parcel.

For the monument to exercise such control so as to be “… determinative of the case” it would generally need to be an “original” monument that when properly identified and is deemed “controlling”.

Your complaint is with retracement surveyors not filing a map giving public notice that they have set corners replacing “original” corners with their own monuments and not filing a map. Their monuments are by the very circumstances of their existence neither “original” or “controlling” and therefore not “determinative of the case” and therefore are not a “material discrepancy”.

©
Celebrate National Surveyors Week
March 19-25, 2017
Then Join Us At The
NALS CONFERENCE
April 1-4, 2017
HERE
Astoria, John Jacob Astor and Thomas Jefferson’s Lost Pacific Empire

Reviewed by John Thatcher

Copyright © 2014 by Peter Stark
304 pp.; $27.99

Astoria is not a book about Surveying. Rather, it is the largely forgotten account of Astor’s attempt to create a global trading empire by financing and sending two expeditions – one by sea and one by land – to the west coast of scarcely-explored North America. The Pacific hub of Astor’s trading empire was to be a post established at the mouth of the Columbia River: Astoria. Astor launched the two expeditions in 1808, two years after the conclusion of the Lewis and Clark Expedition. Both expeditions met with disaster, in different ways. The book closely follows both expeditions as they make their ways toward their inevitable tragic ends. Their demise was just as much, if not more, the result of arrogance, xenophobia (not to mention native hostility created two years earlier by Meriwether Lewis), bad judgment and bad luck as it was the difficulties inherent in nineteenth century exploration.

By 1808, Astor was already a very wealthy businessman living in Manhattan. Arriving nearly penniless in New York shortly after the Revolutionary War, he went on to make his fortune in the fur trade and in New York real estate. But he had a bigger ambition – a global trade empire. The excellent quality of furs from the wilds of North America were highly coveted by the well-to-do in Europe, but also in China. And certain products from China were equally coveted in Europe and America. Astor commissioned his expeditions, and controlled and communicated with them them as much as was possible, without ever leaving Manhattan.

The cast of characters in the sailing expedition includes:

- Captain Jonathan Thorn – a naval hero hired by Astor to captain the Tonquin around Cape Horn, to the West Coast, and ultimately to China. Thorn was a by-the-book, strict disciplinarian, unyielding, bellicose and dismissive of “savages”;

- Duncan McDougall – a Scottish fur trader recruited from the North West Company, tapped to be second in command at the post to be established on the West Coast, David Stuart and his nephew Robert Stuart – fur traders and shareholders in Astor’s enterprise;

- Gabriel Franchère – a French Canadian clerk who kept a journal of the voyage.

The cast of characters in the overland expedition includes:

- Wilson Price Hunt – a mild mannered businessman tapped by Astor to lead the overland party and be the head of the West Coast hub;

- Donald Mackenzie – Scottish fur trader who was experienced in exploration and who had defected from the North West Company;

- Pierre and Marie Dorion – Pierre was the son of Lewis & Clark’s interpreter Old Dorion. He was half-Sioux and the party’s interpreter. Marie was an Iowa Native woman who was incredibly resilient to the party’s hardships, bringing along two children to boot.

- Ramsay Crooks – Scottish fur trader from Canada who joined the overland party in St. Louis.

This book is so well written that I didn’t want to put it down. Thus, it qualifies for the cliché “page turner”. Even though I was forewarned of the impending disaster of both parties and the entire enterprise, the path to that disaster as told by Stark is a compelling read and historically significant. I noted above that is not a book about Surveying. But lo and behold, our old friend David Thompson makes an appearance in Astoria toward the end.

About the author: Peter Stark lives in Montana and is a correspondent for Outside, has contributed articles to Smithsonian and The New Yorker, and other publications, and has been nominated for a National Magazine Award. He has written several books about explorations – one of which should be of interest to our community: The Last Empty Spaces: A Past and Present Journey Through the Blank Spots on the American Map.

I was interested to learn that after John Jacob Astor retired, he commissioned Washington Irving to write an account of the expeditions. The resulting book, published in 1836, was titled Astoria, or Anecdotes of an Enterprise Beyond the Rocky Mountains.
Out of Adjustment
From the Wild West Chronicles

Newsflash 2095...
Flocks of ravenous man-eating sage grouse, averaging 100kg each, are terrorizing the now-vacant western lands. Another flying station-wagon load of hapless travelers was caught unawares and devoured in the valley that used to contain Winnemucca. Why they ever landed and left their car in the first place is a mystery that is likely to remain unsolved. Investigators won’t go near the site and at this time surmise that someone in the back needed a “potty break”. They should have gone, before they left home.

Background
Once the BLM completed their plan of completely evacuating the rural countryside and relocating all people to walled-in cities, the grouse proliferated. Feeling no evolutionary pressure to remain relatively quick and elusive, the species rapidly grew into flightless behemoths. Years of un-fought range fires created a feed shortage, to which the monstrous birds adapted by becoming predatory. Soon the very range management specialists, biologists and eco-warriors who had championed the grouse had become their prey. Skeletons in remnants of green and tan khaki can be spotted throughout the Great Basin.

Recent Developments
BLM (big Birds Love Meat) spokesman Colonel S. Anders indicated recently that, “the agency cannot afford the loss of anymore surveyors and is conceding that the only way to get any cadastral work done is by taking advantage of the IDPPS*, which keeps the survey personnel out of harm’s way. Beak-related injuries and deaths have decimated Cadastral Survey. We have to approach these surveys differently.”

Recently the birds, increasingly referred to as veloci-chickens, have been seen wandering around the perimeter of some of the few inhabited areas left in the west, plucking unlucky victims from the outskirts of towns from Truckee to Denver. Reno is virtually under siege. Boise is losing an estimated 3 to 4 children every week. No one has been heard from in Cheyenne or Medford in weeks. Because the grouse are federally protected, they can’t be shot, even in self-defense. It is said that nothing short of a 45 long Colt hollow point will slow them down anyway.

The mayor of Salt Lake City was quoted yesterday, “If you see a 200 pound sage grouse peering at you over the low walls that ring the city, for Heaven’s sake, seek shelter immediately. And try not to let them smell the fear.”

On a related note, there is no independent verification yet that a 100 pound Devils Hole Pupfish was seen breaching in the waters of the Death Valley spring. An eyewitness said, “I don’t know if it was a Pupfish, or what, but something sure drug poor Zeke down into that there hole, and he ain’t never come up since.”

Considering a career in range management? Take our advice and think again.

*IDPPS: Indirect Point Positioning Survey. This is a system where a blindfolded Gibbon (at least a GS13 in rank) throws a dart at a map to determine cadastral positions. No monuments are set as a result of the dart-toss.

Tri-State Corner Remonumentation

Over the past year or so, surveyors from Utah, Arizona and Nevada have developed a strategy, raised funds and finally gotten together to re-monument the corner common to our three states. This joint effort of NALS, AZPLS and UCLS, together with the BLM did all the research, the field work, fundraising to get the new granite monument, and formed a work party to set the new monument. Following are a few photos to give you an idea of the level of effort these great guys put into this task. To see more, visit this site: https://www.flickr.com/photos/blmutah/sets/72157672626330643

Dan Webb of the Utah BLM put together a brief summary of the work:

On Friday January 27, 2017, 18 participants from the BLM, Washington County Utah, Utah Council of Land Surveyors, Nevada Association of Land Surveyors, and W.W. Clyde Corp., gathered for a second time. The work this day focused on removing the 1901 State corner and setting the foundation for the new State corner. As the photos show, 1901 GLO Surveyor Carpenter “repositioned and repurposed” the 1870 GLO Surveyor James corner. Carpenter moved it to its current location, inverted and remarked the James monument as the new true position. The 1901 Carpenter corner will be displayed in the Washington County Administrative Offices in St. George, Utah. And ‘ribbon cutting’ ceremonies are being scheduled in conjunction with the UCLS Conference, the morning of Saturday, February 25, 2017

Daniel W. Webb, BLM, Utah State Office
Chief Cadastral Surveyor, Utah
dwebb@blm.gov

Tri-State work party at the beginning.

New monument 2017 – Note button at INTX
ELKO – Elko will be the location of one of eight “open houses” planned this month by the Bureau of Land Management to gather input on its plan to withdraw approximately 10 million acres of public land from mining claims over the next 20 years.

The Elko event is scheduled from 5-7 p.m. Feb. 23 at the convention center. Another Nevada meeting is slated two days earlier in Sparks, while the open houses in other states run from Feb. 13-24.

The proposal follows an initial two-year moratorium on new mining claims.

“This is the next step in a process that started in September 2015 with the successful efforts of the BLM and its state and federal partners to prevent the Greater Sage-Grouse from being listed under the Endangered Species Act,” stated the federal agency.

The draft Environmental Impact Statement analyzes five alternatives, ranging from no action to the withdrawal of approximately 10 million acres of federal locatable minerals in certain areas that the agency says are crucial to the greater sage grouse in six states: Idaho, Montana, Nevada, Oregon, Utah and Wyoming.

“Neither the segregation, nor any subsequent withdrawal, would prohibit ongoing or future mining exploration or extraction operations on valid pre-existing claims,” stated the BLM.

To develop the proposal and its alternatives, the BLM held public meetings in 2015 in the six states to gather information and comments. The BLM also incorporated a mineral resource assessment prepared by the U.S. Geological Survey to help develop a reasonably foreseeable development scenario for the draft EIS.

The proposal was published in the Federal Register on Dec. 30, 2016, and carries a 90-day public comment period that will end March 30, 2017.

The Traverse saw this coming and addressed it in “Saga of the Sage Grouse”, published in Volume 43, No. 1 January 2016. The “Nevada and Northeastern California Greater Sage-Grouse Approved Management Plan” outlines the removal of “anthropogenic” impacts (that’s you and me) from large chunks of public land in Nevada. Similar plans are being implemented in at least five other western states.

There’s old adage about cooking a lobster by putting him in a pot full of water then starting the fire and turning up the heat. The water gradually gets warmer and by the time he realizes he’s in trouble, he’s just about cooked. Well, the bunny-hugging bureaucrats, (or in this case bird-hugging...) at the BLM are using a similar tactic with respect to separating us from our public lands. Step one: two year moratorium on new mining claims over 10 million acres of Nevada. Step two: withdrawal of the land from mining activity of any kind for 20 years.

Step three: expand the restriction from mining activity to all motorized activity except on pre-determined routes. Step four: make it permanent. Step five: find another species to warrant another 10 million acres. Repeat ad infinitum.

Meanwhile...

U.S. Sen. Dean Heller, R-Nev., recently teamed up with Western colleagues to introduce the Greater Sage-Grouse Protection and Recovery Act of 2017, legislation allowing states to implement their own specific conservation and management plans to protect greater sage-grouse populations and their habitats. This legislation, sponsored by Senator Jim Risch, R-Idaho, was also supported by U.S. Senators Mike Crapo, R-Idaho; Orrin Hatch, R-Utah; Mike Lee, R-Utah; and Steve Daines, R-Mont.

“The current heavy-handed sage-grouse plans needlessly impose restrictions on millions acres of land in Nevada alone, threatening our western way of life while doing little to improve habitat. Our legislation allows western states the flexibility to choose the proper methods to improve the sage-grouse population while keeping Nevada’s economic stability and community needs in mind,” said Heller.

Stay tuned.  

-CRC

Bart Dalton Rest in Peace... continued from page 27

As a personal remembrance, I’d like to offer this: Of many memories, one that sticks out in my mind-

Back in 1994, when I had first begun working in the Las Vegas valley, commuting weekly from California, I went to CNLV to search out the City Surveyor, to introduce myself, etc. All I knew was that his name was Larry. At City Hall I learned that the Survey Dept. was over on Brooks Street, a good drive away from there. A man had overheard my questions at the information booth, and as I was going back to the parking lot to figure out where Brooks Street was, he had come outside at the same time. He called me, and introduced himself as Bart Dalton. I believe he worked then at my eventual employer, G.C. Wallace, but he spent 30 minutes enlightening me about surveying in the area, who to see, what to do....he advised me on the best approach to meet the CNLV Surveyor; he told me about NALS and SNALS, and told me to learn the name “Bill Cuddy”! I hadn’t asked him for a thing, he just offered all this, and he became the first friend I made in my move to Nevada. I remember thinking as I eventually drove away (with his good directions to Brooks Avenue!) that he was such a good man. After I was here for a while, I realized I had befriended a gem of a human being. In the more than 20 years since, I never had reason to think anything other than that about Bart- a fine human being! I will miss him.

-Paul Burn
ADVERTISER INDEX
for this Issue

<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berntsen International</td>
<td>16</td>
</tr>
<tr>
<td>Carlson</td>
<td>16</td>
</tr>
<tr>
<td>Monsen Engineering Supply</td>
<td>16</td>
</tr>
<tr>
<td>North American Mapping</td>
<td>18</td>
</tr>
<tr>
<td>Office Depot</td>
<td>18</td>
</tr>
<tr>
<td>Surv-Kap</td>
<td>18</td>
</tr>
<tr>
<td>Vertical Mapping Resources</td>
<td>26</td>
</tr>
</tbody>
</table>

ADVERTISER HOT LINKS

To receive FREE information about products and services from advertisers featured in this issue of The Nevada Traverse, you may log onto the NALS Web Page at www.nv-landsurveyors.org, click on Nevada Traverse, and you will find a hot link to the web sites of all advertisers in this issue. Using these links, you can go directly to the advertiser(s) of your choice for inquiries, to request catalogs, training schedules and information, or placing orders.
NO MORE EXCUSES,
Get to that meeting on time!

HP PageWide XL

Print up to THIRTY
24” x 36” sheets
per minute!

Starting at
$465
per month

Did we mention those are COLOR speeds?

Jerry in Las Vegas
(702) 220-6505

J.P. in Reno
(775) 359-6671