California Surveyor

Winter 2012 *Issue #168*

India

Article by John P. Wilusz, PLS, PE - Editor on page 6

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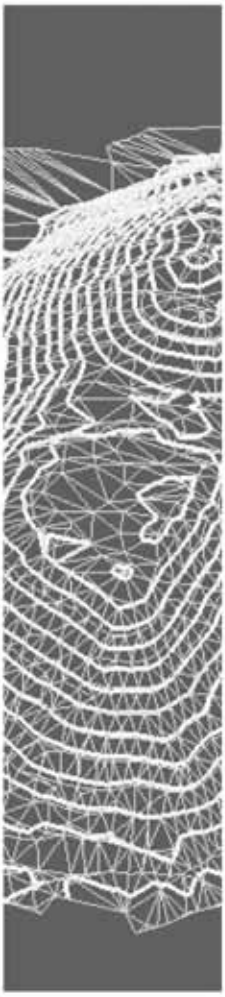

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California Surveyor

The quarterly publication of the California Land Surveyors Association, Inc. and is published as a service to the land surveying profession of California. It is mailed to all Licensed Land Surveyors in the State of California as well as to all members of the California Land Surveyors Association, Inc. The California Surveyor is an open forum for all Surveyors, with an editorial policy predicated on the preamble to the Articles of Incorporation of the California Land Surveyors Association, Inc. and its stated aims and objectives, which read:

"Recognizing that the true merit of a profession is determined by the value of its services to society, the California Land Surveyors Association does hereby dedicate itself to the promotion and protection of the profession of land surveying as a social and economic influence vital to the welfare of society, community, and state."

"The purpose of this organization is to promote the common good and welfare of its members in their activities in the profession of land surveying, to promote and maintain the highest possible standards of professional ethics and practices, to promote professional uniformity, to promote public faith and dependence in Land Surveyors and their work."

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DEADLINE DATES

Spring	February 1	Summer	May 1
Fall	August 1	Winter	November 1

Articles, reports, letters, etc., received after the above mentioned date will be considered for the next edition.

Inside This Issue:

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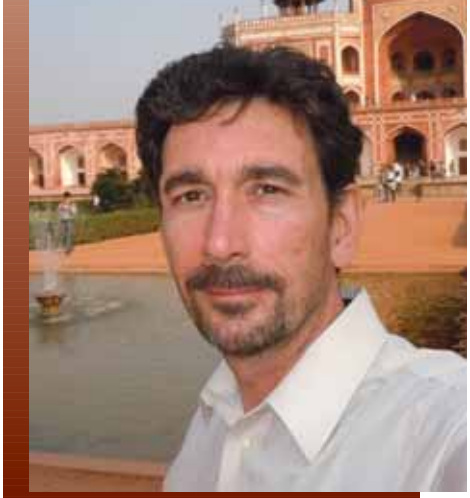
On The Cover:

Vintage photo of a young lady surveyor from the collection of Bryant Sturgess, PLS, PE. See page 46 to learn how you can order this picture and others. Thank you, Bryant, for making your historic images available to CLSA for the benefit of surveying students.



From the Editor

India

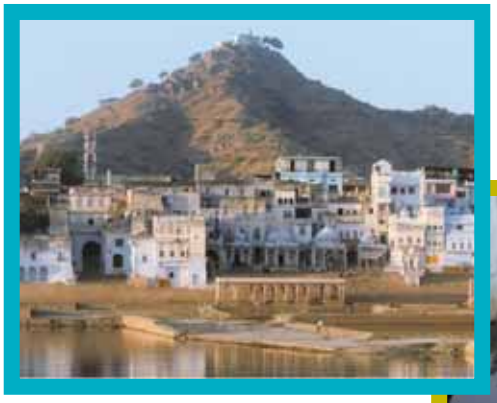
By: John P. Wilusz, PLS, PE - Editor

***John** works in the Delta Levees Program at the California Department of Water Resources in Sacramento, CA.*

In December I visited India on a tourist visa for two weeks. It wasn't a relaxing vacation at all but it sure was interesting. My editorial this issue of the *California Surveyor* consists of three separate stories, all set in India, that share a common theme of service to others. The first is from a book I read during my trip about the Great Indian Arc of the Meridian, a 19th century triangulation network that spanned the subcontinent from south to north. The other two stories are based on my personal adventures on the road – one is about an extraordinary teacher I met and the other is about a charitable organization committed to improving the lot of the rural poor. First the Great Arc.

The Great Indian Arc of the Meridian

My constant companion throughout the trip was John Keay's lively book "The Great Arc – The Dramatic Tale of How India Was Mapped and Everest Was Named." The Great Arc was a 1,600 mile long triangulation network that roughly followed the 78th meridian east of Greenwich. It was surveyed during the first half of the 19th century and it bisected India from its southern tip on the Arabian Sea to its northern border with Tibet. The project was financed by the British, for purposes of mapping a land they were in the process of colonizing. However, the military surveyors who executed the work had a more scientific objective in mind; they were geodesists, passionate about their science, and they hoped to measure the shape of the earth more precisely than ever before. Colonel William Lambton commenced field work on the Great Arc in 1802 and he stuck to it until his death by malaria in 1823 in the jungles of central India. After that his successor, Lieutenant George Everest (whose name is pronounced "**Eve**-rest", by the way) took over and carried the network north another 700 miles to the foothills of the Himalayas. It was upon Everest's survey that the famous mountain, named after him, was subsequently measured and found to be the world's highest. Claiming hundreds of lives and requiring some 40 years to complete, the Great Arc (and its many secondary networks) was widely considered to be one of the greatest scientific undertakings of its day.



William Lambton used hilltop temples like this as triangulation stations.

Lambton began the Arc by measuring a baseline with a steel chain. He continued to measure baselines periodically throughout the survey to check the results of the triangulation. Later on Everest replaced the chain with special bars made from materials that minimized the effect of temperature on the measurements. Angles in the triangular network were measured with the Great Theodolite, a monster of an instrument that weighed 1,000 pounds and stood 6 feet tall. Astronomic observations to orient the network were made with a zenith sector of a similar size. Lambton almost lost the theodolite before he got it; he had it sent from England and the ship it was on was captured by the French. Good thing the French shared the Colonel's passion for geodesy; when they found out what they had captured, they graciously forwarded the instrument to him with a note apologizing for the hold up and expressing their best wishes for his success. The Great Theodolite's next misfortune was getting mangled in an accident. Lambton and crew were heaving it to the top of a Hindu temple when a rope snapped. The idea was to set the instrument on the roof of the temple so as to see over the lowlands to the next stations, some 30 to 40 miles away. Constructing towers for this purpose would not come until much later, during Everest's tenure, when the terrain in north India demanded it. Everest would also introduce the practice of observing angles at night by sighting terra cotta lamps and flares. This innovation had the serendipitous effect of making the dry season, when there were fewer (malaria carrying) mosquitoes, the preferred season to work in the field.

If geodesy was in a primitive state, medicine was even more so. The big killer was malaria, which was thought to come from "unwholesome soils" that caused an "enlargement of the spleen." Remedies from the medical community included the liberal use of tobacco, opium, wine, and spices. Hundreds of workers died on the job but nobody knows how many for sure. The records are spotty because in those days the cost in human lives was a low priority statistic. And as if they didn't have enough to worry about there were social problems with the natives. The folks living along the route had never seen surveyors before and

In some respects little has changed in rural India since the days of the Great Arc.

Continued on next page

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the more they saw the less they liked. Word spread quickly that the surveyors had a device by which they could see things far away in great detail. The potential for mischief was obvious. That the images were inverted made matters worse. The surveyors could not only spy on their women, they could turn them upside down with scandalous results. They didn't appreciate having their wells and temples turned upside down either.

Shortly before he died, William Lambton reflected on his service to the profession he loved:

> *It is now upwards of twenty years since I commenced (the Arc) on this great scale. These years have been devoted with unremitted zeal to the cause of science, and if the learned world should be satisfied that I have been successful in promoting its interests, THAT will constitute my greatest reward. In this long period of time, I have scarcely experienced a heavy hour… A man so engaged, his time passes on insensibly; and if his efforts are successful, his reward is great… If such should be my lot, I shall close my career with heartfelt satisfaction, and look back with unceasing delight on the years I have passed in India.*

An Indian Teacher Inspired by Abraham Lincoln

Shifting gears a bit, this next story is about service through teaching and education. One of my missions in India was to find a school and take pictures of kids in classrooms. My wife teaches first grade and she asked me to take pictures of kids in India to make a slide show for her students. With that in my mind I visited the Raghukul Children's Academy, a small, private secondary school in the city of Pushkar (population about 16,000), in the state of Rajasthan, about 450 kilometers southwest of Delhi. On a warm December morning I walked into the little school, introduced myself to the first adult I saw, and asked if I could speak with a teacher. That's how I came to meet Devipal Shekhawat.

Devipal Shekhawat at the Children's Academy.

Devipal is 34 years old and he has been a teacher for about 10 years. Since the Children's Academy cannot afford a teacher for each class he teaches multiple classes and grades simultaneously. How? He starts in one class by working an illustrative problem on the blackboard (his forte is math and science). He gives a short lecture that covers the basics, assigns work, and then has a high-performing student take over until he can return on his rounds. Then he goes on to the next class and does the same thing. Sometimes he has kids from the higher grades teach the lower grades. All day long he pops in and out of classrooms to present short lessons, answer questions, assign more work, and make sure his students are on track. I visited the school on several occasions and watched him teach grades 6 through 10 using this strategy. Necessity is the mother of invention.

I counted roughly 30 kids in each class, and noticed that in one case two grades share the same room - each class facing an opposite wall. Despite hardships like this five of Devipal's students have gone on to pursue careers in medicine and two have become engineers. Devipal himself does not have a college degee and he has no formal education in teaching. What he teaches today he learned from self-study. On the several occasions I visited his classrooms I watched him teach lessons in geometry, trigonometry, and statistics – math is his favorite subject and he is extremely good at it. But it wasn't always this way. He started out as a common laborer in a remote village with virtually no hope for a better life. Rather than growing bitter about his circumstances, he resolved to help others achieve goals that would be forever out of his reach. His hero is Abraham Lincoln who, he proudly pointed out, also came from a humble beginning, was largely self-taught, and suffered numerous failures on the road to becoming the 16th president of the United States. Others he has studied and admires are Helen Keller and Dr. Martin Luther King Jr. I did not expect to find that in India.

Devipal also provides tutoring every night to kids who cannot afford to attend the Children's Academy. Approximately half of his tutoring students are girls. This is an extraordinary statistic in India, where girls from poor families are often denied an education. Poor kids, both boys and girls, usually have to work during the day to help support their families. They don't have any money for books or supplies, so Devipal helps them raise money several ways. One is by having them make small paper bags out of newspaper, which they sell to food vendors in the outdoor market. The vendors use the paper bags when they sell their produce and thereby reduce, even if by a tiny amount, the number of plastic bags entering the waste stream. This is not only good for the environment, it also helps cows that get sick from eating discarded plastic bags. Devipal's students also make and sell cloth bags for use as bookbags and purses. You can see pictures of Devipal Shekhawat and his students on Facebook.

Empowering Women and Educating Children in Rural India

This last story is about a charitable organization that serves rural populations by addressing issues related to female education, illiteracy, local power generation, water supply, sanitation, and health care, among other things, in India and beyond. My India guidebook, the Lonely Planet, recommended a visit to the inspiring Barefoot College in Tilonia village, a one-hour drive from my hotel in Pushkar. So I hired a taxi and made the trip. The Barefoot College is a non-governmental organization (NGO), run by volunteers and villagers, dedicated to helping the poorest of the poor help themselves. They do this a number of ways. One of the college's many projects is manufacturing parabolic solar cookers, a kind of domestic oven that does not require electricity or wood fuel. During my visit I met the women who build them; they are members of the Barefoot Solar Cooker Engineer's Society and they were happy to show me around. Each solar cooker consists of three basic elements: a parabolic solar panel, 2.7 square meters in size; a mechanical clock (powered by a clock weight); and a metal box that serves as the oven. The operation is simple: The mechanical clock drives the panel to track the arc of the sun throughout the day. As this occurs heat from the sunlight is reflected and focused into the oven. On a cloudless day at local noon the solar cooker can boil a liter of water in eight minutes and the oven can cook food for about eight people. The device has the potential to reduce both deforestation and the amount of time rural women spend preparing food for their families. During six months of training the women acquire basic work skills and are paid a

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India

A solar cooker at the Barefoot College.

modest wage. The cookers are for sale and can be purchased directly from the Barefoot College. My host told me that many have been donated to other charitable organizations, orphanages for example, and several have been sold to engineering schools for use as demonstration projects.

There are other solar projects at the Barefoot College. In fact, the rural campus runs on solar power – it is entirely "off the grid." Solar power provides energy for its 200 lights, 50 computers, fans, and dental chair. Various kinds of solar panels and solar powered devices are manufactured on site. Like the solar cookers, these are built mostly by women. Other skills taught on the campus include weaving, woodworking, and printing. The college has a small medical facility with a dental office where women are trained to be hygienists. During my visit I saw women from India, Sudan, Bhutan, Liberia, Uganda, and Peru. The Barefoot College also operates approximately 150 night schools for children in rural villages. Out of a total of some 4,000 students, approximately 75% are girls. The schools are in session at night because, as mentioned in the previous story, poor kids usually work during the day. Another interesting and educational program for kids is the Children's Parliament. Children who live on the campus are eligible to vote and hold "mock" office, which despite its name comes with real responsibilities. The children participate in the management of the college and thereby learn how to set and achieve goals, work with others and build consensus. Equally as important, they get to see the impact of their decisions. I was told that the Children's Parliament even has the power to dock the wages of staff, provided there is just cause. The purpose of all this is to train young people to be responsible, informed citizens in a democratic society. You can learn more about the Barefoot College at: www.barefoot-college.org

Service in the New Year

The Articles of Incorporation of the California Land Surveyors Association read in part "…that the true merit of a profession is determined by the value of its services to society…" Service is what it's all about. During my trip to India I found inspiration in each of the stories above and now I hope you have too. And speaking of service, my sincere thanks to everyone who helped make 2011 another successful year for the *California Surveyor*. We really do hope you enjoy the magazine. We also welcome your input and we look forward to your articles, pictures, letters, and feedback in the coming year. In the meantime my best wishes to all for a happy and prosperous 2012. ■

Letters to the Editor

Dear Editor,

Re: Issue No. 167, Fall 2011 California Surveyor
Mr. Frank Romero Jr.'s Article, Simultaneous or Sequential Conveyance

While I share a common opinion with Mr. Romano, and his ultimate conclusion that the probable "intent" by the grantor was a simultaneous conveyance and to treat the boundary retracement as such, I am not completely convinced that some of the CLSA forum "responses" that were mentioned such as "the deed with the lower page number came first…." and "that higher credibility /status is given to the first recorded document…" are entirely accurate.

Given past experiences, when such deed conveyances are appropriate, the execution and delivery of a deed is one process by which a real property conveyance is consummated.

In my opinion, the act of recording the deed does not in and of itself validate the deed just as a properly executed and delivered deed is not invalidated because of a lack of recording. The act of recording documents is a means by which to impart notice to all persons of the contents thereof, i.e. the public. The Recorder's Book and Page, or Document Number(s) were developed as an indexing system for the recorded documents and were one of the main prescribed duties of the County Recorder noted as far back as 1850 in the California Political Code Sections 4239-4246.

While the Recorder's Book and Page indexing may be an excellent preliminary guideline to senior and junior rights determinations and also perhaps lend credibility to senior and junior rights in specific cases, they must not be relied upon solely for such determinations.

I trust there are other opinions out there and I welcome any comments or correspondence that might further my education in this matter. I can be reached at m.molini@sbcglobal.net.

Mark E. Molini, PLS ■

Do you have a picture of a "junior surveyor" in your family that you would like to share? Send it in and we will put it in the Kids Korner.

Kids Korner

Nicholas and Alisha Toutges at Stanley Park in Vancouver, British Columbia. In the background, you can see a portion of Lions Gate Bridge, one of two main bridges crossing the Burrard Inlet through Vancouver. Submitted by proud parents Wayne (PLS 7980) and Sherry (LS 7984).

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By: Frank Lehmann, PLS - President

President's Message

First of all, I want to thank you, the membership, for the opportunity to take the helm of what is clearly the preeminent voice of Professional Surveyors in California. I was impressed and pleased to meet many of you on my travels throughout California this past year. I hope this will continue during my tenure as president.

As we head into the New Year, the economy continues to struggle. The economy is clearly of concern to each and every one of us, as the period of overt growth and rapid construction our profession enjoyed is past. What I believe has replaced it, is an environment which clearly requires a review of one's business plan, as well as a willingness to revise that plan as needed, to create new opportunities in the shifting business landscape. What once was a larger project consisting of locating and defining existing property corners for a major subdivision, may now involve finding a single monument for a client uncertain of a property corner. Building up one's client base by branching out into new markets with new or enhanced services is one way to weather the storm. The consolidation of title companies and, in many cases, a reduction or elimination of their "local plants", provides opportunities for surveyors to conduct more title work than perhaps they have in the past. This is a market worth additional scrutiny. Brainstorming to find markets and services is critical to one's success.

Clearly, a threat to the status quo for those of us that utilize and/or own GPS technology is LightSquared, a wireless broadband communications company. Initial tests of this company's transmissions have proven that they bleed over and into precise GPS frequencies, causing a degradation of service. At this point in time, testing continues. A fix or solution may be forthcoming, however who will be footing the bill(s) is far from settled. The unknowns clearly outnumber the known. This can further complicate business plans as we delay procurement of equipment, not knowing if we will be buying a star performer or an obsolete dinosaur. We need more information.

The Professional Development Program (PDP) is championed by many association professionals, who see it as a vehicle for enhancing the professional image of the surveying profession. Regrettably, this free program is still underutilized by our membership. The PDP informs members of instructional opportunities, and tracks those classes for use in keeping members current for "other" out of state education requirements. The PDP also educates (read markets to) potential clients who are utilizing the "find a surveyor" portion of the CLSA website. It highlights the efforts of those individuals who are taking the time to stay current and informed. When a prospective client searches a region for a surveyor, numerous names come up, but only a few have the PDP logo next to their name. It is only natural that those surveyors will garner the first look. That person could be you! There are many opportunities for attending classes and seminars so that one can qualify for the logo. Let's raise the bar for our profession!

Surveying the Future, the Challenges of Change!

What do my comments all naturally lead to? The 2012 CLSA/NALS Conference! The upcoming conference programs being offered are not just for those planning on sitting for an exam, but rather a way to enhance the knowledge base that makes for a well rounded professional. This year, additional business related sessions have also been included. Many members have commented, and the membership rolls themselves speak of surveyors letting their membership lapse, as one can "no longer afford the luxury of paying dues". My thought is that there is no more important time to maintain one's membership. The opportunity to stay current with events and concerns (e.g. LightSquared), to enhance one's knowledge base by attending seminars, and most importantly to make, renew and maintain contacts by networking with peers can all be done by attending the annual conference.

The professional surveyor who investigates and explores new markets, and stays current with topics, equipment, practices and procedures will be best suited for the challenges of the future. I look forward to seeing you at the conference!

Best of luck in 2012. ■

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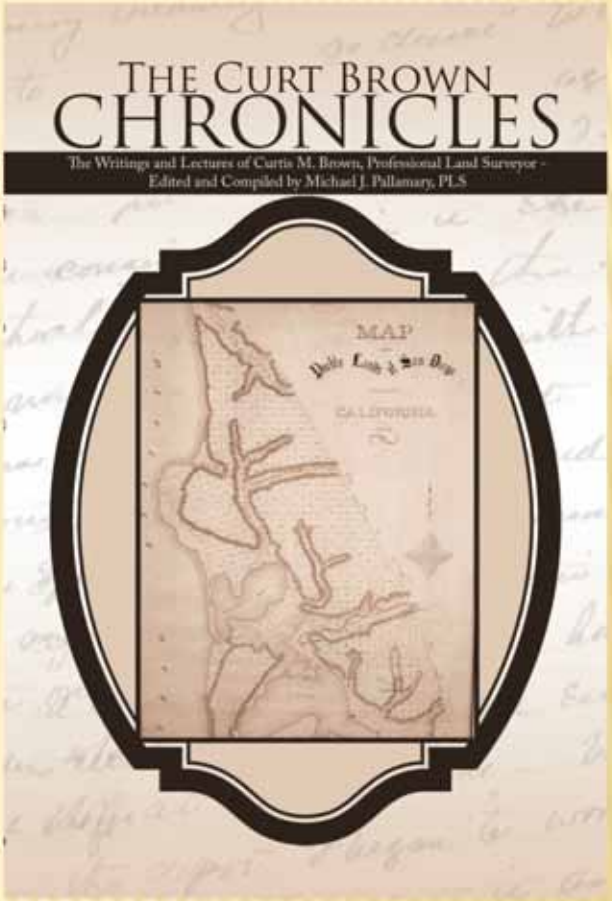
The Curt Brown Chronicles



Curtis M. Brown is best known for his textbooks, *EVIDENCE AND PROCEDURES FOR BOUNDARY LOCATION* and *BOUNDARY CONTROL AND LEGAL PRINCIPLES*. Author Michael J. Pallamary, PLS has compiled the writings and lectures of Mr. Brown in this important addition to every Land Surveyor's library.

The San Diego Union calls *The Curt Brown Chronicles* "a surveyor's bowl of *crème brulee:* The history, science, equipment, ethics and complex law."

Professional Surveyor Magazine notes: "Michael Pallamary has an engaging style of writing. He knows his material . . ."

The Curt Brown Chronicles is available from Pallamary Publications and other outlets including Amazon and Barnes and Noble. An autographed copy can be obtained from Pallamary & Associates - 7755 Fay Avenue, Suite J, La Jolla, CA 92037 in hardcover for $70.00 and softcover for $60.00 including taxes, postage, and handling. Make checks payable to Pallamary Publications. 720 pages - ISBN: 9781452090511.

By: Carl C.de Baca, PLS

Carl C.de Baca *is the owner of Alidade, Inc., Elko, Nevada. He is a past editor of the California Surveyor, and is the current NSPS Area 9 Director.*

National Society of Professional Surveyors

Area 9 Directors Report, Fall 2011

It's a new world. As of April 28, 2012, if there are no last-minute hiccups, the NSPS and the ACSM will be merged into a single organization. Recall, if you will, several months ago, the discussion centered on elimination of the ACSM through dissolution. In the end, the two organizations will have merged, which will allow for seamless takeover of ACSM functions, positions and relationships by the NSPS. This more streamlined organization can better serve the needs of its members and move forward into the future.

Throughout the process of developing a single unified national organization for surveyors, there was much concern expressed about cutting our historical ties to other geospatial groups by elimination of the ACSM umbrella. There was also much concern that our biggest asset might be the name ACSM, an iconic moniker for several decades. These were indeed valid concerns but the truth is that times were passing the ACSM by. A marketing study that we commissioned in 2008 yielded the startling fact that even within the geospatial community it was unclear what the ACSM stood for and what the NSPS stood for and who was responsible for what with respect to the total benefits and services provided. I imagine it was even worse outside the geospatial community. Every year the **ACSM** Joint Government Affairs Committee (JGAC) would organize a lobby day at the nation's capital and every year **NSPS** members would trudge the halls meeting congressional staff. I'm sure these folks wonder, "Which group do you represent?" The truth is there was always only one group, at least in spirit. Now it is the case in fact.

The sustained economic downturn has had an effect on the NSPS just as it has had an effect on your industry, your company and you. Times are hard and people, agencies and companies are cutting back their expenses. This translates to a diminishing membership and decreasing financial support. The NSPS/ACSM merger will allow us to better combat these trends by being a more efficient and cost-effective organization. But I'd be lying if I said we weren't concerned about these trends. Our membership has dropped significantly, not precipitously, but significantly, over the past four years. Attendance at our annual conferences is dropping and support by vendors is decreasing as well. These are vexing developments for an organization that fights for all American surveyors, members or not. We are focused on protecting the profession, educating the professional and developing the future surveyor as well as the future of surveying and yet our message seems not to resonate as clearly as it should.

And so, while we face these various challenges, what are we at NSPS accomplishing, you might ask? Why would we want you to renew your membership if you are a member, or have been previously? Why would we want you to join us if you have not before been a member? The surveying profession faces many threats these days. Only a national organization can be effective as an advocate for issues such as securing funding for vital surveying agencies such as NGS and BLM. Only a national organization can hope to influence policy regarding flood map modernization. Only a national organization can make sure that state and federal agencies do not solicit requests for low bid surveys. Only a national organization can combat survey issues that cross state lines, such as LightSquared. The TrigStar program, the CST program and the ACSM/ALTA standards are examples of extremely successful and vital programs administered by the NSPS. Where would the profession be without a national organization to provide these services?

At the fall meeting, the governor from New York, brought forth a motion, passed with nearly no dissent, to develop a strategy for making all of the members of all the state societies members of NSPS. That this came from the governors is significant in that it means that the states are beginning to recognize that we are better off if we all hang together. While the path to such universal membership is littered with obstacles, the idea is a noble one, and points to a way forward for all of us.

This fall our Lobby Day was focused, as you might imagine, on addressing the threat to high precision GPS posed by LightSquared, whose planned deployment of some 40,000 terrestrial based transmitters would virtually eliminate our ability to use GPS for surveying. We had other issues to discuss with congress, such as asking for funding for height modernization efforts by NGS, coastal mapping legislation, preservation of railroad monumentation and Federal land survey modernization, but as we told our legislators, if we don't solve the first problem, there's not much point considering the others. There were thirty or more individuals involved in Lobby Day

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this year and I think we were pretty successful at getting our message through. I, together with the Nevada governor, Paul Burn, and the proxy California governor, Aaron Smith, paid visits to three senators and two representatives during the course of the day. A special mention must be made of our visit with Nevada Senator Dean Heller, who chatted with us about LightSquared, railroad monumentation and BLM survey modernization for twenty minutes and seemed to take the issues to heart. Senator Heller brought along a member of his staff who specialized in science and technology issues. This staffer was already very knowledgeable about the ethical issues involving LightSquared and the FCC, and was very attentive to the information we provided. After Lobby Day it was discussed that our position on LightSquared has several strong supporters in the Senate including Grassley from Iowa and Roberts from Kansas, and now hopefully, Heller from Nevada. It was noted that in 2011, LightSquared retained the services of twelve different high profile public relations firms and has spent hundreds of thousands of dollars in the DC area bombarding the airwaves and print media with advertisements of all the benefits of their 4G plan. Apparently none of the ads mention the death of GPS.

During the coming months as our merger and reorganization proceeds, we will be moving our central office from Gaithersburg, Maryland to Frederick, where we have found larger, more modern and significantly less expensive quarters. Our annual student competition will be held in conjunction with the Professional Land Surveyors of Oregon conference in March, 2012. Our 2012 conference will again be held in July in San Diego in conjunction with the ESRI Survey Summit. This coming year, Robert Dahn of Connecticut will accede to the presidency of NSPS. The governor from Connecticut, Rick Howard will occupy the chair of the Board of Governors and Mark Sargent, the governor from New Hampshire will take over the BOG secretary duties.

As always, your input is important to me and to the NSPS. If you have ideas, suggestions, questions, complaints, even cocktail recipes, feel free to contact me at alidade.nv@sbcglobal.net

Respectfully submitted,
Carl C.de Baca
NSPS Area 9 Director ■

NSPS

By: Paul M. Brown, PLS

*Licensed in 1982, **Paul M. Brown** founded Adobe Associates, Inc., a Land Surveying/Civil Engineering company in Santa Rosa, CA. When not surveying you will usually find him serving as a per diem Hospice Chaplain, tracking down family genealogy, or digging into local history and trying to piece together one story or another.*

Completing the "Kingsbury Line"

Surveying the Sonoma/Napa County Boundary

Following the Line

For all of the avid readers of the California Surveyor, you may remember an article in the summer 2010 issue (#162) about the Sonoma/Napa County line. This is to follow up on that article and report on the completion of that project. The project was to retrace the 1877 survey of the Sonoma/Napa County Line by J. T. Kingsbury, Deputy Surveyor General under the then State Surveyor General, William Minnis. The reconstruction of this line had long been under discussion in both the public and private survey community in Sonoma County. Often these "dreams" don't ever go much further than that. But in this case the Sonoma County Surveyor and the Monument Preservation Committee of the local Sonoma County chapter of the California Land Surveyor's Association had already established a relationship for preservation of major historical land division lines upon which later surveys are based, such as, but not limited to, government section lines, rancho lines, grant lines, rancho section lines, acreage subdivision lot lines, and subdivision boundary lines within Sonoma County.

In Sonoma County the California Land Surveyor's Association's Monument Preservation Committee acts in an advisory capacity to the County Surveyor in evaluating requests for use of the "Monument Preservation Fund" established by the Board of Supervisors of Sonoma County. Near the end of 2009 the idea was floated for discussion that perhaps the survey of the long discussed county line might be possible to be undertaken by all firms wishing to take part, as long as they were deemed "qualified" by the County Surveyor. And so a draft proposal for such a project was prepared by Paul Brown, PLS of Adobe Associates, Inc., a member of the committee. It was envisioned that multiple private firms could undertake this 52 mile survey along the dividing ridge from the top of Mount St. Helena, southerly to San Pablo Bay.

Under the plan, a few firms would establish a series of control monuments, utilizing GPS technology and return the results on the California State Plane Coordinate System. These monuments would then be used by the rest of the firms handling follow-up surveys. The exact number of firms for each phase was determined following receipt by the County Surveyor of letters of interest from area firms, including a couple of Napa County firms that routinely perform surveys in Sonoma County. Eighteen firms were interested and confirmed for the project. This was ambitious to say the least. How can a project be organized so that 18 different private land surveying firms can efficiently complete such a project? Couldn't one firm do a better and less expensive job than 18? After discussion of the plan, we believed we could establish a plan allowing each firm to work fairly independently, with needed collaboration and coordination handled under clear guidelines, and supervised by the County Surveyor.

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But, first let me refresh the background. The original field notes for the Kingsbury survey (one copy of the original field book is on file with the State Lands Commission and another at the Sonoma County Recorder's office in Santa Rosa), the typed copies of these field notes and copies of the original maps returned with the notes (on file in the office of both Sonoma and Napa County Recorders) provided the "footsteps" for retracement. The "Map of Sonoma and Napa County Line" bears the statement "I certify on honor that this is a correct Map of the Boundary Line between Sonoma and Napa Counties, as surveyed by me under instructions of Wm. Minnis, Sur. Gen. dated Sacramento February 14th A.D. 1877. J.T. Kingsbury, Deputy". The map includes among other things, what appear to be representations of contour lines clearly identifying his line as running along the ridges, peaks, saddles, etc. of the Carneros Mountains. The original field book is labeled "Field Notes of Sonoma and Napa County Line, Rec'd and Filed July 10, 1877" and bears the statement, "I certify on honor that the foregoing is a true and correct copy of the Field Notes of the Survey of the Boundary Line between Sonoma and Napa Counties. J.T. Kingsbury, Depu. Sur. Gen."

A little added history might also be helpful here. During the first several years after becoming a state, the descriptions of the various counties went through some modifications. In the 1851 statutes the boundary of Sonoma County read "Beginning on the sea coast at the mouth of the Russian River……thence down and along the western boundary of Napa County to its termination in Carneros Mountain ; thence in a direct line to the nearest point of Carneros Creek, thence down said creek to its entrance into Napa River; thence down the middle of Napa River…." And the boundary of Napa County read "Commencing in the Napa River at the mouth of Soscol Creek…thence southwardly to the nearest point of the range of mountains dividing Napa Valley from Sonoma Valley; thence southwardly along said range of mountains to its termination in Carneros Mountains; thence in a direct line to the nearest point of Carneros Creek, thence down said creek to its junction with Napa River, and thence to the place of beginning."

In the January 7, 1856 required annual report of S. H. Marlette, Surveyor General, to John Bigler, Governor there is the following: "The 'Act dividing the State into counties and establishing seats of justice therein,' and many of the Acts supplementary thereto are very defective, and while many of their defects are important and demand immediate removal, those of less consequence, being neither useful nor ornamental, should be expunged. The County Surveyors, County Assessors and Boards of Supervisors have been requested to furnish any suggestions for the improvement of the boundaries of their respective counties by substituting natural for artificial [arbitrary] ones, or the lines of the United States Surveys for the present lines, or any other changes with a view to a better and more permanent subdivision of the State".

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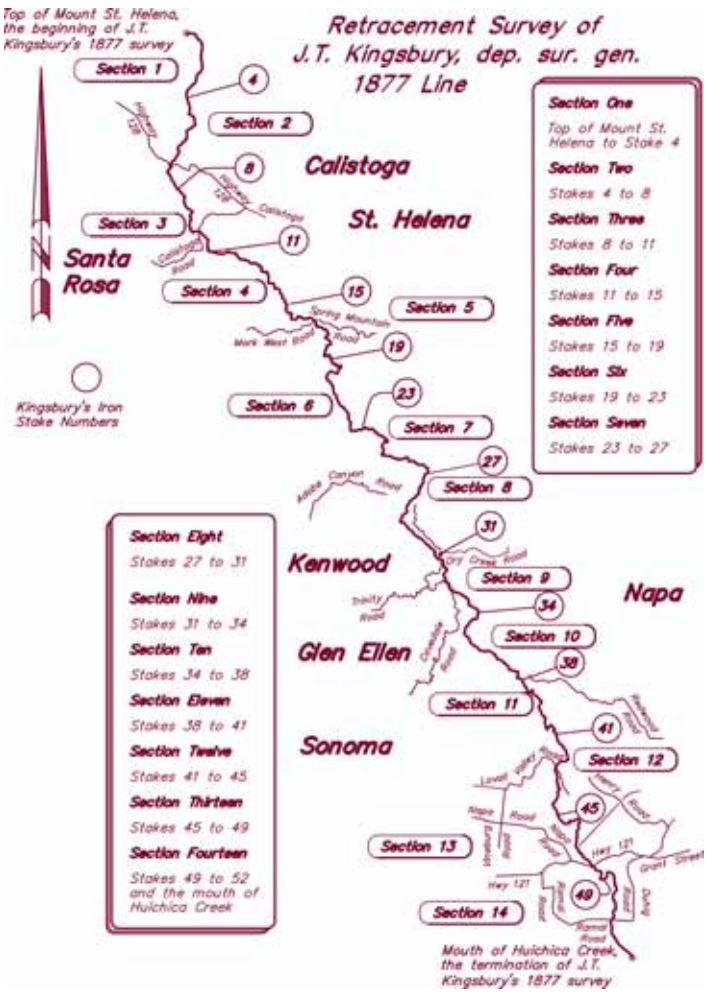
Completing the "Kingsbury Line"
Surveying the Sonoma/Napa County Boundary

In the January 8, 1859 report of H.A. Higley, Surveyor General to John B. Weller, Governor there is the following report from John B. Wood, County Surveyor for Sonoma and Mendocino Counties: "The boundary-line between Sonoma and Napa Counties should be re-surveyed, and determined. As it is, persons living near the supposed line are frequently assessed in both Counties. Many difficulties have grown out of it, in the service of civil processes, jurisdiction, etc., and it will continue to be so until the line is definitely fixed and marked. The line should be surveyed, and monuments placed along it at convenient distances. By so doing, much trouble will be avoided, and both Counties collect revenue that is now lost to them, by reason of the uncertain location of the boundary-line."



In the December 21, 1860 report of H.A. Higley, Surveyor General to John G. Downey, Governor there is the following report from T.J. DeWoody, County Surveyor for Napa County: "The boundaries of Napa County exist only on the Statute Book. The Board of Supervisors, through a mistaken idea of economy, have neglected to make provisions for paying for the survey, and therefore, there has never been any portion of it established. If the Legislature is disposed to alter the lines of this county I would, for the sake of improving the shape of the county, suggest the following changes: from the point where the western boundary crosses the line of the "Huichica Rancho", follow the western boundary of said rancho to Sonoma Creek, thence down Sonoma Creek to San Pablo Bay, and along the bay and the Straits of Carquinas to the middle of range three west; thence north, through the middle of range three west, to the first standard line north; thence east as at present. And if Clear Lake country is made into a separate county, I would recommend that the dividing line be the second United States standard, north, or the next township line north of the standard."

Following this suggestion from the Napa County Surveyor would have moved the area between the Napa River and Sonoma Creek (some 7-9 miles east/west), comprising the agricultural lands of the Huichica Rancho, into Napa County. Both counties wanted this rich farm land, and they could not agree. Also, Lake County was created from portions of Napa and Mendocino counties. And so by 1872 the descriptions of the two counties had evolved to:

For Sonoma County, "….thence southerly along the Mayacamas Mountains, and on the western lines of Lake and Napa counties, to the westerly branch of headwaters of Huichica Creek; thence westerly, on the line of Napa County, to the top of the main ridge that divides the Huichica Valley from the Sonoma Valley; thence southerly along the said dividing ridge to the tule bordering on San Pablo Bay; thence southerly, to the center of Huichica Creek; thence down said creek to its mouth, which is the southwest corner of Napa…"

For Napa County, "…thence south easterly on said line of Sonoma to the western branch of the headwaters of the Huichica Creek, thence westerly to the main ridge that divides the Huichica Valley from the Sonoma Valley; thence southerly along the said dividing ridge to the tule bordering on San Pablo Bay; thence southerly to the center of Huichica Creek; thence down said creek to its mouth…"

This additional background information is not provided here to be in any way definitive and complete, but to provide some context for the survey that has since been depended upon for use by both counties.

Kingsbury's Survey

And so, back to J.T. Kingsbury. He began his survey at the common northerly corner of Sonoma/Napa counties at the summit of Mount St. Helena and set iron stakes 3 feet long, 3 inches wide and 3/4 inches thick, with an "S" cut with a cold chisel on one side and an "N" on the other side. Where available he also blazed trees with three notches cut across the blaze and marked a number of boulders/rocks. 52 iron stakes were set along the 52 miles of his survey, generally one per mile. His beginning iron stake was set at the summit of the mountain, 107 feet southeast of the US Coast Survey Signal Station set the previous year (1876) as a fine drill hole and cross cut in top of 1/2 inch copper bolt cemented in bedrock and projecting 1/4 inch.

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There were some 1,025 courses in Kingsbury's line ranging in length from 36 feet to a long of 2,883 at the southerly end near the Bay, with most courses falling in the 100-300 foot range. Most of his courses were not monumented or marked on the ground but followed along the high ground as clearly indicated on his map. His survey covered some 274,352 feet, or 51.96 miles and appears to have been an "open" traverse. Although an occasional survey of local property along the line has recovered two or more of Kingsbury's monuments or markings and adjusted his courses between them, no one has done so for any significant distance, which leads to questions regarding the overall work of the survey. At the commencement of this project, no one knew by actual field measurement how good Kingsbury's survey was, from end to end, or whether there are inconsistencies along the way. Were there any errors in the traverse, any missing courses, transcribing errors, blunders, and how well do the courses follow the actual ridge line when applied to the ground as he set them down in his notes? We were anxious to find out some 133 years later. As the only survey of this line whose monuments we know still can be found in part, we in Sonoma County are of the opinion that the historic value of this line and its' perpetuation into the future is great. Future surveys will work on the "County" line relative to this line. But they will have this historic line for reference. So with the controls having been established the entire length of the county line as described in the first article, we were ready to find out.

Phase III Surveys - The Set-up

Gary O'Connor, Sonoma County Surveyor, called a meeting of the fourteen firms selected to perform the retracement. The work of retracement was broken into fourteen (14) sections of approximately 3-4 miles each, with each section beginning and ending at the location of one of Kingsbury's monuments. The assignments were agreed upon by drawing.

Each firm was responsible for establishing the coordinates for the southernmost "Stake" defining its area of responsibility and/or coordinating with the adjoining firm to retrace Kingsbury's courses from the field notes, map and field measurements along the ridge as defined in the notes and map. At this point it is important to state the goal of this project was not to resurvey the "ridge line", cutting brush, traversing the entire length of the line and retracing every angle point in Kingsbury's line, in essence providing topographic mapping of the length of the line. The goal was to recover what monumentation still exists, from Kingsbury's notes and map, compare measured and calculated distances between found evidence, determine, if possible the existence of errors, blunders, etc. and resolve those, as necessary, to correctly retrace Kingsbury's work as faithfully as possible. And then re-monument and add monuments such that monuments are available at a maximum of one half mile increments on a common coordinate system. With that in mind the surveys commenced.

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Section Assignment	Firm Assigned	Person Responsible
Section One		
Top of Mount St. Helena and Kingsbury's Stake 0 to Stake 4	Hogan Land Services	Adam Rivera, PLS8451
Section Two		
Stake 4 to Stake 8	Winzler & Kelly	Jon Olin, PLS7590
Section Three		
Stake 8 to Stake 11	Ray Carlson & Associates	Art Gambini, PLS4869
Section Four		
Stake 11 to Stake 15	Dimensions 4	Gary Spierings, PLS 8082
Section Five		
Stake 15 to Stake 19	Lafranchi & Associates	GJ Harmina, PLS7950
Section Six		
Stake 19 to Stake 23	Lescure Engineers	Greg Logan, PLS5759
Section Seven		
Stake 23 to Stake 27	BKF/Carlenzoli	Howard Brunner, PLS4206
Section Eight		
Stake 27 to Stake 31	Brelje & Race	John Locey, RCE 31909
Section Nine		
Stake 31 to Stake 34	Doble/Thomas	Tom Bruns, PLS5088
Section Ten		
Stake 34 to Stake 38	Carlile Macy	Bruce Jarvis, PLS5143
Section Eleven		
Stake 38 to Stake 41	Albion Surveys	Joe Sullivan, PLS7990
Section Twelve		
Stake 41 to Stake 45	Cinquini & Passarino	Mike Jones, PLS8090
Section Thirteen		
Stake 45 to Stake 49	Brooks & Associates	Michael Brooks, PLS4510
Section Fourteen		
Stake 49 to Stake 52 and the mouth of Huichica Creek	Jackson & Associates	Pete Jackson, PLS7251

What was Found?

In Section 3 one of Kingsbury's stakes was found intact (#11); one stake was found destroyed (#9) and reconstructed from evidence from an existing "Record of Survey"; and the position of one (#10) was re-constructed from existing "Record of Survey" data and existing physical ridge line location. In addition several bearing trees were identified and accepted as being "Kingsbury's" bearing trees. As the courses were "rotated and scale factored" between found and re-constructed points from Kingsbury's notes and map, the measured distances compared to Kingsbury's were generally within 15 feet short per half mile of survey. Certainly not within today's standards, but for 134 years ago and in some fairly rugged terrain….. The most revealing conclusion in this section would seem to be the consistency of the results throughout this section.

In Section 4 Kingsbury stakes 11, 12, 13, 15 were all found intact as well as one of his rock mounds. From stakes 11-12 was found to be about 7 feet short; stakes 12-13 was found to be about 200 feet short; stakes 13-15 was found to be about 25 feet short. More evidence was found but less consistency in survey measurements in this section of Kingsbury's line.

Section 5 was one of the most challenging section with nothing from Kingsbury's notes found other than starting stake #15. This area contained a number of existing vineyards on both sides of the line. The following note suggests the difficulty in re-establishing Kingsburys survey: "Our resolution utilizes the areas that appear to be most original and ungraded, containing natural features that are believed to have existed at the time of the original survey. Much of the ridgeline has been altered by paved roads, dirt roads, driveways, residential development, water tanks and vineyard grading. Terrain in these areas were not considered a part of this survey. The original map prepared by Kingsbury was used to identify ridges and hilltops, and, because of the lack of monuments, was considered to be the best evidence of where the line was intended to run. Every effort made to maintain the bearing of the original survey. Adjustments were necessary to match the controlling topography."

Section 7, running through Sugar Loaf Stake Park, began at Stake #23 which was reconstructed between found and accepted as being intact stakes #22 & #24. Kingsbury's rock with "S" & "N" scribed on top was found lying south of Stake #27. This note was added for this section: "The Kingsbury line between stake 22 and stake 24 and the line between stake 24 and the found rock with "N" & "S" on top was re-established using the grant boundary adjustment per Section 7-54 of the Manual of Surveying Instructions (2009)".

In Section 8 the survey located 3 of Kingsbury's rocks, Stake #30 accepted as being intact and the position of Stake 31 being accepted from an existing "Record of Survey". Kingsbury's courses were adjusted by "grant line adjustment….this solution gives the best overall fit for intermediate monuments." The distance from the rock lying south of Stake #27 and Stake 30 was calculated as being about 20 feet short over the mile and 3/4. So, again fairly consistent with Kingsbury.

In Section 9 stakes #32 & #34 were found and accepted as being intact with a grant boundary adjustment used between these found monuments for intermediate points. In this section the agreement with Kingsbury was about 15 feet long per half mile.

Section 10 began at found stake #34, found Kingsbury's rock between stakes #35 & #36 and set a new monument for stake #38 at the intersection of the physical centerline of the ridge and the south edge of a dirt road as shown on Kingsbury's map. A grant boundary adjustment was used between stake #34 and the found rock, an existing "Parcel Map" from the rock to stake #37 (found destroyed and re-constructed by the "Parcel Map"). The most interesting discovery in this section was the 1205 foot course in Kingsbury's notes and map. If that distance is held the survey is pushed way off the ridge line to the east. This course was shortened to about 200 feet in order to fit the ridge proceeding southerly. This was the first discovered apparent blunder in the Kingsbury line and therefore significant.

Final Section 14 was run from re-constructed stake #49 from Section 13 and "mouth of Huichica Creek." None of Kingsbury's monuments were recovered through this vineyard area. However Kingsbury's "calls fit the ridge line in most cases". Two courses were adjusted (one lengthened from 1156 feet to 1637 feet and another lengthened from 393 feet to 448 feet) following the ridge as the best remaining evidence of Kingsbury's line. One final course was modified from 2883 feet to 3139 feet to get to the mouth of Huichica Creek.

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Controlling the Line


Middle of the Line


Enjoying the Views


Where's that Line?


Waiting in the Cold

Final Conclusion

So what have we learned? First of all we discovered that 18 private survey firms can work collegially and professionally together to complete a fairly complex project. We were able to complete a project of historic and politic importance. The "Kingsbury line" has been preserved into the future and we, as professional land surveyor's of Sonoma and Napa Counties can take pride in preserving that portion of our county's infrastructure we have been charged with caring for.

We have also learned that J.T. Kingsbury and his survey team did a fairly consitent survey given the equipment and methods used and the terrain crossed from rugged mountains to rolling farmland. There were some error's, blunders, and in the absence of closures probably not that surprising. Generally what his notes and map called for were recovered, where not destroyed, and the consistency of measurement accuracy in identifying the "dividing ridge" (county line) was present. Now it remains for future surveys to fill in individual property locations and identify the "County Line" relative to the "Kingsbury Line". ■

Meet the CLSA Officers

Frank Lehmann, PLS - President

Who am I? Well as a brief history, I come from a family with four brothers and one sister. I grew up in Marin County, and moved to Lake County as a freshman in high school.

During high school, I lived in the Cobb Mountain area, known for its resorts and geothermal plants. Hunting, fishing, and weekend backpacking trips to the top of Cobb Mountain were regular activities.

It was during these outings, that I decided I wanted a career that would combine my interest in the outdoors, with my curiosity about signs and scars on trees, and the significance of the piles of rocks surrounding sticks and pieces of metal in the ground which I found.

After graduating early from high school, I had the opportunity to spend time at the local CDF station, where the station chief opened up his Forestry library for my use. After reading his many books and researching various career paths within the forestry field, I decided to pursue a degree at Humboldt State University (HSU).

One of my first forestry classes was titled "Forestry 107A, Introduction to Surveying". My instructor, Al Nilson, R.P.F., P.L.S., became my role model as both a surveyor and a forester. One lab in particular was unique. We traveled to a rural area where we took solars, calculated our bearings, and using a transit and chain traversed from one known corner across of a flood plain. Then we triangulated across a river, successfully established a search point, and after a lot of digging, we found a corner that had been covered by silt for many years. It was my a-ha moment. I was hooked! Ultimately, I took all of the survey classes the Forestry Deptment offered, and decided to focus on attaining my licensure as both a Licensed Land Surveyor and a Registered Professional Forester. It was at this time I joined CLSA while a student at HSU.

I graduated from HSU with a B.S. in Forestry in 1979. Upon graduation, HSU hired me to teach the very Forestry 107A class that had been so important to me. I taught the class for the next year. My first position in the private sector was with Oscar Larson & Associates, an engineering and surveying firm. While there, I was fortunate to work with a dedicated group of surveyors. We performed large cadastral surveys for the USFS. Six seasons of original and retracement surveys took us into the remote areas of Humboldt and Del Norte Counties where we camped, and stayed in rustic cabins and an occasional motel. During the winters, I worked on subdivisions, parcel maps, lot line adjustments and general surveying tasks. When the firm decided to expand operations in 1985, I worked at the new branch office in Sonoma County. In 1987, I opened and managed another new branch office located in Del Norte County. We had been awarded the contract to perform construction staking at Pelican Bay Prison.

My wife, Melody, and I moved from Arcata to Redding in 1989, where I performed construction staking on several hydro-electric projects. When the construction season ended, I accepted employment with SHN Consulting Engineers in Redding. I ultimately became the manager of the office, and worked on a wide variety of development related projects, until I decided to start my own business.

I have owned Lehmann and Associates Consulting since 1994. During those years we have provided forensic surveying, boundary analysis, title searches, field surveys, prepared maps, legal descriptions, and court exhibits. We have processed records of surveys, subdivision maps, lot line adjustments, and parcel maps. Other services include permitting, representation on projects before Planning Commissions, Boards of Supervisors, and other regulatory agencies and panels regarding CEQA and the Subdivision Map Act. I have also testified in numerous court cases and depositions regarding boundary disputes, permitting practices, policies, and professional conduct at the request of the State Board of Registration for Professional Engineers and Land Surveyors.

During the period from October 1999 to May 2001, I was hired by the City of Redding to be the City Surveyor. I was responsible for the technical review and certification of all record subdivision maps, legal descriptions and exhibits for compliance with the State Subdivision Map Act and local ordinances for work performed in the jurisdiction of the City of Redding. This was a great opportunity to experience the other side of the counter. It led to consulting contracts with the City of Yreka in Siskiyou County, and the Modoc County Development Services Department.

Since college, I have been a state and local (Humboldt, North Counties, Cascade) member of CLSA. I served two terms as a Chapter Representative. I was first elected to a state position as a Board Representative to Executive Committee in 2007. I am licensed as a Professional Surveyor in California and Oregon, and as a Registered Professional Forester in California. I am the proud father of my son Chris, and daughter Rebecca.

Tom Taylor, PLS - President Elect

Hello colleagues and friends. Like many of you, I am very proud to be a California Land Surveyor and a member of CLSA. Being a California LS and participating in CLSA, has given me the opportunity to work hand-in-hand with some of the finest individuals I have encountered on some very important projects, committees, and survey education classes. I am humbled at the quality of individuals I have met in our profession and our professional society and pledge to work hard for our interests as your President-Elect this year and your President next year.

I was raised in Omaha, Nebraska until I was 22 when I decided that I wanted to start the new decade (80's) in a different state – California. So, I came to Oakland with a scant few bucks in my pocket, no job, and only the promise of the use of a sofa for a few weeks. I have since spent the majority of the last 31 years living and working in Oakland. The best decision I have made to date.

I grabbed onto odd jobs while I put myself through college until I received my degree from UC Berkeley in theoretical mathematics in 1983. Not exactly the most applied degree out there. After graduating, I took whatever jobs I could find that afforded me the opportunity to work outside and be physically active. Like many of you, the love of the outdoors, while wanting to be technical in thought, lead me directly to the surveying profession. I have had a smile on my face ever since.

I now work for Caltrans where I have been for over 20 years. I've had the opportunity to work on the $1.2 billion Cypress reconstruction project after the Loma Prieta earthquake, the $1 billion SF Park Presidio project, and the $6.8 billion SFOBB project. Above I said the majority of my time in California has been in Oakland. There was 5 years beginning in 2000 where I worked in headquarters in Sacramento. It was there that I promoted to a

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senior position and was in charge of survey standards, where I lead the effort to write several chapters of the Caltrans Surveys Manual and revise the others. I came back to Oakland to take over the Right of Way Engineering Branch. Currently I am the Branch Chief for the New Technologies/Surveys Coordination Branch.

While being a member of CLSA, I have had the opportunity to be a chapter representative, the Caltrans liaison, the Legislative Committee Chair for 5 years, and now a member of the Executive Committee. Each of these experiences has been very rewarding.

Finally, as far as my avocations are concerned, I am an avid sports fan, love to cook, love to camp, love to read, and love to enjoy a good adult beverage. I look forward, as I travel the state next year, to visit all of the local chapters of CLSA and to enjoy the company of the people I respect the most – surveyors.

Rolland Van De Valk, PLS - Secretary

Hello fellow Land Surveyors. My name is Rolland Van De Valk and I will be the CLSA Secretary for 2012. It has been an honor and pleasure serving you and this organization as treasurer and I look forward to the challenges and opportunities that are waiting. I hail from the Bakersfield Chapter and live in the City of Shafter, which is about 20 miles northwest of Bakersfield.

I was first introduced to surveying through an architect. As a high school student, I was hired by a local architect to perform small drafting tasks and be a helper during the small topographic surveys that he performed for some of his projects. This experience was short but it gave me enough exposure to this profession that I would take another look at it years later.

After high school I attended California State University Bakersfield majoring in Business Administration. I worked during college and immediately after for a large corporate farming company on the west side of Kern County for 10 years. I came to realize that farming was not exactly what I wanted as a career and started to look for other options. Recalling the interesting but brief exposure to surveying in high school, I stopped to talk to a survey party that was performing a boundary survey for the company I was working for. I asked how someone could get started in a career in surveying. The party chief, a land surveyor, told me to enroll in the local junior college surveying certificate program and that is exactly what I did.

It was through this surveying program that I received my initial education in surveying and more importantly, an opportunity to meet the instructor of these college courses. This land surveyor, who became my friend and mentor, must have seen something in me and gave me my first real surveying job with the company he was working for. That friendship became a partnership when we started a small surveying company together in Bakersfield. His mentorship continued and is the main reason that I am licensed today.

That partnership suffered tremendously through a recession in the nineteen nineties. I found a wonderful new opportunity with a medium sized civil engineering and land surveying company in Bakersfield and started what has turned out to be a fifteen year tenure that has led me through some exciting experiences.

I have been involved in CLSA for the past 23 years. I started attending the local chapter meetings before I became licensed. I have served in all of the officer positions in the Bakersfield chapter including election as a CLSA Board of Directors. I have served on and chaired many committees both local and at the state level.

I have been married to my high school sweetheart for the past 31 wonderful years. Together we have three children and three grandchildren with the forth grandchild on the way. My family activities consume most of my free time but I do enjoy woodworking, playing guitar, and physical activity in the great outdoors.

I look forward to serving as a CLSA officer in the years to come and hope to meet as many members as possible.

Jay Seymour, PLS - Treasurer

I began my surveying career in 1953! Yes, I was two years old, but when your father and grandfather are surveyors, you get into the business early. My grandfather surveyed without a license like most surveyors in the 1960's, in Kansas. My father was instrumental in the formation of both the movement for registration as well as the development of the Kansas Society of Land Surveyors. With my dad being Kansas Registered Land Surveyor RLS-20, the bar was set very high for me.

I did follow the family tradition and obtained my license in Kansas RLS-701 in 1977. I obtained my second license in Colorado PLS-16421 in 1978, and finally, my California license PLS-6551 in 1991.

My career has taken me to ten western public land states. I have surveyed at Prudhoe Bay Alaska where the temperature was -78 on a Monday only to arrive at Kuwait City where the temperature was 128 on a Wednesday of the same week! I have had the unfortunate opportunity to get up close and personal with a mother coyote and her babies, the result being a series of rabies shots for thirty days.

I left the field following the construction of the 5th largest shopping center west of the Mississippi in 1982 in Littleton, Colorado. In 1984, I founded Professional Land Consultants, Inc. Since that time, I have provided Civil Engineers, Land Surveyors, Land Planners, and Developers with Professional Land Surveying services. Today, I specialize in educational seminars; training sessions; consulting for asset identification; expert witness support; and senior level management recruitment.

I have been an active member of the Los Angeles Chapter for many years and was proud to be an officer at all levels of my chapter being its president in 2008. For the past three years, I have served my chapter as one of its state representatives as well as being one of two members-at-large of the Executive Committee. Recently, I was selected to be the state Treasurer for 2012. I look forward to the next five years serving the membership as a state officer.

My base of operations is Redondo Beach with a second office in Cathedral City. I have been married to my lovely bride, Suzy, since 1991 and she is my biggest supporter. I have adult children in Golden CO and Boston MA and a three year old grandson. If I am not presenting a seminar, speaking at the local colleges, consulting with attorneys, you may well find me on a golf course somewhere in Southern California. ■

By: Aundrea Tirapelle, LSIT & Greg Sebourn, PLS – Trig Star Co-Chairs

***Aundrea** is the lead chair for California's Trig Star Program and helps to coordinate events in Central and Northern California.*

***Greg**, a Senior Survey Project Manager for Johnson-Frank & Associates describes himself as "a husband, father, professional land surveyor, educator, adult Boy Scout leader, and political/community activist." To learn more about Greg, go to his blog at http://gregsebourn.blogspot.com/.*

Trig Star Program

Despite the economic outlook, Trig-Star events are growing and generating buzz throughout California! For those who haven't heard about Trig-Star, it is a national trigonometric competition that brings high school students together with land surveyors. Trig-Star has multiple purposes, the primary being a means of public outreach and education about land surveying.

Trig-Star was created by Russell E. Kastelle, RLS, of the North Dakota Society of Professional Land Surveyors. Kastelle's idea was a national means of outreach by 1984. The National Society of Professional Surveyors (NSPS) embraced the program as a national competition in 1993 thanks to the efforts of Kent Green and Richard Lomax. National winners, their parents and teachers are treated to the annual NSPS conference where the winner is presented with a trophy and scholarship. It is an amazing experience made more so due to the time and effort of so many great volunteers across the United States.

Last year, in California, nearly 1,000 students from more than 50 high schools participated with the help and sponsorship of CLSA and CLSA Chapters. These numbers represent a 30% increase in attendance and nearly 50% increase in the number of schools participating state-wide from the previous year! Trig-Star is the largest public outreach campaign implemented both locally and nationally reaching parents, students, teachers, and various community members each year. Being well established and continually growing, Trig-Star represents the easiest and quickest way for California's professional surveyors to get their message to the public.

The growing trend is for professional land surveyors to visit high school classrooms to give students (and teachers) a brief overview and history of the profession. This close interaction helps to break the ice and remove the veil of mystery that has obscured land surveying somewhere behind engineering, architecture, and construction. Students are then invited to a local event site, often a community college, to take the Trig-Star test and interact with working professionals. Many events include local practitioners with equipment and job information. Some events even include lunch for attendees and their parents.

TrigStar Orange County Chapter 2011 Winners

The more traditional model has a professional land surveyor administer one test directly at each high school. There are pros and cons to each model and there is no wrong way in which to hold a Trig-Star event. We asked our California Trig-Star Chapter Coordinators to share their event with the California Surveyor to help encourage more participation. Here are their stories and the impact they have had in their communities.

Sonoma County Chapter – Jerry Miller, PLS & Chapter Coordinator

Sonoma County Chapter held their Trig Star event at Santa Rosa Junior College on April 9th. Fifty-four students from nine high schools participated in the competition. Adrian Devitt-Lee from Maria Carrillo High School won both locally and the state-wide competition with a score of 100% and

Continued on next page

Continued from previous page

a time of 11 minutes. To give you an idea of how amazing Adrian's performance was, his score is 13 minutes faster than the student from Santa Rosa High School, Ian VonSeggern, who was state champion in 2007 and 2008. It was great to see so much support from community members, math teachers and parents during the competition and awards ceremony. This competition is sponsored by the Sonoma County Chapter of the California Land Surveyors Association.

Riverside / San Bernardino Chapter – Tim Rayburn, PLS & Chapter Coordinator

The Riverside / San Bernardino Chapter's Trig Star event was held at Mt. San Jacinto College on March 19th. The event was well attended and received coverage by the regional newspaper, The Press Enterprise. Gail Wesson, Press Enterprise reporter noted that more than 120 students from 16 high schools across the region participated in the event which was held at Mt. San Jacinto College. Thanks in large part to the strong partnership between the Chapter and the college, students were able to learn about land surveying and opportunities in education. ESRI, the GIS software powerhouse generously donated books and software to students. You can read Gail Wesson's article by going to www.pe.com and typing "Trig Star" into the SEARCH box at the top left.

Orange County Chapter – Greg Sebourn, PLS & Chapter Coordinator

This year's event, scheduled for March 12 at Santiago Canyon College, was nearly ended before getting off the ground. Like so many other college's, Santiago Canyon College's budget had been gutted and I was warned early

Continued on next page

Geography Quiz

by: Anne Hoppe, PLS
and Germar Berhhard, Ph.D.

First mapped by Danish land surveyors in the early 1900's, this European country sits on a geologic ridge and is growing by 2 cm per year. Among its many natural wonders are features like the one pictured; this one is regarded as the largest of its kind.

Answer on page 39

Continued from previous page

Trig Star Program

on by college administrators that funding for the annual event just wasn't available. Not easily deterred, I approached the Chapter about footing the bill. After some discussion, the Chapter voted to provide 100% of the upfront funding. Thanks to our sponsors, Johnson-Frank, Psomas, RBF Consulting, OC Surveys (County of Orange), Port of Long Beach, and Professional Engineers in California Government (PECG), the OC Chapter was able to hit a homerun with another successful event.

Santiago Canyon College donated facilities and equipment while many college employees donated their Saturday morning. Vital Link, a local not-for-profit community partner helped get the word out to the high schools and manage the details of the event as well as register participants. With a dozen schools represented by nearly 150 trigonometry and math students with their parents, the event was a trigonometric calculation feeding frenzy. SOH-CAH-TOA was the word of the day! The winners were lightening fast but not fast enough to beat out Santa Rosa winner Adrian Devitt-Lee from Maria Carrillo High School. All three OC Chapter winners attend Trabuco Hills High School. Freshman Kavan Zommers placed first. Second place winner and freshman is Uma Rajpurkar. Gabriel Harh rounded out the top three. OC winners received $500, $300, and $200 respectively making their investment in preparation for the event a real payoff! Winners along with their parents and teachers were invited to attend an upcoming Orange County Chapter dinner meeting.

Trig Star 2011-2012

It is time to start planning for the 2012 Trig-Star Program! Like any other event, Trig Star events are made better with careful planning. You have tremendous resources at your fingertips to help make your event a success. The CLSA website has many resources at http://www.californiasurveyors.org/trigstarcoord.html. Previous exams are available at http://www.nspsmo.org/ and click on "NSPS Trig-Star Program" on the left side of the home page. If you would like to have a Trig Star event and need help getting started, please contact CLSA Trig Star Co-Chairs Aundrea Tirapelle or Greg Sebourn. ■

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GregSebourn, PLS
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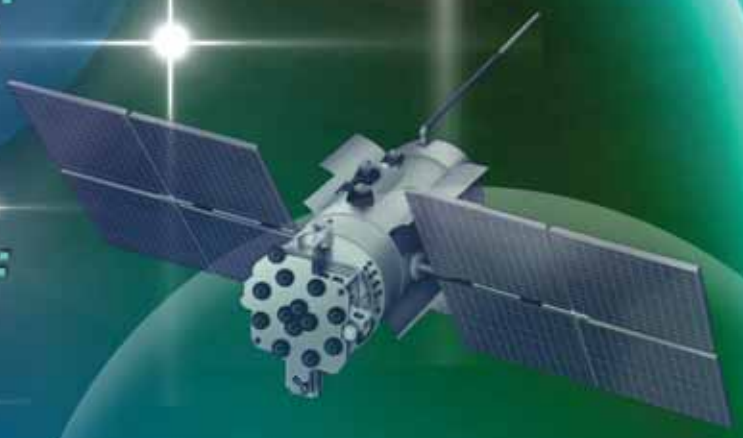

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	BEFORE Feb. 23	AFTER Feb. 22	AMOUNT
Workshop (PreConference 8 hrs. - March 24th)	$135	$185	$_____
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	BEFORE Feb. 23	AFTER Feb. 22	AMOUNT
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Conference Only (Includes Conference Registration (Sun.-Wed.), Monday & Tuesday Luncheons, IceBreaker Reception & Scholarship Auction Does not include Workshop or LS Review Workshop)	$415	$465	$_____
Conference/Workshop & LS Review (Includes Conference Registration (Sun.- Wed.), Workshop (Sat.), LS Review Workshop (Sat.-Wed.), Monday & Tuesday Luncheons, IceBreaker Reception & Scholarship Auction) Select One Saturday Workshop: ❑ LS Review ❑ Workshop	$475	$525	$_____
Conference One Day Select Day: ❑ Sunday ❑ Monday ❑ Tuesday ❑ Wednesday	$205	$255	$_____

OTHER REGISTRATION

Spouse Registration (Includes entrance to Exhibit Hall, Icebreaker Reception, Monday Lunch, Scholarship Auction, Tuesday Lunch)	$180	$_____
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Extra Monday Lunch Ticket	$ 46 x_____	$_____
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CANCELLATIONS: To receive a refund on registration fees (less a $35.00 cancellation fee), all cancellations must be received in writing no later than February 23, 2012. Substitutions welcome - additional fees may apply, contact the conference office at : (707) 578-6016 for more information.

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San Francisco Treats

By: Dane Ince, PLS

The following quote is taken from a report prepared by Assistant Engineer Chas. H. Holcomb, LS no. 5, for the Board of Supervisors of the City and County of San Francisco dated June 30, 1911. In it he discusses the record keeping habits of the County Surveyor prior to the January 2, 1900 charter going into effect:

> *There was no system of indexing, except memoranda written on legal cap or letter paper and tied with a string to the box, drawer, or shelves containing the records. Some of the records, such as bearings of streets, etc. were written in pencil on the walls. Where these records came from or who placed them there, no one seemed to know, but they were always accepted and used as reliable data.* ■

Index To Advertisers

Welcome New CLSA Members

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SUSTAINING
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By: David E. Woolley, PLS

***Dave,** is the CLSA Orange County Chapter Legislative Chairman, Chapter Representative, State PPC Member, and owner of D. Woolley & Associates, Tustin, CA*

The More Things Change...

Quotes from the near and distant past that prove the point: the more things change, the more they remain the same.

"The original surveys in the portions of the City to which I refer were anything but accurate and are generally located by land marks (or calls, as they are designated). The old surveys being inaccurate, (having been made when a few feet of land amounted to little or nothing) there remains then nothing to guide your surveyor but the land marks, and as these are rapidly disappearing and in many cases were originally indefinite, great confusion must necessarily exist, these circumstances have been in many instances taken advantage of by irresponsible outside surveyors who have caused much additional confusion by their awkward work, and bad judgment, causing owners to subdivide, locate streets and erect buildings in improper locations."

S. Harrison Smith, City and County Surveyor, Report to the Board of Supervisors of the City and County of San Francisco (June 30, 1889).

Commentary by David E. Woolley, PLS

Some 122 years ago, in 1889, monuments being lost to antiquity concerned the San Francisco City and County Surveyor. Today, we have statutes, namely California Business and Professions Code § 8771, intended to protect these monuments. This statute is the land surveyor's Potemkin village – it has done little to deter the destruction of monuments. The engineers, city representatives or others, place notes on the title sheet of plans stating that the contractors are responsible for the preservation of monuments. "Shovel ready" projects funded by the American Recovery and Reinvestment Act (federal funding) would require the contractors to select a surveyor based on a "qualification based selection" (QBS).

Am I the only person that wonders how a paving contractor or any other contractor determines the qualifications of a land surveyor for a project?

These contracts should be administered by professionals that have the qualifications to determine the land surveyor's qualifications and have the necessary controls in place to insure lawful compliance. The ARRA was responsible for the destruction of countless monuments over the last two years. Land surveying monuments provide for the perpetuation of property rights of the public. Monuments, once lost, will alter the location of an individual's property lines. The only remaining question is what is the measureable quantity of this alteration? Mr. Smith's quote "being inaccurate, (having been made when a few feet of land amounted to little or nothing)", makes a person wonder what a few feet might be worth in San Francisco today or, better yet, a few feet of uncertainty in a boundary location.

Our profession has a documented history, dating back to 1985 (notwithstanding Mr. Smith's efforts in 1889), of educating City Engineers regarding their responsibilities to maintain monuments. Our licensing Board, as in the 1988 case against the City of San Diego, has held a firm position on the interpretation of the California Business & Professions Code § 8771, but to no avail. In 2000, the licensing Board recognized this problem (as detailed in a Board Bulletin) and began educating - again.

Rest assured, the Potemkin village will be maintained and S. Harrison Smith's statement that was valid in 1889, valid in 1989 and will still be valid in 2089. ■

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Surveying 3500' underground in a recently opened Gold mine, The Washington Mine in French Gulch Ca. Submitted by Stephen Dean, PLS

ScanMan
Submitted by Tim Case, PLS

Laser scanning the single anchored suspension of the new SFOBB. Submitted by: Juan Barahona and Robert Dolan

By: Richard Hertzberg, CPCU, ARM, Vista International Insurance Brokers

RISK MANAGEMENT FOR LAND SURVEYORS

Surveyor's Insurance Update

Premiums are going up

Insurers have been hit by countless disasters this year. Flood, hail and windstorms continue to happen. Hurricane Irene alone rang up bills of over $4.8 billion in August. Some say it's all due to climate change. Some say its bad luck. Some say it's the end of time. Whatever the reason, it means that insurance rates will be increasing.

While there have been modest rate increases this year, look for more in January when reinsurance treaties (which is insurance for insurance) renew. Basically, we are coming out of a soft (cheap) insurance market and going into a hard (expensive) insurance market.

Some companies will test their pricing increases and other companies, lemming-like, will follow to see if their price increases hold. However, there will still be some companies with excess capital coming into the market who will try to compete with cut-rate pricing and leave when the losses start to come in. Until the market totally stabilizes, insurance policy pricing will be like airline ticket pricing, an economic exercise in supply and demand. Hold on and buckle your seatbelt. It would be a good idea to put 5 to 10% more into your insurance budget. If you have had losses, increase your insurance budget by 15 to 20%.

You already know your health insurance premiums have increased by over 10%. If you are healthy you might want to look at a high deductible program.

For some hints on how to keep your premiums under control, see my article in the Spring 2010 Cal Surveyor.

Equipment Claims

Recently, we have seen quite a few $30,000 to $40,000 equipment losses. When a surveyor's total station, robotic or GPS system and accessories are out of sight over the hill or around the corner, they become an attractive target for thieves. Your sophisticated, expensive equipment can disappear quickly during these hard times.

Keep your eyes on your equipment. Some surveyors even hire people just to watch their equipment. If you do have a loss, carefully detail and document the events and cost of lost items. Report your loss to the police and your insurance company. Your insurance company might be able to help you with replacement equipment, rentals and lost income.

Realize that in the event you have a loss you will probably get a depreciated settlement. Also, be sure to check Craigslist and E-Bay because often times the stolen equipment is posted there.

Certificates of Insurance

When you get a job that has specific insurance requirements you will need to provide your client with an insurance certificate that lists your insurance coverage, policy limits and expiration dates. Keep a copy for your records so you can show a prospective client or owner what kind and amounts of insurance you have. Remember that in some cases you can negotiate with the client to reduce limits, waive workers compensation if you have no employees and accept your personal auto insurance rather than require higher limit business automobile insurance.

Risk Management Again

Focused risk management helps save money and increase profit because it keeps you out of trouble. You ask "what if" questions and determine what the worst thing is that could happen to you and your business. Then, decide what to do.

You can avoid the risk by not taking it or using a properly insured subcontractor to do the work. With loss control you can reduce the risk. Using insurance, CLSA contracts and indemnity agreements you transfer the risk. Deductible and self-insurance strategies allow you to retain the risk.

Be sure to monitor and up-date your results and methods on a regular basis.

For some fun reading about insurance, get a copy of The Invisible Bankers or Everything the Insurance Industry Never Wanted You to Know by Andrew Tobias. In this 1982 book he tells how insurance companies control as much money as the banking industry. You can see why Warren Buffet likes insurance so much. ■

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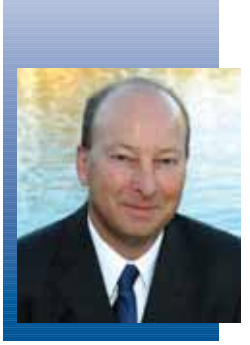


By: Gregory A. Helmer, PLS

Mr. Helmer *is a Professional Land Surveyor in California, Colorado, Nevada and Arizona with over twenty-five years of experience in geodetic control, boundary surveying and geospatial information technology. As a Senior Vice President with the firm of RBF Consulting, a Baker Company, he has been an innovator for advanced technologies. He is nationally recognized for his contributions to GNSS surveying and high-precision geodesy. Mr. Helmer is a speaker and author of numerous professional presentations, a Fellow with the American Association of Geodetic Surveying and the Institute for the Advancement of Engineering, and a founding member and the past Chairperson of the California Spatial Reference Center at Scripps Institution of Oceanography.*

On the Nature of Change and Change Management: Disruptive Innovation

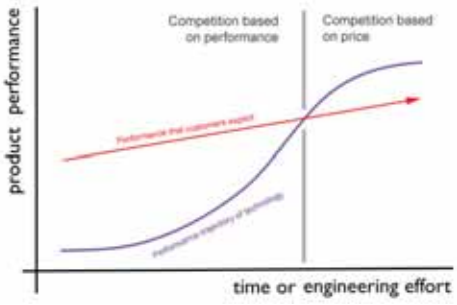
Wyatt Earp, who is best known as a hard-living frontier lawman, and certainly for one afternoon in Tombstone, Arizona in 1881 at the O.K. Corral, always thought of himself as a businessman. In addition to owning saloons and brothels, and running cattle and gambling halls, Wyatt Earp invested in land development, and worked for the better part of a year on a General Land Office survey crew in Kansas. His assignment on the team of government surveyors in 1870 was to supply the crew with meat, and to protect them from Indians and outlaws. Wyatt Earp said that he spent roughly an hour each morning hunting and the rest of each day receiving instructions on the methods of modern surveying (Barra, 1998). The Earp family had operated a freight business where as a teenager, Wyatt became an experienced teamster and learned valuable business skills. At the age of 20, the Golden Spike was driven at Promontory Summit, Utah, and with it the completion of the transcontinental railroad and a new paradigm in the movement of people and materials. Apparently gambling had better prospects than attempting to compete with steam engines.

What Wyatt Earp experienced in 1869 has been coined Disruptive Innovation. The phenomenon occurs when new technology brings about entirely new ways of doing business. Harvard Business School Professor Clayton Christensen and others have developed economic models that depict the relationship between normal technical progress and emergence and displacement by disruptive technology. Just as steam ships replaced sailing ships, and email replaced fax machines, so software replaced trig tables, total stations replaced theodolites, and machine guidance is replacing slope stakes. Disruptive innovations are always on the horizon, and in the information age, these changes are occurring ever faster.

By virtue of governmental license, Professional Land Surveying fulfills dual purposes that must be considered. Professional services organizations cannot simply adopt the newest, most efficient technology solely because of the market advantage it may afford. Protection of third-party interest or the public as a whole is equally important to fulfill the fiduciary responsibility demanded from exclusivity of practice granted to professional licensure. While real property location from a GIS is probably more precise (although not likely accurate) and certainly more efficient, as yet every such geospatial database fails to protect the rights of adjoiners and senior title interests. At the point where disruptive innovation overcomes the obstacles to fulfilling the real property value proposition, even this too will be displaced.

The emergence of locomotives and steam ships probably did not improve the lot for sail-makers. It did however, dramatically increase transoceanic shipping and with it increased opportunities for dockworkers and the shipping industry as a whole. This story was repeated a century later as we saw draftsmen replaced by CADD analysts, and plane tables turned into layout space for aerial photography. Modern LiDAR sensors are even now displacing the once disruptive innovation of photogrammetry. Effective leadership strategies are one way that organizations can prepare themselves to join the opportunity side of disruptive innovation.

Clayton M. Christensen (2007) makes a distinction between ordinary and continual advances in technology and disruptive technologies. The progress of technical or process innovation typically follows an "S" curve where time progresses along the X-axis and performance is represented on the Y-axis. The trajectory is positive with suppliers continually improving upon performance in response to customer demands, which in the early period of innovation is never entirely satisfied. In this stage of ordinary progress, competition between suppliers is nearly always defined by performance. The products and services that provide superior capability, and most closely meet customer demands, are positioned to gain market share. At the point where performance capabilities meet the demand for capabilities, there is a tendency for suppliers to overshoot the needs as competitors try to distinguish themselves with ever greater capabilities. Perhaps it's just me, but I'm thinking of GPS antennas on total stations. After the demand for innovation has been met, competition begins to shift toward favoring the low-cost provider, or simpler more user-friendly technologies. Kyle Davy and Susan Harris (2005) describe the relationship of this disruptive technology writing: "Although disruptive technology initially under performs established technology used in a mainstream market, it has features that are attractive to a few fringe (often new) customers. Nourished within these fringe niches, the disruptive technology climbs its own developmental curve. As its performance improves it can reach a point where the technology becomes competitive within the mainstream markets. At that point, the disruptive technology rapidly overthrows the established order and reshapes the value network" (p. 201).



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Creating value is the ultimate driving force determining survivability of change, as well as that of status quo. Regardless of legislation, price competition, or exclusivity of practice, if we as professionals are not creating value for our clients and the community at large, the unrelenting tide of economics will eventually wash away those products and services in favor of greater value. This value principal and the models of disruptive innovation are equally true for business enterprises, governmental agencies, and professional societies. If the services we provide no longer create value, or that value becomes marginalized by innovation, those services will ultimately disappear. Think about printed newspapers, the record industry, or encyclopedia salesmen if you want to get an idea of disruptive innovation's aftermath. If you believe that Land Surveying is immune because of professional licensure or legal constraints, I'd ask you to consider the Torrens Title Acts in 1897 and 1914, experimented with briefly in California. Legislation is not really very difficult to change. You might also try doing your topographic mapping with a compass and plane table.

Professional service organizations are mandated to seek the greater social good which favors sustained performance and the creation of value rather than quick marginal profits. Therefore leadership strategies to meet the challenges of change management and disruptive innovation are important elements to becoming living organizations. From the research cited herein, several leadership strategies are suggested to organizations wishing to sustain professional excellence and successful performance through a challenging environment marked by accelerating changes. These recommendations are well advised for any modern organization, but include elements uniquely applicable to addressing leadership of change management and disruptive innovation.

Target Training Toward the Future

Continually attracting and engaging bright minds creates vitality to an organization that is essential to sustained performance and resilience. It is not enough however, to hire new candidates and teach them the skills of the trade. The benefits of training programs are received not so much in the immediate application of skills as in the synergy of building knowledge upon experience, and are paid in the future with a workforce creatively building upon shared expertise. Training for the future imbues leaders with, as Kyle Davy (2009) states: "confidence, defined as a sense of optimism, self-assurance, courage and calm determination, winning teams can -- and do -- rise above difficult circumstances and behave in ways that perpetuate their success" (p. 2).

Be Deliberate with Communication Plans

Joanna Barsh, Marla M. Capozzi and Jonathan Davidson (2008) describe decentralized leadership networks that promote high-performance innovative organizations. Less structured organization provides the members greater freedom to collaborate, testing ideas, and drawing upon the best resources of specialized expertise. It also increases the need to promote free and open communication. Barch, Capozzi and Davidson's recommendation to seed innovation networks with communicators at key locations includes "Idea generators", "Researchers [to] mine data to find patterns", "Experts value[ing] proficiency", and "Producers [to] orchestrate the activities of the network" (p. 43).

Invest Creatively in Imagination and Innovation

This recommendation makes the point that a living firm will not emerge by simply continuing to do the things that originally made the organization successful. Leading to stay ahead of disruptive innovation demands a commitment to unleashing the organization's imagination. Gary Hamel (2006) makes a compelling statement about boldly pushing new ideas. "It's tough to build eye-popping differentiation out of lower-order human capabilities like obedience, diligence, and raw intelligence" (p. 80). In his book, On Becoming a Leader, Warren Bennis (2003) gives advice to leading for the future. "Leaders embrace error. Leaders encourage reflective backtalk. Leaders encourage dissent" (p.188). The provocative words of Hamel and Bennis should encourage leaders to make imagination and innovation highly respected and richly rewarded in their organizations.

Evangelize a Compelling Vision

Warren Bennis (2003) also declares: "The first basic ingredient of leadership is a guiding vision. The leader has a clear idea of what he or she wants to do – professionally and personally – and the strength to persist in the face of setbacks, even failures" (p. 31). That imperative is shared by many, if not most, authors on leadership. Certainly leaders of professional services organizations must place a similar emphasis on a clear and compelling vision, but the uncertainty that comes with change management makes this ingredient even more important leading for disruptive innovation.

Conclusion

Sustained levels of success in a professional services organization comes only by continually facing the challenges of change with creativity, deep and far reaching insight, and perhaps a bit of luck. These are exciting and daunting challenges for the leaders responsible to chart a successful course, but it is inaccurate to characterize their mission as the work of solitary brilliance. Kyle Davy and Susan Harris (2005) remind us: "One of the more useful insights into change in human systems is the notion that people don't resist change, they resist being changed. Many change-related hurdles have been successfully crossed by involving members of an organization wishing to change in determining both the nature of that change and how it will be implemented" (p. 285). Professional Land Surveying organizations are filled with creative and innovative allies. Capture and channel their imaginations and the organization will be well prepared to find the opportunity side of disruptive innovation. ■

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SMA Q&A Expert

By: Michael P. Durkee, ESQ

Michael P. Durkee, *a partner in the Walnut Creek office of Allen Matkins, represents developers, public agencies and interest groups in all aspects of land use law. Mike is the principal author of Map Act Navigator (1997-2011), and co-author of Ballot Box Navigator (Solano Press 2003), and Land-Use Initiatives and Referenda in California (Solano Press 1990, 1991).*

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Question

I own a single parcel of property. Some time ago, a local public agency condemned (in fee simple absolute) a 100-foot strip down the middle of that parcel. How many parcels now exist, and am I entitled to Certificates of Compliance for the parcels that I still own?

Discussion

Excellent question! In my opinion, three parcels were legally created by that condemnation: the condemned 100-foot strip (now in the government's ownership), and the two remnant parcels (located on either side of that strip), remaining in private ownership. As such, yes, you would be entitled to Certificates of Compliance for the two remnant parcels you still own.

Generally speaking, under the Subdivision Map Act, or "Map Act" (§§ 66410 et seq.), tentative and final maps are required for a division of land that creates five or more parcels (§ 66426), whereas a parcel map is required for a division of land that creates four or fewer parcels (§ 66428(a)).

Traditionally, condemnations and other conveyances to the government of property involving a portion of an existing legal parcel required a map. (See, e.g., 58 Ops.Cal.Atty.Gen. 593 (1975).) In that 1975 Attorney General Opinion, the California Attorney General addressed a situation where a proposed condemnation by a governmental agency of a portion of a single parcel would result in three lots, the condemned portion and two remnant parcels on either side of the condemned parcel. The Attorney General concluded that a parcel map was required for this 3-lot division, reasoning that there was "no question but that condemnation of a part of a parcel results in a 'division' of land" (Id. at 594), and thus, that the proposed condemnation – that divided the land into 3 parcels - was subject to the Map Act. (Ibid.)

The Attorney General concluded that a parcel map was required because while then-existing Section 66424 provided that a conveyance of land to a governmental agency was not counted for purposes of computing the number of parcels created (that provision is now in section 66426.5), it did not exempt the conveyance from the Map Act. Hence, the condemnation would divide the property into 3 new lots, and a map memorializing that proposal was required.

However, in the very next legislative session following the Attorney General's 1975 Opinion, the Legislature amended Section 66428 to add an exemption (from any mapping requirements) for conveyances of land to a governmental agency. Section 66428(a)(2) provides in pertinent part:

A parcel map shall not be required for… [l]and conveyed to or from a governmental agency, public entity, public utility, or for land conveyed to a subsidiary of a public utility for conveyance to that public utility for rights-of-way, unless a showing is made in individual cases, upon substantial evidence, that public policy necessitates a parcel map. For purposes of this subdivision, land conveyed to or from a governmental agency shall include a fee interest, a leasehold interest, an easement, or a license.

In other words, no subdivision map (neither tentative and final map, nor parcel map) is required to lawfully create parcels by conveyance, condemnation, etc. when a governmental agency is involved with that transaction. Section 66428 expressly exempts from any mapping requirements "[l]and conveyed to or from a governmental agency." The reference to "land" conveyed may raise the question whether the exemption addresses only the particular parcel conveyed to or from a governmental agency, and not any other resulting parcels. However, when read in the context of the 1975 Attorney General Opinion (which reasoned definitively that a condemnation is a "division" of land) and the immediately subsequent action taken by the Legislature in response to the Attorney General Opinion, Section 66428(a)(2) must be interpreted to mean that the division of land that occurs when the portion is conveyed (through condemnation or otherwise) - including the inevitable creation of resulting remnant parcels - is exempt from the Map Act's mapping requirements. In other words, the condemnation exemption of Section 66428(a)(2) applies to the entirety of the land division effectuated by the conveyance to the government. No mapping is required in order to "create" the resulting parcels because they already exist in fact and as a matter of law. (A parcel is lawfully created upon its conveyance by deed. (Gardner v. County of Sonoma, 29 Cal.4th 990, 1001-1002 (2003).)

To argue otherwise would result in an absurdity: the portion of the parcel conveyed to the government (and in so doing "dividing" the land) is legal, but the remaining land resulting from that legal division is not.

In a 2003 Attorney General Opinion, the Attorney General concluded that a 1965 condemnation by a governmental agency lawfully created not only the condemned parcel, but also two new remnant parcels located on either side of the condemned parcel. (86 Ops.Cal.Atty.Gen. 70 (2003).) In 1965, when the condemnation occurred, the Map Act did not require parcel maps for divisions of fewer than five parcels (no map of any kind was required). The

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parcel map requirement began in 1972. The Attorney General relied on Section 66412.6, which presumes that a parcel was lawfully created if it was a division that occurred prior to 1972, the division created fewer than five parcels, and the division was not regulated by a local ordinance then in effect. Because no map was required under the Map Act or local ordinance when the remnant parcels were created (in 1965), no map was now needed to recognize their lawful status. According to the Attorney General, the "division" occurred, and the parcels were created, when the court ordered the condemnation and the deed was recorded.

Although the 2003 Attorney General Opinion and the 1975 Attorney General Opinion addressed different Map Act sections than are at issue in your case, the common thread in each Opinion is the Attorney General's conclusion that a governmental agency-involved conveyance of fee interest (through condemnation or otherwise) "divides" the land into new remnant parcels. In addition, at the time of the division addressed by each Opinion, the Section 66428(a)(2) governmental agency condemnation exemption did not yet exist. Therefore, turning to the present question, because we know that a conveyance of a portion of a parcel to a governmental agency divides the land and creates new remnant parcels, and we know that Section 66428(a)(2) exempts such governmental agency-involved conveyances from any Map Act compliance, then it follows that the condemnation by the government lawfully created two new remnant parcels without the need for any further Map Act compliance.

Further, "factually" speaking, the government's condemnation in this case clearly "divided" the land. "Land" is defined in Civil Code section 659 as three-dimensional:

> ***Land is the material of the earth, whatever may be the ingredients of which it is composed, whether soil, rock, or other substance, and includes free or occupied space for an indefinite distance upwards as well as downwards, subject to limitations upon the use of airspace imposed, and rights in the use of airspace granted, by law.***

Because land is three-dimensional, the conveyance of one new three-dimensional portion of property to the government must, as a matter of physical law, create two additional new parcels on either side of the conveyed portion. When land is condemned, as is the case here, the remnant parcels are each separated from each other by the intervening condemned parcel, and cannot ever physically touch each other, since the condemned parcel fully separates the remnant parcels on a three-dimensional basis: the condemned parcel goes as "high" and as "low" as land can legally go in California, thus fully separates the remnant parcels from each other.

There is no body of law supporting the legal or factual argument that two parcels that cannot and do not physically touch, that are physically separated from each other by an intervening parcel of land owned in fee by the government, are nonetheless to be treated as "one parcel." They are clearly created by the legal conveyance to the government and hence are themselves legal in character.

Finally, pursuant to Map Act section 66499.35(a), any person with a financial interest in real property may request, and a local agency shall determine, whether the property complies with the Map Act and any local ordinances enacted pursuant thereto. If the local agency determines that the property complies, it must file a Certificate of Compliance for recording. (Ibid.) In the present case, because the remnant parcels comply with the Map Act and presumably the local subdivision enacted pursuant thereto, Certificates of Compliance must be filed. ■

Geography Quiz Answer

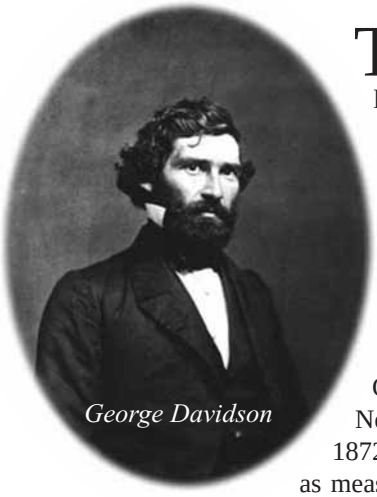
from page 24

The northern portion of the Mid-Atlantic ridge is created by the North American and Eurasian plates. The ridge is mostly underwater with one notable exception: Iceland. As the plates move apart the country grows by about 2 cm per year. Iceland contains the largest ice cap in Europe by volume, the Vatnajökull glacier, pictured here.

By: Paul Pace, PLS

***Paul** has been a practicing land surveyor in Northern Nevada and Eastern California for 45 years. He was with Sierra Pacific Power for 34 years and for 11 years was a Senior Project Manager for Stantec Consulting, both firms in Reno, Nevada. He retired in 2010. For 20 years Paul was an adjunct professor at the Mackay School of Mines at the University of Nevada, Reno. He held various offices in the Nevada Association of Land Surveyors and has published numerous historical articles and papers. He resides in Sparks, NV with his wife Jeannie.*

Verdi's Geodetic Monuments

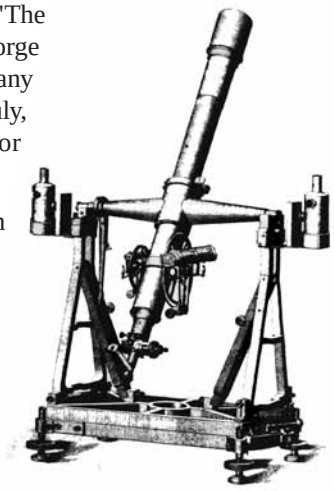


George Davidson

The base line near Verdi Bluff was short, just under a half mile in length. The surveyors would measure it twice with steel tapes. They were fortunate it was not a great deal longer, because the day time temperatures reached the quite unusual high of 127° Fahrenheit while they chained it. Assistant George Davidson and his party from the United States Coast Survey were in Verdi, Nevada in the spring and summer of 1872 to determine the 120th Meridian, as measured from Greenwich, as well as the geodetic position of new survey marks they set in the area. They brought with them to Verdi, where the Truckee River canyon widens prior to entering the Truckee Meadows, a great variety of precision instruments. Over several months they accomplished their work and then proceeded from Verdi to Donner Summit, where the days must have felt cooler.

In April of 1872, Davidson began preparations to determine the longitude at Verdi by an exchange of time signals via telegraph. A masonry pier constructed at the east end of the chained base line was conveniently located near the Central Pacific Railroad's main line, and the telegraph line that paralleled it. Davidson's assistant S.R. Throckmorton, placed the Coast Survey's meridian instrument #1 on the pier and proceeded to record 145 transits of 44 stars, over a period of eleven nights. He recorded the time pulses with a break-circuit chronometer and a field chronograph. Davidson, on the other end of the wire, simultaneously occupied the Coast Survey mark in Washington Square, San Francisco, with the Coast Survey's transit #3, a clock and chronograph. They commenced observations with the telegraph on the first of June, with Davidson recording 120 meridian crossings of 35 stars over 6 nights. Davidson traveled to Verdi to conduct observations for azimuth.

In mid June, Davidson kept H.I. Willey and Throckmorton in Verdi, while he himself returned to San Francisco. The pair recorded barometric observations 8 times a day for the remainder of the month, all done simultaneously with Davidson's in San Francisco. All the while other field parties under Davidson's general direction were hard at work elsewhere on the coast, which demanded a great deal of his time. Throckmorton noted in the Verdi barometric field book that from San Francisco, "The readings were made by Asst. George Davidson & in the midst of many other and pressing duties." In July, the two took measurements for magnetic dip while still in Verdi.



Davidson's Meridian Telescope

Shortly thereafter Davidson again returned to Verdi, this time to work on the latitude of his astronomic station. He made 163 observations of 88 stars, arranged in pairs, from the station. Davidson made separate observations for time, using 83 transits of 37 stars over 9 nights, with the meridian instrument and a sidereal chronometer. He observed for azimuth as well, with pointings on star B.A.C.4165 at western elongation and Polaris at eastern elongation, a routine he would use for years.

The base line would serve the triangulation scheme Davidson envisioned for the area around Verdi. The marks at the ends of the base line were named appropriately Verdi West Base and Verdi East Base. He selected the other new marks with care, recording their descriptions in his notebook and marking them with 1/2" drill holes in boulders or bedrock. They were on higher ground, up out of the river bottom and in every direction from his astronomic station. He occupied six of them in turn with their large theodolite and determined the positions of the other marks, as

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well as numerous other objects: peaks, buildings and such both far and near, and recorded the elevation differences.

In August they concluded the work and left for Donner Summit, to make comparisons between astronomic observations there and lower elevations. However, that summer a controversy surfaced when A. W. von Schmidt was awarded a contract to resurvey the eastern boundary of California. Many years later Davidson wrote of von Schmidt, "He could not observe for the 120th Meridian and I declined to observe for him, so finally the Department allowed him to accept the Coast Survey's determination of the 120th Meridian." He did however solve von Schmidt's problems making the turn at Lake Tahoe, adding that von Schmidt in fact had "no clew". But he derived scant satisfaction from that. He concluded, "I need hardly say to you that I received no 'fee or reward' of any kind from Von Schmidt for all the advice I rendered, and the computations I made for him..."

The granite column at East Base, prior to construction.

Davidson and the Coast Survey moved on, leaving for now the boundary issue to be resolved by others. Verdi returned to the bustle of a logging and railroad town. But while the summers may have been hot and dry, the winters were not. The masonry pier built in 1872 was subjected to alternating seasons of freeze-thaw and direct sun. The Coast Survey, now rebranded as the Coast and Geodetic Survey, returned to Verdi in 1889 and C.H. Sinclair established a new longitude mark north of Davidson's original astronomical station. They returned again in 1890, 1897 and 1899. In Special Publication #19 the C&GS reported that the masonry pier at Verdi East Base was destroyed and had been "approximately recovered and remarked by a drill hole in the top of a large, triangular, granite block, but the geodetic position of this new point has never been determined." The same publication indicated that Sinclair's 1889 longitude mark, itself a masonry pier, had also been reduced to a pile of rubble. But the party that had perpetuated East Base clearly went to great lengths to move a piece of granite 6 1/2 feet long and roughly a foot square, and intended the block to be used at some point. It appears that plan was overtaken by circumstance.

The area around Verdi Bluff developed into ranches and farms. The granite column stood in a field for over 120 years, quietly marking the Coast Survey's efforts along the 120th. But later, the rail facilities of the town's logging railroad burned to the ground, the Depression eventually closed the nearby lumber and box mills and ranching became less and less profitable. Over the years, Interstate 80 replaced US Highway 40, *Bill & Effie's Truck Stop*, a Verdi tradition, came and went and *Boomtown* took its place in the mid 1960's. In 2007 Boomtown expanded and *Cabela's* came on the scene and plans for the adjoining former ranch lands expanded. The field where the C&GS's granite column stood was scheduled to be cleared. Surveyors and other interested parties familiar with the history of the granite monument, kept an eye on it, hoping to prevent its destruction.

The property owners, alerted to the column's history by a local surveyor and probably unaware of a wider local interest, decided on their own to preserve it. Working with *Boomtown* to develop the area, they decided to remove it whole and store it at *Boomtown* until a new home could be found. The column was briefly listed as "missing" until inquiries were made and its location, in the *Boomtown* corporation yard, was discovered.

The column was stored in a corporation yard.

At that point members of NALS and CLSA asked to assist in the preservation. At a survey conference in Reno in early 2008, interested members of both organizations formed a small committee to further the idea of resetting the column in an appropriate place and having a bronze plaque outlining its history placed beside it. The column had once perpetuated Davidson's astronomical station; the "Davidson Monument" as it came to be called, would now have to have a new home.

Initially plans were made to relocate the granite block across the road from its original location. But plans to develop that area were delayed and concerns about security of the column and any plaques or memorials associated with it prompted the committee to seek a location nearer to *Boomtown* or *Cabela's*. Contact was made with *Boomtown*, the first choice, and then began a process of several years, as contacts came and went through the *Boomtown* organization. Photo simulations of several potential sites were created and sent to the company contacts, but no action was taken. Finally, in early 2011 contact was made with a new Operations

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Verdi's Geodetic Monuments

Manager at *Boomtown*. He requested that the photo simulations and any historical information pertinent to the monument be forwarded to him. He presented these to the company and quickly received the go ahead to relocate the granite column to one of the sites selected offered by the committee.

Ongoing through this period were discussions regarding the type of plaque to set along with the column, its language, size and appearance and how best to affect the relocation from storage to the new location. One of the committeemen arranged for NVEnergy, the area's public electric and gas utility, to assist with this effort. The company agreed and after a series of meetings on how best to proceed, a 3 man crew from the company's General Construction Department was detailed to reset the column.

On the morning of April 12, 2011, together with several committeemen, the crew arrived at *Boomtown*, along with a flat-rack with a lift, several other trucks and a concrete mixer. The column was hoisted up, washed and then laid in the bed of the flat-rack. It was hauled the short distance to the new site, near a bronze equestrian statue, at *Boomtown's* main entrance. The crew hand dug a suitable hole, then hoisted the heavy column over the existing iron fence and into the hole. They backfilled it with concrete they mixed at the site, braced it and cleaned up. The operation took about three hours to complete. *Boomtown's* Ops Manager, who was so instrumental in getting this to completion, then treated everyone to lunch. The crew returned the next day to remove the braces and arrange the disturbed landscaping.

Mock ups of the commemorative plaque were made and photographed and an appropriate size selected. The committee solicited donations from NALS and CLSA members, along with other people interested since 2008, and reached the amount needed to order the plaque. *Berntsen International*, a well-known monument maker and a firm close to one of the committeemen, created the plaque. It was fixed on a specially fitted mount supplied by *Berntsen* and placed on a pipe, set by NVEnergy, adjacent to the granite column in December 2011. A dedication ceremony will take place in the near future.

To further perpetuate the granite column and memorialize the work of Davidson and his tireless colleagues from the Coast & Geodetic Survey, a field survey was done by a few members of the committee on October 22nd, 2011. The static GPS work tied the relocated granite column to Davidson's original 1872 geodetic marks in the Verdi area, which included *Verdi West Base, Verdi Bluff, North Flat and Point of Rocks*. A Record of Survey will be filed in Washoe County, Nevada, where the monument sits.

Davidson's party built the instrument pier nearly 139 years ago. It was replaced by the granite block well over 100 years ago. We are happy to report, thanks to the many men and women who made this possible, that it now has a new home and commemorative plaque honoring the surveyors who worked there so long ago. ■

[1] USCS Annual Report, 1872, Appendix 9
[2] USCS Annual Report, 1872, page 41
[3] Letter to F.M. Thorne, USC&GS, from Davidson, March 27, 1889
[4] USC&GS Special Publication #19, 1914

NVEnergy workers re-set the column at Boomtown.

The granite column and bronze plaque at the entrance to Boomtown in Verdi NV.

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- Any Dual-Frequency Receiver accepted, and any robotic, motorized or manual Total Station, from any brand. That's right – **any brand**.

All trade-in equipment must be less than 10 years old, in working condition and received within 30 days of ordering a new Leica Viva GNSS RTK Rover System. **Offer ends 01/31/2012.**

- when it has to be **right**

Leica Geosystems

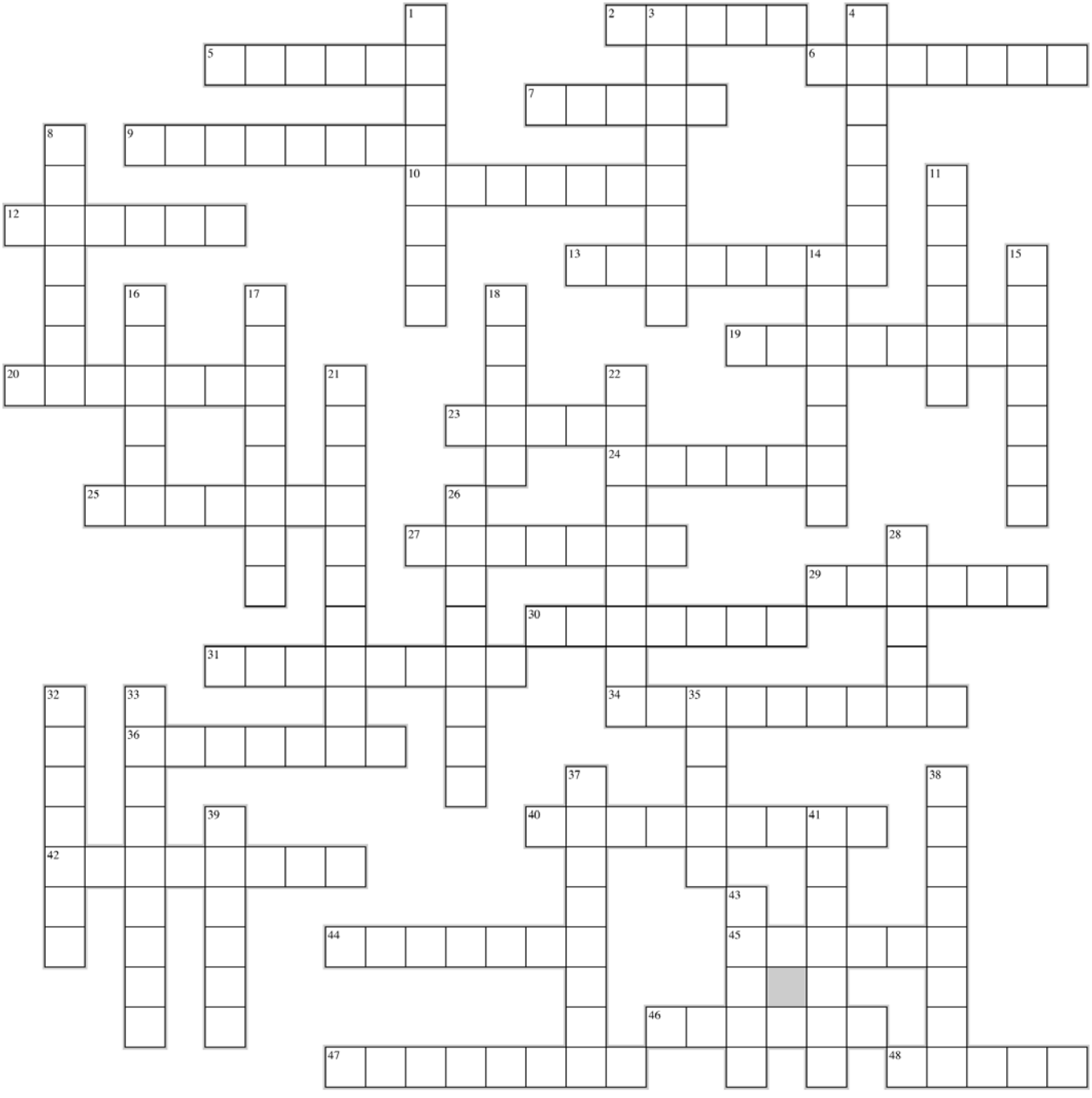
Crossword Puzzle

By: Ian Wilson, PLS

Ian Wilson, PLS *is the Director of Survey for Cardno WRG, Inc. in Roseville, CA. He started surveying in 1988 in Southern California and is now enjoying life in Northern California. Ian enjoys hearing from fellow members about the crossword puzzle and is always looking for clue ideas and input. He is licensed in California and Nevada and has specialized in boundary, topographic and Land Title surveys. His expert witness practice in boundary and easement issues is growing. Ian has been a member of CLSA since 1988.*

CLSA Crossword Puzzle #21

If you have an idea for a puzzle theme or a clue you would like to include in an upcoming puzzle, email to clsa@californiasurveyors.org



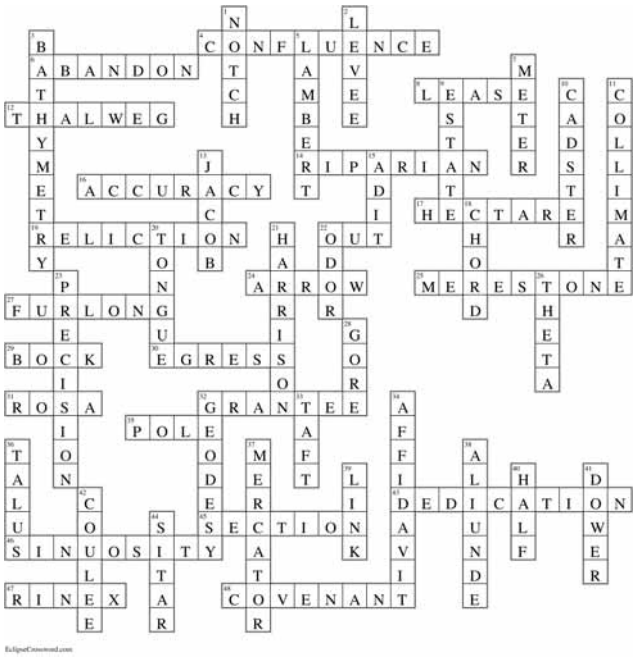
Across

2. RIGHT OR TITLE
5. INSTRUMENT PLAYED BY VAN DE VALK
6. GIFT BY WILL OF PERSONAL PROPERTY
7. TEN TO THE MINUS FIFTEEN
9. LOCATION
10. A LINE GETTING TOUCHY WITH A CURVE
12. CURVING AWAY
13. SET ASIDE FOR PUBLIC USE
19. LOOKING BACK FOR REFERENCE
20. PROPORTION WHEN NO OTHER SOLUTION EXISTS
23. BIRTHPLACE OF CLSA'S TOM TAYLOR
24. LEHMANN'S FORESTRY 107A INSTRUCTOR
25. MISTAKE
27. PLAINTIFF WHO BROUGHT SUIT AGAINST SONOMA COUNTY
29. CALIFORNIA SURVEYOR GENERAL IN 1877
30. AN ESTABLISHED RULE OF LAW
31. NORTH SOUTH REFERENCE LINE
34. DEPUTY SURVEYOR GENERAL WHO SURVEYED LINE BETWEEN SONOMA AND NAPA COUNTIES
36. LEHMANN'S CURRENT HOME TOWN
40. ANGLE BETWEEN TWO MERIDIANS
42. SOUTH OZ HOME OF THE TORRENS SYSTEM
44. VAN DE VALK'S CURRENT HOME TOWN
45. SURVEYOR CREATED GAP
46. SOMETHING TO AIM AT
47. MOUNTAINS ALONG KINGSBURY LINE
48. MISSTATEMENT

Down

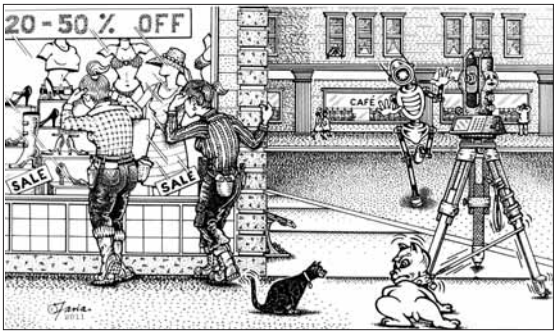
1. ALONG A STREET
3. ANGULAR DISTANCE MEASURED ON A MERIDIAN
4. MOON'S POINT AT HIGHEST TIDE
8. SONOMA COUNTY SURVEYOR
11. LORD OF THE TEMPERATURE SCALE
14. ADDING OF SUCCESSIVE PERIODS
15. NSPS ARE 9 DIRECTOR
16. PERPENDICULAR
17. SF PARK SUBJECT OF $1B CALTRANS PROJECT
18. A DEVICE FOR CARRYING WATER
21. LIGHT ON A BENDER
22. 2012 CLSA SECRETARY
26. BAY AT SOUTH END OF KINGSBURY LINE
28. NICKEL/IRON ALLOY
32. SIGHTING PART OF A SURVEY INSTRUMENT
33. NEW HOME TOWN OF THE FUTURE ACSM/NSPS
35. POINT ON CELESTIAL SPHERE DIRECTLY BELOW THE OBSERVER
37. STATE OF SEYMOUR'S SECOND PLS
38. OFFICIAL REGISTER OF QUANTITY
39. SEYMOUR'S HOME STATE
41. LOSS IN VALUE
43. SHORT CUT ON AN ARC

Key to CLSA puzzle #20 (Surveyor Issue # 167)



Sustaining Members

Top Captions for issue #167 Cartoon



Fred steps away from the instrument.
"Do you see him?"
"Nope. But I know he's in there somewhere."
- John Wilusz, Editor

I don't see a single orange vest!
- Anonymous

The cat, obviously working for the adjoining land owner.
Anonymous

Submit your caption for the cartoon above to clsa@californiasurveyors.org by February 1st.
Our favorite captions will be published in the next issue of the California Surveyor.

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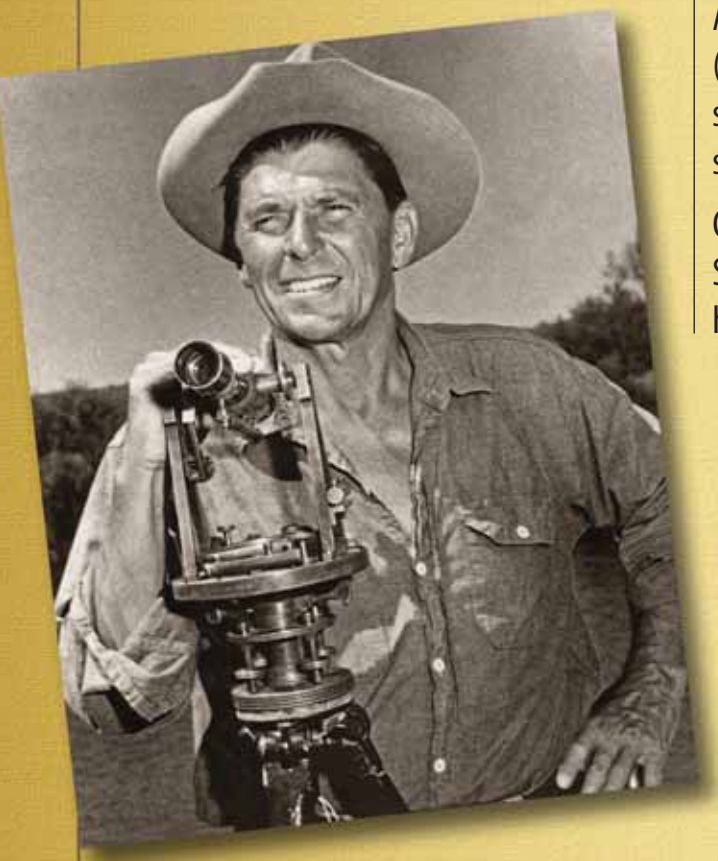

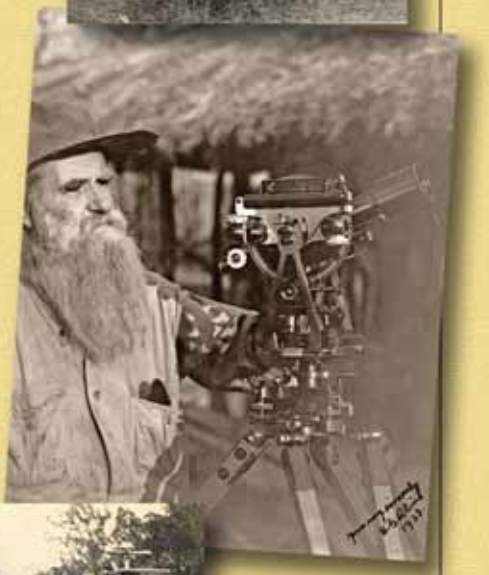

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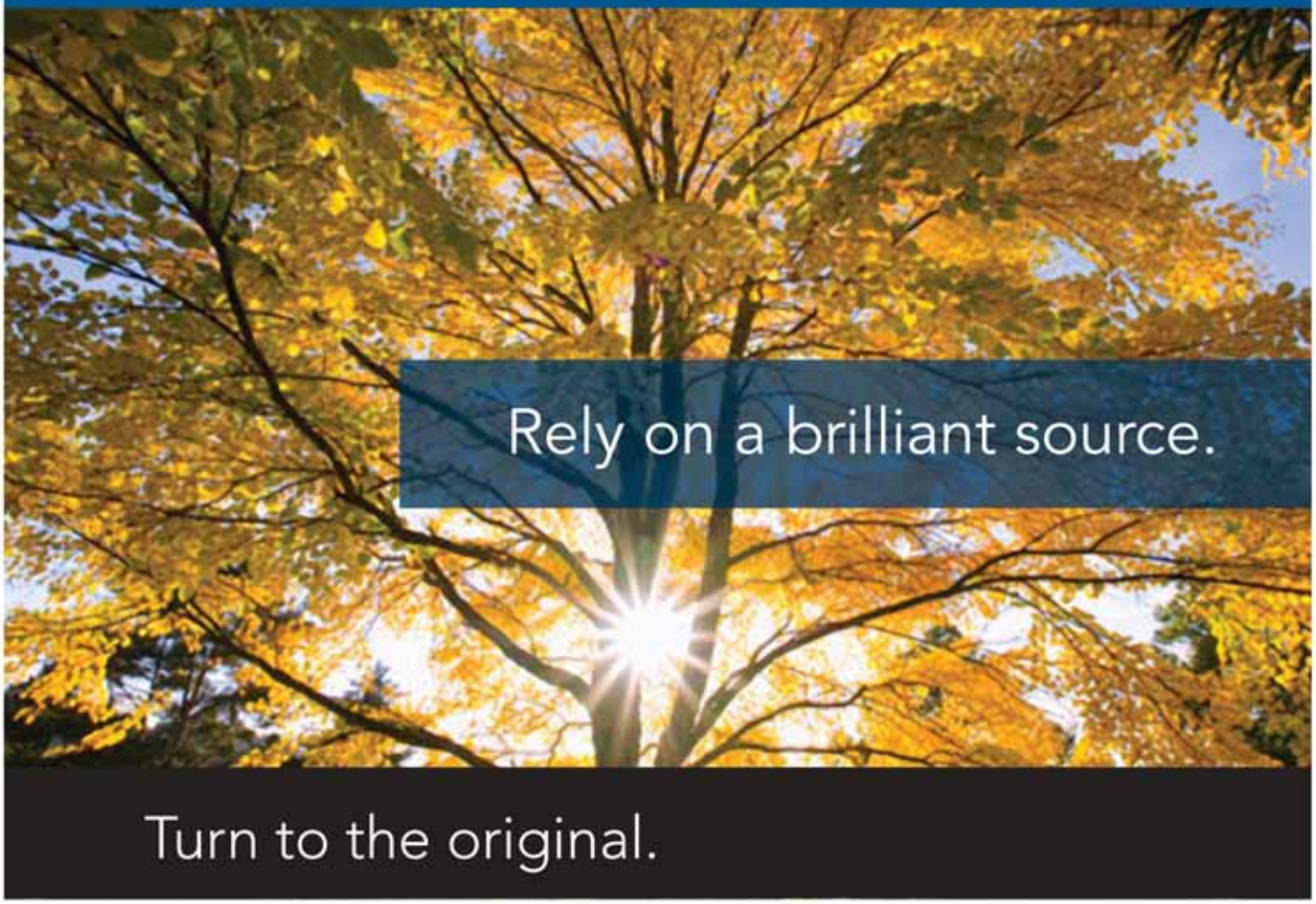

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