

SURVEYOR

California

Summer 2015

Issue #181



Saving What Is Left

A. W. von Schmidt and His Iron Monument

By: Paul Pace, PLS - page 12

GEORGE ROGERS CLARK AND THE NORTH-WEST TERRITORY: SETTING THE STAGE FOR THE UNITED STATES PUBLIC LAND SURVEY

By: James Crossfield, PLS - page 22

Hot Topics for the 2015-16 Legislative Session

By: Ralph Simoni, CLSA Legislative Advocate - page 30

CHANGE SERVICE REQUESTED

The California Surveyor

526 So E. Street, Santa Rosa, CA 95404

ENGINEERING SUPPLY COMPANY


THE LEADER IN PRECISION POSITIONING SYSTEMS SINCE 1985

Call Toll Free: 800-788-3307 www.escsurvey.com

Two Full Service Locations To Serve You!

Concord, California
5700 Imhoff Dr., Suite J

W. Sacramento, California
1030 Riverside Pkwy., Suite 150

 **TOPCON** Sales - Service - Training - Rentals

 **TOPCON**
UNIVERSITY

On Demand Training
When You Need It!

There's No Limit To Your Productivity!

With Quality Topcon Products And World Class Customer Service!

Factory Trained and Certified: Sales, Service and Training!



LASER SCANNERS • IMAGING & ROBOTIC TOTAL STATIONS • CONVENTIONAL AND REFLECTORLESS TOTAL STATIONS • THEODOLITES • DIGITAL & AUTO LEVELS • FIELD CONTROLLERS SURVEYING SOFTWARE • GEODETIC & GIS GPS RECEIVERS • NETWORK SOLUTIONS • ACCESSORIES

TRADE IN & TRADE UP

OFFER ENDS SEPTEMBER 30, 2015*

TRADE-IN ANY TOTAL STATION AND RECEIVE UP TO
\$9,000 TOWARDS A NEW iCON
ROBOT 60 TOTAL STATION SYSTEM

- One-person construction layout and 3D machine control
- Cube Search boosts prism search while Target Snap ignores other prisms, only locking on yours
- Powerful iCONstruct software can be used as a remote control for optimum functionality

OR

TRADE-IN ANY TOTAL STATION AND RECEIVE UP TO
\$2,500 TOWARDS A NEW iCON
BUILDER 60 TOTAL STATION

- Professional grade construction layout
- Intuitive user interface paired with industry leading layout software
- The highest quality manual total station

SHOP NOW >

AGGRESSIVE FINANCING RATES AVAILABLE!

*NOT VALID WITH ANY OTHER OFFER.



DUE TO MANUFACTURER AGREEMENTS, THIS TRADE-IN SPECIAL IS LIMITED TO THE FOLLOWING LOCATIONS:

33 Barber Court
Ste 119
Birmingham, AL 35209
(P) 1.205.942.0404
(F) 1.205.942.0484
(E) chad.randolph@leicaus.com

1550 Boggs Rd
Duluth, GA 30096
(P) 800.220.7206
(P) 770.935.0408
(F) 770.279.1088
(E) rick.howard@leicaus.com

10621 Harwin, Ste 318
Houston, TX 77036
(P) 713.779.0900
(F) 713.779.0905
(E) fahim.dangra@leicaus.com

1447 Rollins Rd
Burlingame, CA 94010
(P) 800.462.8181
(F) 650.348.0502
(E) mike.strom@leicaus.com

4317 North 16th St
Phoenix, AZ 85016
(P) 800.938.0608
(P) 602.274.2052
(F) 602.274.3740
(E) mike.strom@leicaus.com

601 S. Campbell
Tucson, AZ 85719
(P) 800.805.4056
(P) 520.624.4056
(F) 520.628.8835
(E) mike.strom@leicaus.com

8014 Staples Mill Rd
Henrico, VA 23228
(P) 1.804.515.7984
(F) 1.804.515.7369
(E) mike.strom@leicaus.com

2942 Century Place
Costa Mesa, CA 92626
(P) 800.938.0606
(P) 714.546.0606
(F) 714.546.9724
(E) mike.strom@leicaus.com

GET SPECIAL DISCOUNTS at Office DEPOT with your CLSA Membership

The program includes:

- Savings of up to 70% on commonly used items
- FREE next-business-day delivery
- Thousands of products in stock
- Unparalleled expertise
- Ultimate shopping convenience by phone, fax or online
- The latest in office technology
- Office Supplies, Furniture and More!

**OFFICE DEPOT
IS YOUR
ONE STOP SHOP!**

**CALL CLSA
at 707-578-6016
FOR MORE INFO**

**Office
DEPOT.**

Taking Care of Business

CLSA Board of Directors 2015

CLSA Officers 2015

Jay K. Seymour, President
Roger K. Hanlin, President-Elect
D. Ian Wilson, Secretary
Jeff Steffan, Treasurer
Rolland VanDeValk, Immediate Past President
Dorothy Calegari, Executive Director

Directors

BAKERSFIELD CHAPTER
Kevin Morris • Ronald J. Nelms

CASCADE CHAPTER
Stephen Dean

CENTRAL COAST CHAPTER
George Marchenko - Ian McClain - Linda Richardson

CENTRAL VALLEY CHAPTER
William Koch • Keith W. Spencer

CHANNEL ISLANDS CHAPTER
Frank Maxim • Steve Opdahl

DESERT CHAPTER
Chris Alberts • Douglas E. Redlin

EAST BAY CHAPTER
Steve Mendenhall • Rich Ray

GOLD COUNTRY CHAPTER
Marc R. Van Zuuk

HUMBOLDT CHAPTER
Peter D. Jackson

LAKE/MENDOCINO CHAPTER
Steve Farr

LOS ANGELES CHAPTER
Eric Bowers • Mark R. Danielson • Stephen M. Hughey
Richard Snedaker • Steven G. Steinhoff • Theresa Strazzella

MARIN CHAPTER
William E. Schroeder

MONTEREY BAY CHAPTER
Lynn Kovach

MOTHER LODGE CHAPTER
Richard James

NORTHERN COUNTIES CHAPTER
James M. Herrick

ORANGE COUNTY CHAPTER
Daryl Christian • Glenn Lake • Joe Padilla
Trevor Rice • Steve Slocum • David Woolley

RIVERSIDE/SAN BERNARDINO CHAPTER
Nathan Carlson • John Duquette • Larry Gill • Tom Herrin • Ryan Versteeg

SACRAMENTO CHAPTER
Michael Chiara • Nick Labeledzki • Annette Lockhart • Jill VanHouten

SAN DIEGO CHAPTER
Pauel Goebel • Gary Hus • Armand Marois • Marvin Sylakowski • Blake Toregersen

SAN JOAQUIN VALLEY CHAPTER
Kevin W. Nehring

SANTA CLARA/SAN MATEO CHAPTER
Paul W. Lamoreaux • James F. Wright

SONOMA COUNTY CHAPTER
Howard Brunner • Michael Jones

Surveyor California

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.”

PERSONNEL

OWNER

California Land Surveyors Association, Inc.

CENTRAL OFFICE

526 So. E Street
Santa Rosa, CA 95404

E-Mail address: clsacaliforniasurveyors.org
CLSA Homepage: www.californiasurveyors.org

EDITOR

John P. Wilusz, PLS, PE

ASSISTANT EDITORS

Paul M. Brown, PLS – Jill Van Houten, PLS

CONTRIBUTING WRITERS

Anne Hoppe, PLS
Dane Ince, PLS
Michael P. Durkee, Esq.
Richard R. Hertzberg, CPUC, ARM
Scott Martin, PLS

DESIGN AND PRODUCTION

Tony Monaco

ADVERTISING

Commercial advertising is accepted by The California Surveyor. Advertising rates and information can be obtained by contacting CLSA 526 So. E Street, Santa Rosa, CA 95404, (707) 578-6016, Fax (707) 578-4406. Circulation: 4,800.

EDITORIAL MATERIAL

All articles reports, letters, and contributions are accepted and will be considered for publication regardless of the author's affiliation with the California Land Surveyors Association, Inc. Contributions should be emailed to clsacaliforniasurveyors.org. We can accept WordPerfect or Microsoft Word files. We can accept ASCII text files or word processor files from the following programs: WordPerfect or Microsoft Word.

EDITOR'S ADDRESS

John P. Wilusz, PLS, PE
E-mail: johnwilusz@gmail.com

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.

Opinions expressed by the editor or individual writers are not necessarily endorsed by the California Land Surveyors Association Officers or its Board of Directors. Original articles may be reprinted with due credit given to the source and written notification to the California Land Surveyors Association, unless otherwise noted.

Inside This Issue:

Features:

Saving What Is Left

A. W. von Schmidt and His Iron Monument

By: Paul Pace, PLS 12

George Rogers Clark and the North-West Territory:

Setting the Stage for the United States Public Land Survey

By: James Crossfield, PLS 22

Hot Topics for the 2015-16 Legislative Session

By: Ralph Simoni, CLSA Legislative Advocate 30

Congratulations New PLSs

..... 32

CLSA/NALS 2015 Conference Wrap Up

By: Carl C. deBaca, PLS

Photos By: Steve Shambeck, PLS Photography 34

Congratulations CLSA Awards

..... 38

Columns:

BPELSG Chronicles:

Land Surveyors Technical Advisory Committee

By: Ric Moore, Executive Officer BPELSG 11

My Other Hat: My Other Hat...Brewmaster

By: Ian Wilson, PLS 40

Ask the SMA Expert: Does CEQA Apply to Lot Line Adjustments?

By: Michael Durkee, Esq. 42

Tech Tips: FAA Unmanned Aircraft System Compliancy

By: Caleb McCallister, PLS 44

Bad Backsights - 2040's Most Interesting Human

By: Carl C. de Baca, PLS 48

Departments:

From the Editor 6

Geography Quiz 9/33

President's Message 10

Kids Korner 29

CLSA Remembers 32

Index to Advertisers 43

Postcards 43

Congratulations New PLS's 45

Welcome New CLSA Members 49

Photo of the Year Entries 55

CLSA Membership Application 47

Crossword Puzzle 52/53

Sustaining Members 54

Cartoon Captions 55

Cover:

Photo of the Year by Brian Christensen, PLS



From the Editor

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

John works for the California Department of Water Resources in Sacramento, CA.

Future City Competition

In January I volunteered as a judge for the 2015 Future City Competition. Future City is a Science, Technology, Engineering, and Math (STEM) program in which teams of 6th, 7th, and 8th graders design and build cities of the future. Actually, the teams build models of their future cities using recycled materials. They designed their cities using SimCity software. The program encourages young people to explore careers in engineering. Over 30 teams from schools throughout Northern California and Nevada met in Turlock to compete for first place in the regional competition. Teams from southern California met in Santa Monica in January. Regional winners won an all-expense paid trip to represent California at the National Finals in February Washington D.C. The grand prize was a trip to U.S. Space Camp in Huntsville, Alabama, together with \$7,500 for their school's STEM program.

Future City receives funding from many corporate sponsors, and one of them is the National Council of Examiners for Engineers and Surveyors (NCEES). Corporate sponsors provide money for "special awards" that recognize creative thinking in various technologies and professional practices. NCEES sponsored the award "Best Surveying Practices." As an NCEES representative, my job was to judge "teams on their ability to produce a design that employed best land surveying practices, taking into consideration the high standards used by surveyors to help protect the public's safety and welfare." There were many other special awards categories. Among them were: Best Transportation System; Best Risk Management; Most Sustainable City; Most Creative Use of Materials, and; Most Innovative Power Generations System.

Of the 30+ teams I interviewed, only two were able to describe what a land surveyor does, let alone employ best surveying practices. For that reason here is an approximation of the speech I delivered repeatedly that day:

Good morning, Ecotopia. My name is John Wilusz and I'm a special awards judge for the category "Best Surveying Practices." Do you know what a land surveyor does? No? Well then, surveyors are technical professionals that contribute to the community in many ways. For example:

- They make maps for city planning and engineering design;
- They locate and mark property boundaries;
- They set construction stakes for things like buildings, roads, and pipelines;
- And, they make measurements for drainage systems, flood control, and irrigation.

Knowing that, can you explain how a surveyor would be useful in the design, construction, or maintenance of your city?

The explanations that followed were enthusiastic but generally not very accurate. The few teams that scored well were able to think quickly and give sensible examples of surveying applications based on my definition. My favorite team knew more about pipelines than surveying. Caelum City was a simple and crudely built model built on a sheet of plywood. It wasn't much to look at, but the



Meeting the Judges.

underside of the plywood had a curious network of plastic straws taped to it. That's what caught my attention. The students told me the straws represented their city's water and sewer systems. Then they went on to explain how important it is to keep the water lines above the sewer lines. This is to prevent the drinking water from being contaminated sewage. "Excellent! A+," I thought to myself. "Seems like you would need a surveyor to lay out your pipelines," I said to them. "That would ensure they all go in the right place." The kids agreed with big smiles. Good job, Caelum City.

Continued on next page

Future City is about much more than surveying. The theme of this year's competition was Feeding Future Cities. Each team selected one vegetable and one protein and designed a way to grow enough of each to feed its city. One team used GMO beef and corn, but most went in the opposite direction and used organically grown crops like fava beans, soy beans, spinach, and spirulina. One team I interviewed chose crickets as the main source of protein. This intrigued me. I asked if anyone had actually eaten a cricket. The boys on the team made a face and said no. The only girl on the team said she had. I asked her if she liked it. She told me she did not. "Then what makes you think anyone else will?" I asked. The kids assured me that people in the future will not be fussy about flavor. Instead, future citizens will appreciate the fact that cricket farming has a smaller ecological footprint than raising beef, pork, or poultry. I guess we'll have to wait for the future to find out for sure. Many teams used rooftop gardens to support urban agriculture, and some cities had elaborate, multistory garden structures. Sustainability was important to everybody, and so was the idea of minimizing or eliminating environmental pollution. Clean energy production was another important theme. Solar photovoltaic panels were popular, and many cities used turbines to capture wind, hydro, and geothermal energy. Two future cities used undersea turbines to capture energy from the flow of tides. One of the least practical (but most memorable) ideas was to raise cows under a plastic dome so the city could harvest methane for energy production. Speaking of domes, one team built their whole city under a dome. Their city was in Death Valley, circa 2165, and it was underwater, a casualty of sea level rise.

Volunteer mentors play an important role in Future City. They guide students during the design process and provide insight into real world engineering and scientific applications. According to the program handbook, technical professionals such as engineers, architects, and urban planners are highly desirable. Surveyors are not mentioned explicitly, but I think we could be just as helpful as anyone else. For more information on volunteering, read the accompanying interview with Rapunzel Amador Lewis, P.E.

At the end of the day everyone gathered in an auditorium to watch the top five teams make presentations before a panel of judges. I counted over 200 people in the room. The finalists answered questions from educators and engineers. Here are few that caught my attention:

- What kinds of engineers will your city need?
- What part of the engineering design process was most challenging for your team and why?
- What are the challenges of growing food on rooftops?
- Why would someone want to live in your city?

My favorite question and answer of the day:

Judge: "What was the hardest question you were asked by the judges?"

Student: "Someone asked me what a land surveyor does. I had no idea."

The audience howled, probably because no one else knew the answer either. This is something land surveyors need to change.

Get Involved

Future City is a great way to interact with young people and introduce them to a career in surveying. Find out if your local middle school participates in the program, and if not, introduce it. Consider having your Chapter sponsor a special award. Volunteer to be a team mentor, and then be a judge at the regional competition in 2016. Learn more at FutureCity.org

Excellence in Journalism

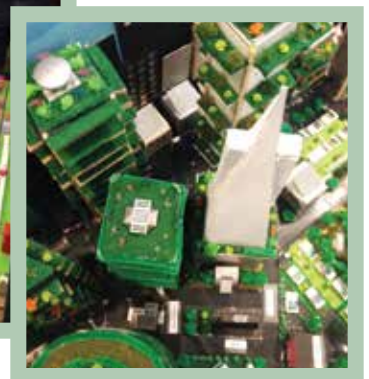
In April the National Society of Professional Surveyors awarded the California Land Surveyors Association the prize Editorial of the Year in the 2015 Excellence in Journalism Competition. The winning article was Surveying for Civil Engineers, Issue #177. My thanks to all, and Crissy Willson in particular, who help make the California Surveyor a magazine worth reading.

Surveying Equipment for Sacramento City College

Last but not least, my sincere thanks to California Survey and Drafting Supply (CSDS) for loaning total stations to Sacramento City College for use in my class Engineering Surveying Measurements. The college's inventory consists primarily of antique transits. Thanks to the generosity of owner Bruce Gandelman, my students got hands-on experience with modern surveying equipment. CSDS staff also demonstrated several cutting edge technologies for the students: a quad copter unmanned aerial vehicle, robotic total station, and an RTK GPS receiver. The students really enjoyed the show. More importantly, it gave them look at the exciting possibilities of a career in surveying and engineering. Thank you, CSDS. ❖



Finishing Touches.



Future San Francisco.



Solar Powered City.



Biosville.

Interview with Rapunzel Amador Lewis, PE

Rapunzel Amador Lewis, PE, is a civil engineer who owns her own structural engineering & consulting Firm in Turlock. She is also a Future City Program Director for the Central Valley Schools. She and I met on the day of the competition. In May she graciously agreed to an interview for the California Surveyor.

CS: How did you get involved with Future City?

RAL: In 2007 I volunteered as a judge on two events: the seven-minute presentation and the tabletop model. After that I was asked by the then regional coordinator if I wanted to take over as regional coordinator for Northern CA, since he had moved out of the area. So I did. During the 2008-2009 competition year, I introduced FC to the local schools in my immediate vicinity. That year I also helped two teams advance to the regional finals, which were held at Santa Clara University. Those teams were from Turlock Christian School and Hart-Ransom School in Modesto, CA, both Central Valley schools. The following year I brought the regional competition to CSU Stanislaus in Turlock. Hart-Ransom went on to represent California at the national finals two years in a row, placing 9th, and 2nd overall, respectively. During the following two years Future City grew exponentially in Stanislaus County, and SCOE adopted the Future City program into their Special Events program. That made it accessible to all middle school students.

CS: Can Scout Troops get involved?

RAL: Absolutely. Our first ever non-profit youth organization to compete in Future City was the Girls Scout Troop #2225, hailing from three different middle schools in the Modesto/Salida area. They won the Northern California Regional Championship two years in a row and placed 10th and 5th overall at the national finals in Washington, DC.

CS: Tell me about your work with Future City mentors.

RAL: I love training the mentors. I do this during our local orientation and training program. The training is sponsored by the Stanislaus County Office of Education (SCOE) and the San Joaquin County Office of Education (SJC OE). I encourage mentors to commit to at least 1 hour per week during the months of October and November, increasing to 2 hours per week during the first half of December, and then 4 hours per week during the holidays. Mentors should spend as many hours as they can with the team, after school and on Saturdays, to prepare them for the regional finals in January.

CS: This year you brought Northern California regional champion, Eureka Key, to Washington, D.C. for the national finals. What did you do in D.C.?

RAL: Regional coordinators like me are expected to self-fund our travel and lend support to our regional winners. Prior to traveling, I publicized the winning team by inviting them to presentations at our local Rotary Club, Engineers Club, and other service clubs. We solicited donations so we could provide the team with an allowance, and we were also able to provide support to family members who wished to make the trip. In addition to supporting our representative regional winners, while in Washington, D.C. we got to mingle with other professional engineer mentors, educators, and students from around the country. We exchanged ideas, shared stories about failures and successes, and built rapport with other regional coordinators. Most importantly, we served as volunteers to run the many coordination activities required to keep such a huge event running smoothly: ushering students, monitoring rooms, timer duties, score keeping...and training meetings.

CS: Can you give an example or two of the positive effects of Future City?

RAL: Of course! My first Future City student from Turlock Christian School (my first recruit from Central Valley) is now doing very well as a mechanical engineering undergraduate student at Cal Poly, San Luis Obispo. He credits FC for opening up his eyes to the myriad of opportunities of a career in engineering. During the competition, I paired him up with a biomedical engineer, a volunteer judge from San Francisco, and later held his hand while he knocked on the door to the Cal Poly School of Engineering. He has continued to come back and serve as an official mentor to Future City teams in Turlock for the past 4 years. My second FC student from Hart-Ransom School now has the WOW factor in all sorts of competitions: He has been on winning teams competing in mock trials and speech contests locally and regionally, and he has served as a final presentation judge for FC regional finals for the last 3 years. ❖



*Above:
Rapunzel Amador Lewis,
P.E. (front right) mingling
with volunteers and
parents during the Future
City welcome party at
the national finals in
Washington, D.C.*



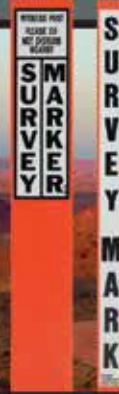
California Champ Eureka Key.

SURVEY

MARKING PRODUCTS

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

Berntsen®



FIND US ONLINE
www.berntsen.com



CONTACT US BY EMAIL
surveymark@berntsen.com



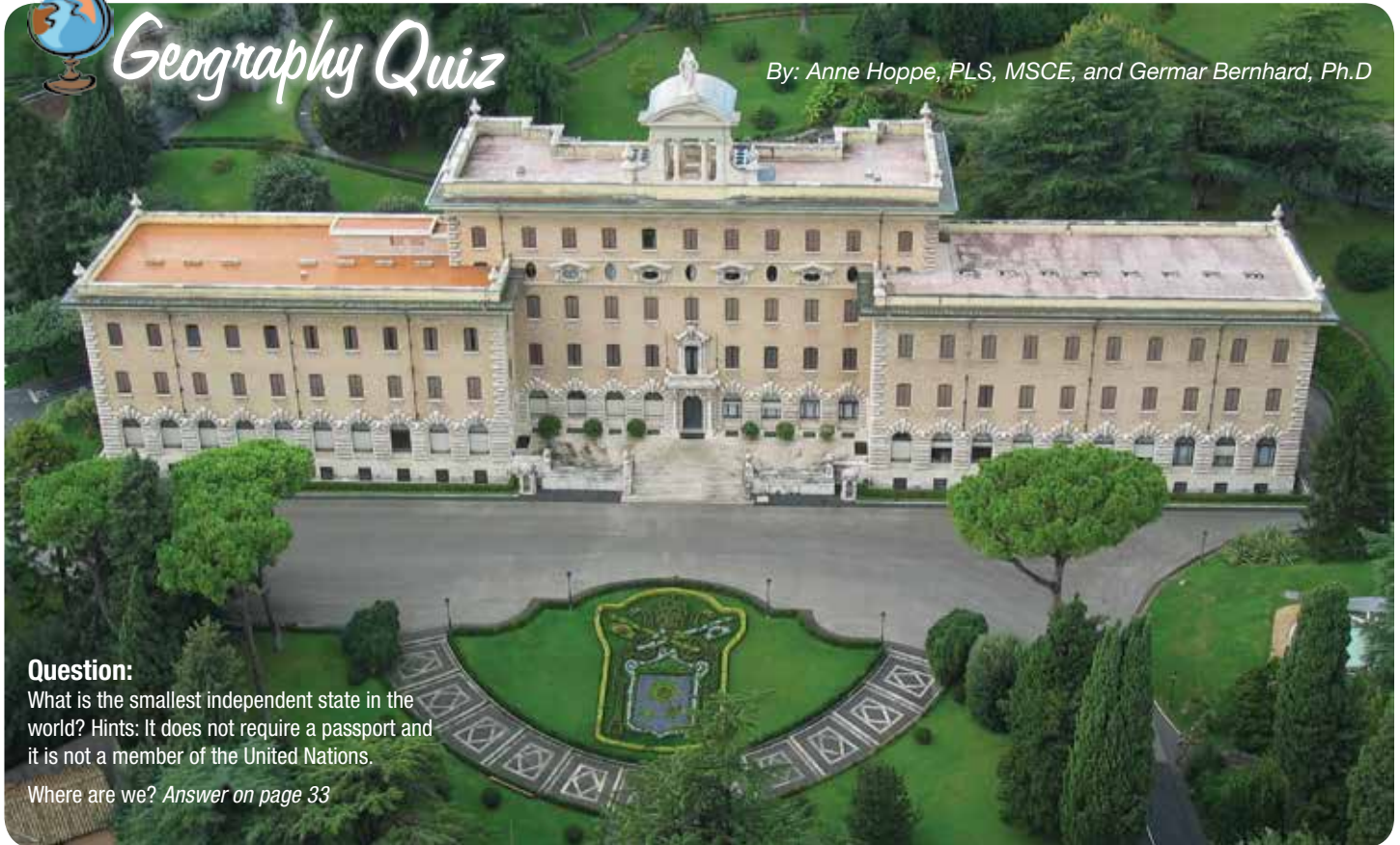
ORDER BY PHONE
877.686.8561

MARKING THE INFRASTRUCTURE OF THE WORLD™ | WWW.BERNTSEN.COM



Geography Quiz

By: Anne Hoppe, PLS, MSCE, and Germar Bernhard, Ph.D



Question:

What is the smallest independent state in the world? Hints: It does not require a passport and it is not a member of the United Nations.

Where are we? Answer on page 33

Jay Kay Seymour has forty-seven years of experience and is currently Owner of Professional Land Consultants, Inc. in Redondo Beach, CA. Jay has been a member of CLSA since 1989

President's Message



As I complete my first quarter of my presidency, I realize how difficult this position is, as compared to the “outside-looking-in” approach. I am however, thankful for the fifty-eight members of the board of directors; my fellow officers; our executive director and central office; and most of all for the general membership!

My email and voice mail are working just fine! I hear from the membership, and I will continue on the course that I have plotted for the association this year. On several occasions, members of the board of directors have approached me and said the following:

- *We cannot remember the last time we laughed at a Board of Directors Meeting! It was refreshing to feel the release of tension.*
- *We appreciate the reverence you have brought back to the meetings, especially the moment of silence for those members who are no longer with us.*
- *We appreciate the recognition of the presidents and their contribution to the association.*
- *We support your goal to GROW the association this year*
- *Thanks for moving the meeting along in a timely, yet respectful manner, and getting us out on time!*

Let's, each and every one of us, ask the following questions of ourselves! *How do we grow the association? How do we increase membership? How do we show value to our members? Why do we belong to a professional association? How can we make CLSA better?*

How do we grow the association? It is the small things that count! Baby steps, then giant leaps! Each and every one of us, know at least one fellow surveyor at our company, in our community, at our public agencies, even our competition, that is NOT a member of CLSA. Invite that person or persons to your local meetings. If your local chapter budget allows, “comp” the dinner or at least the raffle tickets for that guest. Arrive early; introduce them to your friends and the officers of the chapter. Make them feel welcomed.

How do we increase membership? By reaching out the retirees; the RCE's; the public agencies; the union surveyors; the field surveyors; the new LSIT/LS; and most importantly, the students! Once again, welcome them to your meetings invite them to your events; ask them to join you for dinner and a guest speaker. And lastly, contact central office for our outstanding package of material that is available to the chapters. This package consists of information on how to run a meeting; how to organize a chapter; video's for distribution to the students; and other ideas to assist you!

How do we show value to our members? This begins with looking inside of each and every one of you! Why do you belong, what have you gained from your membership; some of you are local officers in your chapter, while others contribute at the state level. Remember, we are a

family of twenty-two chapters, each functioning in our own areas, with our own surveying needs, and potential membership pool to draw from. It is through understanding of the chapters and seeing how they do things, how they development their newsletters, and in some instances, their own websites. Share your ideas with the other chapters, and see how they can contribute to you.

Why do we belong to a professional association? I go back to my father! He was instrumental in forming the KSLS (Kansas Society of Land Surveyors); also in the same timeframe we formed CLSA. He instilled in me a sense of belonging, and a pride in our profession. He showed me that even though we “fight” daily for business, and disagree on surveying procedures, we always come together for the good of the profession. Our association is where we come together to make it better not only not less, but greater than it was passed on to us, by our predecessors. We must commit to the Next Generation, and show them; we took the baton from our mentors, and now we pass it on to the future surveyors of tomorrow.

How can we make CLSA better? Lest we forget, we are a volunteer organization, with many dedicated members who “go the extra mile” for the association on a daily basis. We are fortunate to have one of the founding members, and signee of the Articles of Incorporation, Paul Lamoreaux, PLS still on the board of directors. We also have many presidents, still serving as a director, for example Howard Brunner, PLS is approaching 30 years of service as a committee chairman.

We make our association better by participating at the local chapter level and continuing the successful formula of state, where the “rotation of chairs” of officers, ensures a smooth transition from year to year. A chapter is successful when they blend the young, the current surveyors, and the retired surveyors to take advantage of all the expertise available. Committee members and chairs are the key to the success of both the local and the state chapters, and we need many or people to participate in the process.

I want to thank our fifty-eight board of directors, for dedicating four Saturday's each year to come to Oakland and participate in the management of the CLSA. And finally, my fellow officers; Rolland Van De Valk, Immediate Past President, Bakersfield Chapter; Roger Hanlin, President Elect, Northern Counties Chapter; Ian Wilson, Secretary; Jeff Steffan, Treasurer.

Come along with me as we begin our next quarter, and help me grow the membership, involve more members, and make our association as great as it can be as we move towards our 50th anniversary. All the best!

President Seymour ❖

1966



BPELSG Chronicles

The Role of the Land Surveyor Technical Advisory Committee (LSTAC)

Every so often, BPELSG is asked what is the Land Surveyor Technical Advisory Committee (LSTAC) and what do they do? The LSTAC is one of several advisory committees that, by law, BPELSG is authorized to establish for specific purposes, the others being the Civil, Structural, and Geologist/Geophysicist committees which assist BPELSG with respect to those practices. Occasionally, a committee may be formed for Traffic, Geotechnical, Mechanical, or Electrical engineering purposes when the need arises.

The current laws pertaining to the LSTAC's purposes are defined under section 8715 as:

8715

The board may establish licensed land surveyor technical advisory committees to advise and assist the board with respect to the following:

The review and verification of applications for licensure.

- (1) The evaluation and investigation of potential violations of this chapter.
- (2) The amendment, repeal, adoption, or revision of board rules, regulations, policies, or procedures.

The origins of the Technical Advisory Committee (TAC) began in 1969 when BPELSG introduced legislation that created Business and Professions Code, section 6726 (under the Professional Engineers Act) and which gave BPELSG the discretion to "...establish professional engineers investigation committees to assist the board in the investigation of claims of violation of any provision under this chapter." Due to the success of this committee, BPELSG introduced legislation in 1972 to (1) duplicate this authorization under the Professional Land Surveyors' Act which eventually became law as section 8715; and (2) enact both an Engineers and Land Surveyor Review Committee to "...hear all matters assigned by the board" which eventually became section 8720. It is important to note that during this same time, there were very few staff members to work on disciplinary actions and the board had regular standing committees, comprised of board members, which met at regular times to review/approve licensure applications and address other discipline-related matters for the board. The Land Surveyor Investigation Committee and the Land Surveyor Review Committee were carried by Assembly Member Powers as AB 241 and AB 245 respectively.

Interesting historical note: During the same time in 1972 that the board was pursuing the introduction of what was to become TAC committees, the board also established a Professional Development Committee to study, evaluate, and pursue the feasibility of legislation towards requiring continuing education for licensees. Board action at the time resulted in a Board Resolution adopted April 14, 1972 in response to a Senate Resolution, dated October 18, 1971 relative to a request for the board to "...file a final plan on continuing education for its licensees with the Senate Business and Professions Committee..." But this is a story for another day...

While initial appointments were made to the Professional Engineer Investigation and Review Committees at the first meeting of the board in 1973, it wasn't until the August 8, 1973 board meeting that land surveyor (and civil engineer) members were appointed to an Ad Hoc Committee to identify and define overlapping areas of land surveying and civil engineering. All this time, the standing Land Surveyor Committee still handled all matters related to applications, exam results, and responding to inquiries related to the practice. For the remaining part of the decade and into the next, land surveying matters were handled by the standing Land Surveyor Committee and the Ad Hoc Civil Engineer and Land Surveyor Committee as necessary and directed by the board. At the February 17, 1984 board meeting the board took action to "...accept the general concept of a Technical Advisory Committee, the recommended Land Surveyor Technical Advisory Committee and to create a Structural Review Technical Advisory Committee." At the May 18, 1984 board meeting, Fred Seiji, PLS was the first member appointed to the LSTAC with a request to report to the board on exam activities. Then at the July 27, 1984 board meeting, Fred Kett, PLS and Tim Wong, PLS were appointed to the LSTAC along with a restatement by the board that "*The purpose of the Land Surveyor TAC is as an enforcement committee.*"

Eventually as the board grew staff wise, BPELSG eliminated the standing committees delegating some of the responsibilities of those standing committees to the Executive Officer with technical assistance to the board provided by staff licensees and the TAC committees. The LSTAC meetings are open public meetings and all parties interested are encouraged to attend those meetings. The meeting schedule can be found at www.bpelsg.ca.gov ❖

By: Paul S. Pace, PLS

Paul was a practicing land surveyor in Northern Nevada and Eastern California for 45 years. He was with Sierra Pacific Power Company's survey group for 34 years and for 11 years was a Special Projects Consultant and Senior Project Manager for Stantec Consulting's geomatics group. Both firms are located in Reno, Nevada. He retired in 2010.

For 20 years Paul was a surveying instructor and Director of the Summer Field Camp for mining engineering students, at the Mackay School of Mines, University of Nevada, Reno. He is a member of the Nevada Association of Land Surveyors and former Lahontan Chapter President. Paul has published numerous historical articles and papers. He resides in Sparks, Nevada with his wife Jeannie.



Saving What Is Left

A. W. von Schmidt and His Iron Monument



Colonel A. W. von Schmidt

From Chaining the Land and Wells Fargo Bank History Room, San Francisco.

Colonel Alexey Waldamere von Schmidt had friends in high places. He had been rubbing elbows with California's rich and famous for years, all from his work as a Deputy Surveyor and civil engineer in the Golden State. He was known, for example, for his engineering of San Francisco's Spring Valley Water System in 1856, his survey of John Sutter's famous New Helvetia Rancho in 1859 and his work to remove Blossom Rock, a navigational hazard lurking just below the waters of San Francisco Bay in 1870. The Blossom Rock project, risky and given little chance of success by local experts, required hollowing out the large undersea formation, filling it with explosives and blowing the rock to pieces. The plan worked.

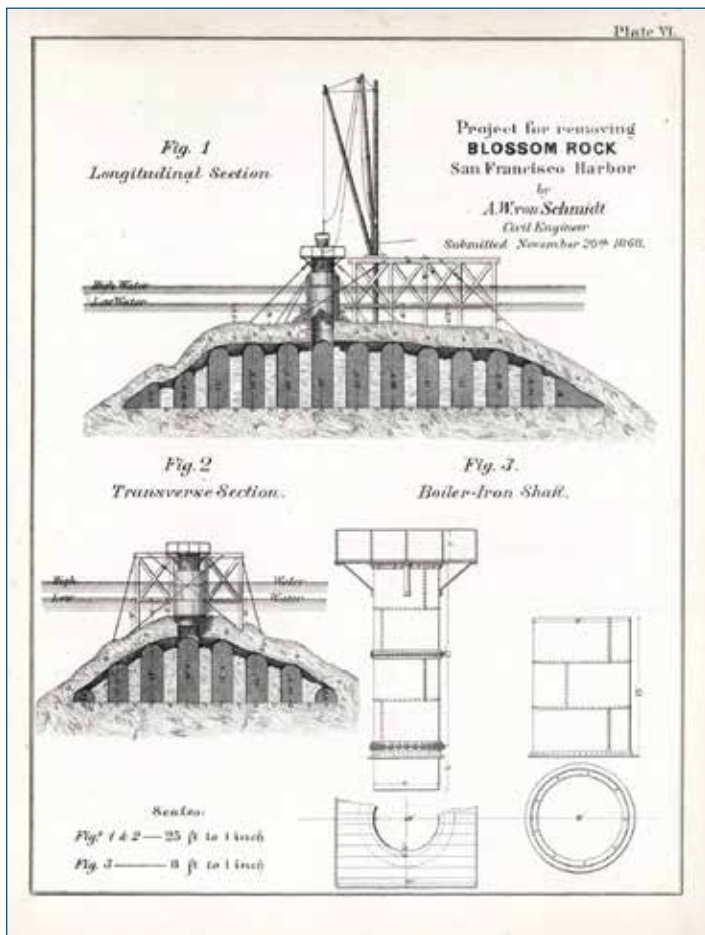
About the same time, he and some other investors built a small wooden dam on the Truckee River at Lake Tahoe, to increase water storage in the lake, with an eye to exporting it. The dam was eventually purchased by Truckee River General Electric Company and enlarged to provide a more reliable and constant supply of water for their downstream hydroelectric plant at Floriston, as well other small hydroelectric operations on the river, including that of Reno Power, Light & Water Company. In 1913, the Reclamation Service acquired the dam, and after complicated negotiations, built the concrete structure we see today at Tahoe City, as part of the Newlands Project.

Von Schmidt was a visionary and an entrepreneurial genius, but with a practical side. He would eventually hold numerous patents for an amazingly diverse array of inventions, which included numerous types of dredging machines, a universal ball joint and a centrifugal pump, tunneling and boring equipment, a high explosive artillery shell and propellers for steam ships. He held a number of patents in Canada, as well.

Through his political connections with U.S. Senator Aaron Sargent of California, he learned of an appropriation before Congress calling for a resurvey of the California-Nevada state line. The 1863 Houghton-Ives state line survey was found to be in error and the General Land Office (GLO) wanted a new survey. Von Schmidt was very interested in securing the project. Senator Sargent obligingly reported that the appropriation was for \$41,250 and that an appropriately lower bid could win the contract. A \$41,000 bid was tendered, and a few days later Sargent advised von Schmidt he had been awarded the contract. On the 20th of July, 1872, von Schmidt signed the contract at the GLO's office in San Francisco.

The contract required von Schmidt to personally make all determinations of latitude, longitude and azimuth, or as it read, "in his own proper person". In addition, the contract also stipulated that the initial point of the survey would be a monument set by Daniel G. Major¹, specifically the eastern terminus of Major's survey of the Oregon-California line, authorized by Congress in 1867. Major had spent the better part of three months determining the latitude and longitude of his observatory at Camp Bidwell, California, and from there traversed northward and set his terminal monument, on what he believed was the 42nd Parallel at the 120th Meridian West from Greenwich. The GLO had no interest in the bi-state Houghton-Ives survey, which reportedly set a monument at the same

Continued on next page



Von Schmidt's controversial plan for the removal of Blossom Rock
From the David Rumsey Map Collection.

The party of Prof. Davidson, of the United States Coast Survey, has completed the astronomical and geodetic observations for the determination of the One Hundred and Twentieth Meridian. The initial point selected was on the line of the Central Pacific Railroad, near Verdi, 4,900 feet above the sea. Through the courtesy of the officers of the Railroad and those of the Atlantic and Pacific Telegraph Company, the line was placed at the service of Prof. Davidson, for the determination of the difference of longitude between the Coast Survey observatories at San Francisco and Verdi. The full computation of these observations show very close agreement, and indicate that the boundary line between California and Nevada must be moved to the eastward; and that the determination of the One Hundred and Twentieth Meridian, by late observations is fully two miles in error.

*Article from the Daily Alta California, August 10, 1872
The two mile error reported here refers to the determination that the Houghton-Ives and the 40th Parallel Survey's 120th do not match.*

location. If Major found, or even bothered looking for, the 1863 survey's terminal monument, he made no mention of it.

For determining the 120th Meridian, somewhere near Verdi, Nevada, von Schmidt was permitted by contract to use the telegraph line running along the Central Pacific Railroad for receiving time signals, either from San Francisco or Salt Lake City.

While still in San Francisco, von Schmidt learned, most likely in the Daily Alta California for August 10th that stated as much, that George Davidson of the U.S. Coast Survey had just determined the 120th Meridian at Verdi. He immediately sent a telegram to GLO Commissioner Willis Drummond in Washington requesting permission to incorporate Davidson's newly determined 120th in his survey. The Commissioner wrote back, "Personal determination of the longitude is required, so that your affidavit to returns of the survey may be properly made".²

Von Schmidt immediately wrote back to Commissioner Drummond and requested that he begin the survey at Verdi, where he was more certain to obtain an accurate value for the Meridian, rather than begin at Major's monument, 170 miles away. Thinking this method clearly made the most sense, he next contacted George Davidson of the U.S. Coast Survey and arranged to receive telegraphic time signals from San Francisco. Davidson agreed to offer his services and von Schmidt and his crew then proceeded to Verdi, arriving there on August 19th, 1872. He had some of his own instruments, as well as some larger astronomical instruments on loan from the government.

The Colonel and his crew, which included his son Edward, began the survey on the 22nd of August. For nearly a week von Schmidt attempted to obtain telegraphic time signals from Davidson, but they encountered near nonstop interruptions from other telegraph operators. Nevertheless, von Schmidt stated ultimately that his values agreed with Davidson's and imprudently used those instead of his own, which he never reported.

While doing his own work in Verdi earlier in the year, Davidson set in place a triangulation network that straddled the 120th Meridian. In the process, he tied two existing state line monuments situated on the California-Nevada state line, originally surveyed by John Kidder in 1863.³ Kidder's survey began at the observatory of Lt. Joseph C. Ives, an Army surveyor tasked with establishing the western line of the U.S. Territory of Nevada in 1861. Lt. Ives' value for the 120th Meridian, based on his astronomic observations and telegraphic time signals at the south shore of Lake Tahoe in 1861, proved to be approximately 4000 feet too far west. Ironically, that was due to a positional error in the Coast Survey's mark on Telegraph Hill in San Francisco, where Lt. Ives received his time signals for longitude. The Civil War ended Ives' survey and later the GLO and surveyors from Clarence King's 40th Parallel Survey detected the error.

At 37 Miles, 46.22 Chains north from the angle point in Lake Tahoe, Kidder set a 10"x10" wood post in a large stone mound, marking the state line, just above the Henness Pass Road⁴. A few years later, Army surveyor Colonel Robert S. Williamson set a granite monument 102.55 feet north of Kidder's, but within easier sight of the Henness Pass Road.⁵ Davidson connected both of these monuments to his network. Von Schmidt decided to use Williamson's stone monument as a starting point and chained eastward from it 3869.6 feet, to a point on what he thought was Davidson's 120th and near the village of Crystal Peak. There he placed his initial point, a wooden observatory block, setting a nail in the block at distance. This was a much more convenient means of establishing the 120th for von Schmidt, as the observatory that Davidson used to determine the 120th, Verdi East Base, was over 2 miles away to the east and across the Truckee River. When von Schmidt established the starting point of his survey, the residents of Crystal Peak, formerly residents of Nevada, now found themselves residing in California.

Continued on next page

Saving What Is Left A. W. von Schmidt and His Iron Monument

Continued from previous page

From his newly established initial point, von Schmidt, ignoring his instructions and without word back from Drummond, began to run the line northward, setting monuments at mile intervals. He managed to establish about 72 miles of line, as far as Smoke Creek, before he received bad news in the form of a communication from Commissioner Drummond: "...while the work of Prof. Davidson may be correct, you are not to rely thereon...No data of any other Astronomer or Surveyor...can be adopted by you, as you are required to execute the work in your own proper person...". Drummond added that while establishing the 120th at Verdi was acceptable, it had to be his 120th, not Davidson's. And, by the way, he was to go directly to Major's monument and run south, as instructed in the contract.

It is not difficult to imagine von Schmidt's chagrin at yet another setback. But, complying with Drummond's orders, he and his company ceased work at Smoke Creek and headed north for the Oregon line. Locating Major's monument, von Schmidt reported that he conducted observations on Polaris to obtain a meridian. On September 22nd, 1872 they started running the line south out of Major's monument. As they had on the way north, they set mileposts at mile intervals on the line going south, until they reached Smoke Creek, where they had previously ended the work. There Von Schmidt confronted still another complication: his line south out of Major's monument lay 3 miles, 24 chains and 51 links west of his line coming north from Crystal Peak. Von Schmidt pondered the facts before him and concluded that Drummond's instructions were contradictory and that following them would only lead to more heartache, lost time and a bad boundary. Once again the party headed north. Von

Allexey von Schmidt was no shrinking violet. Never one to be taken lightly, or to discount his own skill or acumen, he rather matter-of-factly stated in his report that, "This line proved itself to be very accurate; upon arriving at Crystal Peak, from the north, I found that this line ran over the same nail head from which I started the flag line north, demonstrating its correctness beyond doubt."

When the party reached Smoke Creek, they found that their new azimuth taken at the 42nd did not match the line coming from the south. It seems probable that rather than prolong his line south from the 42nd, von Schmidt simply turned onto his line coming up from Crystal Peak. This introduced an angle in the boundary, because his line coming from the south was actually running east of north. And, unaware of his exact longitude, this course would cause him to eventually cross the 120th Meridian with his line. But he knew with certainty that running south on his old line would lead him back to his initial point at Crystal Peak. Von Schmidt must have realized he was introducing an angle in the state line, but may have concluded that twice over the same ground was enough. Hence, the line's "correctness beyond doubt" eliminated the issue from further discussion, at least for the time being. However, for reasons that still remain unclear, his initial point at Crystal Peak was actually over 500 feet west of the actual 120th, despite all the pushing and shoving to use Davidson's work. And, his azimuths going north and south from there were significantly off cardinal.

By the time von Schmidt arrived back at Crystal Peak, he was keenly aware that the field season was rapidly coming to an end. So he pressed on, southward over some very difficult ground, to the north shore of Lake Tahoe, hoping to conclude the survey as far as that mountain lake before the snows came. This he managed to do, wrapping up the field work in good order on the 20th of November. But he must have known that his line going south from Crystal Peak was still running southwest. He was diverging ever more as he came south, nevertheless he did not correct it. By the time he reached the lakeshore, his line was over 1600 feet west of the 120th.⁷



*Daniel Major's 120th Meridian monument at the 42nd Parallel.
Author's photo.*

Schmidt later alleged he obliterated all evidence of the original line on the way up, but as it turned out, he didn't.⁶ From Major's now discredited monument, they chained east, less meridional convergence, a distance of 3 Miles, 18 Chains and 73 Links along the 42nd, and established a new monument for the northwest corner of Nevada. This fell some 20 yards from the south rim of a deep gorge on 12 Mile Creek, but regrettably, several hundred feet east of the actual 120th Meridian. There von Schmidt conducted another set of observations on Polaris to determine the meridian, and the way south. On this line they ran, on what they earnestly hoped would be their last trip down the state line, back toward Smoke Creek.

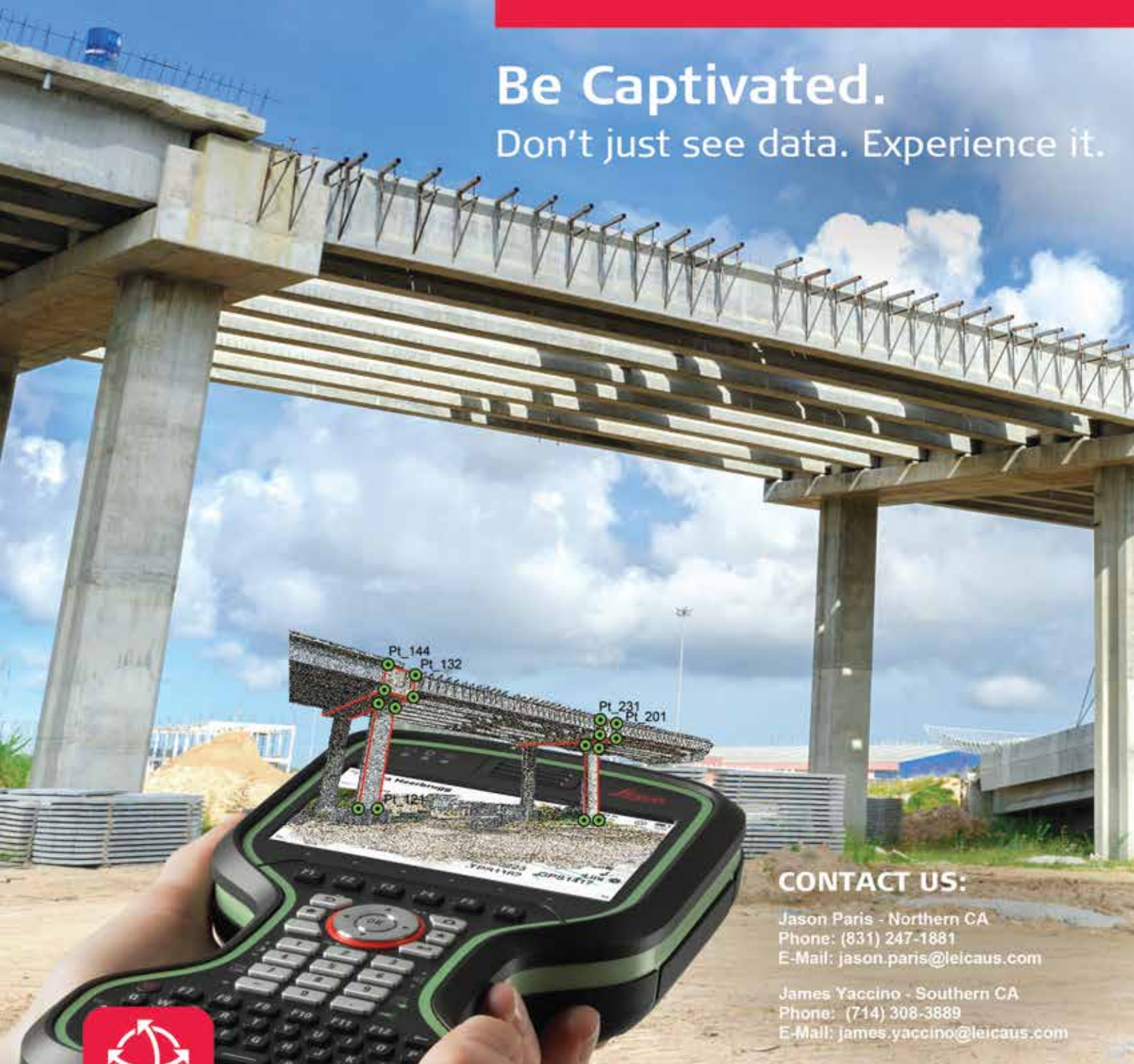


*Von Schmidt's terminal monument at the 42nd Parallel,
with detail of marked stone inset "1872 A W Von Schmidt LON 120
LAT 42". Author's photo.*

Continued on page 16

Be Captivated.

Don't just see data. Experience it.



CONTACT US:

Jason Paris - Northern CA
Phone: (831) 247-1881
E-Mail: jason.paris@leicaus.com

James Yaccino - Southern CA
Phone: (714) 308-3889
E-Mail: james.yaccino@leicaus.com



Meet the first 3D user experience of its kind. With all-new interactions and technologies, Leica Captivate empowers you to do things you never thought possible - such as coding and linework with a simple screen touch. A completely customizable interface allows you to organize your workflow in a way that is meaningful to you and move among projects and apps with the swipe of a fingertip.



Visit Us: www.leica-geosystems.com/becaptivated

- when it has to be **right**

Leica
Geosystems

Saving What Is Left A. W. von Schmidt and His Iron Monument

Continued from page 14

Von Schmidt placed an order for 5 cast iron monuments with the Occidental Foundry of San Francisco. These he intended to place at the intersection of the 120th and the 42nd, at Crystal Peak, on the Henness Pass Road, at the Central Pacific Railroad, along the Truckee River, at Lake Tahoe's north Shore and near the terminus of the oblique line, on the Colorado River. The Nevada State Journal for April 23, 1873, quoting the Truckee Republican, noted that the monument intended for the north corner was unloaded from the railroad at Truckee, with the intention of shipping it north by wagon, via Jamison City, in Plumas County. The 8-foot long, 510-pound monument never made it to its destination, and its whereabouts remain a mystery to this day.

Von Schmidt set the first cast iron monument at Crystal Peak, just south of the Henness Pass immigrant road, 170 miles, 47 Chains south from the Oregon line and 7.9 chains south of his instrument block, with the famous nail. His notes state, "Set Cast Iron Monument of the following dimensions viz: 8 ft long, 12" square at the bottom and 6" square at the top; 2 ft in the ground set in with rock; marked with raised letters cast on Monument...". He set the next iron monument at 174 Miles, 44.05 Chains, on the north side of the Central Pacific Railroad.⁸ He set the iron monument at the north shore of Lake Tahoe 3.5 chains north of the water's edge and 190 Miles, 0 Chains. The last iron monument was an offset to the oblique line's terminus in the Colorado River. Von Schmidt also moved several of the granite obelisks from the Houghton-Ives 1863 line over to his line. He clearly chiseled off the "1863" on the granite columns and cut "1872" or "1873" in them.



*Von Schmidt's iron monument at Lake Tahoe
From Chaining the Land*

During the winter von Schmidt compiled his report and billed the GLO for the work he had accomplished north of Lake Tahoe, including the 100 miles of meaningless work south from Major's monument. Once again he sought the assistance of his friend Senator Sargent, who brought von Schmidt's request for payment to the immediate attention of the GLO. The project had started badly, but perhaps now von Schmidt was confident matters would go more smoothly. If so, he was mistaken.

On December 9, 1872, Drummond notified von Schmidt that he should submit, "...evidences of the work accomplished by you consisting of the field notes of survey and maps, together with astronomical data on your observations and determinations of the 120 degree of West Longitude at Verdi and at the north East corner of the State of California as established by Astronomer Major, whereat you reported to have found the true meridian, and differing from that as determined by said Major."⁹

Von Schmidt submitted his report, together with his maps and field notes to the GLO. But in a letter dated March 22, 1873, Drummond expressed his disappointment at the returns, stating he had not received, "...any data of your observations from which you say you deduced the results..." of the Verdi longitude observations.¹⁰

Drummond wasn't finished, "The terms of the contract require the same and they are indispensable – there is no astronomical data of determination except that of the Coast Survey, which you assume as your own, but which, in fact was obtained in June, 1872, long before you started for the field..." Drummond allowed the Coast Survey's Verdi longitude data to be used, but he failed to find any evidence that von Schmidt correctly established the boundary from the 42nd south to Crystal Peak. Moreover, he expressed concern regarding von Schmidt's assertion that the country between the Oregon line and the starting point was so difficult he could not chain in places, but instead resorted to triangulation. Von Schmidt was telling the truth about the terrain, but Commissioner Drummond was by now more than a little skeptical of von Schmidt and his work.

Then came the unkindest cut of all, "All these failures cannot be compensated, in the opinion of this office, by the assertion of an unprecedented accuracy in your flagging the line 170 miles and striking the same nail head from which you started the first flag line north. Your simple statement that the work is correct is not sufficient to satisfy the Department..." Von Schmidt had posted an \$82,000 bond, which he stood to lose in the event he failed to satisfy the GLO. The correspondence between von Schmidt and Drummond continued through the winter, as the Colonel attempted to convince the GLO he had run a competent survey.

And von Schmidt had still other concerns. For many years he had proposed using Lake Tahoe as a water source for the city of San Francisco. He was a partner in the Lake Tahoe and San Francisco Water Company through the 1860's and 1870's. Von Schmidt had advanced this project, in one form or another, since the late 1850's, in the face of strenuous opposition from Nevada.¹¹

Only nine months prior to signing the state line contract with the GLO, he published a detailed plan to build dams, tunnels and canals to export water from Lake Tahoe to the Bay Area. When he was named to run the boundary between the two states, which was well known to fall in the lake¹², the newspapers in Nevada opened fire. On October 9, 1872, Virginia City's Enterprise declared, "...Von Schmidt should never have been selected to make this survey...He is at the head of a scheme...the purpose of which is to divert the waters of the Lake Tahoe into California...it is not unreasonable to assume that he (von Schmidt) is prepared to vary the true boundary line far enough to throw the whole of that sheet (Lake Tahoe) into California". The newspaper called upon the state's legislators to protect her

Continued on page 20

from a fraudulent boundary survey.¹³ The Daily Alta California declared the claim baseless, but suspicion in Nevada remained acute. Von Schmidt responded in the Sacramento Weekly Union on November 1, 1873, "Von Schmidt says that the only obstacle which prevented him from bringing the whole of Lake Tahoe within the jurisdiction of California is the 120th meridian of longitude. If Congress would only amend the longitude...it would be easy to bring the whole of the lake within the boundaries of this state." This likely did nothing to calm concerns in the Silver State.

Among the data von Schmidt never sent to the GLO were the field notes of his astronomic observations at Major's monument, as well as the 100 miles of line he chained south from there. He expected to be paid for these, but without the notes, the GLO rejected the claim outright.¹⁴ So once again von Schmidt called on Senator Sargent to help him with the government, but the agency wasn't about to take von Schmidt's word for it, "There is no evidence found among the returns of Mr. von Schmidt's survey of the Boundary that he did run due south from the monument already established by Daniel Major on true meridian one hundred miles, measuring the distance, taking topography...and establishing all the necessary monuments and obliterating the same on finding it to be out of the proper longitude."¹⁵

Resuming the survey in 1873, Von Schmidt sought help from George Davidson to work through the angle point in Lake Tahoe and get onto the oblique line. Once on it, near Lake Tahoe's southeast shore, he

went on to survey the oblique, running toward Lt. Joseph C. Ives' 1861 calculated terminus, where the center of the Colorado River crossed the 35th Parallel. When he arrived at the Colorado, however, von Schmidt discovered the river had moved substantially from Lt. Ives' survey, on the order of 1.5 miles. After advising the GLO, von Schmidt determined a new terminus and erected his cast iron terminal monument as an offset, on the 35th Parallel. Later, he reported that he corrected the entire length of his original line back to Lake Tahoe. However, this proved to be untrue. The field book of von Schmidt's son Edward, who worked on the entire survey, later revealed that a line was run back along the oblique, from the Colorado northward, for a distance of 125 miles, until it crossed the original line, where they ended the survey. Once again this created an angle point in the state line that was never intended to be there.

Later George Davidson recalled, with obvious distain, that von Schmidt required help with the oblique, "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 determination of the 120th Meridian... Von Schmidt got "into deep water" in more sense than one at the turning point (in the lake) and came to me for help. I showed him the proper method of overcoming the difficulty and finally had to make the computation for him. He was unable to get a clew (sic)."¹⁶

Continued on next page

Trimble SALES • SERVICE • RENTALS • SUPPLIES 

Trimble® R10
Productivity Beyond GNSS



The first of its kind, the revolutionary Trimble R10 GNSS system is designed to help you work more effectively, no matter how extreme the environment. The new, lighter design is more balanced, allowing you to travel farther, faster, and gather data more easily.

Trimble® S6 Now available with Trimble VISION™

Now available with Trimble VISION™ technology, the Trimble S6 Total Station enables surveyors to remotely see and measure through a live video feed from the instrument on their data controller. By integrating survey data with the live video surveyors can verify their work and ensure that they have captured everything before leaving the job.



Spectra Precision® EPOCH® 50
GNSS Receiver
Designed for Survey Pro



The Spectra Precision® EPOCH® 50 GNSS system, with its 220 channels, makes effective use of the GPS L1/L2/L2C/L5 and GLONASS L1/L2 signals for outstanding satellite coverage and precise positioning.

Spectra Precision® ProMark 700 GNSS

At less than 1.5 lbs., the ProMark 700 GNSS receiver is the lightest network RTK rover on the market today. Very compact, slim and cable-free, ProMark 700 is portable, ergonomic, rugged, and shockproof.



ALLEN
Instruments & Supplies

Allen Instruments & Supplies serving all of Arizona and Southern California. Each location offers a retail showroom and training facility. Allen Instruments & Supplies' two locations are the only Trimble Authorized sales distribution and service facilities in Arizona and So California.

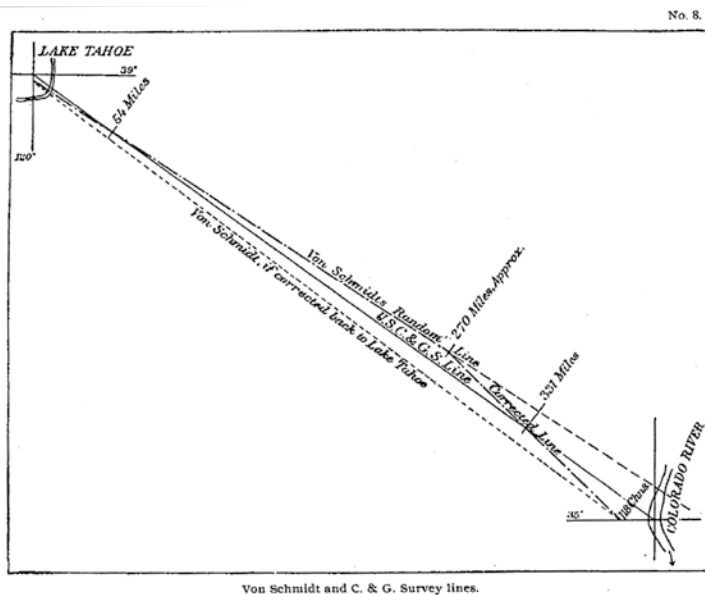
www.alleninstruments.com

Arizona
800.272.0180
7114 E Earll Drive
Scottsdale, AZ 85251

California
800.215.2737
2940 E La Palma Ave, Suite F
Anaheim, CA 92806

Saving What Is Left A. W. von Schmidt and His Iron Monument

Continued from previous page



Von Schmidt's correction line, from USC&GS Annual Report, 1900

Von Schmidt was paid \$40,750.32 for his two years of boundary work. The project had required an enormous effort, running the 611 mile state line through some of the more remote and demanding ground in the American west, and in only two field seasons, to say nothing of the additional 100 miles of meaningless work from the 42nd. But so many ambiguities existed in von Schmidt's boundary, particularly on the oblique, that the U.S. Coast & Geodetic Survey resurveyed the entire line south of Lake Tahoe over again, between the years 1893 to 1899.

Undeterred by criticism of his survey, von Schmidt continued fostering his plans for Lake Tahoe, as well as pursuing more patents. While on a business trip in August of 1875, von Schmidt was a passenger on the Quincy stage, enroute to Oroville. A robber pulled the stage over and demanded the Wells Fargo strong box from the driver. While the shotgun wielding bandit was engaged with the driver, von Schmidt pulled his pistol and confronted the masked gunman. The skirmish eventually ended as the bandit fled on foot to avoid being shot by the Colonel.¹⁷ He continued his passion for inventing, obtaining 12 patents in 1884 alone. Later, he was involved in several patent infringement lawsuits, some of which he lost. In 1887 he was sued by his brother Julius in a dispute regarding the design and patenting of an improved dredging device. Later he served as President of the California Society of Pioneers. Controversial to the end, Alexey von Schmidt died in Alameda, California, in May of 1906.¹⁸

However, the matter of which of the numerous boundary lines, with all their idiosyncrasies and errors, was the actual state line was not resolved until the issue was brought before the U.S. Supreme Court in the late 1970's and early 80's. The Court ruled that von Schmidt's line north of Lake Tahoe, albeit crooked and well off the actual 120th Meridian, was to be held as the true line. Despite the 1863 line's official status, the Court believed that Nevada had acquiesced to von Schmidt's better monumented 1872 line. The Court also ruled that von Schmidt's oblique was too flawed to stand and called the USC&GS oblique line the boundary south of Lake Tahoe.

Scanty evidence of the 1863 Houghton-Ives survey survives today. It is difficult to find, as mileposts were established at random locations and the distances between them vary greatly from the notes. However, nearly all of von Schmidt's boundary survives today, both north and south of Lake Tahoe. The three iron monuments north of the lake survive, with only the one in the Truckee River canyon, adjacent to the railroad, being relocated out of harm's way. The iron monument at Lake Tahoe is on private property

and is presumed to remain undisturbed. The monument at the Colorado was eventually undercut by the meandering river and sometime in the 1880's was relocated to higher ground where it stands today.

Over time, the iron monument along the Henness Pass Road was subjected to extensive vandalism. A large hole measuring approximately 2 feet by 1 foot was broken out of the west side of the monument, and numerous bullet holes were to be found on all sides. As early as the late 1980's, discussion was underway to include von Schmidt's iron monument into a proposed park on the California side of the line. A chain link enclosure was eventually built around the monument in an attempt to minimize the increasing damage. Budget constraints precluded any further action.

In 2006, Matt Gingerich, PLS and Paul Pace, PLS, both members of the Nevada Association of Land Surveyors (NALS), contacted Sierra County regarding the possibility of adding some form of sturdy barrier to protect the already damaged obelisk. They met with Peter Huebner, Sierra County Supervisor, District #2, at the site and discussed what measures might be taken to perpetuate the monument. Commissioner Huebner requested that a map and a draft proposal for the work be submitted to the County for review. Gingerich and Pace surveyed the site and Gingerich prepared a map that was then submitted to Huebner. But the economic downturn of 2007-8 once again ended further discussions.

In 2012, the property adjacent to the monument on the Nevada side was purchased by a long-time Nevada family that was interested in the history of the von Schmidt survey and the iron monument literally standing in their front yard. They contacted NALS for historical information relating to the monument. They too were concerned about the monument's deteriorating condition. In 2013, Tim Beals Sierra County Public Works Director, and Bryan Davey, the Transportation Planner, returned with a new plan and the money to incorporate the monument into the park they had proposed years before. They sought input from the residents of Verdi living near the monument, as well as from the Verdi History Center and NALS.



Von Schmidt iron monument at Verdi, 2010. Author's photo.

Continued on next page

The professional choice.

Your experience has created our product.

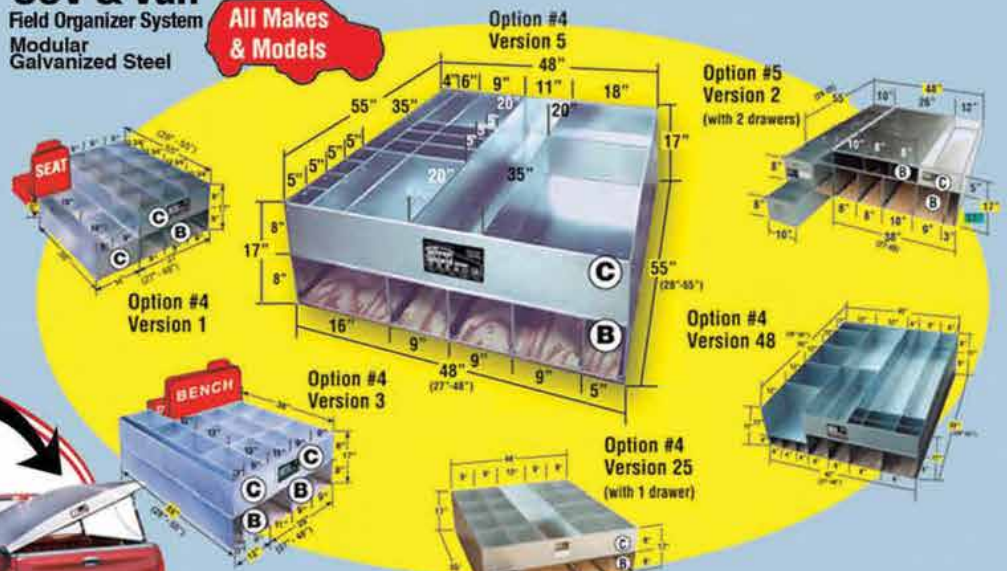


The Only **Security Cover**
...That opens 3 ways!
Modular Field Organizer
Galvanized Steel system that fits any Pickup Truck, Van & Sport Utility Vehicles.
Can be driven in any open position, 360° visibility open or closed. Converts into a camper & workshop



SUV & Van
Field Organizer System
Modular Galvanized Steel

All Makes & Models



Silver Shield System for S.U.V.'s (Suburban).



Silver Shield System for Pickup Truck.



Silver Shield System for Custom Campers.

Versatility **Security Cover & Field Organizer** Modular
For **All** Trucks, SUV's and Vans



Call Today for
Free
44pg
Catalog

Order Now!
Nationwide Toll Free.
1-800-243-4394
www.silvershieldsystem.com

"We've got you covered!"
Silver Shield System Since 1962
✓ Security ✓ Safety ✓ Savings ✓ Servability ✓ Patented
1710 E. Jefferson, Phoenix, AZ 85034-2424
in Arizona: 602-271-0859

Saving What Is Left A. W. von Schmidt and His Iron Monument

Continued from page 18



Casey Smith, owner of Black Bart Iron Works, and friend, preparing to place enclosure, May 8, 2014. Author's photo.



Black Bart's crew preparing to move enclosure, May 8, 2014. Author's photo.



Fence and enclosure in place, June 14, 2014. Author's photo.

Once a plan had been agreed upon, Sierra County requested an easement from the Nevada property owners to enable a fenced path to be constructed around the monument. The landowners agreed. Next, the County contracted with Black Bart Ornamental Iron Works from Nevada City, California, to build an enclosure around the monument and construct a matching fence north and south of the enclosure. NALS members Matt Gingerich, PLS, and Lance Smith, PLS, staked the state line to assure correct location of the enclosure and associated fence. The fence and enclosure were designed and fabricated at Black Bart's shop and the pieces transported to Verdi. The enclosure and fences required two full days to assemble.

Afterward, Paul Pace contacted Paolo Cividino of Tutto Ferro, an artisan metal working firm of Reno, Nevada, to repair the large hole on the west side of the monument, as well as numerous bullet holes. Mr. Cividino had been to the site some years before and agreed to do the difficult work of welding a steel patch on the 142 year-old cast iron monument at a greatly reduced cost. Cividino made several trips to the site to make exact measurements and prepare templates for the steel patches. With the templates completed, two full days of heating, welding, then grinding and finishing were required to mend the holes.

Sierra County contributed substantially to the funding for the work done by Tutto Ferro. The rest came through the efforts of Kevin German, PLS, NALS Lahontan Chapter President, who together with the Board of Directors and chapter officers of NALS, arranged for a donation from the surveyor's organization.

Interpretive plaques, made from cut granite, have been set around the park to explain the history of the iron monument, the Henness Pass Road, Crystal Peak and other points of historical interest in the immediate area. All that remains at this writing is to sandblast the monument, heat it, give it a mild acid bath and when the new patina forms, the patch will be invisible.

The efforts of Sierra County, many individuals, area businesses, and NALS have resulted in the preservation of von Schmidt's historic iron monument, and the recognition of the area's historical impact to the region. To access the monument from Old Highway 40 in Verdi, turn north on Bridge Street and continue, across the Truckee River to Dog Valley Road. Proceed westward on Dog Valley Road 0.35 mile to the state line, where the road changes names to the Henness Pass Road. Enter the small park on the California side of the line. Von Schmidt's iron monument will be there, standing on the south side of the road where the Colonel placed it in 1873.



Paolo Cividino of Tutto Ferro applying first welds to patch, June 16, 2014. Author's photo.

Continued on next page



Cividino preparing to fill a large bullet hole on the monument's south face, June 17, 2014. Author's photo.



Sierra County crews finished setting pavers, cobbles around the monument and placing the plaques, September, 2014. Author's photo.



Cividino's patch completed, June 17, 2014. Author's photo.



Granite plaque for the iron monument in place, September 11, 2014. Author's photo.

Endnotes

1. Daniel G. Major was one of the most prolific boundary surveyors working in the western U.S. He was highly regarded by the GLO and surveyed boundaries in Oregon, Washington, Utah, the Dakota and Idaho Territories, Texas, Wyoming, Montana and several Indian reservations. He held the title of U.S. Astronomer and Surveyor, as well as Examiner of Surveys.
2. Francois Usez, *Chaining the Land*, 2nd edition, page 223 (Santa Rosa: CLSA, 2006)
3. Kidder's state line survey was under the direction of the Boundary Commissioners from California and the US Territory of Nevada, John Houghton and Butler Ives, respectively, the so-called Houghton-Ives Survey.
4. The Hennes Pass Road was a major immigrant trail from the Truckee Meadows to the California gold fields. In the 1850's it was improved and became a toll road. After the discovery of the Comstock Lode at Virginia City it served as the primary supply road for the mines. It continued to be a major transportation route through the Sierras until the completion of the Transcontinental Railroad in 1869. The Hennes Pass Road was included in the Lincoln Highway, the country's first transcontinental highway system. It continued to carry wagon and later, automobile traffic, between Truckee and
5. Verdi, until the completion of the last portion of the Victory Highway, later Highway 40, through the Truckee River Canyon in 1925.
6. Both of these monuments survived into the 1960's and were tied by NDOT. They have subsequently disappeared.
7. In the 1990's this writer and a number of others joined in a search for mileposts on von Schmidt's line south from Major's monument and found numerous monuments and bearing objects.
8. This error was not discovered until 1880, when surveyors from Lt. George Wheeler's Geographical Surveys West of the 100th Meridian tied the boundary monuments at Lake Tahoe.
9. This monument exists but was perhaps relocated randomly by the railroad when the railroad double-tracked the main line between Reno and Truckee, around 1914.
10. James W. Hulse, *The California-Nevada Boundary: History of a Conflict*, Part II, page 165 (Las Vegas, Nevada Historical Society Quarterly, Vol. XXIII, Number 3, Fall 1980)
11. *ibid*, page 165
12. So much opposition in fact, that von Schmidt changed the original name of the proposed water company from the Lake Tahoe and Nevada Water Co. to the Lake Tahoe and San Francisco Water Co.
13. In 1855 George Goddard surveyed a road from Placerville, CA to Genoa, Utah Territory. Along the way he was to determine where the boundary of those two entities lay. Goddard determined that the angle point on the boundary fell within the waters of Lake Bigler, later named Lake Tahoe. This put both ends of the 400+ mile long oblique line in water.
14. Daily Alta California, Vol. XXIV, Number 8234, October 12, 1872
15. In fact these missing notes were found at a flea market near Livermore, CA, by a local surveyor in the 1970's.
16. Letter, Acting GLO Commissioner W.W. Curtiss to A. A. Sargent, May 14, 1874. GLO. Letters sent, pp 388-389
17. Letter, George Davidson to F. M. Thorne, Superintendent of the USC&GS, Washington, DC, March 27, 1889. California State Lands collection.
18. Marysville Daily Appeal, Vol. XXXII, Number 41, August 19, 1875
19. Von Schmidt is buried in the Mountain View Cemetery, in Oakland, California. The von Schmidt Family Papers are held in the Bancroft Library, UC, Berkeley, Berkeley, CA. ❖



By: James K. Crossfield. LS, PH.D

James K. Crossfield grew up in Beloit, Wisconsin. He completed a BS in Chemistry from W, Madison in 1970. He served as a field artillery officer in Bamberg Germany from 1971-1974. Returning to Madison he completed BS and MS degrees in Civil and Environmental Engineering in 1976 and 1977 respectively. He then taught surveying at the University of Arkansas, Fayetteville during 1979 and 1980 under the expert tutelage of Dr. Dave Knowles. Returning too Madison again, he earned his Ph.D. in May of 1984, having studied under Paul Wolf, Jim Clapp, Dave Mezera, Jim Schurz, Eldon Wagner, Alan Vonderohe, Ralph Kiefer and Frank Scarface. Notable TA's were Dave Tyler and Steve Johnson. Dr. Crossfield started at Fresno State in August of 1984 as a tenure track Associate Professor. He served as Geomatics Engineering program Coordinator for over twenty years and Department Chair for seven. He officially retired on May 20 2012 but has the option to continue full time (Spring semesters only) until 2017. Yet he still serves as faculty advisor for the Annual Fresno State GME Conference, The Foresight! Magazine, the Honorary Lamda Sigma Student Chapter, The Surveying and Geomatics Engineering Student Club, the NSPS Student Club, the CLSA student club and the 2013 Fresno State NSPS student competition team. In (semi) retirement he enjoys hiking, coin collecting, wood working and playing French Horn in the Clovis Community Band.

GEORGE ROGERS CLARK AND THE NORTH-WEST TERRITORY

Setting the Stage for the United States Public Land Survey

ABSTRACT

The purpose of this paper is to illuminate the courageous actions of George Rogers Clark during the Revolutionary War and how these actions helped make the North-West Territory part of the United States of America, setting the stage for the United States Public Land Survey System. A brief historical synopsis illuminates many of the conflicting agendas at work in America before The Revolutionary War. British activities, including their cost cutting efforts before the War are outlined. George Rogers Clark's responses to the British actions are discussed in detail. Clark's capture of Kaskaskia and Vincennes are fully discussed. The frontier exploits of two other heroes are provided. Connections between the three are identified. The conclusion states that without Clark's crucial victory at Vincennes in February 25, 1779 there may not have been a North-West Territory for the United States to survey and settle.

SETTING THE SCENE

John Smith led a group of 140 persons on two ships from London on December 30, 1606. Their objective was to make contact with the Roanoke colonists who had departed England in 1587, find a quick passage to China, and look for gold which had to just be lying on the beach. While life was touch and go for a few years, Smith's colony finally stabilized. The Roanoke settlement was never found, gold did not lie on the beach and there was little or no effort to find an easy way to China. But English speaking colonists had established a settlement in the America. (Alderman, p.3-11). Soon after the successful Pilgrim landing at Plymouth, the pace of new settlements and colonies intensified.

These colonies grew and expanded. Because families then were usually huge by today's standards, the necessity for finding new land to settle for numerous offspring was essential. The result was ultimately an unstoppable surge of westward migration. Luckily there was apparently plenty of land available just west of the latest settlements. Unfortunately, that was generally where the Native Americans (called Indians by the colonists) liked to hunt and live. Conflict was certain, especially considering that there were thousands of warriors nearby. What could a few lone settlers do if that force was unleashed against them?



STATUE OF GEORGE ROGERS CLARK, QUINCY, ILLINOIS
Erected by the State of Illinois, Charles J. Mulligan, sculptor

Continued on next page

“Disconnect increased among the Indians at the encroachment on their hunting-grounds.” (James, p.7). The British, eager to consolidate their gains after the French and Indian War (1754-1763) and to insure a continued unimpeded fur trade, issued a proclamation in 1763 that prohibited (without special license) settlements west of the headwaters of rivers flowing into the Atlantic Ocean. Yet 30,000 people had migrated West between 1765-1768 (James, p.6-7).

Charles C. Mann wrote in his book “1491” that large numbers of American Indians were killed in a mass die-off after first contact with European Explorers in the early 1500’s. (Mann). He then suggests that this is why colonists assumed that the land was free for the taking; since no one was living on or using it. While this may be partially true, almost all the stories we read about the early colonies discuss interactions with local natives.

The colonies we mostly learn about were the thirteen established by England. There were other players on the continent, however. Spain had a toe hold in Florida and grand designs on the Mississippi River as a trading route, as well as a strong and well established presence in Mexico. The French, among other nations, had fished the Grand Banks off Newfoundland since the mid 1500’s. The French also built up a substantial fur trading enterprise around the Great Lakes and the St. Lawrence River. Cartier, Nicolet and Marquette led the French to discover a water route from Quebec to New Orleans by the late 1670’s. Fur was not gold, but it was still quite profitable. While the British victory in the French and Indian War guaranteed British supremacy in the fur trade, the French trappers and traders did not just go away. They just stayed where they were and continued their lives as best they could. The fledgling settlement of Vincennes, in present day South West Indiana, was a French fur trading hub. Nominally controlled by the British in Detroit, There was little British activity there in early 1779.

THE COIN TOSS

The start of the Revolutionary War clarified who the primary protagonists were; the British, the American colonists and the Native Americans. Secondary protagonists included the remaining French peoples, and Spanish influence along the southern half of the Mississippi River. The British aggressively “employed the Indians to cut off outlying [colonial] settlements (James, p.34). “The British enlist[ed] Indians for service with the regular army as well as employ[ing] them with more terrible results in cutting off outlying settlements and raiding the frontiers” (James p. 35). Efforts by the Fledgling republic to pacify the Indians were more then balanced by the British effort (usually emanating from Detroit) or activate Indian warriors against the colonists during the first two years of the conflict. The Americans knew that a successful campaign against the British at Detroit would be an exceptionally good thing. A plan was developed by Arthur St. Claire to that end (James p. 40-42). But there were no spare troops and no way to subsidize the campaign in any event. No catalyst was available to move the plan forward. Raids and incursions continued. The settlements west of the mountains were under exceptional pressure.

Lieutenant-Governor Henry Hamilton was running the British Operation in Detroit. Based upon the results of a tribal conclave on June 17, 1777 in Detroit, He felt confident that 1,000 Indian warriors were poised to “overrun the frontiers”. While it could not be conclusively proved that he offered rewards for scalps, it appeared that many witnesses (traders, prisoner and spies) believed that he actually was trafficking in scalps (James, p. 52-53). As a result of this threat, hundreds of settlers retreated east. This weakened local defensive capabilities when they were needed most.

THE KICKOFF

The British acquired almost all French facilities in North America after the French and Indian War (1754-1763). Included among these facilities were several forts and settlements inside what eventually became the states of Ohio, Indiana, Illinois, Michigan and Wisconsin. Two facilities along the Mississippi River (in present day Illinois) were Fort Chartres ((about 40 miles south of what is now St. Louis) and the small village of Kaskaskia which is another twenty miles further south. Due to funding constraints Fort Chartres was abandoned and destroyed in 1771, but fifty soldiers were stationed in Kaskaskia. Plans were made to more effectively bring former French Forts, and settlements under more direct British control, but before much was done, the Colonies declared their independence. (James, p. 86-87). British cost cutting continued in 1776 when the troops were pulled out of Kaskaskia (James, p. 109).

AN END AROUND BOLDLY INITIATED

George Rogers Clark was born on November 19, 1752. He grew up in Virginia. He only managed to stay in school for 8 months, but compensated for this by good looks, feats of prowess (especially horse racing), and an avid compulsion to understand history, experience the wilderness and travel. “At age nineteen he began the study of surveying under the direction of his grandfather Rogers, and this step proved to be the opening of his career” (James, P. 5). He set out at age 19, set out from Pittsburg with a few friends in dugout canoes for an exploration along 130 miles of the Ohio River, learning the ways of the western frontier. He was one of the more energetic and capable men in the western region, he soon became a leader of men. He was at that age when one believes that anything is possible, and he had the energy to do it.

This was the time when a bold initiative might help resolve the situation. It is unclear whether or not George Rogers Clark (GRC) knew much about military tactics. It is certain that he did not know anything about modern day football. But, never-the-less, he formulated a simple plan that defied conventional logic, yet could alter the balance of power in the West. Conventional wisdom required that Detroit be captured to defeat the British in the West. But the fledgling nation had neither the men for the resources to accomplish this task while grimly holding on in the East.

Clark sent two spies (Benjamin Linn and Samuel Morse) to Kaskaskia and Vincennes respectively in April of 1777 (James, p. 69). They were gone two months. Their report could be summarized as follows. Kaskaskia was unguarded, the French were wary of backwoodsmen, but indifferent towards their imposed allegiance to England. This was information that mattered. Clark immediately traveled over 600 miles to Virginia where he outlined his bold plan to outflank by securing Kaskaskia and Cahokia (across from present day St. Louis). His energy and enthusiasm seemed to have an effect as Virginia approved his request. He was appointed Lieutenant Colonel, authorized to raise 350 militia and given funds to purchase the necessary material required.

Once back at the Falls of the Ohio River, Clark announced his goal to capture the Illinois settlements along the Mississippi River. But only 150 men were available. Clark did not waiver. He was buoyed up “after he learned of the French alliance, news of which was brought to him by messenger from Pittsburg.” (James, p. 117). Clark’s force then floated along the Ohio River to the Mouth of the Tennessee. Carefully camouflaging the boats there, they trudged overland 120 miles, walking in single file to confuse possible trackers. The garrison was caught completely unawares. Not a shot was fired.

Continued on next page

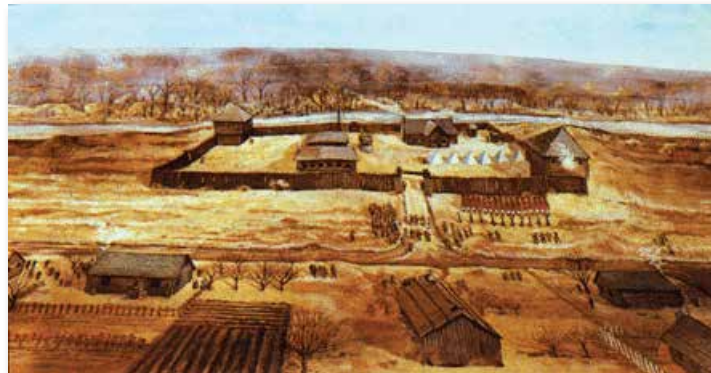
Continued from previous page

Clark addressed the townspeople: "...yet it is an American principle to free and not to enslave, those whom they conquered. All who chose to become loyal citizens and take the oath of fidelity, he assured them, should have all the privileges of Americans." (James. P. 120). Clarke's subordinates easily captured several other Illinois settlements. The situation was still uncertain. Then, the local priest, Father Gibault, volunteered to go to Vincennes and gather intelligence in an unofficial way. The citizenry there were pleased to hear father Gibault speak in favor of the American cause. One said "What France Does, we all do... France has clasped the hands of George Washington and his brave compatriots; so do we" (Thompson, p. 72) Within a month he had returned announcing that the American flag had now flown over the fort at Vincennes since early August 1778. Clark sent two of his men (Captain Helm and Lieutenant Beverly) to occupy the fort and to command the militia there (Reeder, p. 134-135).



The Wabash River at Vincennes Indiana, 2012

The Commander at Detroit (Hamilton) heard about Clark's success at Kaskaskia soon after it was taken. He also heard that the American flag has been raised at Vincennes. This irritated him and finally raised his metabolism enough to take action, but it is a reaction this time, because he has lost the initiative. He gathered a force of 175 British troops which was supplemented by another 325 Indians by the time they reached Vincennes on December 17, 1778. He captured the fort, Helms and Beverly. All 621 inhabitants went ordered to the Catholic Church, where they renounced their oath to the U.S and reaffirmed their oath to the King of England. The British flag was raised over the fort, which was called Fort Sackville (Reeder, p. 136).



Fort Sackville in 1779



Vigo's statue

Then Lieutenant-Governor Hamilton made a mistake. His troops caught a certain Francis Vigo trying to leave town. Upon questioning, Vigo stated that he was a Spanish Merchant desiring to go to St. Louis. Hamilton believed him, which was his downfall. Vigo did travel to Sr. Louis as promised, but then hastened back to Kaskaskia to tell Clark that Vincennes was again in British hands. Caution might seem appropriate in the middle of a particularly wet winter, yet George Rogers Clark was not about to sit on scanty laurels. While a winter campaign does not usually bode well, Clark said; "Surprise, is worth more than gold. We'll strike through this

drowned country now." (Reeder, p.137). "His confidence that the expedition would be successful seemed to inspire the men". (James, p. 137). With about twenty additional Frenchmen, Clark's force of 172 walked out of Kaskaskia to the beat of a lone drummer on February 5, 1779.

The temperature was relatively mild, but the trails were muddy due to recent heavy rains. They had no tents, so the evenings were less than pleasant. The men responded to Clark's leadership, however, and did not waver. No one else was out walking around, so they escaped detection. By February 13 they reached the Little Wabash river, 20 miles from Vincennes. The remaining part of the trip was very difficult, 3-5 foot of water, wading through, chilled to the bone, holding their muskets up the whole time. With no food for the two days, they trudged the final few miles.

The American forces slipped into town and quietly took up concealed positions around Fort Sackville. They began to fire the muskets at the soldiers on the ramparts of the fort. The garrison failed to take this seriously at first because the locals often randomly fired their muskets for no particular reason at any time of the day. As the intensity of the firing increased (aided by several French townspeople) Hamilton became aware that an enemy was near. By appealing to the citizenry, Clark gained their support, which manifested into powder and shot for his troops and more friendly musketfire. Then Clark had his men parade some distance from the fort with several flags and banners. The British thought that this represented a force of nearly 1000 soldiers. Hamilton's Indian allies began to melt away into the forest and head for home after that display. Next, Clark paraded the bulk of his forces up the street to the sound of beating drums while the townspeople joyfully watched. But Hamilton also watched, and he did not like what he saw. From his prospective he had been outflanked outmaneuvered, outwitted and out-acted by an energized 27 year old backwoodsman. Clark sent a surrender ultimatum to Hamilton in the fort (Sackville) in Vincennes. It read as follows:

"Colonel Clarks compliments to Mr. Hamilton and begs leave to inform him that Col. Clark will not agree to any other terms than that of Mr. Hamilton surrendering himself and garrison, prisoners at discretion. If Mr. Hamilton is desirous of a conference with Colonel Clark he will meet him at the church with Captain Helms.

Continued on page 26

Complete GPS Solutions

Call for
Your Customized
Quote Today
1-800-241-6223



Leica
Viva

NETWORK ROVERS
STARTING AT
\$246²⁸
PER MONTH

CS15



Leica Viva GS14 Designed for Performance

FEATURES:

- Base/rover or network rover configurations available
- Fully integrated radio
- Integrated GMS Intenna Technology
- GPS L2, GLONASS and Galileo
- IP68 protection against dust and submersion



NETWORK ROVERS
STARTING AT
\$166⁰⁰
PER MONTH

GEOMAX

MicroSurvey
FIELDGenius

CARLSON
SURVCE

DC5



Geomax Zenith 25 Ultimate Reliability

FEATURES:

- Base/Rover
- Integrated Radio
- Choice of software MicroSurvey Field /Carlson SurvCE

new



NETWORK ROVERS
STARTING AT
\$239⁹⁰
PER MONTH

Nomad 900

**SPECTRA
PRECISION**



Spectra Precision SP80 All Constellation Receiver

FEATURES:

- Base/Rover
- 240 Channels
- 2 Year Warranty and Anti-theft Protection
- Spectra Precision Survey Pro software



Monument in Vincennes, 2012

Hamilton dallied for several hours while Clark's forces intensified their rate of fire at the fort. Holding out hope for concessions, Hamilton met Clark in the Church. Clark would not budge, however and Hamilton finally agreed to the surrender. An exceptionally large haul of booty was captured. Hamilton was eventually taken to Virginia as a prisoner until exchanged near the end of the war. The Americans had won the day, without loss of life to either side, and driven the British back to Detroit.

"These Americans are either enormously lucky, or possessed of a miraculous vitality. You rarely kill them in battle, and if you wound them their wounds are never mortal. Their history is but a chain of impossibilities easily accomplished. . . . From the first they have had the courage, and the vital force which never flags under the stress of adversity." (Thompson).

That summed up the general feeling among the British at Detroit and other outposts in the West. They were pessimistic. Their Indian allies increased their clamor for more protection. It was the perfect time to capture Detroit. Yet, the Americans in the West were physically and monetarily exhausted. Lines of credit were drying up, the nation was clinging to life by not giving up. Clark was all in favor of heading to Detroit to finish off British power in the West. He tried to gather funding, resources and men, but to no avail. The nation's credit was exhausted. Clark's major financial supporter had been Oliver Pollock who had been adept at getting loans from the Spanish in New Orleans. But he now faced serious problems. "By July 1799, Oliver Pollock, who had contributed so much to the success of the war in the West, had so far exhausted his credit that in meeting a further order from Governor Henry for goods amounting to \$10,000, he was forced to mortgage a part of his landed estate." (James, p.155). Promises were made, but not kept. Militia who signed up for limited periods typically went home when that period expired. Not enough men or equipment could be gathered to march on Detroit. Clark's earlier victories, however, kept the British in a defensive posture.

With the exception of random Indian raids and a few minor counterstrikes in return, the situation in the West remained static until the British surrender at Yorktown in October of 1781. The war officially ended on September 3, 1783 with the signing of the Treaty of Paris. The Old North-West Territory (which includes the current states of Ohio, Indiana, Illinois, Michigan, Wisconsin and part of Minnesota) was thereby made part of the United States.

BEGINNING THE U.S. PUBLIC LAND SURVEY

About nine months later congress was working on a land ordinance that would facilitate the settlement of the North-West Territory. Thomas Jefferson chaired the committee, but congress did not pass this ordinance in 1784. Jefferson departed to become a minister to France, William Grayson became committee chair and a revised land ordinance was passed. The Geographer General, Thomas Hutchins, who had worked on the Mason Dixon Line survey (Danson, p. 202), was thus



Clark at Vincennes

instructed to begin the Public Land Survey. The starting point was clearly specified to be "The first line, running due south and north... shall begin in the Ohio River, at a point that shall be found to be due North from the western termination of a line which has been run as the southern boundary of the state of Pennsylvania: and the first line running east and west shall begin at the same point. (White, p. 12). The Public Land Survey began on September 30, 1785.

Continued on next page

LEGENDARY COMPARISONS

Security was difficult to maintain with local Indians who were being compressed and distressed by white invaders who looked at things in a completely different way. Logically, the Indians would strike back violently. When the peace treaty was consummated American settlers in the West now faced only one foe, the Indians. Security for surveys and settlement was key. Obtaining and maintaining security against Indians were key motivations facing the nation until at least 1890. Three legendary figures, however deserve mention for their efforts in securing the Old North-West territory.



George Rogers Clark

George Rogers Clark was born on November 19, 1752 two miles east of Charlottesville, Virginia. He only managed to stay in school for 8 months, but compensated for this by good looks, feats of prowess (especially horse racing), and an avid compulsion to understand history, experience the wilderness and travel. "At age nineteen he began the study of surveying under the direction of his grandfather Rogers, and this step proved to be the opening of his career" (James, P. 5). Clark spent several years traveling to, exploring

and taming the western frontiers. Initially the love of travel and exploration grabbed his fancy. Then the possibility of owning land and getting rich in the bargain, which was on the minds of many in those days, became a potential reality. Success in these hopes required security. His actions during the war in the West clearly indicate his focus in this regard. He saw the Indians north of the Ohio River as a threat to settlements in Kentucky and Tennessee.

His brilliant flanking movement secured the Illinois settlements and Vincennes, capturing the Henry Hamilton in the process. This victory effectively stopped strategic British movements in the West during the last two years of the war, consolidating America's legal ownership of the entire North-West Territory. Six years after the Clark's capture of Vincennes (against two enemy forces) the Public land Survey began in Eastern Ohio. [p. 453 quote] Much of his story has been chronicled herein. Clark died on February 13, 1818 from a stroke of apoplexy in Locust Grove Kentucky, at age 66.

Anthony Wayne, born on January 1, 1745 was 7 years older than George Rogers Clark. He grew up in Waynesborough, Pennsylvania, 20 miles from Philadelphia. From an early age he dreamed of a military career. His father persuaded him into becoming a surveyor. His mathematical capabilities served him well in this and he enjoyed working in Nova Scotia, laying out new settlements there. Soon thereafter Anthony accepted a job as his father's Business partner. War clouds were looming large. Anthony joined the Pennsylvania militia and proved to be an excellent leader. He was appointed to the colonel of a regiment. However, at Paoli his force was surprised by a rare nighttime attack. Chaos was widespread. Many Americans were killed and Wayne barely escaped. The stigma of this fiasco hung over Wayne for some time.

Wayne then vindicated himself. He received orders from George Washington to capture Stoney Point New York. This was difficult task because it was strongly garrisoned and located on a Bluff high above the Hudson River. By careful planning and exquisite timing, his troops captured the fort using a bayonet charge almost before any shots were fired. Wayne was injured but was carried into the fort to accept the formal surrender. (Wilson).

Indian unrest continued in Ohio after the war. The survey of public land had been completed in the seven ranges, but the rest of the state was unsafe. General Arthur St. Claire had led an expedition to Ohio in 1791, but his entire force (of 1,500 men) was virtually wiped out near the headwaters of the Wabash river in what is now east central Ohio on September 4, 1791. President Washington selected Anthony Wayne to lead another expedition to Ohio to resolve the Indian problem there. George Rogers Clark had been considered for the task, but was not selected, (James, p. 417). General Wayne trained his men hard. Carefully extending a string of forts northerly from the Cincinnati area, until reaching the site of St.Clair's defeat (just three years before), Wayne built a fort there and renamed it Fort Recovery. The Indians attacked, but were driven back with heavy losses. He continued north building more forts to protect his supply route. No Indians were seen until reaching the Maumee River As the army marched slowly forward, Lieutenant William Henry Harrison pointed out to General Wayne that a large number of fallen trees ahead, would be ideal for an Indian ambush. How prophetic he was.



Harrison's home

Wayne formed his troops into battle formation and moved forward. Wayne ordered a bayonet charge at the critical moment, causing the surviving Indians to flee in disarray. Wayne's force suffered 31 dead and 102 wounded, while the Indians lost close to 500 warriors. (Young, p. 72-77) This became known as the battle of Fallen Timbers which occurred just south of present day Toledo, Ohio on November 6, 1794. General Wayne convinced the Indians to sign the Greenville (peace) Treaty in July of 1795, effectively ending years of bloodshed in Ohio (Wilson, p. 160-169). General Anthony Wayne died after retiring back home in Pennsylvania on December 15, 1796 at age 51. His accomplishments in the service of his country were exceptional.

Continued on next page

William Henry Harrison was born on February 9, 1773 on a plantation in Berkeley, Virginia. He was 21 years younger than George Rogers Clark. William missed the fighting during the revolution, being a child at the time. He briefly studied medicine, but was able to get a direct commission in the army from George Washington in person. After several weeks training he led a company of infantry to Fort Pitt managing twelve miles a day for 21 days. He served with three other lieutenants: John Whistler, Merriwether Lewis, and William Clark (George Rogers Clark's youngest brother). [Yes, that was Lewis and Clark of later exploration fame.]. (Young, p. 37-38) Harrison's efforts to help General Wayne were significant. After fallen timbers, General Wayne placed Harrison in charge on one of the frontier forts and recommended he be promoted to Captain, which finally occurred in 1797. Soon he accepted an appointment as Secretary of the NW Territory. He sent reports to congress and then gave testimony there about land tract sizes and costs. Vice President Thomas Jefferson was impressed with Harrison's expert knowledge, the Land act of 1796 was formulated to assist those seeking land in the Northwest Territory (Young, p. 99). He was appointed Governor of the Indiana Territory in 1800, with his headquarters to be located in Vincennes. Treaty negotiations became a preoccupation. Indian Chief Tecumseh visited Harrison and argued that American treaty policies were corrupt and wrong. He threatened war before returning north. Harrison called up the militia and asked for additional troops from the east. By the summer 1,000 fighters had arrived and Harrison had been promoted to General to lead the forces against Tecumseh and his Indian allies. The ensuing battle where Tippecanoe creek entered the Wabash River (near present day Lafayette, Indiana) was a furious affair. While 37 Americans were killed and 79 were wounded, Indian losses were much greater. Harrison won the battle breaking the back of Indian resistance in the NW Territory. Yet there were several other small Indian raids in the Territory for another three or four decades. Hoping to retire, William Henry was routinely elected to various state wide and congressional posts by the grateful citizens of Ohio. He joined the new Whig party and was swept into office in 1840 with the help of a now familiar motto, "Tippicanoe and Tyler Too". William Henry Harrison died on April 4, 1841, at age 68, having served one month as our nation's ninth president. He was buried in North Bend Ohio at a site that overlooks the Ohio River. The site is seven miles SSE of Harrison, Ohio. Harrison was in the right position to do the right thing at the right time. He was a tough fighter, a natural leader, an excellent administrator and a U.S. President. What a legacy!

CONCLUSIONS

These three leaders of men were connected. Two were experienced surveyors. Each had connections to and experiences with the men who were the founding fathers of our nation. Clark was a natural leader who won strategic victories (at Kaskaskia and Vincennes) with a small volunteer force, fighting a Winter campaign against a superior British force, without losing a man. This caused the nation to win the NW Territory at the peace treaty that ended the War. Wayne was a tough soldier who learned from experience. He led his Legion to a major victory at Fallen Timbers against a large, well camouflaged Indian force that was morally supported (at the very least) by the British located in a nearby fort). He had substantial support from the government and plenty of well trained regular soldiers to insure success. Harrison served under Wayne at Fallen Timbers. He demonstrated excellent management skills as Governor of the Indiana Territory for many years, balancing the Government rules and Indian concerns well for a long period of time. Ultimately facing an implacable foe, Tecumseh, Harrison gathered a large force comprised of both militia and regular army personnel to win the hard fought battle at Tippecanoe.

Each man accomplished a difficult task. Clark accomplished the most with the least, without losing a man. He did not take Detroit, but that did not really matter in the long run. The North-West territory was annexed to the United States because Clark had chased the British to the edge of the future nation. This set the stage for the implementation of the Public Land survey which began in Ohio. Wayne and Harrison won important victories against tough Indian forces, insuring that surveys could continue and that settlement could follow. Each man was crucial to the growth of the nation, but without Clark's success at Vincennes, there may not have been a North-West territory to survey and settle.

"Two thoughts come to mind of the visitor who stands....before the grave of George Rogers Clark.....Kaskaskia (July 4, 1778) andVincennes (February 25, 1779). These days recall events which must always stand out as epochal in the history of our nation." (James, p. 473)

BIBLIOGRAPHY

1. Alderman, Clifford L. The Story of the 13 colonies, 1966.
2. BLM, Manual of Surveying Instructions, 1973.
3. Danson, Edwin, Drawing the Line - How Mason and Dixon Surveyed the Most Famous Border in America, 2001.
4. Ecenbarger, William, Walking the Line – A Journey from Past to Present
5. Along the Mason Dixon, 2000. Imlay, Gilbert, A Topographical Description of the Western Territory, 1797.
6. James, James A., The Life of George Rogers Clark, 1928.
7. Jones, Landon. William Clark and the Shaping of the West, 2004.
8. Linklater, Andro, Measuring America, 2003.
9. Mann, Charles C., 1491, 2005.
10. McIntyre, John G., Land Survey Systems, 1978.
11. Morrison, Samuel E., The Great Explorers, 1978.
12. Paden, Irene, The Wake of the Prairie Schooner, 1943.
13. Reeder, Col. Red, Bold Leaders of the American Revolution, 1973.
14. Robinson W.W., Land In California, 1948.
15. Rölvaag, Ole E., Giants In the Earth, 1927.
16. Thompson, Maurice, Alice of Old Vincennes, 1900.
17. White, C. Albert, History of the Public Land Survey System, 1987.
18. Wilson, Hazel, The Story of Mad Anthony Wayne, 1955

Kids Korner

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.

► **Dominic Boitano, age 8,**
Submitted by Brent Boitano



▲ **Elias Alba (age 3)** Surveyor by day, crime fighter by night.
Submitted by d'Artagnan Alba, PLS



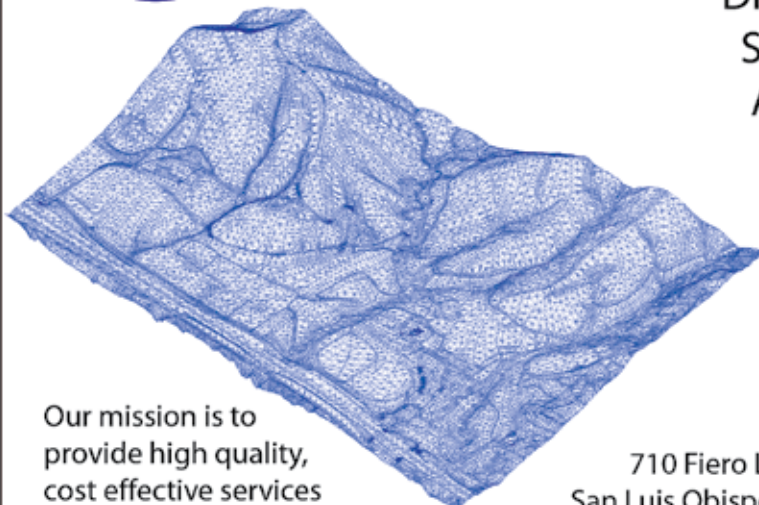
▲ **David A. Karp, age 6, and Ari E. Karp, age 4,**
doing topographic survey with GPS.
Submitted by David Karp, PLS



Central Coast Aerial Mapping, Inc.

SMBE/SWBE & Utilities Clearinghouse Certified

Digital Photogrammetric Mapping
Digital Terrain Models (DTM)
Surface Models/TINs
AutoCAD/Microstation/ArcGIS
Seamless Color Orthophotos
LIDAR Aquisition
Photogrammetric Scanning
Digital Camera Aquisition
Airborne GPS (ABGPS)



Our mission is to provide high quality, cost effective services for our clients.

Made in U.S.A.

710 Fiero Ln. #24
San Luis Obispo, CA 93401
P(805) 543-4307 F(805) 543-7257

mail@aerial-maps.com www.aerial-maps.com



ASPRS Certified



By: *Ralph Simoni*

Ralph Simoni has 41 years experience as a legislative advocate and has served has worked with CLSA for over 20 years. Before joining California Advocates in 1983, he served as Assistant Director-Government Affairs for the California State University and Colleges, Vice President/Legislative Counsel for the California Land Title Association and Chief Legislative Advocate for the State Bar of California. Mr. Simoni is a graduate of San Francisco State University and the University of California at Davis, Martin Luther King Jr. School of Law. He is admitted to practice before state and federal courts in California.

“Hot Topics for the 2015-16 Legislative Session”

Since this is the first opportunity to write about the 2015-16 Legislature, please allow me a few paragraphs to set the tone and agenda for this new legislative session.

General Legislative Climate

Rather than being greeted with an immediate crisis de jour, the new legislature was greeted with optimism from an expanding economy that has generated more revenue than anticipated. The Gov.’s budget announced in early January established spending priorities to pay down accrued debt and place money in the newly created “rainy day” fund to weather an inevitable future economic downturn. Additionally, much of the additional money was dedicated to K-14 education which is constitutionally protected by Proposition 98.

There is also increased anticipation about various ballot measures that are likely to appear on the November 2016 ballot. Because of the lengthy process to qualify a ballot measure, many of the proposals are currently in the planning stages. Anticipated topics include the several controversial social issues such as the legalization of cannabis and the right to “compassionate death,” as well as major tax/revenue proposals such as the reform of Proposition 13 ad valorem tax to create a so-called “split roll” between residential and industrial/commercial properties, extension of the Proposition 30 temporary sales and personal income taxes, and overall reform of California’s tax code. Because of the low voter signature requirements to qualify these initiatives for 2016, it is likely to be a very crowded and noisy ballot.

Indeed, many of these issues will occupy the time and resources of the legislature as various proponent groups seek to create awareness of their cause in the legislature before actually gathering signatures for the ballot.

Beyond these larger mega issues, the legislature introduced its usual assortment of legislative bills on issues both large and small. The Assembly introduced 1663 bills and the Senate introduced 915 bills that must wind their way through the Byzantine policy and fiscal committee hearing process – more commonly referred to as the “sausage factory.” Many of these issues affect CLSA members both in their daily and professional lives.

Bills of Interest to CLSA Members

The CLSA Legislative Committee met on Saturday, March 14 to thoroughly review 45 reactive bills that potentially affect the land surveying profession and to review the progress of the CLSA affirmative legislative proposals.

As to reactive legislation, CLSA took a position on a number of bills that would impact the land surveying profession. The highlights of these bills are as follows:

Assembly Bill 177 (Bonilla) – SUPPORT: extends the governance authority of the Board of Professional Engineers, Licensed Land Surveyors, and Geologists (BPELSG) until January 1, 2020. Every four years the legislature requires licensing boards to undertake a sunset review process to determine whether the board is fulfilling its mandate to both the public and the profession. Although a time-consuming and labor-intensive process for BPELSG, the March 18 sunset review hearing determined that the board is performing its governance function in a responsive and balanced manner.

There are a myriad of BPELSG responsibilities that include administering license examinations, issuance of professional licenses, unlicensed practice by non-licensees, and licensee discipline for unprofessional conduct. The CLSA support letter commented that “the BPELSG has performed its myriad of tasks in a timely, balanced and appropriate manner. Therefore, the profession strongly supports the extension of BPELSG authority until January 1, 2020.”

Senate Bill 8 (Hertzberg) – OPPOSE: would apply the sales and use tax to services, including land surveying services.

CLSA members provide a myriad of land surveying services to both private sector clients (e.g., land division, records of survey, lot line adjustments, easements, etc.) that facilitate commercial and residential development and public sector clients (e.g., rights-of-way for water projects, streets and highways, etc.) that provide necessary infrastructure for state and local governments. In addition, surveyors assist many private utility companies in vital infrastructure projects that benefit both the state of California its residents.

CLSA commented that “it would be unwise public policy to apply a sales tax on land surveying services. Imposing a tax of whatever magnitude on land surveying services would have broad ramifications for all sectors of the California economy because the unique services of a land surveyor are necessary to facilitate and maintain both vital California infrastructure and provide homes, offices, and stores for Californians.” Specifically, Senate Bill 8 would have the following negative consequences for the land surveying profession:

- 1. Public Infrastructure Projects Would Become More Expensive:** many private land surveyors perform land surveying services for cities, counties, utilities, special districts, and the state of California. These services are critical to maintaining and enhancing California’s infrastructure to benefit both its citizens and overall commerce.

Continued on next page

Although Senate Bill 8 does not specify a rate of service tax, application of the general sales tax rate of approximately 8% would thereby make public infrastructure projects significantly more expensive.

2. Private Projects Would Become More Expensive: land surveying services provide the threshold activity for commercial development (shopping centers, office buildings, etc.) and residential development (apartment buildings, division of land pursuant to the Subdivision Map Act for housing, etc.). To the extent a tax is imposed on these land surveying services to facilitate development, both commercial and residential projects would become more expensive as these increased costs would be passed on to California consumers in the form of higher commercial rents and more expensive residential housing.

3. A Service Tax would Jeopardize the Public Benefit Provided by Land Surveying Services: many services performed by land surveyors provide a public benefit beyond the actual service performed. For example, a boundary survey or a lot line adjustment not only benefits the specific property owner but also benefits surrounding land owners by providing more precise property ownership. Additionally, many of these services involve the setting of monuments that likewise benefit not only adjoining land owners, but also provide reference points for infrastructure projects such as streets, highways and public infrastructure (water, sewer, etc.) within the vicinity of these monuments. Most land surveying services are recorded and are thereby of benefit to subsequent surveys in that vicinity. To the extent these land surveying services become more expensive because of a tax on the services, it will have a negative impact on hiring land surveyors to perform the services. This will result in less survey activity and thereby reduce the public benefit of land surveying services.

In addition to its land surveyor specific letter, CLSA joined the Cal Chamber coalition letter in opposition to SB 8 which included most of California's major businesses and trade associations.

Senate Bill 184 (Senate Governance and Finance Committee) – SUPPORT: this bill contains the CLSA affirmative legislative proposals. See discussion below regarding the CLSA affirmative legislative program.

Senate Bill 284 (Canella) – FAVOR: extends the authority for engineers and land surveyors to organize as limited liability partnerships (LLP's).

Organizing as a limited liability partnership (LLP) allows private land surveying firms to take advantage of the tax and liability advantages conferred by this method of business organization. Virtually every other state allows licensed professionals and design professions to organize their business as a limited liability company. Senate Bill 284 would facilitate a multi-state engineering or land surveying firm because it would allow parity amongst the partners in the various states.

Senate Bill 284 continues the balanced approach required of the current professions that enjoy LLP status. Although the LLP status provides for a limitation on liability, it also requires that a land surveying firm that chooses the LLP form of business organization maintain certain liability insurance thresholds, pledge collateral, or maintain a \$10 million minimum net worth that will protect the public in the event injury is caused by land surveying service.

As to **affirmative legislation**, the two CLSA proposals are included in the Senate Governance and Finance Committee Omnibus (see discussion of SB 184 above) legislative proposal that relate to the Subdivision Map Act (SMA) and the Streets and Highways Code.

As to the affirmative SMA proposal, once a map is approved by the legislative body, Government Code Section 66497 requires that an engineer or surveyor “set sufficient durable monuments ... so that another engineer or surveyor may readily retrace the survey.” Further, the statute requires the engineer or surveyor to give written notice “within 5 days after the final setting of all monuments” to various local officials (including a city engineer or county surveyor or other official or employee authorized to receive such notices) and specifies various actions of the “legislative body” (City Council or County Board of Supervisors) to compensate the engineer or land surveyor for setting the final monuments from the existing subdivider cash deposit.

Unfortunately, the requirement that a “legislative body” undertake the release of these funds to compensate the engineer or surveyor is a cumbersome and time-consuming process. This process requires that the release of these surety deposits to the engineer or surveyor for setting required monuments be placed on the “legislative body” agenda for approval. This process of compensation for services rendered by an engineer or surveyor can take many months.

Alternatively, CLSA proposes to streamline the process by allowing a local “legislative body” to delegate the ministerial act of compensating an engineer or surveyor for setting the final monuments pursuant to the SMA to a designated local government official. In fact, some local governments have delegated the authority to a public officer or employee of the local government so that the compensation for engineers and surveyors is expeditiously accomplished. Specifically, the City of San Diego has adopted a policy to authorize the Development Services Department to release or reduce the amount of a subdivision cash deposit in accordance with the existing statutory requirements. Not only will this ensure prompt payment to an engineer or surveyor, but it frees the legislative body from a purely ministerial act in order to concentrate on more pressing matters before the local “legislative body.”

As to the **affirmative Streets and Highways Code proposal**, the CLSA proposal amends two code sections to expedite the vacation of a “public service easement.” Public service easements are often required dedications for governmental approvals such as a subdivision or parcel map, but are sometimes never used for the original intended purpose for which they were dedicated and, by the terms of their dedication, cannot be converted for other public uses.

First, the CLSA proposal amends Section 8333 to allow the “legislative body” to designate any public officer or employee (defined as “someone otherwise qualified to prepare easements or approve parcel maps or final maps as defined in Title 7, Division 2 of the Government Code”) to summarily vacate a public service easement. This delegation of authority would save the cost of placing a vacation of a public service easement on an agenda and preserve time at public hearings for more important local matters.

Second, the CLSA proposal amends Section 8335 to conform to the amendments to 8333 that permit delegation of authority and to require such public officer or employee who receives a delegation of authority to record a resolution. In addition to the four statements currently required in the resolution, the CLSA proposal adds a fifth statement providing that “if the vacation resolution applies to a public service easement vacated by a public officer or employee..., the resolution shall certify that all entities having any right, title or interest in the public service easement being vacated have been notified of this action.”

In addition to the reactive and affirmative legislation discussed above, there are many other proposals affecting land surveying that are in the early stages of discussion that could mature into legislation before the session adjourns on September 11. Future issues of the Cal Surveyor will contain updates on these proposals if and when they mature. ❖

EASEMENT LAW AND BOUNDARY DISPUTES CLASS

Join Senior Counsel Glen C. Hansen in the 2nd annual class on recent developments in **easement law and resolving boundary disputes** in California. This advanced class examines:

- Easement Creation and Termination
- Accommodating Neighbors vs. Easements
- Determining the Scope of an Easement
- Interfering with Easement Rights
- Locating and Maintaining Boundary Dividers
- Using Historical Evidence in Boundary Disputes
- Resolving Conflicting Surveys.

MCLE 3.0/CM 3.0 (pending approval) \$85.00

Fairfield – August 14, 2015, 8:30-11:45am

Roseville – October 23, 2015, 8:30-11:45am

Register at blog.aklandlaw.com/promo/events
or 916-456-9595

MANAGE YOUR RISK

*Insurance Products for the
Professional Land Surveyor
From Vista International*

- ✓ **Professional Liability**
- ✓ **Office Package**
(Property, General Liability, Equipment)
- ✓ **Business Auto**
- ✓ **Workers Compensation**
- ✓ **Personal Insurance**

CLSA MEMBER DISCOUNT

Vista International Insurance Brokers is the only authorized insurance broker for California Land Surveyors Association

Vista Affinity Group Services
1318 Redwood Way, Suite 250
Petaluma, Ca 94954
Call (707) 796-7180 or (800) 819-8808
www.vistainternational.com
License No. 0E08676



CLSA Remembers



Gerald "Jerry" Stayner, PLS 3739 was licensed in 1969 and served as the Riverside County Surveyor for 38 years prior to his retirement in 1997. Jerry was an active member of CLSA and served honorably as President in 1999.



Richard "Dick" Coughlan, PLS 3227 passed away on June 10th. Dick was a Charter Member of CLSA. In addition to being an integral part of the founding of CLSA, he served many years on the Board of Directors.



Robert "Bob" Hart, PLS 5784 passed away on June 14th. In addition to serving as Chairman of the Exam Guide Committee and being a long-time Director on the CLSA Education Foundation, Bob served as President of CLSA in 2004 and received the CLSA Distinguished Service Award in 2009.



LEWIS & LEWIS ENTERPRISES

1600 CALLENS ROAD
P. O. BOX 1328 - VENTURA, CA 93002-1328
TELEPHONE (805) 644-7405

60
YEARS
1953 - 2013

"3" Generations
R.B. "Mr" Lewis LS 1770
R.T. "Bob" Lewis LS 2777
T.R. "Tom" Lewis BS CJA

SERVING the Land Surveying Profession for "60" years

Originally: Land Surveyors – Offshore Surveyors – Navigators

Also offering a complete line of Quality Land Surveying Products

The Goal: QUALITY SERVICE & SUPPORT

QUALITY



- GPS
- Total Stations
- Data Collectors and Controllers
- Laser Levels
- Robotic Total Stations
- Automatic Levels
- Transits

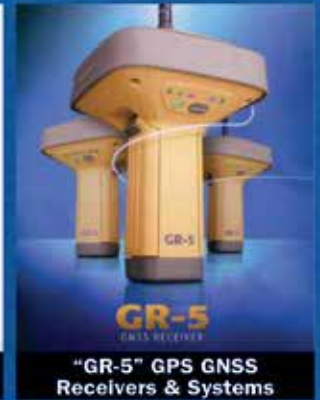
Accessories & Supplies
Toll FREE (800) 235-3377
Email: sales@lewis-lewis.net



"ES & OS" Total Stations



"PS" Robotics



"GR-5" GPS GNSS Receivers & Systems

SALES, RENTALS & FINANCING • NEW, DEMO & USED Instruments, Accessories & Supplies • SPECIALS

Go to... www.lewis-lewis.net



Geography Quiz Answer

Question on page 9



Answer:

Vatican City is the smallest recognized independent state in the world. It is the smallest in both population and area.

*View of St. Peter's Square from the top of Michelangelo's dome
Question pic: Palace of the Governorate of Vatican City State and gardens*



CONFERENCE WRAP UP

CLSA-NALS CONFERENCE 2015 RENO, NV *By: Carl C. de Baca, PLS*

It's a dangerous thing to make subjective comparisons between the most current conference and ones that came before, where your mind is clouded by distant fond memories. Having said that, this conference rocked hard! It was well attended (500+), offered a terrific program of classes and workshops, brought together a great group of vendors, and allowed us to interact with a large and solid group of student helpers. There was a noticeable positive vibe running through the Silver Legacy from the Saturday pre-conference workshops clear through the mock trial on Wednesday. I (very subjectively) rank this as one of the best conferences we have had in several years. Following are a few of the highlights that this attendee observed during the course of the conference:

The Saturday night bowling tournament has achieved a new high. After years of trying to get us into the National Bowling Stadium, Crissy and the conference committee finally did it! I'm not sure what magic she conjured up but it was worth it. We had ten teams of 5 bowlers and plenty of spectators watching gutterball tickets thrown around like candy wrappers. Imagine hour after hour of swirling colored lights and all the seventies disco music you could ask for (or stand) and some bowling thrown in for good measure. Lots of new faces and plenty of long-time bowlers made the event a great experience.

The keynote speech on Sunday was given by a Louisiana surveyor, tinkerer and technophile named Frank Willis. Mr. Willis gave us one view of the near future where we all take advantage of the vast array of cheap emerging technologies available to those with a creative bent. He described buying a drone kit and adding his own survey tools to it. He showed us terrestrial remote-control vehicles for survey applications that he had assembled himself and gave us links to cheap and powerful microprocessors. The message to take away from his discussion was that the profession is changing rapidly but there are still opportunities to get in on the ground floor and adopt new methods and new tools to stay current with the industry as it evolves. Many of these things can be done cheaply if you are not afraid to innovate.

The LS Review track was a virtual cavalcade of esteemed colleagues this year. Those studying for an exam were lucky to witness the inimitable David Paul Johnson offer up his GPS and Geodesy presentation where many household items, toys, tools and knick-knacks are employed to help the audience better visualize the concepts of geodesy. Delivered with deadpan humor and uncommon energy, this is always a must-see and DPJ never fails to pack the room. Those same LS aspirants were treated to Mike Hart, who spent all day on Monday working through the Public Land Survey System in his smooth Arkansas accent, seemingly undiminished by his years out here on the west coast. Mike is an expert who knows his subject matter intimately. On Tuesday the class included Evan Page of the California State Lands Commission using his broad experience in a detailed review of water boundaries. Frank Maxim finished up with a discussion of the California LS Act. The LS Review track is a key part of these conferences and they operate in a smooth and comprehensive manner. I offer a hearty 'thank you' to the conference committee and these surveyors/instructors who work so hard to make the LS Review track a success each year.

A new innovation at this conference was the implementation of 'round table' discussions. We had a NALS board discussion, a CLSA board discussion, a discussion on the various forms of student outreach and a discussion from the CLSA legislative committee. There were also panel discussions with both the Nevada BPELS and the California BPELS (I know, that acronym has changed with the addition of geologist to the CA board, but you know what I mean). These both offered an opportunity to meet and discuss items of interest with board personnel. Another panel discussion centered on QBS (if you don't know what that is, look it up!). This more informal setting gives many people the chance to ask questions or make their voices heard. I hope we see this format at all future conferences. In particular, the youth outreach roundtable was lively, to say the least. Chuck Karayan, Jerry Jaurez, Nancy Almanzan and others offered up observations based on personal experience that should help both NALS and CLSA move forward with more focused and coordinated efforts with respect to TWIST, the Boy Scout Survey Merit Badge, TrigStar and SkillsUSA. These programs will help secure a future generation of land surveyors.

Many workshops were offered between Sunday afternoon and Wednesday morning. There were workshops by NGS, workshops on Communications for surveyors, GIS, Mineral Survey Basics, Ethics, Laser scanning, Mobile Lidar, FEMA, property law, legal descriptions and GNSS Survey Standards. Among the numerous workshops, a few stand out: Understanding Least Squares by Larry Phipps, Mineral Surveys – The Baptiste Story by Linda Smith and David Dorsett, Surveying the Future by Larry Phipps, and Business Aspects of Land Surveying by Jay Seymour. All in all, the program was terrific and if you left this conference without an abundance of PDU's and a lot of food for future cogitation, then you have no one to blame but yourself.

The luncheon on Monday featured comedian Tom Ryan who was absolutely hilarious. He did his homework and salted in among the many uproarious jokes he had a couple of survey-related pieces and one that featured California Surveyor John Wilusz by name – poking good natured fun at John's trip to Prague and subsequent geocaching experience. Bucket list item checked off– eh John? Ryan, who has opened for Jerry Seinfeld and appeared on the Tonight Show can be heard once in a while on Sirius/XM comedy stations. Hey conference committee, great catch! It's going to be hard to top this one in the future. I'm still chuckling at some of the bon mots Ryan tossed out.

The Scholarship Auction on Monday evening was, as usual, fantastic. Our old pal Lightnin', aka veterinarian and auctioneer Greg Williams, did the honors and was in great form. Many people paid more for an item than they otherwise would have due merely to a pause and a look from Lightnin'. I would have to say that based on the generous, aggressive and sustained bidding on all items brought forward, the economy must be improving! And as with all our auctions, the action is livened up both by the horde of student volunteers roaming the room challenging the bidders, and the students on the catwalk parading the auction items like runway models. The live auction brought in over \$25,000 in proceeds

Continued on next page

which go to the states' foundations to fund scholarships. Money well spent – just tell yourself that when you cart that old transit home...

The Awards luncheon is always a special event where the outstanding efforts of a few are honored each year. This year's event, on Tuesday, was no exception. NALS honored Dan Church for Article of the Year for his piece entitled Perceived Value, gave the Meritorious Service award to Alan Reikki and bestowed the Surveyor of the Year award on immediate past-president Glen Armstrong. Monsen Engineering took home the Sustaining Member of the year award. Terry McHenry, retired editor of the Nevada Traverse magazine was honored with a special Distinguished Service award for his 24 years at the helm. Long time NALS member and frequent Traverse contributor Paul Pace delivered a heart-felt speech before calling Terry up to the podium to receive the award. CLSA, in addition to giving out 5 special scholarships to California geomatics students, honored the San Diego Chapter with Newsletter of the Year, the Central Valley Chapter for Website of the Year and bestowed this year's Distinguished Service Award on Bill Hofferber, past president of CLSA and indefatigable workhorse of the CLSA Foundation. Congratulations to all these awards winners. Our organizations are incalculably enriched by the outstanding efforts you put forth on behalf of our profession!

This conference runs like clockwork based on the organizational efforts of the our conference management, Dorothy Calegari, Crissy Wilson and the many members of both NALS and CLSA who volunteer their time to help make it a success. Our conference is so smooth that we tend to take it for granted and that is a shame. These folks deserve our thanks because what they get together and create each year is truly special. If you doubt that, merely attend another state's conference sometime and see for yourself. Another group of people who band together and produce a superior effort for our conference is the assemblage of student volunteers. Coming from OIT, CSUF, CPP, GBC and at least one other college that I am remiss in not recording, this group works hard to help the conference committee in a million different ways. This is their chosen profession and the time they contribute to manning the workshop entrances, carrying auction items around, assisting the vendors, working the auction, etc., is greatly appreciated. Next year, when you pass a student scanning your badge, thank them for their efforts.

No conference can be successful without the contributions of the vendors. The Exhibitors' Hall is the site of a thousand interesting conversations and many people leave the conference with a brain full of contemplative thoughts about exciting new technologies, tools and markets. The vendors host refreshments and food throughout the conference and stand patiently waiting to introduce us to software and hardware that can make our jobs easier and more profitable. This year there were several examples of remote controlled devices, both aerial and aquatic that will one day be commonplace, just as our keynote speaker, Frank Willis predicts.

If you missed the conference and are reading this to see what went on this year, I hope you will attend next year's conference, because it will be worth it both for the educational opportunities provided and for the feeling of fellowship that comes with spending a couple days with your peers and colleagues. Have a great 2015 and see you next year! ❖

Surveying our Future
Staking our Claim

CLSA-NALS CONFERENCE

I had the privilege of attending the state conference in Reno this year as a student volunteer. This was the first state conference that I have attended since I joined the CLSA student chapter at East Los Angeles College. I learned about this opportunity from our club advisor, Dr. Gallegos and I knew it was an opportunity that I could not pass on. I was excited to meet land surveying professionals and learn more about the profession.

On my first night at the conference, I was able to meet and go bowling with professionals from California and Nevada. This was a very memorable moment for me. I was sponsored by a company and allowed to join their team. I was in Team 1 with John Langford (from BEAR Engineering, Inc.), his wife, and two other land surveyors from Nevada. It was an exciting game, and we ended up winning the CLSA Foundation Bowling Tournament!

Throughout the conference, I was able to meet more professional land surveyors because I was the student volunteer at the registration booth. Check-in attendees allowed me to network and learn more about where they are from and what company they are working for. The energy from the attendees was great at this conference. I felt energized and inspired by the professional land surveyors that I met.

As I was helping to set up for the silent auction, I was able to learn a lot about the land surveying items in the auction. This experience was very educational and fun to be a part of. I have also never been to a live auction before, so this was a very interesting event for me. We were able to raise over \$24,000 that night! I am thankful for the generous donations that made the auction possible and that some of the raised funds will help students, like myself, who are interested in pursuing a career in land surveying.

This was such a wonderful learning experience. I am very thankful to have had the opportunity to serve as a student volunteer and to work closely with Dorothy, Crissy, and all the other volunteers. I recommend that all students interested in land surveying attend this conference if they have a chance. I am looking forward to the next conference!

Sincerely,
Minh Sou

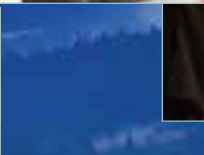


CLSA-NALS CONFERENCE

MARCH 21-25, 2015
SILVER LEGACY-RENO, NV

HIGHLIGHTS

Photos Courtesy: Steve Shambeck, PLS Photography





Congratulations CLSA Award Winners

Photo of the Year

Brian Christensen, PLS



Newsletter of the Year

San Diego Chapter Editor: Paul Goebel



The San Diego Chapter was recognized for their outstanding work in publishing their monthly newsletter, Survey Notes. The newsletter is chalk full of great information about the chapter and state activities as well as informative articles. Paul Goebel, PLS has done a great job making Survey Notes a first class newsletter.

Distinguished Service

William Hofferber, PL



Jay Seymour, CLSA President awards the Dorothy Calegari Distinguished Service Award to Bill Hofferber

The Dorothy Calegari Distinguished Service Award is CLSA's highest service recognition. The recipient of this award must demonstrate exemplary service to the profession extending beyond the chapter and local level and do this for an extended period of time. This year's recipient has done just that. This individual has gone above and beyond the call of duty for nearly 20 years. He has served as an Officer of his local Chapter, a CLSA Director and worked his way through the Chairs to become President of CLSA. In addition, he has committed a tremendous amount of time and energy to raise awareness for land surveying profession and ensure the next generation of land surveyors. He has been an integral part of the CLSA Education Foundation for years and now serves as the Chair of the Foundation. As such, he has helped to raise and award hundreds of thousands of dollars to surveying students. CLSA is pleased to congratulate, William "Bill" Hofferber, as the 2014 recipient of the Dorothy Calegari Distinguished Service Award.



Jay Seymour, CLSA President awards Newsletter of the Year to the San Diego Chapter represented by Mike Butcher, Dirk Nasland, and Marv Sylakowski. Not pictured: Paul Goebel, Newsletter Editor.

Website of the Year

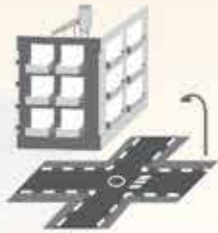
Central Valley Chapter Webmaster: Keith Spence The Central Valley Chapter with the dedication of webmaster Keith Spencer does a great job providing vast resources to members. CLSA is pleased to announce Keith Spencer and the Central Valley Chapter with the Chapter of the Website Award. CaliforniaCentralValleySurveyors.org



Jay Seymour, CLSA President awards Website of the Year to the Central Valley Chapter represented by Larry Fontana and Chad Johnson. Not pictured: Webmaster Keith Spencer.

Use a regular camera for surveying

Draft your CAD maps directly on images of regular cameras



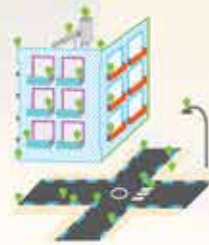
Shoot

Photograph the surveyed area using a regular camera



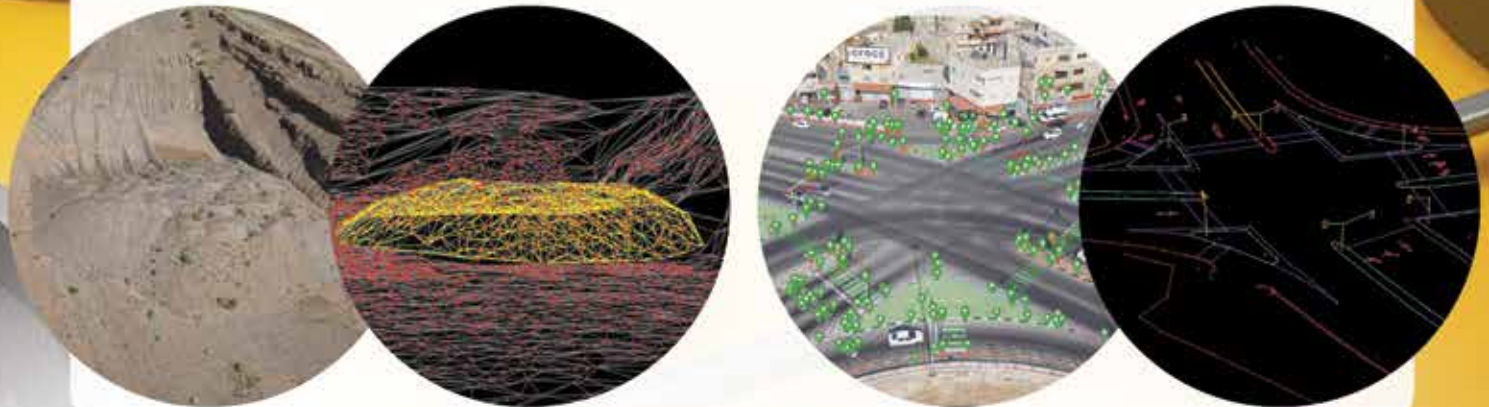
Anchor

Measure few control points to geo-reference the images



Datamate

Draft your CAD maps and plans directly on the images



Datamate

Geomatics Expert Systems

for more information please visit our website:
www.datamate.com



DatuGram™ 3D

Software for drafting maps and making geodetic measurements directly on images of regular cameras

Call for a
Demo and/or
Quote!

ALLEN Instruments
& Supplies

www.alleninstruments.com

7114 East Earll Drive
Scottsdale, AZ 85251
800-272-0180 • 480-994-1306
Fax: 480-994-8337

2940 E. La Palma Ave., Suite F
Anaheim, CA 92806
800-215-2737 • 714-238-3434
Fax: 714-238-3441



Centennial Blonde

MY OTHER HAT... BREWMASTER

I'm not much of a drinker. I average 1 or 2 drinks a month – when I'm on a bender. But I love beer. Good beer. Hand-made beer. Beer with flavor. And I've been brewing beer, on and off, for 20 years.

My post-secondary education is in chemistry and, particularly, in biochemistry. What? Don't laugh. There are plenty of Chemists-turned-Surveyors. Just ask Tom Herrin, PLS, San Bernardino County Surveyor. To me, brewing is all about the chemistry and the science of it. And, there's a lot of science involved.

My mother-in-law got me my first home brewing kit for

Christmas 1994. That first batch was pretty decent. We were living in Fresno, at the time. That meant Bencomo's was the place to go to get ingredients and equipment. And I did. The folks at Bencomo's encouraged me to attend a meeting of the Worthogs, the Fresno Home Brew Club (Wort is unfermented beer. Worthogs is a pun, not a misspelling). I went. I joined. I met people who helped educate me and teach me the ways of brewing.

Beer is just water, grain, hops and yeast. The Bavarian Reinheitsgebot, the first food purity law, enacted in 1516, forbade the use of anything but barley, water and hops. Yeast wasn't included until Louis Pasteur's Doctoral research at the Carlsberg Brewery into yeast's role in fermentation! But, in those four ingredients lies all the possibilities of beer, from the lightest pilsner to the thickest barley wine and everything in between.

The barley seed is a perfect "life raft" for the barley plant to send it's young off into the world. It's a tight little package of complex carbohydrates, proteins and fats. Each kernel is also packed with enzymes that will turn those carbs into sugars – the stuff yeast loves to eat. The malting process allows the kernels to begin growing. That's when the enzymes begin to emerge. When the stem is half to two-thirds the length of the kernel, the grains are dried out on a malting floor. By adjusting the drying temperature, or even cooking the grains before drying, the maltsters can change the flavor of the grain from a very light, sweet pale malt to a dark, bitter black malt that is almost carbonized. The paler the malt, the more enzymes are available to convert those carbs into sugars for the yeast.

Each style of beer, from brown ales to porters to stouts, all have their own recipes of grains. The majority of the grain bill is paler malts. The roasted, darker malts bring different flavors to the party; sweet, nutty, toasty, bitter and so on.

The grain bill is crushed to break the kernels into pieces so they can absorb water during mashing. Mashing is nothing more than soaking the grain in warm water to active the enzymes and get them working of the carbs. By altering the temperature of the mash water, the brewer can significantly affect the taste and mouth feel of the final product. Mashings at lower temperatures, 140°F to 150°F, allows the enzymes to break the carbs into sugars the yeast can really go town on, producing a dryer beer. Mashing over 150°F yield a sweeter beer. A difference of just a few degrees while mashing can make a tremendous difference in the final product.

Once the grains have steeped for 60 to 90 minutes, the sweet liquid is drained off and sent to a boil kettle. Here, that sweet liquid is subjected to a hard boil, which caramelizes some of the sugars, bringing another facet to the flavor party. The boil kettle is where the hops are added, too.

Hops are classified into two types: bittering hops and flavoring hops. Bittering hops bring the characteristic hop bitterness to the beer and are added early in the boil. Flavoring hops bring notes of grassiness, floral, pleasant tastes. Obviously, adding more brings more flavor, up to a point. Hops can also be added to the fermenting wort during the later stages to add more bitterness and flavor.

After the wort has boiled for anywhere from 30 minutes to a few hours, depending upon style, its cooled quickly to around 80°F or lower and run off into a fermentation vessel. Now comes the yeast. Beers are divided into two broad categories: lagers and ales. Lager yeasts tend to work best near the bottom of the fermentation vessel and do better in cold temperatures: in the fifties. Ale yeasts tend to do their work near the top of the vessel and like it warmed, in the sixties.

Yeast consumes sugars and produces CO₂ and alcohol as waste products. There's a lot more going on, really, but, for this article, this is enough. The different strains of yeasts can have a significant effect on the flavor of the beer. One exercise brewers often try is splitting the wort into two vessels, after the boil, and pitching two strains of yeast; one to each vessel. The difference in flavors is amazing, at times.

Once the fermentation is completed, the beer can be carbonated naturally, by bottling and adding a bit of sugar to each bottle to get the yeast producing more CO₂, or the brewer can transfer the beer to a keg and artificially introduce CO₂ to the beer to create the bubbles.

Each step of the way, the home brewer's choices will have affect the final product. Home brewers can go the "extract" route, where the mashing has already been done and the brewer uses dried or liquid malt extracts to go straight to the boil phase.

And then, there's me... I want to control all the variables. In order to do that, I have to be able to control the processes and be able to duplicate them to make the same beer at least twice. And, of course, I'm too cheap to just buy the equipment. I have to make it myself. I actually bought a wire welder and taught myself to weld watching

Continued on next page

The Landmark Name
SURV-KAP
In Survey Products

QUALITY BEYOND MEASURE

EASY ONLINE ORDERING!
Your Satisfaction, Guaranteed.

SURV-KAP.com
SURVEY MARKERS, CAPS AND ACCESSORIES
800-445-5320

100% SATISFACTION GUARANTEED

Continued from previous page



Brew Rig



Mashing



Porter

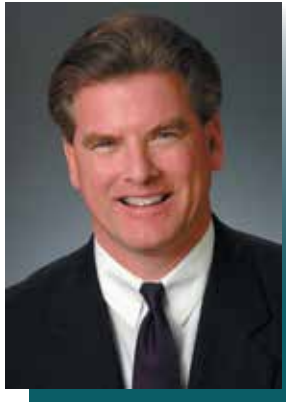


Bread

hours of YouTube videos so I could build my “brew rig”. It allows me to mash, boil and cool my beer all in one place. Instead of fermenting in a glass carboy in a closet, I had to go whole hog and dedicate a fridge to maintain proper temperatures through a home-made controller. I’ve even built a device called a spunding valve that allows me to naturally carbonate my beer during the later stages of fermentation.

A typical batch of beer produces about 8 to 10 gallons in the bottle from 20 pounds of grain, a quarter pound of hops, a liter or so of yeast slurry and quite a bit of water. I share most of what I brew with friends and family. I enjoy a few bottles, of course. But, for me, the fun is in the science of brewing and fermentation. And building new brewing toys. I’ve got my eye on moving from propane to electricity so I can control temperatures even better... ❖

Q&A SMA Expert



Michael P. Durkee, is a partner at Nossaman where he represents developers, public agencies and interest groups in all aspects of landuse law. Mike is the principal author of *Map Act Navigator* (1997-2013), and co-author of *Ballot Box Navigator* (Solano Press 2003), and *Land-Use Initiatives and Referenda in California* (Solano Press 1990, 1991.) mdurkee21@gmail.com

Does CEQA Apply top Lot Line Adjustments?

Question:

It is my understanding that the Map Act exempts Lot Line Adjustments from the California Environmental Quality Act (CEQA). May a city or county subject a LLA to CEQA, based on the local ordinance and its treatment of the property's topography, slope or other characteristics?

Answer:

Great question. And one that is regularly debated, especially in certain regions of California where whisky is for drinkin' and lot line adjustin' is for fightin'!

First, no, the Map Act itself does not expressly exempt LLAs from CEQA.

Second, CEQA does expressly exempt "ministerial" actions from CEQA. See, Pub. Resources Code, § 21080, subd. (b) (1); CEQA Guidelines § 15268 (a). A ministerial action is one in which the permit *must* be given (no discretion involved) if certain objective criteria are satisfied. The reasoning behind the CEQA exemption for ministerial acts is that even if environmental damage could be shown as resulting from the issuance of the ministerial permit, the permit would still have to be issued (mandatory) if the objective criteria are satisfied. Therefore, the CEQA analysis would have led to no different result, no enforceable mitigation measures, no ability to say "no," etc., rendering the CEQA exercise a waste of time. As the courts and treatises have discussed, "CEQA does not apply to an agency decision simply because the agency may exercise some discretion in approving the project or undertaking. Instead to trigger CEQA compliance, the discretion must be of a certain kind; it must provide the agency with the ability and authority to 'mitigate . environmental damage' to some degree." [Citations.]" (*San Diego Navy Broadway Complex Coalition v. City of San Diego* (2010) 185 Cal.App.4th 924, 934.

Third, therefore, I rephrase your question as: Is an LLA a ministerial act, and hence not subject CEQA?

We know that whether or not a city or a county exercises discretionary or ministerial controls over a project "depends on the authority granted by the law providing the controls over the activity." CEQA Guidelines § 15002(i)(2).

In 2012, in upholding Napa County's allowance of multiple (sequential) Lot Line Adjustment applications concerning the same property over time, the California Court of Appeal in *Sierra Club vs. Napa County* also ruled that cities and counties *could* characterize Lot Line Adjustment approvals as "ministerial" under CEQA. I submitted an *amicus curiae* ("friend of the court") brief in that case on behalf of the California Land Surveyors Association (CLSA) and in support of Napa County and the landowners who received the multiple Lot Line Adjustments under a "ministerial" CEQA exemption.

In upholding Napa County's Ordinance as not subject to CEQA, the Court reasoned:

Here, the Map Act exempts from discretionary reviews, exactions and conditions those lot line adjustments that fit the specifications of section 66412(d). Local agency review is expressly limited to determining whether the resulting lots will conform to the local general plan, any applicable specific or coastal plan, and building and zoning ordinances. (Ibid.) Section 66412 describes a prototypical ministerial approval process, and indeed approval of a lot line adjustment application has been characterized as involving "only a ministerial decision," as contrasted with a subdivision proposal. (*Loewenstein v. City of Lafayette* (2002) 103 Cal.App.4th 718, 721.) In other words, "the regulatory function of the approving agency is strictly circumscribed by the Legislature in a lot line adjustment, with very little authority as compared to the agency's function and authority in connection with a subdivision." (*San Dieguito Partnership v. City of San Diego*, supra, 7 Cal.App.4th at p. 760.)

In keeping with section 66412(d), the procedure for approving lot line adjustments under the [Napa County Ordinance involves only ministerial acts unless a variance or use permit is involved. The fixed approval standards delineate objective criteria or measures which merely require the agency official to apply the local law—e.g, building and zoning code provisions—to the facts as presented in a given

Continued on next page



Postcards

Index To Advertisers

Abbott & Kindermann Allen Instruments	32
Allen Precision Instruments	25
Berntsen International, Inc	9
California Surveying & Drafting	56
Central Coast Aerial Mapping, Inc.	29
Engineering Supply Company	2
Leica	15
Leica Geosystems Solutions Center	3
Lewis & Lewis	33
Office Depot (Member Benefit)	4
Santiago Canyon College	53
Surv-Kap	41
Silver Shield	19
Vista International Insurance Brokers	32



I found these multiple survey monuments along Route 66 at Oatman, AZ in early April, 2015. No research was conducted, just found this location by accident while looking for a historical monument in the area. I've never seen an axle used as a boundary monument (but have read they were used or have seen references in grant deeds). There are five pipes below the axle - no tags. And a few feet away is another monument (mineral survey?) with a brass disk with "2000" marked in the concrete base.

Submitted by Charles Beal, PLS

Continued from previous page

lot line adjustment application. (Regs., § 15369.) The approval process is one of determining conformity with applicable ordinances and regulations, and the official has no ability to exercise discretion to mitigate environmental impacts.

However, seemingly important to the Court's reasoning was the fact that the Napa County Ordinance prohibited LLAs that would result in any *new* buildable lots, and the fact that the Ordinance involved several "objective" questions that when answered objectively revealed whether or not General Plan, Specific Plan and Zoning consistency was present. In other words, while the Court recognized that the Map Act statute set up a ministerial framework, the Court was also swayed by the language and approach of the Ordinance itself. In my opinion, any ordinance that prohibits LLAs that would result in any *new* buildable lots is inconsistent with the Map Act, which contains no such qualification. But I will leave that argument to another day. As it relates to CEQA, I would go further than the Court in *Sierra Club v. Napa* and argue that pursuant to the Subdivision Map Act alone – *regardless* of local ordinance – Lot Line Adjustments are ministerial and therefore not subject to CEQA. The argument goes like this: we know that Map Act Section 66412 generally sets forth a number of different exclusions, including the Lot Line Adjustment exclusion (§ 66412(d)), with differing express indications as to whether the activity seeking the Map Act exclusion must be subject to "discretionary action" in order to qualify for the exclusion. For example, the Map Act exclusion for

wind-powered electrical generation devices expressly provides that the activity seeking the exclusion must be subject to a discretionary action somewhere in the process in order to qualify for the exclusion. Likewise, the Section 66412(j) exclusion regarding cellular radio transmission facilities, the Section 66412(l) exclusion regarding solar electrical generation devices, and the Section 66412(m) exclusion regarding biogas facilities *all* expressly provide that the activity seeking the exclusion must be subject to a discretionary action somewhere in the process in order to qualify for the Map Act exclusion.

In striking contrast to these Map Act exclusions (that expressly require a discretionary action somewhere in the process to qualify for the exemption) the Lot Line Adjustment exclusion does not require any discretionary action. The absence of the express requirement for discretionary action in the Lot Line Adjustment subsection of the Map Act's exclusion section (§ 66412) – when that section clearly and expressly requires other activities to undergo a discretionary process – must be interpreted to conclude that the omission was intentional and that the Map Act does not require a discretionary process for Lot Line Adjustments. Further, as recognized by the Court in the *Napa* case, the Map Act's Lot Line Adjustments provisions describe a "prototypical ministerial approval process . . ."

All of this leads me to argue that CEQA does not apply to Lot Line Adjustments, *regardless* of whether the local ordinance recognizes LLAs as ministerial or not. ❖



FAA Unmanned Aircraft System Compliance

From Keynote Speaker Frank Willis's pre-conference presentation to the closing ceremonies at the 2015 CLSA-NALS Conference there was one word on the tips of everyone's tongue: Drones. If the discussion was more technically correct, you might have heard them called Unmanned Aerial Vehicles (UAV), and if you work for the Federal Aviation Administration, the official term Unmanned Aircraft Systems (UAS).

We owe these buzz words to the melting pot of Geomatic Engineering principles with off-the-shelf, low-cost high-quality cameras, and robotics. The result is a centimeter accurate aerial vehicle that is operated from the ground, GNSS enabled, and extremely affordable. Mapping topographic features for projects large and small can now be done in a fraction of the time it would take using traditional method, putting us on the precipice of a paradigm shift reminiscent of the creation of the internet or the birth of GIS.

It is very clear that the end products that were demonstrated at the Conference with this new technology are within the domain of the Professional Land Surveyor (see BPC §8726), and therefore subject to the Board of Professional Engineers, Land Surveyors and Geologists. However, this new frontier is also directly subordinate to the authority of the FAA which is responsible for:

1. Controlling all of the nation's airspace.
2. Operating the Air Traffic Control system.
3. Developing and enforcing certification standards for all aircraft, pilots, flight crews and mechanics.
4. Administering an ongoing aviation safety program.
5. Developing standards for the construction of airports and heliports.
6. Inspecting Commercial Service airports to ensure compliance with FAA safety regulations

Adding to the legal considerations are eleven bills in the State Legislature which range in purpose from creating a UAS Task Force to advise the Governor, to privacy protection for civilians and schools. It is a constantly shifting political landscape that will not settle for years to come. Interestingly, the speakers at the Conference were nearly silent regarding these legal obligations.

So how does one fly their UAS legally? As of February 23, 2015 the FAA has published a Notice of Proposed Rulemaking (NOPR)¹ (see Figure A). Private Businesses engaging in "commercial

purposes" will need to acquire an exemption from Section 333² of the *FAA Modernization and Reform Act of 2012* which "grant(s) case-by-case authorization for certain unmanned aircraft to perform commercial operations prior to the finalization of the Small UAS Rule, which will be the primary method for authorizing small UAS operations once it is complete." Exemptions are evaluated within 120 days³. Commercial purposes is not precisely defined, but it has nothing to do with whether or not one was paid for UAS services.

Governmental agencies as well must follow the NOPR and obtain a Certificate of Waiver or Authorization (COA). The COA allows an operator to use a defined block of airspace and includes special safety provisions unique to the proposed operation. In order to obtain a COA an agency must provide a "declaration letter" from the city, county, or state attorney's office assuring the FAA that the proponent is recognized as a political subdivision of the government of the State and that the UAS will not be used for commercial purposes⁴. COAs are generally granted within 60 to 90 days⁵. The differences between the processes is that FAA must certify civil operators while Public operators self-certify their own equipment/operators⁶. Certification, like licensure, is done for the protection of the public, which is the primary function of the FAA.

To be ethical practitioners of this new tool in our profession we must adhere to the rules laid out by the Federal Government or face possible fines and/or criminal prosecution, not to mention unwelcome criticism of the profession. Also of concern is the possibility of losing the opportunity presented before the Land Surveying community by cutting corners and ignoring regulation for a quick buck.

In the coming months the Tech Tips will focus on this constantly changing landscape in an attempt to keep the readership up to speed. If you would like more information on Unmanned Aircraft Systems and the most up to date news and regulations please go to www.faa.gov/uas/ ❖

1. https://www.faa.gov/news/press_releases/news_story.cfm?newsId=18295
2. https://www.faa.gov/uas/legislative_programs/section_333/
3. <https://www.faa.gov/uas/faq/#qn18>
4. https://www.faa.gov/uas/public_operations/
5. <https://www.faa.gov/uas/faq/#qn16>
6. <https://www.faa.gov/uas/faq/#qn14>

Continued on next page



Overview of Small UAS Notice of Proposed Rulemaking

Summary of Major Provisions of Proposed Part 107

The following provisions are being proposed in the FAA's Small UAS NPRM.

Operational Limitations	<ul style="list-style-type: none"> • Unmanned aircraft must weigh less than 55 lbs. (25 kg). • Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the operator or visual observer. • At all times the small unmanned aircraft must remain close enough to the operator for the operator to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses. • Small unmanned aircraft may not operate over any persons not directly involved in the operation. • Daylight-only operations (official sunrise to official sunset, local time). • Must yield right-of-way to other aircraft, manned or unmanned. • May use visual observer (VO) but not required. • First-person view camera cannot satisfy "see-and-avoid" requirement but can be used as long as requirement is satisfied in other ways. • Maximum airspeed of 100 mph (87 knots). • Maximum altitude of 500 feet above ground level. • Minimum weather visibility of 3 miles from control station. • No operations are allowed in Class A (18,000 feet & above) airspace. • Operations in Class B, C, D and E airspace are allowed with the required ATC permission. • Operations in Class G airspace are allowed without ATC permission • No person may act as an operator or VO for more than one unmanned aircraft operation at one time. • No careless or reckless operations. • Requires preflight inspection by the operator. • A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS. • Proposes a microUAS option that would allow operations in Class G airspace, over people not involved in the operation, provided the operator certifies he or she has the requisite aeronautical knowledge to perform the operation.
Operator Certification and Responsibilities	<ul style="list-style-type: none"> • Pilots of a small UAS would be considered "operators". • Operators would be required to: <ul style="list-style-type: none"> ◦ Pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center. ◦ Be vetted by the Transportation Security Administration.
	<ul style="list-style-type: none"> ◦ Obtain an unmanned aircraft operator certificate with a small UAS rating (like existing pilot airman certificates, never expires). ◦ Pass a recurrent aeronautical knowledge test every 24 months. ◦ Be at least 17 years old. ◦ Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the proposed rule. ◦ Report an accident to the FAA within 10 days of any operation that results in injury or property damage. ◦ Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is safe for operation.
Aircraft Requirements	<ul style="list-style-type: none"> • FAA airworthiness certification not required. However, operator must maintain a small UAS in condition for safe operation and prior to flight must inspect the UAS to ensure that it is in a condition for safe operation. Aircraft Registration required (same requirements that apply to all other aircraft). • Aircraft markings required (same requirements that apply to all other aircraft). If aircraft is too small to display markings in standard size, then the aircraft simply needs to display markings in the largest practicable manner.
Model Aircraft	<ul style="list-style-type: none"> • Proposed rule would not apply to model aircraft that satisfy all of the criteria specified in Section 336 of Public Law 112-95. • The proposed rule would codify the FAA's enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS.

Figure A:

Congratulations! New PLS's

- Gordon Anderson, Eustis, FL
- Razmik Avedian, Walnut Creek
- Anthony Beliew, Fresno
- Darryl Bond, Fremont
- Chantel Brown, Bishop
- Anderson Chrysostomo, Huntington Beach
- Stephen Drake, Eureka
- Andres Espinoza, Fresno
- Eric Finley, Elk Grove
- Matthew Fossum, Sacramento
- Brandon Glantz, Madera
- Kenneth Howman, Orange
- Garrett Jackson, Blue Lake
- Vincent Januszewski, Chula Vista
- Claude Jones, Anderson
- Horst Korn, San Diego
- Jesus Lajara, Plano, TX
- Robert Lux, Tehachapi
- Lowell Mickelson, Whittier
- Ryan Mitchell, Vacaville
- Amy Morrow, West Sacramento
- Benjamin Mullins, Tulare
- James Nicolau, El Cajon
- Daniel Nunes, San Jose
- Mark Phillips, Soquel
- Taleah Quemada, Seal Beach
- Ethan Remington, Carlsbad
- Bobby Rivera, Norwalk
- Scott Roberts, Fresno
- Ignacio Sanchez, Cottonwood
- Justin Scroggins, Antioch
- Matthew Souza, Woodland
- Rodney Stewart, Mountain House
- Michael Valdivia, Clovis
- Josefino Valencia, Santa Clarita
- Justin Ware, Orange
- Jason Weisz, Redding
- James Wenzel, Atascadero
- Michael Wood, Klamath Falls, OR
- Clayton Yada, Fresno
- Jeffrey Zambo, Arroyo Grande

CLSA PUBLICATION ORDER FORM	CLSA MEMBER	PUBLIC AGENCY	NON MEMBER	NO. OF COPIES	TOTAL
2015 Complete Package (8 1/2 x 11 1/2): PLS Roster, Pre '82 CE Numerical Listing, PE & PLS Act, Board Rules, Subdivision Map Act and Index, Misc. Statutes & Binder (Includes DVD with searchable PDFs)	\$36.00	\$49.00	\$72.00		
2015 Refill Package (8 1/2 x 11 1/2): includes: PLS Roster, PE & PLS Act with Board Rules, Subdivision Map Act and Index and Misc. Statutes (Includes DVD with searchable PDFs)	\$27.00	\$37.00	\$54.00		
2015 PE Act & PLS Act with Board Rules (Spiral Book: 5 1/2 x 8 1/2)	\$11.00	\$18.00	\$22.00		
2015 Subdivision Map Act and Index (Spiral Book: 5 1/2 x 8 1/2)	\$11.00	\$18.00	\$22.00		
2015 Spiral Book Bundle: SMA, PLS, PE, Board Rules with DVD	\$25.00	\$44.00	\$50.00		
2015 DVD includes searchable PDF of SMA, PLS, PE, and Board Rules	\$5.00	\$8.00	\$10.00		
2009 Manual of Survey Instruction	\$55.00	\$65.00	\$75.00		
California Coordinate Projection Tables – NAD '83	\$10.00	\$18.00	\$20.00		
Chaining the Land, Second Edition	\$65.00	\$85.00	\$95.00		
Right of Entry Package (50 brochures, 10 flyers, 5 cards, 50 door hangers)	\$22.00	\$36.00	\$44.00		
Right of Entry Cards	\$2.00	\$2.00	\$4.00		
Right of Entry Door Hangers (Pkg. of 50)	\$5.00	\$8.00	\$10.00		
Right of Entry Brochures - Info for Law Enforcement/Land Owners (Pkg. of 50)	\$10.00	\$18.00	\$20.00		
Right of Entry Flyers - Info for Land Surveyors (Pkg. of 25)	\$8.00	\$12.00	\$16.00		
Monument Conservation Brochures (Pkg. of 50)	\$10.00	\$18.00	\$20.00		
GIS and Surveying Brochures (Pkg. of 50)	\$10.00	\$18.00	\$20.00		
Corner Record Forms – BORPELS 1297 (Pkg. of 25)	\$10.00	\$18.00	\$20.00		
Land Surveying Brochures (Pkg. of 50)	\$15.00	\$21.00	\$30.00		
CLSA Exam Guide	\$25.00	\$35.00	\$50.00		
LS Instructional DVDs – Full Set (10 subjects, 19 discs)	\$149.00	\$209.00	\$298.00		
Standard Contract Forms Agreement for Professional Services (Pad of 25)	\$6.00	\$8.00	\$12.00		
Land Surveying for the Land Owner & Real Estate Professional by Daniel E. Beardslee, PLS	\$8.00	\$14.00	\$16.00		
CLSA Safety Tailgate Meeting Guide	\$25.00	\$35.00	\$50.00		
CLSA Decal/Bumper Sticker (___Decal or ___Bumper)	\$2.00	N/A	N/A		
NEW! Land Surveying Comic/Color Books (Pkg. of 10)	\$10.00	\$18.00	\$20.00		
CLSA Baseball Cap To order other CLSA logo items, visit the online CLSA Store. www.CaliforniaSurveyors.org	\$12.00	\$21.00	\$24.00		
"Choose Your Path...Make Your Mark" DVD	\$3.00	\$5.00	\$6.00		

- Member prices are only available to State members of CLSA.
- Please allow 2 weeks for delivery. (2015 publications will begin shipping in January)
- Orders must be received by 1:00 PM for next day FedEx Delivery.
- **Mail your order form and payment to:**
CLSA Central Office
526 South E Street
Santa Rosa, CA 95404
Phone: (707) 578-6016 Fax: (707) 578-4406
- Difference between member & non-member price may be applied toward membership.

Shipping Information (Publications will be shipped FedEx Ground. Please provide physical address)	
Name _____	CLSA Member # _____
Company (if company is mailing address below) _____	
Address (Cannot deliver to PO Box) _____	
City/State/Zip _____	
Phone _____	Email _____

Subtotal	
Shipping & Handling Up to - \$19.99 add \$9.50 \$20.00 - \$40.00 add \$12.50 \$40.01 - \$60.00 add \$14.50 \$60.01 - \$14.50 plus 3% of total	
Next Day Shipping provide FedEx Account Number # _____ Add \$10.00 Handling fee.	
Subtotal – Include Shipping & Handling	
CA Sales Tax Outside Sonoma County Tax - 7.5% Sonoma County Tax – 8.25% Santa Rosa - 8.75%	
TOTAL	
Payment Enclosed: <input type="checkbox"/> Check <input type="checkbox"/> MasterCard <input type="checkbox"/> Visa	
Account #	
Expiration Date	CID#
Billing Zip Code	
Authorized Signature	



CALIFORNIA LAND SURVEYORS ASSOCIATION

526 So. E Street – Santa Rosa, CA 95404
Phone: (707) 578-6016 Fax: (707) 578-4406
clsa@californiasurveyors.org

REGULAR CORPORATE MEMBER GRADE *\$159.00 + Entrance Fee.

Shall have a valid California Professional Land Surveyor's or Photogrammetric license.

CE CORPORATE MEMBER GRADE *\$159.00 + Entrance Fee.

Any California registered Civil Engineer who is authorized to practice land surveying pursuant to Article 3, Section 8731 of the PLS Act and must be actively practicing land surveying and show sufficient proof thereof. CE Corporate membership must be approved by the Board of Directors.

AFFILIATE MEMBER GRADE *Annual Dues \$79.50 + Entrance Fee.

Any person who, in their profession or vocation, relies upon the fundamentals of land surveying.

ASSOCIATE MEMBER GRADE *Annual Dues \$79.50 + Entrance Fee.

Any person who holds a valid certificate as a Land Surveyor-in-Training.

OUT-OF-STATE MEMBER GRADE *Annual Dues \$79.50 (Corporate) + Entrance Fee.

Any person who resides in a state other than California, who is a member of the other state's Association, and meets the requirements of Regular Corporate Member.

STUDENT MEMBER GRADE *Annual Dues \$15.90 + Entrance Fee..

A student in a college or university actively pursuing a surveying education.

SUSTAINING MEMBER GRADE *Annual Dues \$318.00 + Entrance Fee.

Any individual, company or corporation who, by their interest in the land surveying profession, is desirous of supporting the purposes and objectives of this corporation.

- 1. Member Grade Applying for _____ Date _____
2. Name (Full) _____ FIRST MI LAST
3. Mailing Address _____ STREET COUNTY
CITY STATE ZIP
4. Mailing Address is: [] Business [] Residence
5. Telephone: Bus. () _____ Res. () _____ Fax () _____
6. Zip Code of Residence _____ E-mail _____
7. Name of Firm, Agency or College _____
8. Employment: [] Private Practice ([] Principal/Employer [] Employee) [] Public [] Student [] Retired [] Other
9. California License Number PLS# _____ LSIT# _____
10. Other License or Registration Number(s) RCE# _____ EIT# _____
11. Have you previously been a member of the State Association? [] Yes [] No Year _____
12. Signature of Applicant _____

[] Check Enclosed Dues \$ _____ + Entrance/Reinstatement Fee \$25.00/15.00 = Total Amount \$ _____
[] Visa Credit Card Number _____
[] MasterCard Expiration Date _____ CID (3 digit # on back of card) _____
Authorized Signature _____

*First Year's Dues are pro-rated from date of application.

Institutional Affiliate of American Congress on Surveying and Mapping

By: Carl C. de Baca, PLS

Carl is Principal of Alidade Surveying in Elko, Nevada, and a past editor of the California Surveyor. He can be reached at: alidade.nv@sbcglobal.net.

Bad Backsights

2040's Most Interesting Human



The following is an Interview Transcript from the June 1, 2040 edition of History's McMysteries hosted by the ever popular mechanical master of ceremonies, Ed209.

Ed: Good afternoon – today you are in for a special treat! Our 2040 Most Interesting Human is a time traveler. Well, at least after a fashion. Please join me in welcoming this one-time surveyor from our not-too-distant past who has recently emerged after having gone missing some 25 years ago.

Mr. Andertal, may I call you Neal? Your story has to be one of the most captivating things we've heard here on History's McMysteries in quite some time. It says here on my I-ball© that you are or rather 'were', a surveyor. You disappeared 25 years ago and recently, through a series of fortunate events, made a surprise re-appearance – would you mind telling our home audience about your experience?

NA: Okay, so... yeah my story is kind of unique. It doesn't even sound possible but it's totally true, I promise you. It all started in the Summer of 2015 in Sacramento. It was a Wednesday and I was getting ready to have lunch at a restaurant. Huh? Oh, it was a Crapilbees... anyway I was on my way to the restroom when I wandered into the walk-in freezer by mistake. I must have bumped my head and fell in the corner. I suppose a pallet of frozen hamburger patties fell on me and covered me up. I just woke up about 4 weeks ago when global warming finally overwhelmed the freezer unit and I thawed out. Imagine my surprise: it's 2040 and everyone I know is long gone. I will say It's been interesting coming to grips with all this new technology. I can't tell the difference between virtual reality and regular reality; and having a cell-phone implanted in your skull is pretty weird. (gasps from audience)

Ed: Well Neal, I can see your point but in all fairness cranial-cellular implants have been around for twenty years, in fact it's done automatically at birth now so uh, - not that weird. Once Apple© bought Dish© and then acquired all the cellular providers, it became commonplace. Worldwide, only the Kankobono tribe is still temporal-communication challenged these days. But back to your story - So you're saying that you were lying there frozen for twenty-five years? And nobody found you?

NA: Yeah, that's right. I was wearing a white shirt and tan khakis. Once the frost built up on me I must have been pretty much invisible. I was just a lump at the back of the walk-in. (audience oohs and ahhs)

Ed: And no one missed you – family, friends, co-workers... the tax man? (audience belly laughs)

NA: My folks probably wondered where I went but the fact is my family isn't very close. They probably just figured I'd turn up when I felt like it. My friends all thought I'd end up in Vegas some day and I'll bet they just concluded that I moved down there on a whim. Especially after I had to close my small business and go to work for a big company to stay afloat. As a surveyor I had very few co-workers. They probably just assumed I was the latest lay-off since it had become a regular event around my office as the survey work dried up and since I hadn't been there all that long, it would be reasonable to assume I was let go.

Ed: Neal, tell us about your vocation as a land surveyor. You disappeared at a most interesting time in history and few people around now really remember what land surveyors did for a living; what their role in society was. Our data department, The World's Finest™, could find very little on the profession of surveying beyond a few images of sunburned individuals sporting orange vests and a list of licensees that grew smaller each year until the last one retired about two years ago. If I'm not mistaken, he died last week. Your group left a surprisingly small footprint.

NA: I, that is to say 'we' were measurement professionals, involved in many aspects of everyday life. We determined boundaries, performed construction layout of roads, buildings and bridges, topographic surveys, computed volumes, determined flood zones, wrote legal descriptions, monitored movement of buildings and dams, performed hydrography - you name it... We were a proud profession with roots that go back to laying out the Great Pyramids and even included a few early US presidents. We were a pretty important part of modern society. (audience murmurs)

Ed: So you're saying that this was before the great Google-ESRI-Trimble merger which created ETG-Earth©? The first (and only) all-purpose application with millimeter real-time accuracy and complete worldwide data acquisition, not to mention self-awareness? Before every square meter of the planet was digitally mapped? You're saying you actually made physical measurements... on the ground... like some sort of caveman? (Laughs from the audience...) But your grip on geospatial activities must have been slipping, if I can infer anything from your declining numbers.

NA: Gosh Ed, that's kinda harsh, but yeah we were busy and successful, though less so every day with the advent of new technologies. Mapping became something done primarily by others. Site construction using machine controlled heavy equipment was commonplace and required nearly no surveying or surveyors. My

Continued on next page

last memory before waking up in slurry of thawing beef byproducts was attending a demonstration of a drone collecting topographic data. I remember nodding off for good while pondering that this tool would likely eliminate a lot of my current work, as machine guidance and GIS had in the ten years before. The vendor had been telling us how we could generate many times more work product with much less staff, which was a common theme of all that new technology. Before I fell asleep I recall my teeth chattering while I was thinking that I didn't want to work with drones, I just wanted things to stay the way they had always been. (audience sits in stunned silence)

Ed: A demo huh? I've heard about those. It seems like drones and robots have been around forever- I know I have! (audience titters) Well 2015 was only a few years before the great Drone Revolution after which all delivery, police enforcement, real-estate, environmental, tax-collecting and geospatial activities were combined in the first SuperDrone, the ETG-Earth© model T101. That was the 57Chevy of drones, as they say, although I'm not really sure what a 57Chevy is...or was. (Audience laughter)

I can't imagine what it must have been like for you then Neal, like living in the Pleistocene Epoch I suppose. So now that you are completely recovered from the frostbite and you have had your Apple I-skull™ temporal communicator installed, making you truly part of the ObamaNet, what are your plans? The closest thing our researchers could find to your old profession would be the Department of the Interior's Drone Master, but there is only

one of him and it's a poorly kept secret that he's actually a cyborg, so he won't be needing an assistant or replacement until his atomic power unit passes its half-life – that's going to be a long wait. (audience chuckles)

NA: Uh, I'm not sure. I guess I could work at the Crapilbees's where I spent the last twenty-five years. They felt so bad about my mishap that they offered me a lifetime job with their food delivery service. Looks like I'll end up working with drones after all.

Ed: And there you have it ladies, gentlemen, non-gender specific individuals and synthetic lifeforms: Neal Andertal – surveyor, time traveler and most likely a future contestant on our sister show The Humanoid Bachelor. Thanks for tuning in. See you next week when we interview the first successful baboon brain transplant and 3 term US Senator Benjamin Dover and his lovely wife Aileen. (Extended audience ovation)

Editor's Note: The Department of the Interior is a wholly owned subsidiary of ETG-Earth© as is History's McMysteries - your Information Megasource™.

Author's note: Thanks to all dystopian movies past and present such as Terminator, Robocop, Idiocracy, et al for making me lose any real sense of the future. And Thanks Apple, Autodesk, ESRI, Trimble, Google et al for helping me to get it back. Ha!

Author's Attorney's note: Just don't sue, okay? He hasn't got anything you want anyway. ❖

Welcome New CLSA Members

CORPORATE

Richard Alspach, Ashland, OR
Alex Calder, Redwood City
David Darling, Santa Cruz
Parker Geisinger, Concord
William Henry, Riverside
Savior Micallef, South San Francisco
Jesom Moreno, Lakewood
Ben Mullins, Tulare
Sean Reedy, Moorpark
Justin Scroggins, Antioch
John Smith, Fullerton
Shane Sobbecki, Santa Barbara
Daniel Westover, San Francisco
David Whitman, San Luis Obispo
Clayton Yada, Fresno

ASSOCIATE

Robert Abrahamian, Visalia
Ryan Crews, Chico
Andrew Dalrymple, Lodi
Christopher DeVrieze, Temecula
John Dyke, San Jose
James Flynn, Woodland
Bruce Ing, Temecula
David Jungmann, Fremont
Justin King, Menifee
Luan Le, Milpitas
Ray Marrin, San Jose
Jimmie Pallares, Antelope
Oliver Rocha, Rancho Cucamonga
Lenard Roque, Clovis
Travis Schneider, Eureka
Bradley Smith, Northridge
Robert Wong, Walnut Creek

AFFILIATE

Joseph Clomera, San Francisco
Matthew Ehe, San Bernardino
Paul Ferguson, Moutnain Lakes, NJ
Kenneth Fernandez, Chula Vista
Heather Folsom, San Francisco
Gregory Fowler, Tustin
Halbert Goldtooth, Tuba City, AZ
Steve Hannig, San Luis Obispo
Jedediah Hawk, Ventura
Eric Hertz, Huntington Beach
Bronwyn Nielson, Seaside
James Odudu, Long Beach
Jorge Olivo, Ventura
Cesar Ramirez, Buena Park
Omar Sarsour, San Bernardino
Walter Stemberga, Pleasanton

RAILROAD 101 Seminar

LOCATIONS:

August 7, 2015
Doubletree Sonoma County
1 Doubletree
Rohnert Park, CA 94928

August 14, 2015
Ayres Hotel & Suites
1945 East Holt Blvd
Ontario, CA 91761

CANCELLATION POLICY

Refunds for cancellation will be made if requested in writing 7 days prior to event and are subject to a \$35 cancellation fee. Substitutions welcome - Contact the CLSA Central Office for more information.

Schedule

8:00 AM	Registration
8:30 AM	Seminar
10:00 AM	Break
10:30 AM	Seminar
12:00 PM	Lunch
1:00 PM	Seminar
2:30 PM	Break
3:00 PM	Seminar
5:00 PM	Close

Group Discount

A 10% discount to companies or agencies registering 5 or more registrants from the same office. All registration forms and a single form of payment must be received at the same time.

Course Description

Do you know what that ICC Valuation Map is really telling you? Do you understand railroad cadastre and how it applies to these maps?

Do you really know what resources and additional survey evidence is available to you? Is switch geometry a mystery to you? How do railroaders look at it?

When is a railroad formally abandoned, Embargoed?, Out of Service? Railbanked? How does this affect my survey? Why are title insurers so willing to avoid (except) railroad parcels?

Why are railroad curves different and do you know why spiral curves should not be a source of confusion to you in relation to boundaries?

Is railroad terminology a foreign language to you? What railroad am I dealing with?

When you submit plans to a railroad, what is the railroad technical professional looking for?

Why are railroad fences most likely not the boundary evidence you think it is?

What is the ICC Uniform System of Accounts and what affect does it have on surveyors?

What are railroad design professionals looking for and what can I do to simplify communication between the railroad and my client to expedite my project?

The presenters of this course intend to cover the basic concepts and methods employed by the railroad industry in the United States since its inception in the 1830's until today. This AREMA (American Railway Engineering and Maintenance of Way Association, the technical/professional association in North America for the railroad industry, suggested technical standards and practices) course is intended to expose the non-railroad surveyor to the practical basics used in railroad surveying and mapping. At the end of this program, the participants should be aware of the common misconceptions and blunders that occur regarding railroad related surveying and mapping. In places where a surveyor's project adjoins or involves railroad property and facilities, this course should help eliminate the common stumbling blocks that surveyors encounter that delay project completion and/or railroad viability. This program is being presented under the auspices of the American Railway Engineering and Maintenance of Way Association (AREMA, formerly AREA) and a committee of 20 that include active professionals who deal with these issues every day from the industry, both railroad employees and railroad consultants. Additional AREMA railroad professionals working in the California vicinity will be part of an in-classroom panel to help answer California-specific questions as the course is taught.

This course will be of interest to surveyors, engineers, technicians, landmen, right-of-way professionals, legal professionals and transportation professionals.

About the Speaker

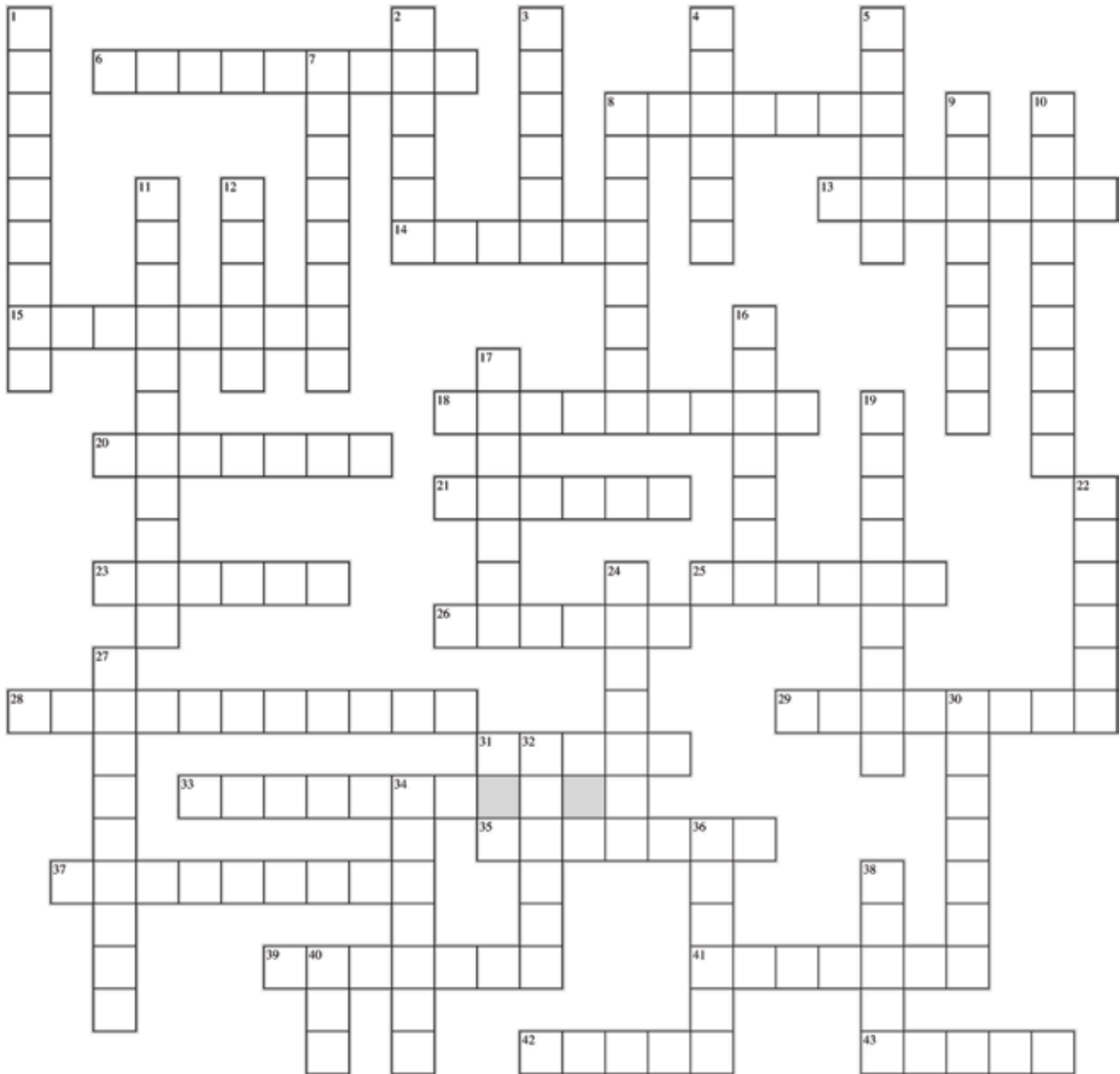
Charlie Tucker, LSI currently is the Railroad Services Manager for Farnsworth Group, Inc., headquartered in Denver, CO. At Farnsworth Group, he has participated in projects in 27 of the 50 states in varied railroad related projects. Prior to working with Farnsworth Group, Charlie worked for the Atchison, Topeka & Santa Fe Railway Company for 15 years in various positions in Colorado, Kansas, Oklahoma, New Mexico, Texas and California. Charlie worked in California between 1988 and 1994 as an Assistant Roadmaster (San Bernardino); Construction Project Roadmaster (Franklin Canyon Tunnels at Martinez/Pinole, CA) and as the Roadmaster at Los Angeles. Mr. Tucker has had a wide and varied career holding positions of Survey Technician, Roadmaster, Tunnel Construction Roadmaster, Field Engineer and Office Engineer on the railroad. Mr. Tucker is actively involved in the Professional Land Surveyors of Colorado (PLSC), American Railway Engineering & Maintenance of Way Association, ACSM, NSPS and the Industrial Advisory Committee for the Surveying Program at Metropolitan State College at Denver, Colorado. Mr. Tucker has taught similar courses in Colorado, Wyoming, Texas, New Mexico, Washington, Wisconsin, Illinois and Indiana prior to this national effort sponsored by AREMA.



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.

Crossword Puzzle *by Ian Wilson*

CLSA Crossword Puzzle # 34



EclipseCrossweed.com

Across

6. FRENCH COLONY CAPTURED BY G R CLARK IN 1777
8. SURVEY ORGANIZATION OF 14 WESTERN STATES
13. 660 FEET TO A MUDDER
14. TYPE OF AB177 REVIEW
15. COMMANDER OF DETROIT IN 1777
18. BREWERY WHERE PASTEUR WORKED WHILE EARNING HIS PhD
20. GROUP SHOWING WARES AT THE CLSA CONFERENCE IN RENO
21. CROSSFIELD'S HOMETOWN
23. OWNER OF ESD
25. UP ANGLE
26. MAIN GRAIN IN BREWING
28. TYPE OF LETTER THAT MUST BE PROVIDED TO THE FAA FOR A COA
29. MAY BE ON THE NOVEMBER BALLOT FOR THE 420TH TIME
31. SOUND-BASED LASER, OF A SORT
33. THE "Q" IN CEQA
35. LAND ORDINANCE COMMITTEE CHAIR AFTER JEFFERSON
37. 2016 CLSA DISTINGUISHED SERVICE AWARD WINNER
39. YEAST'S FAMOUS WASTE
41. LOCATION OF CLSA BOARD MEETINGS
42. FLAT STATE
43. OLD FASHIONED MYLAR

Down

1. TWO WEEKS
2. 2016 CONFERENCE KEYNOTE SPEAKER
3. 2016 CONFERENCE ETHICS PRESENTER
4. OPPOSITE OVER HYPOTENUSE
5. HALF A CIRCLE LINE
7. SPECIAL CARBONATING VALVE IN BREWING
8. FRESNO HOMEBREW CLUB
9. AUCTIONEER LIGHTNIN'S REAL NAME
10. OWNER OF CSDS
11. TYPE OF ACTION FOR LLA
12. SKINNY ANGLE
16. AMOUNT OF LAND TILLED BY A PAIR OF OXEN IN A SEASON
17. AUTHOR OF SB 284
19. NALS SURVEYOR OF THE YEAR
22. COURT'S "FRIEND"
24. PRESIDENT BORN ON MAY 29
27. WILUSZ'S FUTURE CITY NAME
30. TYPE OF DEBT THE GOVERNOR WANTS TO PAY DOWN
32. THE "A" IN UAV
34. 2015 FUTURE CITY COMPETITION LOCATION
36. CLSA POSITION ON SB 8
38. UTAH SURVEYOR WHO SPOKE AT 2016 CONFERENCE
40. TYPE OF LINE IN §66412(d) OF THE SMA

Santiago Canyon College

SURVEY/MAPPING SCIENCES PROGRAM



Preparing for California LSIT or LS exams? Need to upgrade your skills? New surveyor? We offer:

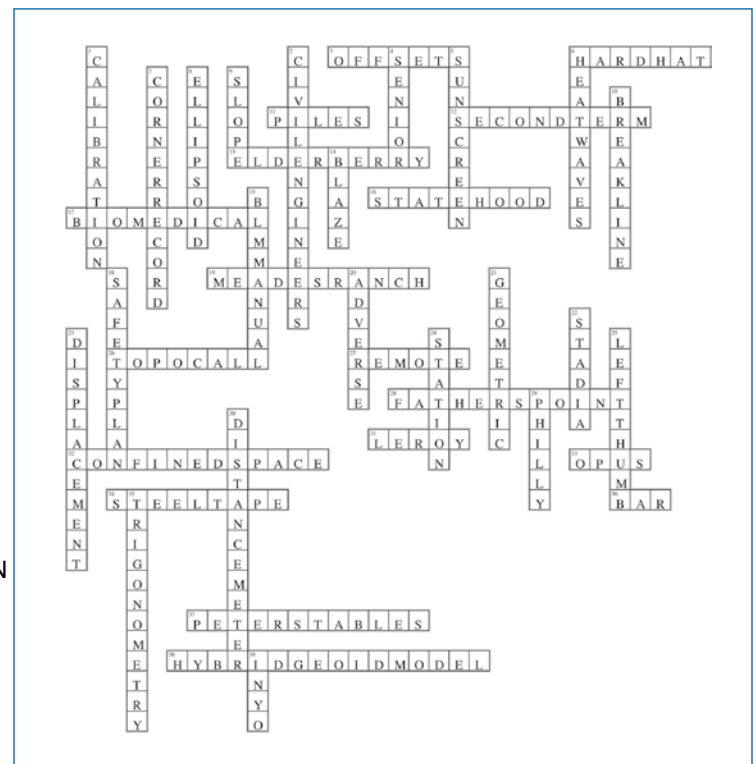
- Affordable classes with certified instructors
- Survey/mapping certificate and degree programs
- Computer labs equipped with GPS, ESRI-GIS, and AutoDesk software
- Total Stations and GPS for field exercises
- Online and evening classes available
- Career training for new surveyors

For more information call (714) 628-4883 or visit www.sccollege.edu/survey

Santiago Canyon College
8045 East Chapman Avenue
Orange, CA 92869

Key to CLSA Crossword Puzzle # 33

(Surveyor Issue # 180)





Sustaining Members

LEJA SURVEYING CORP.
 Land Surveying & Mapping • Court Diagrams
 Legal Descriptions

Steve Leja
 P.L.S. 5933

Telephone (909) 797-3048
 Cell (909) 709-6861 • Fax (909) 797-3876
 13642 Highland Oaks Dr. • Yuccaipa, CA 92399

ALLEN Instruments & Supplies

Dan McMahon
 Sales Representative
 760.271.4681 Mobile
 714.238.3434 Office

800.215.2737 • Fax 714.238.3441
 2940 E. La Palma Ave., Suite F
 Anaheim, CA 92806
 www.alleninstruments.com

Trimble
 dan@allminst.com

TRI STATE SURVEYING INC.

MICKI J. JEFFERSON, P.L.S., W.R.S.
 PRESIDENT - CHIEF EXECUTIVE OFFICER
(775) 358-9491

Boundary Surveys • Water Rights
 Land Division Mapping • Aerial Mapping
 Construction Surveys
 Global Positioning Surveys
 Design/Topographic Surveys

Land Information Solutions

1925 E. PRATER WAY
 SPARKS, NV 89434-8938
 Email: MJJefferson@TriStateLtd.com

www.TriStateLtd.com
 FAX (775) 358-3664

SURV-KAP®

520-622-6011
 1-800-445-5320
 FAX: 520-792-2030
 www.surv-kap.com

John G. Baffert
 President

PO Box 27307 • Tucson, AZ 85726 • 3225 E. 47th Street • 85713

CALIFORNIA LAND SURVEYORS ASSOCIATION

1966

Trimble

Trimble Navigation Limited
 5475 Kellenburger Rd
 Dayton, OH 45424-1099

800.538.7800
 937.233.8921
 937.233.9441 fax

Berntsen
 Custom Identification Products

Tim Klaben
 Marketing Manager

Berntsen International, Inc.
 PO Box 8670
 Madison, WI 53708-8670
 www.berntsen.com
 tklaben@berntsen.com

Tel. (608) 249-8549
 Fax (608) 249-9794
 Tel. (800) 356-7388
 Fax (800) 249-9794

Marking the Infrastructure of the World.

KPFF,
Roseville, CA

ENGINEERING SUPPLY COMPANY
 THE LEADER IN PRECISION POSITIONING SYSTEMS SINCE 1988

Top Full Service Locations
 In Service Now: 800-788-3507

Corvallis, California
 2700 1st St., Suite 2
 W. Sacramento, California
 11281 Marshall Blvd., Suite 102

TOPCON Sales • Service • Training • Rentals

There's No Limit To Your Productivity!
 With Quality Topcon Products And World Class Customer Service!

Sustaining Members

SALES • RENTALS • SERVICE • TRAINING

CALIFORNIA SURVEYING & DRAFTING SUPPLY

SACRAMENTO • DUBLIN • FRESNO • LAS VEGAS
 LOS ANGELES • SAN DIEGO

800.243.1414 • www.csdinc.com

TOPCON Quality Product - Service - Support

Lewis & Lewis
 (800) 342-3607

Sales - Rental - Repair - Financing
 www.lewis-lewis.net

VENTURA: 1600 Callens Rd. Ventura CA 93003 (805) 644-7405
 FAX (805) 642-3970 Email: sales@lewis-lewis.net
 SAN DIEGO: 540 S. Andreasen Dr., Suite A Escondido, CA 92029
 (760) 747-8823 FAX (760) 480-5778 Email: jim@lewis-lewis.net

CLSA
 CALIFORNIA LAND SURVEYORS ASSOCIATION

SUSTAINING MEMBERSHIP

Membership in the California Land Surveyors Association, Inc. as a Sustaining Member is open to any individual, company, or corporation who, by their interest in the land surveying profession, is desirous of supporting the purposes and objectives of this Association. For information regarding Sustaining Membership, contact:

CLSA Central Office
 526 So. E Street, Santa Rosa, CA 95404
 Tel: (707) 578-6016 Fax: (707) 578-4406

ASC Technology Group,
Rolling Hills Estates

PACE ENGINEERING

Complete engineering services
 with attention to your special
 client needs since 1976.

ANDREW RIELAND, LLS
 SURVEY SUPERVISOR
 LS 4322

1730 SOUTH STREET
 REDDING, CA 96001
 e-mail: arieland@paceengineering.us

(530) 244-0202
 FAX (530) 244-1978

VERTICAL MAPPING RESOURCES, INC.
 An Equal Opportunity and Affirmative Action Employer
 www.verticalmapping.com

San Diego, CA
 4325 Avenida
 Coronado, CA 92118
 Ph. 619.595.1200
 Fax. 619.595.1295

Sacramento, CA
 191 Blue-Gemina Blvd., #110
 Folsom, CA 95630
 Ph. 916.925.1488
 Fax. 916.925.1187

Seafloor

Manufacturer of the HydroLite™ & SonarLite-BT
 Hydrographic Survey Systems
 Sales • Rentals

Call (530) 677-1019 or visit Seafloorsystems.com
 3941 Park Drive, Suite 20-215, El Dorado Hills, CA 95762



Top Captions for issue #180

"Since the King is left-handed his left foot is 2% larger than his right. The gross area of the kingdom just grew by 4.04% in fee simple."

Submitted by BJ Tucker PE, LS

Imperial Survey Foot Defined. (No Corn)

Submitted by Larry Canuti, PE, PLS
Larry Canuti

Photo of the Year Entries
Submit Photos to: CLSA@californiasurveyors.org

Surveying in the Sierra Nevada Mountains.
Submitted by Brent Boitano



Submit your caption for the below cartoon to clsa@californiasurveyors.org by April 10th. Our favorite captions will be published in the next issue of the California Surveyor.

3D Laser Scanning for Surveying Applications

Affordable...Accurate...Easy-to-Use

As a complimentary tool to standard surveying equipment, a 3D laser scanner can supplement traditional survey coordinates with 3D point clouds which contain millions of measurable points for realistic representations of as-is conditions.



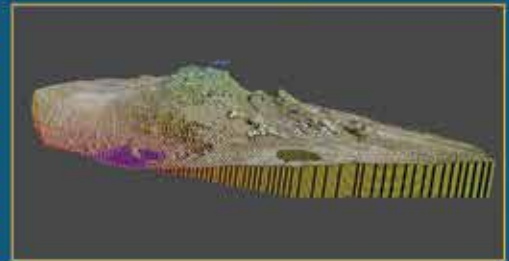
The Exclusive
California
FARO
Dealer

Specific applications include:

As-Built Surveys



Volume Calculations



Surface Analysis



Call today to see how CSDS can help put laser scanning technology to work on your next project!

800.243.1414

www.csdsinc.com



**CALIFORNIA SURVEYING
& DRAFTING SUPPLY**