

SURVEYOR

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Issue #182

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

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

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Sara Germain surveys for the Utah Forest Dynamics Plot.

Photograph by Erika Blomdahl





From the Editor

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

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

Thank you and farewell to Dorothy Calegari, Crissy Willson, and Association Management Services.

In this issue of the California Surveyor we bid a sad farewell to Dorothy Calegari and Crissy Willson of Associated Management Services. Dorothy was CLSA's Executive Director for 37 years. She started working for CLSA in 1973. She was appointed Executive Director on January 28, 1978. (If you want to calculate how old she is, she was 5 years old at the time, so she says.) The following year, the CLSA board of directors voted to grant her an honorary land surveyor's license. In 2008, through the efforts of then-president, Jim Herrick, the directors voted to grant her honorary life membership in CLSA. She is one of only three individuals in the history of CLSA to receive this honor. In 2011, through the efforts of then-president Aaron Smith, CLSA created the Dorothy Calegari Distinguished Service Award. It is the association's highest service recognition, and is awarded to individuals demonstrating exemplary, long-term service to the land surveying profession. That is to say, the kind of service that Dorothy and her staff provided to CLSA.

Crissy Willson started working for Dorothy in 1999. Her hard work and talent were essential to the successful management of CLSA. Crissy served our association in many capacities, but I will especially miss her for her contributions to the California Surveyor. Since 2006, we worked side by side to produce 33 issues of the magazine. What happy memories I have of our long and productive partnership.

Dorothy and her staff consistently put CLSA before their own interests. Through their service they earned the respect and admiration of their peers. Read the following tributes and you will see what I mean. I've heard it said that you can call yourself a "professional" all you want - others will decide the matter for themselves.

I first met Dorothy in 1993 during an overview presentation of the structure of the board of directors. From the first time I met her she has provided answers to all my questions and the history of all things CLSA. I thank her for putting up with me for so many years and always being available seven days a week at odd hours to take my calls. I could always count on Dorothy being in the office at early hours; I am talking surveyor hours. Many times I was able to speak with Dorothy and conclude our business before my survey crews showed up. I came to rely on her and Crissy Willson's abilities to create meeting agendas, and assemble reference materials from our brief phone conversations. Conversations that happened while driving between meetings and always were at my convenience and on my schedule. In looking back, I still marvel how well Dorothy and Crissy could take minutes during our legislative committee meetings via conference call and distinguish which of the 12 to 15 members made the motions through all the crosstalk. And while I appreciate all that Dorothy, Crissy and AMS have helped me while serving CLSA, some of my fondest memories are those times spent between the CLSA meetings. The times when the executive committee would take a break and go to dinner on Friday nights after a full day meeting. Places like Kuleto's, Fred's Place, Max's Diner or yes even Italian Denny's. No matter how our orders turned out, the company and camaraderie was unequalled. And don't forget Malibu Grand Prix! All times I fondly remember and cherish. I wish Dorothy and Crissy and AMS all the best in the future; you will be missed but not forgotten.

Michael Butcher
CLSA President 2000 & 2013

I first met Dorothy Calegari in the mid to late 90s when I started to get involved in CLSA at the state level. I don't remember the exact year. I got to know her early on through the legislative committee and the Board of Directors. It very quickly became apparent that she had a tremendous amount of current and historical knowledge about the association and what it takes to create a strong and growing CLSA organization.

In 2006 I became the state treasurer of CLSA. Later that year in August one of the officers in front of me resigned due to health reasons and we all moved up one slot. I was Secretary at the end of 2006 and then moved on to President Elect in 2007. This whole situation took an entire year out of my time to gain experience as I went. Dorothy worked tirelessly with me and the other officers during this time answering my many questions and preparing me for the challenges that come with each state office. I have a very deep appreciation for her "over-the-top" help and guidance during this time. Then again in 2012 while I was trying to finish up negotiations with Fresno State University regarding the MOU for the professor position she stepped forward with tremendous help and guidance. As a result we were able to negotiate through the process and get a signed MOU in place. I have been a director on the Education Foundation for many years and have served in all the Foundation officer positions at least once. She has been a very ardent supporter of the efforts of the Foundation during that entire time. She has gone way beyond the call of duty for this organization for many years. There are many other examples of her above and beyond assistance that space does not allow to be added here. CLSA owes her a very large debt for all the efforts that she and her company AMS put forth for the benefit of the association and the profession. She was one the biggest assets that CLSA had and will be extremely difficult to replace. I wish her and her company the best in the future.

James M. Herrick, PLS
CLSA President 2008

Continued on next page



I first met Dorothy Calegari in 1998, however my real interaction with her did not begin until about 2001 when I started attending BOD meetings as a director of the Riverside/San Bernardino Chapter. Over the next several years Dorothy and I would speak on a regular basis when there were chapter issues, at BOD meetings, when I had the opportunity to assist at workshops hosted in Ontario, and at the annual CLSA Conference. Around 2005 I became more involved with CLSA and with the CLSA Education Foundation, this led to more interaction with Dorothy. From 2008 to 2012, I was blessed to work as an officer of CLSA on the Executive Committee with Dorothy as the Executive Director. Over these 5 years the friendship I had with Dorothy blossomed, we would talk regularly on the phone about CLSA issues, but more importantly, we would talk about many other life issues. I have always felt comfortable talking with her about anything, I have total trust in our relationship, and I have extreme respect for her.

When serving as an officer of CLSA, and especially when serving as President, there are many issues that arise where good judgement, diplomacy, and near immediate interaction are required. Dorothy was always one of the first persons I would turn to when needing advice, to discuss an idea, or to strategize on how best to deal with a difficult or controversial issue. Because of her experience and her unwavering professional integrity I could always count on Dorothy for an open, honest, subjective, and thorough conversation. She often helped me view things from multiple perspectives where initially I had my mind set and was intending to take action in a specific direction. At times I have utilized her talents to review, comment, and/or edit my written articles to making sure I was diplomatic and proper with my comments.

Over the past 40 plus years in land surveying I have had the opportunity to work with and alongside hundreds of professionals. Regarding integrity, dedication, and professionalism Dorothy Calegari is second to no one. I have utmost respect for her and I am by far a better person for having had her as a mentor, a colleague, and a friend. I will truly miss you Dorothy as I am sure many others will; it has been an honor to serve with you in CLSA. I hope I have provided you with at least a fraction of what I have received from our relationship.

William R Hofferber Jr., PLS
CLSA President 2011

Where do I start? Well, I think we can all agree Dorothy knows more about CLSA than most of our collective memories could fathom to cobble together. And she worked for CLSA from almost the beginning. She always had the best interests of CLSA, her client, at heart . . . and performed, in my opinion, a stellar job of managing the daily tasks of such a diverse and opinionated group. For those who have never visited her office, I can tell you she ran a tight ship. But not so rigid that staff fled . . . as evidenced by the longevity of her top notch staff, Crissy Willson, for example. Whatever "part" of the organization you were - she and her staff always responded promptly, courteously and professionally. I'll never forget one of her pearls of wisdom: "don't procrastinate, Phil". (I'm still trying.)

Being treated as family by her is another happy memory that comes to mind. (Me being the crazy uncle in the attic.) Like family - we shared tragedies, joys and the everyday frustrations of life and

work. By the way, I mean this not just about Dorothy, but it also goes for all of the well-trained staff of Associated Management Services . . . Crissy . . . Cheryl . . . Jessica . . . Katie. I am going to miss them. Writing this tribute feels like I'm writing a damned obituary! It was a happy forty-plus marriage that ended tragically. AMS - you will continue to be successful - just without your True Love. You gave your heart 'n soul to CLSA and those that know you, know that. Dorothy, I wish you, Crissy and your staff the best. Most sincerely,

Phil Danskin, PLS
California Surveyor Editor 1998 to 2004

I came to the CLSA board of directors, representing the Sacramento Chapter, in the early nineties. I didn't know anyone, so there was not much opportunity for mentoring. In the beginning I asked Dorothy Calegari and later Crissy Willson, a lot of stupid questions about procedure and responsibilities and such. Over time, with Dorothy's encouragement, I developed sufficient self-confidence to express my thoughts out loud - which led me to greater participation in CLSA and eventually NSPS. I think she always worried I was a dumpster fire waiting to happen but she never let it show.

In my years of involvement with CLSA, Dorothy and Crissy helped me become a better director, a better NSPS governor, a better NSPS director, a magazine editor and a journalist, none of which have come naturally to me. They were never too busy help me. I have always been astounded at their organizational skills, follow-through, and their sincere care for the CLSA membership and the CLSA brand. And their conferences have always been first rate- so much so that we tend to take it for granted. I've had the opportunity to attend a great many conferences put on by other surveying organizations over the past several years. None compete with the ones that Dorothy and Crissy oversaw. Theirs will be a hard act to follow, indeed. It's tempting to call these two the 'institutional memory' of CLSA for that was certainly true. Over the years, officers and board members have come and gone, yet the CLSA ship has tracked true regardless. But that term is lacking. They were the institutional soul of CLSA. They will be missed.

Carl C. deBaca, PLS
California Surveyor Editor 2004 to 2006

I first met Dorothy when I attended a conference in Las Vegas in about 1982. She was introduced to me by Jim Crabtree, who was the incoming president. I was immediately struck by her confidence and leadership in managing that event. It was a great first experience. Dorothy always had the answers being sought by the many surveyors on the tip of her tongue. She took her position as Executive Director seriously. In all the years from that point forward, Dorothy has continued to impress me with her skill, passion for our profession, and above all her incredible professionalism on behalf of CLSA. When I was approached to step into the leadership chairs of CLSA, the first person I talked to was Dorothy. I asked her if she would guarantee me that she would continue in her position as executive director for at least the five years that I would take for me to traverse the many board positions. Only after being assured by Dorothy that yes she would continue on did I accept the nomination.

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Dorothy clearly knows how to assist an association and do it right. During my travels as incoming president in 2011 I had the opportunity to represent CLSA at both that years NCEES convention in Rhode Island, and the Oregon PLSO conference. At both venues I was approached and asked if they might steal Dorothy away, as they recognized how well managed CLSA events and the association itself was run. The stability that CLSA enjoyed for many years is testimony to how well Dorothy managed not only CLSA, but her company AMS also. By selecting Crissy, Jessica, and staff that has shown the same concern, zeal and interest in CLSA, she was able to support a widely divergent organization over a long period of time. Dorothy's historical knowledge, compassion and above all friendship during my active years with CLSA are what I will recall with great fondness. The shoes that Dorothy has left will never be filled. Dorothy, thank you.

Frank R. Lehmann, PLS
CLSA President 2012

Dorothy, how many years did it take for CLSA to grow to the point of needing professional assistance to operate efficiently? I think it was at a board of directors meeting in Burlingame back in the mid-1970's, after you gave your presentation, that you were selected. Selecting you to manage CLSA was one of the smartest things that we have ever done. Since that time, I know of only a handful of people within the association who have shown such consistent dedication to the promotion of the surveying profession. I think of all the many, many hours you sat through executive committee and board of directors meetings. In those days nothing contentious ever happened. I am grateful for the great job you always did arranging the conferences every year. Am I am especially thankful for your assistance during my years progressing through the chairs and presidency. You made it a piece of cake. Thank you. Thank you. Thank you.

Gary T. Lippincott, PLS
CLSA President 1997

It has to be evident, to anyone who has had the pleasure of working with Dorothy, that she sincerely cares about CLSA and wants nothing more than to promote and enhance the profession of land surveying. I was acquainted with Dorothy ever since I became a member of CLSA. Usually meeting briefly at annual conferences and workshops. The first time I had a particular discussion with her was in 1996, having just completed a Trig-Star presentation and test at a local high school, I called Dorothy to ask if CLSA had a Trig-Star Coordinator at the State Level. Her reply was, "we do now, make sure to submit your reports in a timely manner".

Having served on the Board of Directors, the Education Foundation, and especially my time on the Executive Committee, I was able to witness first hand, Dorothy's professional guidance and advice. Never overbearing, just straight forward information with detailed historical background when needed. Her help and assistance, especially when I was president, was invaluable and made my time really memorable. Several times, while attending NSPS meetings and events, I was met by other state association representatives who expressed how lucky CLSA is to have Dorothy as our Executive Director. When asked why, the typical reply would be "how well a conference, seminar, or meeting was organized and run under Dorothy's

direction". The expression "truly missed" is such an understatement that it simply cannot convey how much Dorothy has done for the association. She will be the standard others will be striving to obtain. I wish her all the best.

Armand A. Marois, PLS
CLSA President 2005

I have had the great pleasure of knowing Dorothy Calegari since about 1973, just about a year before I joined the CLSA in 1974. She was working with Jim Adams, our first Executive Director and I had the pleasure to work with both of them. Being in Santa Rosa, in Sonoma County where eight of our past presidents came from afforded me access to the Central Office and I visited there often. Dorothy has always been a consummate professional in everything she has done inside, and outside of the CLSA.

Dorothy has a unique way of getting people to step up and do things they are not comfortable in doing; she encourages them to do it anyway and make a difference to the profession they represent. She would always remind us of what Franklin Roosevelt taught us: give back to the profession that has supported you in your life's work. She would always be available to answer questions and help support those of us representing the CLSA. She made you feel good about what you did to represent the land surveying profession and had no use for anyone who tried to destroy the association or cast doubt on the operations of the members and officers doing their best to uphold the bylaws, articles of incorporation, strategic plan or other guiding principles of the association.

Dorothy deserves the utmost respect from all of our members for all of the years she has provided her services to us. She has not been treated fairly by many of our members. I am truly sorry and ashamed that our members and officers would not step up to those who would try to have Dorothy removed as our Executive Director. She deserves more than that from us and I wish Dorothy and Crissy all the best in the future and will always be there for them as a friend.

Howard W. Brunner, PLS
CLSA President 1990

I, like many other surveyors, had a number of contacts with Dorothy over the years. She was my counselor when I was new to the state association in the early 1980's, and again when I became chair of the Education Committee during the time we were proposing continuing education requirements. She was the ever-pushing publisher when I worked on the CLSA News and then the California Surveyor, always asking what she could do to help get the material in on time. In all the time I dealt with Dorothy, she was always positive, always very helpful and never said a bad word about anybody, even when prodded.

The one story that I always think of when I think of Dorothy was at a conference where it was a combination CLSA and ACSM conference. I need to give a little background. When my daughters were growing up, I had my own small surveying business. One of the aspects of that was my daughters thought "vacation" meant going to a

Continued on next page

surveying conference. They would enjoy the hotel pool, and knew who all gave the best swag in the exhibit hall. They knew many of the vendors at those events and I am sure wondered why there weren't more kids there. Well at this combination conference we all were entering the exhibit hall on the first day when a guard stopped us and wouldn't let Claire or the girls in because they had no badge. I tried to explain they were just going to visit the people they knew there but he wasn't having any of it. We were walking away from the hall when Dorothy, who was running around trying to deal with all the things going on at the conference, came over to us just to say hi. We chatted for a while when she asked if we had been in the exhibit hall. We explained the situation and I saw Dorothy actually look upset. She said "wait here a second" and went and talked to the guard. After that the girls had no problem going through the exhibit hall. It was such a nice gesture towards the girls and it really made their vacation.

Tom Mastin, PLS
California Surveyor Editor 1992 to 1997

Not every member knows who the current CLSA president is. Not every member knows who is on the current board of directors. Not every member knows all the effort that goes into effectively running CLSA, or all the issues being discussed throughout the state. But I would reason to guess that pretty much every member knows who Dorothy and Crissy are. Some, only by name and what their role was, others more personally by the various ways in which to become more involved within the organization. Their positive impact is permanently felt throughout the three most recent generations of membership in CLSA.

Both Dorothy and Crissy have my utmost respect and admiration for what they have accomplished with respect to ensuring the future of the land surveying profession in California and other western states. I cannot speak enough about the integrity in which these two individuals represented CLSA to other organizations throughout the years or the passion in which they stood their ground for the profession. Change is inevitable. Members come and go. Organizational leadership in the membership rises to the occasion and then fades away, only to be replaced by others who wish to pay back the profession that they owe a great deal to. But throughout all the changes that have occurred in the years since Dorothy and Crissy joined CLSA, those two remained the cornerstone for which all could rely upon for consistency.

Ric Moore, PLS
Executive Director, BPELSG

Dedicating one's life to a cause or an organization is noble when that dedication benefits the lives of others both professionally and personally. Dorothy has done that for CLSA and me. Over the years I have observed her unselfish commitment to this profession and it has inspired devotion and encouraged me to seek similar gifts. She has spurred motivation in myself to prove worthy of her labors. Generally, her passion for the organization and the profession ran under the radar; however her enthusiasm is infectious to all those whom she comes in contact with. She is deeply involved in the individual both socially and personally. What's more is she seeks no public recognition.

In many ways her efforts for CLSA can be interpreted as an objective passion belonging to one's calling for her life's work. This is evidenced when considering the resounding successful conferences, the dedication to organize and attend the many committee meetings, managing the website, assuring publications are in order, and much more. I am forever grateful to all the hard work by her and AMS. Their accomplishments have provided me the tools to assure that I am able to maintain high levels of professional ethics and practice. To attempt to pay her back for her work would be futile but begs to be attempted. I am forever indebted to her both professionally and personally, so I surrender to her generosity by saying "With the deepest sincerity and gratitude, I thank you."

Ronald J. Nelms, PLS

Dorothy Calegari is my friend. She has been a mentor since I joined CLSA in 1986. Any question I've had concerning law or procedure or the CLSA Association has always gone to Dorothy or her right hand person, Crissy Willson. If they couldn't answer it they didn't send me away. They found an answer and got back to me with it. I admire both of them tremendously. They are two professional business women who are admired by most who do their jobs flawlessly under great stress.

I remember one incident at a conference where Dorothy was (unintentionally) the center of attention. I had just arrived and saw a crowd gathering in the parking lot. In the center of that crowd was a damsel in distress. I couldn't believe it was Dorothy! A very unusual position for her as she is always the one in charge of everything! It seems that as she was stepping out of her vehicle her shoe fell off her foot and sailed merrily down a storm drain grate. As her driver ran over and tried to get it out the valet driver ran to help him then the bell man ran over to see what he could do to help. Eventually, somebody got a hanger and "fished" her shoe out and place it on her foot. (Yes, the glass slipper fit!) The entire crowd burst into applause as a very embarrassed but graciously laughing Dorothy exited the vehicle and went on to organize the entire conference with Crissy chuckling alongside of her.

I wish Dorothy and Crissy the best of luck and hope they can find another organization they feel they can pour their hearts and souls into as they did with CLSA. We will all miss them tremendously.

Linda Richardson, PLS

I can't thank Dorothy enough for all the time, encouragement, patience and guidance she has given to me as well as the entire Association!! She has been an intricate part of the success of CLSA for a very long time and we would not be where we are today without her and her staff. Here is a story that shows the kind of person she is and how much her company cared about CLSA.

We were in Las Vegas for the annual CLSA Conference and after 6 days of working around the clock catering to all of the attendees, VIP's, guest speakers, exhibitors, and working with the hotel staff to make the conference another hit, Dorothy and company were off to get home via Southwest Airlines. I was checking-in at the same time

Continued on next page

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they were at the curb and there was Dorothy, Crissy, and Jessica with all of their bags and gear for the conference, what a sight. OOOPS, one of the bags was weighing in at 55 pounds which meant a \$25 charge..... What did they do? The ladies scrambled to each share a little more weight in their purses, carry-on bags, and pockets, and what do you know: The checked bag weighed 50 pounds!!! I watched them go through this 10 minute process and take on this extra chore all to save CLSA \$25. I was exhausted after the conference and all I had to do was enjoy myself, they worked around the clock for 6 days, but their primary focus was still with CLSA.

This is an example of the many little things that Dorothy and AMS did each and every day to help this Association, but unfortunately only a small handful really got to see the things that I saw. We have lost a giant of a comrade for CLSA, but my thanks for what AMS did for me as a professional will always be remembered and I will always thank them for what they did for me personally, and for what they did for CLSA! THANK YOU, LADIES.

Aaron R. Smith, PLS
2010 CLSA President 2010

My first recollection of Dorothy was from my tenure in the 1970s as an officer in the Northern California Section of ACSM. Then I was a Civil Engineer, but my main forte was surveying. George Gary, PLS talked me into getting involved with ACSM. I remember Leona Dinnin from the USGS in Menlo Park, complaining about Dorothy's refusal to share CLSA's mailing list to help promote the Northern and Southern California Section's events. Before I ever met her, I had formed the opinion that she was most dedicated to CLSA, and would not compromise her standards to anyone. A variety of situations in the years following proved that I was right.

When I first heard about SB2, I decided that I would not be known as a surveying Civil Engineer, and so I sat for the PLS exam. In 1982 I joined CLSA immediately upon getting my PLS number. I later learned much more about the dedication and persistence that culminated in the passage of SB2. (Editor's note: Senate Bill 2 became the law that requires civil engineers licensed on or after January 1, 1982 to acquire a land surveyor's license prior to practicing land surveying.) To this day, SB2 remains a major accomplishment by a relatively small group of surveyors. Dorothy played a large part in that effort. Most probably don't know the debt of gratitude she is owed by the land surveying profession.

During the 1990s, I had the pleasure of working closely with a variety of dedicated land surveyors as a board member, and later as an officer of CLSA. The diversity of characters and backgrounds of those I met and grew to know was truly fascinating. With all of the various personalities and agendas, the one constant was Dorothy's knowledge, dedication, and personal conviction about what was always best for CLSA. As the members of a professional association, it is impossible for us to put a value to the role that Dorothy and Crissy filled. They will truly be missed. CLSA will endure, but it won't ever be the same.

Steve C. Wilson, PLS
CLSA President 1998

In October 1983 the CLSA Conference was held in conjunction with ACSM at the Double Tree Inn in Monterey. Dorothy Calegari, CLSA Executive Director, coordinated the student volunteers at that meeting. I was one of the student volunteers that made the trek over from California State University, Fresno. Dorothy took care of us students, making sure we knew where to be and when. She even took the time to be sure we were introduced to the right people. She introduced us to key people like then CLSA President, Jim Crabtree, Vice President Jim Dorsey and Education Chair Hal Davis. I did not know then how important knowing people like them would be to a person's career, but Dorothy did.

In 1992, I joined the CLSA Board of Directors as an East Bay Chapter Representative. Sitting right next to CLSA President Kenny Fargen was Dorothy Calegari, a familiar and friendly face in a sea of intimidating representatives from across the state. By this time, I had gotten to know Dorothy a little while serving as a chapter officer from the East Bay. She was the one to send us those kind reminders about chapter reports, provide assistance with contacting new members and introducing me to the student volunteers at the CLSA Conference each year. She was always cheery, always helpful, and always efficient. By 2001, I had made it to CLSA President. Mike Butcher handed over the gavel and I was ready to take charge. Sitting next to me at every Board of Directors meeting that year was Dorothy. As I stumbled through the first meeting she was there to help when needed and to back off when things were going well. It was one of the best years for me. I grew in more ways than I can name. By then email was all the rage and I was in contact with Dorothy and her staff at least once a week and sometimes daily.

During the annual conference, the CLSA President hosts a small get-together. Due to size of the room and cost it is only open to a small number of invitees. Typically, Dorothy tells the student volunteers where and when the gathering is and they get that all important opportunity to meet the people who can really help with their career. No one single person has given more to our professional society than Dorothy. I thank her from the bottom of my heart for all the things she has done for me and for our chosen profession.

Pat Tami, PLS
CLSA President 2001 ❖



Letters to the Editor



Editor,

I wrote some words of thanks to Dorothy Calegari and Crissy Willson, out of my gratitude and respect for them. But I did so with a sense of shame and embarrassment at the treatment that these two, but primarily Dorothy, have received over the past few years. As one who has intentionally stayed away from much involvement in the state association perhaps my thoughts about what has transpired shouldn't mean much. However, I know what happens to an organization when personal ambitions and egos displace a sense of personal and professional ethics, respect of others and common decency. In recent weeks I have heard a lot of words of outrage over the disgraceful treatment Dorothy received at the hands of certain members, but I have heard little about holding those responsible accountable for their actions. Do we know, as an organization, what "hold someone accountable" means? The kind of aggressive and disrespectful behavior described to me, if allowed to stand, damages the reputation of our organization and will ultimately weaken the organization itself. The difference between right and wrong behavior can't be allowed to be just words we say we understand and believe in. Our actions will tell everyone what we really stand for. The lack of action by those supposedly at the head of our California Land Surveyor's Association, representing the rest of us state-wide and further, is the source of my embarrassment and shame. I am far less proud to claim that membership or to promote it to others.

Paul Brown, PLS

Editor,

CLSA Executive Director Dorothy Calegari resigned at the July Board meeting. While it shocked me, it brought back a memory from May of 2007. I had asked her when she was going to retire. Her reply was never! She told me that her favorite organization to work with was CLSA. She said that she loved working with land surveyors. How could we have let things go so wrong? It is a tragedy that a small minority of members, through constant harassment and false accusations over the past few years, have caused CLSA to lose one of its greatest assets. Dorothy and AMS will be sorely missed by CLSA. I wish her and her business all the best in the years to come.

James M. Herrick, PLS
CLSA President 2008

Editor,

August 31, 2015 was a sad day for me.... I called that well known telephone number for CLSA to ask a question, as I had many a times, 707-578-6016, and I was told that number longer works and to call a number in Sacramento. I hung the phone up and put my head into my chest and thought about the shame and loss of dignity CLSA is going through. How could this happen? And how could our connection with Dorothy Calegari and AMS come to such a horrible close? I served as President in 2010 and often wondered what Dorothy's final year would look like.... It would come on her terms, not ours! What a joyous occasion it would be, with so many Land Surveyors wishing her the great goodbyes she so deserved. Or so I thought. Unfortunately our

directors and officers allowed a campaign of harassment to continue far too long, and with the final actions of our president, we lost AMS. I am embarrassed and ashamed of those who sat at the table over the years and let another professional (Dorothy and AMS) take such a beating. Each and every director and officer should ask themselves one question: If this was my company, and it was my staff that treated AMS this way, would they still have a seat at my table? I know what my answer is. There is only one person you can't hide from, ever.... And that person is the fella looking back at you from the mirror. CLSA has lost a Champion!! Shame on us.....

Aaron R. Smith, PLS
CLSA President 2010

Geography Quiz

Question:
This scientific tool is located at 65° N, 45° W.
Can you guess what it is?

Answer on page 29



By: Jay Kay Seymour, RLS, PLS, LLS

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 write this message for the membership, I am reminded that my tenure as your president is coming to an end! It has been an honor to serve you as your president and as a member of the Executive Committee since 2009.

My journey through the "rotation of chairs" has been both rewarding and frustrating. We are a large organization, 23 chapters, with the addition of the San Francisco Chapter. This equates to 23 different opinions, interests, needs, wants, and desires for the direction of CLSA.

Like a family, we are constantly growing, introducing new members, and unfortunately losing good friends. Since my first meeting in April, I have taken a moment to have each and every chapter, read into the official minutes of each meeting, those members that have passed, or are in need of our good thoughts and prayers. As the meetings have progressed this year, we have lost many of our good friends.

As the president, I wanted to take a moment to encourage each and every chapter, to support the families of those members and extend our heartfelt and deep appreciation for allowing their husbands to participate and support CLSA. Our thanks go out to each family.

Recently, Dorothy Calegari, our long standing Executive Director, resigned. We all would like to thank her for over thirty years of service and dedication to the association. We also want to thank Crissy for her constant commitment to ensuring the association was in good hands. Our best to you both ladies!

As we begin our next fifty years, we welcome California Advocates Management Services, or new management company, and our new Executive Director, Jeff Burgess. We welcome them, support them, and look forward to a long and mutually beneficial relationship.

Our conference committee is currently working on the Golden Anniversary celebration that will be held March 19-22, 2016 in Rohnert Park in Sonoma County, the birthplace of CLSA. Plan early for this event, it will be an event to remember!

As 2015 comes to a close, we should turn our focus to the responsibilities of each director, each chapter, and each officer of the organization.

DIRECTOR RESPONSIBILITY: To represent their chapter's ideas, goals, and aspirations for the organization. To present at the Board of Directors Meetings those ideas and report back to the local chapter with the results of each meeting. Each director should prepare for the meeting by discussing the upcoming state agenda with their chapter so as to keep the flow of information open and continuous. Each Director should volunteer for two state committees. We need your dedication and commitment to make the state association work.

CHAPTER RESPONSIBILITY: Today we are 23 chapters strong, but some of our smaller chapters are struggling to maintain membership and interest at both the local and state level. We have always had a large group of surveyors that belong to the state and not to a local chapter. We must always seek out new members and constantly be vigilant to bring in the next generation. We are doing great things at the local level: Professional Practices Committee, Trig Star Program, LS/LSIT Review/Study Classes, informative and entertaining chapter dinner meetings, just to name a few.

OFFICERS RESPONSIBILITY: We have twenty-eight committees at state, consisting of Standing Committees; Ad Hoc and Special Committees, and Liaison positions. Our strength and our ability to conduct business come from our strong history and commitment to the committee system. They have always done the "heavy lifting" for our association.

Each officer of both the local and state, should understand that this is a large time commitment to CLSA. It is through the unselfish commitment of your time, that we succeed.

I challenge each officer to commit to attend both the local and state meetings. To educate the chapter about activities of our every changing profession, and our deep commitment to surveying.

Remember, to always let your voice, and the voice of your chapter be heard! Participate at all levels, be a part of the solution and not part of the problem!

I want to take a moment to thank Steve Steinhoff, Ian Wilson, and Roger Hanlin, three outstanding members of the Executive Committee for their tireless commitment to supporting CLSA. These gentlemen were a resource for me throughout the year. Good friends all!

I want to thank our national award winning editor of the Cal Surveyor, John P. Wilusz, PLS, PE. His tireless dedication and compassion our magazine is most evident in his commitment to each and every issue. It is a pleasure to work with him, thanks John!

Most importantly, I want thank the First Lady, my wife Suzy for her continued support for me, as I complete my tour of duty at state CLSA. She allowed me to dedicate a tremendous amount of time away from our home to take care of CLSA business. Thank you my love!

And finally, I made a promise to my father in 1984, to one day be the president of the Kansas Society of Land Surveyors! Well Dad, I didn't fulfill the promise to "walk in your footsteps at KSLS" but I dedicated almost twenty years to CLSA. Thanks for setting me on the path of professional development.

President Seymour ❖

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By: Ronald Gutierrez Aguilar



Ronald is a GIS technician at the Flood Control Department of Contra Costa County. He received his technical degree in Topography and Cadastral from the National University of Costa Rica and his bachelor degree of Engineering in Topography from the Autonomous University of Central America before eventually becoming the president and owner of his own engineering and land surveying company in his home country. In addition, he is a contributor to Azimuth, the official publication for the Federation of Engineers and Topographers in Costa Rica. After his seventeen year career in Costa Rica, Ronald moved to California, where he has worked in both the private and public sectors at engineering firms and later earned a specialization Certification in GIS & GPS. Lately, when he is not at his desk crunching numbers and making county maps, he can be found playing percussion in his Latin jazz and flamenco band and is enthusiastic about traveling, reading historical biographies, and spending as much time as possible with his 6 year old twins teaching them his passions of music and chess.

Surveying in Costa Rica

Differences and Similarities between Surveying in Costa Rica and the USA



Between 1948 and the mid 1970's, land surveying was not offered as a separate university degree, nor was it considered a standalone profession. Civil engineers, upon finishing their university degree, could opt to add a land surveying license and could then simultaneously practice both professions. In the 1980's, the German government, in partnership with the Costa Rican University administration, made a very important contribution to the birth of land surveying as a career in Costa Rica. Together they established a two-step process of how to become a Professional Land Surveyor. The first step was attaining a 2 year Land Surveyor Technician License which allowed one to be legally responsible to sign certain types of projects including topographic and cadastral maps. This was most similar to the current LSIT step in the U.S. The second step was completing a 2-3 year bachelor's degree in Topographical Engineering, after which you received a license as a Professional Engineer in Topography. This is most similar to a Professional Land Surveyor license in the U.S.

The curriculum the Germans helped establish in Costa Rica to become a Professional Engineer in Topography includes topics similar to those required to pass the Professional Land Surveyors exam in the U.S. including: Topography, Photogrammetry, Cartography, Remote Sensing, Geology, Physics, Urban Planning, Construction, Computer-Aided Design (CAD), Calculus, Statistics, Geodesy, Cadastral Administration, Global Positioning System (GPS), Geographic Information Systems (GIS), Astronomy, Right of Ways, among others. Other unique classes Costa Ricans are required to complete include Economics, Chemistry, Geomorphology, Appraisals, Business Administration related to land surveying among others. Many of these classes required both labs and field trips to gain practical experience. In addition to helping establish the coursework, the Germans also donated a sizable amount of advanced topographic equipment and sent professors and technicians to teach the land surveying classes in the National University.

First, I think it is important to explain the historical background of land surveying in Costa Rica and how it became its own profession. After the Costa Rican civil war in 1948, the president abolished the army and reallocated all the defense funds to support free healthcare and free education for all Costa Rican citizens. At that same historic moment, the government created three public Costa Rican universities which offered all the professional career paths needed to help advance the country's development, of which civil engineering was one of the most important careers. For various decades that followed, the US army sent engineers to collaborate with Costa Rican civil engineers and the government to expand the county's infrastructure by building additional bridges and a more extensive network of roads. During all these projects, the people who were in charge and performed the land surveying were the civil engineers.

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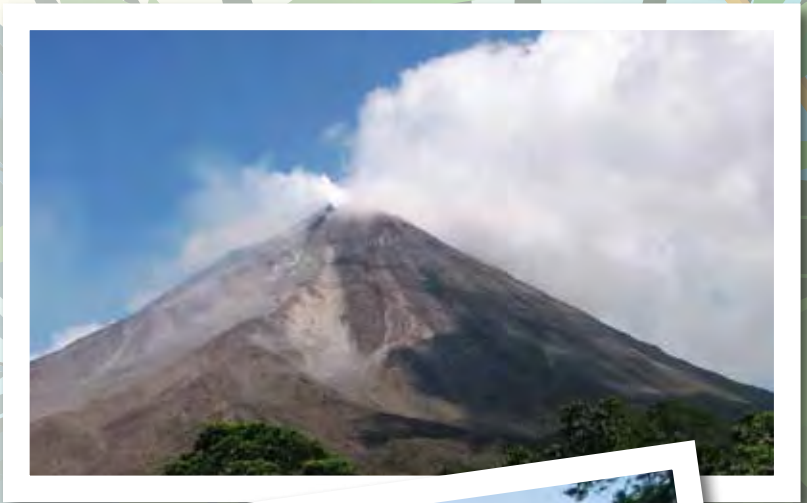
Nowadays, the first step no longer exists and students must complete a single five-year bachelor degree program that includes defending a final thesis. Then your degree is submitted to the board of topographers at the “Colegio Profesional” (Union of Professional Engineers & Architects) and you receive your license as a Professional Engineer in Topography. Every Professional Land Surveyor must join the union to be allowed to practice the profession. Basically, the equivalent level of a Professional Topographer Engineer from Costa Rica would lie somewhere between a Professional Land Surveyor and a Civil Engineer here in the U.S. After finishing a bachelor program, Costa Ricans can also get a specialized degree in Cadastral, Cartography, or Geodesy.

Next, I'd like to discuss some differences & similarities that I've experienced between the ways land surveying is practiced between the two countries. One of the differences is that, in the US, land surveyors write their own legal descriptions, whereas in Costa Rica legal descriptions are only written by lawyers with a notary license. Another difference is that there is only one institution named the Catastro Nacional (National Cadastral Agency) where all the documents are in one registry for the entire country of Costa Rica. Interestingly, since January 2010, this institution implemented an online system allowing professionals to electronically submit their documents via the Internet. More recently, they have also introduced a phone app which shows the status and progress of the submitted documents. Final approved documents are available for download in PDF or JPEG formats and can be emailed to clients. This saves a lot of time and money in the land surveying industry as well as being environmentally friendly. On the other hand, costs in Costa Rica are increased due to the low density of monuments at street intersections that the National Cadastral is working on improving.

Another difference is the annual climate and how many months of fieldwork can be performed. Costa Rican land surveyors can work year-round in the field due to the consistent, warm tropical weather. To ensure that the topographic equipment works properly, maintenance must be performed quite often due to the country's high humidity. Additionally, Costa Rica's terrain consists of 25% protected areas that include dense jungles and abundant wildlife, therefore land surveyors must take additional precautions to stay safe and be aware of their surroundings. In the US, land surveyors typically work seasonally with a reduced number of months per year in the field.

In contrast to the differences mentioned above, the methodology of land surveying in the two countries is almost exactly the same. In the past, Costa Rican land surveyors used several types of topographic equipment like Wild transits, Russian theodolites with an inverted image, and Swiss instruments, but nowadays you can find the same wide range of brands on the market including Sokkia, Trimble, Sokkisha, Topcon, and Leica, and use the same software such as AutoCAD, Microstation, ArcMap, ERDAS, Revit etc. that are used in the U.S. today.

In conclusion, even though Costa Rica is 8 times smaller than California, due to its high level of university education, many qualified professionals, and advanced technological developments, I believe that the country can make a large contribution to partner with the US to continue developing the land surveying profession in the future. ❖





By: *Chuck Karayan, PLS*

Chuck Karayan's surveying career began in 1962, he gained Oregon licensure in 1977 and California licensure in 1988. Academically trained as an Earth Scientist, Chuck attended the University of San Fernando Valley, College of Law. He has provided continuing education for surveyors, attorneys and other professionals since 1978. Mr. Karayan retired as the Chief of Training in the Caltrans Office of Land Surveys at the end of 2005 and has been Adjunct Faculty in the Surveying Program at the University of Wyoming since then.

Learning to be a Surveyor

In the more than fifty years that I have been a surveyor the scope of our profession has expanded significantly. The breadth and depth of our responsibilities have grown so that today's practitioner needs to have at least some understanding of a wide range of physical and social sciences, mathematics, technology, communication skills and much more. As a responsible citizen-surveyor I feel the need to criticize those of us (including myself) who are involved in professional education for failing the next generation of surveyors and the society that they will serve. The failure of which I speak has not as much to do with the topics of the education being provided but with the students' ability to connect relevant facts, to recognize core issues, and to be able to separate "the wheat from the chaff". (A discussion about a different failure – the topics being taught - is reserved for another day). The National Council for Excellence in Critical Thinking characterizes the need as a ***"disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action."*** To me that sounds, almost verbatim, like a description of our professional responsibilities.

Yet, to the best of my knowledge, no academic surveying program in this country requires training in Critical Thinking/Analysis as a condition of graduation. It certainly is not acquired from on-the-job training (which is usually limited to: This is how we do it!). How can we, as the senior members of the profession and their mentors, expect the next generation of professionals to succeed, to meet society's ever-changing needs, or provide appropriate guidance to their clients without equipping them with the basic tools necessary to accomplish such goals? The critical thinking of which I speak allows surveyors to: recognize problems and find practical approaches; to gather and use relevant information; to interpret data; to appraise evidence and evaluate differing arguments; to draw warranted conclusions; and perhaps most importantly, to "reconstruct" their beliefs based on their widening experience. Tomorrow's professionals will undoubtedly face a more daunting task than today. We should expect that the physical sciences (geology, hydrography, etc.) will require

greater understanding and detail; that the social sciences (land use planning and controls, administrative and legislative laws, etc.) will be more complex; and that the technology will be harder for both the regulators and the general public to understand.

There was a time when the ability to remember and recall specific facts and processes was sufficient – but that time has passed. Today we are expected to not only understand fundamental concepts and principles, but to be able to apply them in wide ranging variety to real-world problems. Tomorrow's professionals will not only need to "bridge" multiple discipline fundamentals, to be able to analyze the information and data of each, and to be able to evaluate the validity and interoperability of various view points, but also to be able to create methods and processes for resolving the inevitable conflicts.

Future surveyors will, as today, need to grasp engineering, scientific and ethical reasoning. They will also need to be able to validate or reject asserted "facts", to be able to recognize and compensate for the cognitive biases of others and themselves, to be able to ask the "essential" questions, but also they will need to be able to effectively communicate their expertise to clients, adjainers, regulators and the general public – both orally and in written format. Persuasion, the only "power" which professional surveyors have, is predicated upon demonstrable facts, logical processes and valid conclusions – not to mention that they must be communicated in an intelligible manner. We can have a discussion about when and how to teach Critical Thinking/Analysis. Should it begin in pre-school or wait for college? Should it be integrated into other subjects or taught as a separate topic? There are beginning mathematics texts which do not explain how to multiply, divide, or arrive at an arithmetic mean – students devise their own methodologies (and teachers are discouraged from telling them the "standard way"). In the United Kingdom sixteen to eighteen year olds take a class in Critical Thinking, after attaining some maturity and before they go to college or work. I think that both ideas have merit and would be helpful to the next generation of professional surveyors. And I think that our profession cannot choose to not provide such a fundamental tool to those who will ultimately carry the torch. ❖



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Monument Preservation in the City of Oakland

It was with interest that I read Mr. Stanton's article on monument preservation in the Spring issue of the California Surveyor. I have dealt with the problems he outlines for a few years now and, promising not to jump too high on this handy soap box, I offer up the following suggestions.

Putting the following procedures in place allowed us to make a turnaround, and we ended last year with MORE monuments in the ground than we had the year before.

- **Lost or Paved:** Let's make a distinction. A LOST monument is gone and it is not coming back. Overlay projects tend to simply bury them and if the monument is not disturbed, it can be recovered. For the purpose of this article, I am dealing with preventing monument LOSS. Paved-over monuments are generally easy to deal with. Find-em and dig-em up.
- **Most of the lost monuments in the City are/were due to utility company work:** As surveyors we have all found that nice new patch of asphalt where the water or gas main was recently repaired, and where the monument used to be. Emergency repairs did not require permits at that time so we focused instead on routine excavation permits. The survey group was made a signatory to the excavation permit and before we will sign off on its issuance, we now REQUIRE that the utility show the monuments on their drawings and provide copies of filed corner records for any monument which the project has the '*potential*' to disturb or destroy. This includes cleanup, staging areas, stockpiles, etc. as well as typically about 20 from the monument itself.
- **Make it expensive:** most people do not realize that it costs about \$5,000 to completely restore a monument from scratch. We put that on the cover letter that goes out with any permit rejection also pointing out that the corner record is actually the contractor's insurance for proving that he did NOT disturb the monument. The \$5000 is a lump sum **PER MONUMENT** charge.
- **Collect the money:** Unpaid charges from earlier projects can delay non-emergency permits. If the contract for the work has already been let by the utility, it's amazing how fast that payment gets made to avoid down time.

- **Things go slowly:** It is an uphill battle, so stand your ground. (Yeah, it should not have to be that way, but it will be.) After about 3 years we noticed that compliance from the utility companies was dramatically improved. As the Alameda County Surveyor will attest, submission of corner records in the Oakland area for 8771 compliance are significantly higher.

In-house jobs are tougher and I am always working on that. My office philosophy is that we have to hold ourselves to at least the same standards to which we hold others. To that end, most of our plans and spec's for contracted projects now contain the following:

- A stand alone control plan within the plan set for the project showing found monuments along with their identification and nature and how they relate to the project
- Notes on the control plan advising the contractor of the nature of 8771 and specifically pointing out:
 - The City's \$5000 per unit charge for unauthorized disturbance.
 - That the \$5000 charge will be deducted from the next progress payment (no tradeoffs allowed.)
 - That no monument may be removed or disturbed without advance notice and written authorization from this office.
 - That the County takes between 30 to 60 days to process a corner record and that no construction may commence **PRIOR** to that filing (we bend a bit on this if we get preliminary copies and a cover letter to the County Surveyor)
 - That the law specifically bars the notice of completion from being filed under certain conditions.
- The general notes also contain an advisory of some sort directing the contractor to the control sheet.

For some jobs, City crews will map monuments and prepare/submit corner records to the County. In such cases the corner record copies are given to the contractor to also act as a 'punch list' (Mr. Contractor, you have these monuments at the beginning of the job, and they must all be accounted for at the end.)

Continued on next page

The corner records also serve as a punch list for the project engineer/inspector to account for them at the conclusion of the work. This inspection (in a perfect world) should also include checking the following items:

- The monuments are raised to the proper grade or a wee bit higher. (If YOU want to bail the muddy water out of a monument casting, raise your hand, your cold, dripping wet hand.) Having it a bit higher keeps some water and dust out.
- That the monument has been cleaned out of construction debris, which is especially important when the street is cold-planed prior to paving.
- That the ring is still centered over the monument and has not been pushed down the street by the paver.
- That the base of the pin, and a bit below that, is still reachable by hand to clean out the black widows and tarantulas that like to live in monuments.

While our office follow-up on this has been on a random check basis (because of my small staff) we have noticed that most contractors are now handling this work routinely. There are several local, small survey companies that make a specific service of this to construction companies, doing this and other routine tasks much as story poles or as-builts.

And lastly, one follow-up note regarding benchmarks: I picked my battles. Since these are easier to replace and do not need the historic research that a lost monument would require, we have been somewhat remiss in preserving these. But I have a big soap box filled with bronze BM disks and we are working on those now... one new handicapped ramp at a time. ❖

Law Lecture by Abraham Lincoln, 1850

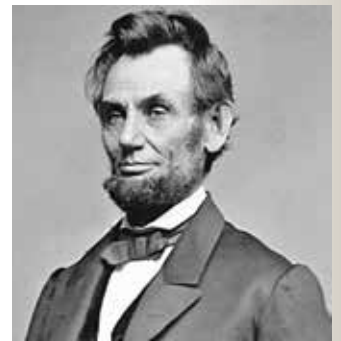
Editor's note: I found this piece in the Cornerpost, the official publication of the Vermont Society of Land Surveyors (Vol. 42, No. 4, March 2012.) Lincoln wrote this lecture for attorneys, but much of what he said applies equally to land surveyors.

I am not an accomplished lawyer. I find quite as much material for a lecture in those points wherein I have failed, as in those wherein I have been moderately successful. The leading rule for the lawyer, as for the man of every other calling, is diligence. Leave nothing for tomorrow which can be done today. Never let your correspondence fall behind. Whatever piece of business you have in hand, before stopping, do all the labor pertaining to it which can then be done. When you bring a common law suit, if you have the facts for doing so, write the declaration at once. If a law point be involved, examine the books, and note the authority you rely on upon the declaration itself, where you are sure to find it when wanted. The same of defenses and pleas.

In business not likely to be litigated, -- ordinary collection cases, foreclosures, partitions, and the like, -- make all examinations of titles, and note them, and even draft orders and decrees in advance. This course has a triple advantage; it avoids omissions and neglect, saves your labor when once done, performs the labor out of court when you have leisure, rather than in court when you have not. Extemporaneous speaking should be practiced and cultivated. It is the lawyer's avenue to the public. However able and faithful he may be in other respects, people are slow to bring him business if he cannot make a speech. And yet there is not a more fatal error to young lawyers than relying too much on speech-making. If anyone, upon his rare powers of speaking, shall claim an exemption from the drudgery of the law, his case is a failure in advance.

Discourage litigation. Persuade your neighbors to compromise whenever you can. Point out to them how the nominal winner is often a real loser -- in fees, expenses, and waste of time. As a peacemaker the lawyer has a superior opportunity of being a good man. There will still be business enough. Never stir up litigation. A worse man

can scarcely be found than one who does this. Who can be more nearly a fiend than he who habitually overhauls the register of deeds in search of defects in titles, whereon to stir up strife, and put money in his pocket? A moral tone ought to be infused into the profession which should drive such men out of it.



The matter of fees is important, far beyond the mere question of bread and butter involved. Properly attended to, fuller justice is done to both lawyer and client. An exorbitant fee should never be claimed. As a general rule never take your whole fee in advance, nor any more than a small retainer. When fully paid beforehand, you are more than a common mortal if you can feel the same interest in the case, as if something was still in prospect for you, as well as for your client. And when you lack interest in the case the job will very likely lack skill and diligence in the performance. Settle the amount of fee and take a note in advance. Then you will feel that you are working for something, and you are sure to do your work faithfully and well. Never sell a fee note -- at least not before the consideration service is performed. It leads to negligence and dishonesty -- negligence by losing interest in the case, and dishonesty in refusing to refund when you have allowed the consideration to fail. There is a vague popular belief that lawyers are necessarily dishonest. I say vague, because when we consider to what extent confidence and honors are reposed in and conferred upon lawyers by the people, it appears improbable that their impression of dishonesty is very distinct and vivid. Yet the impression is common, almost universal. Let no young man choosing the law for a calling for a moment yield to the popular belief -- resolve to be honest at all events; and if in your own judgment you cannot be an honest lawyer, resolve to be honest without being a lawyer. Choose some other occupation, rather than one in the choosing of which you do, in advance, consent to be a knave. ❖



Brian Moe (Photo by Erika Blomdahl)

By: John Knox, PLS with James A. Lutz, Ph.D.

John Knox, PLS recently retired after 34 years of practice as a land surveyor. He now has the greatest job and the greatest boss ever.

James A. Lutz, Ph.D. is Assistant Professor of Forest Ecology at Utah State University. He studies the forests of the western United States.

The authors wish to thank the management and staff of Cedar Breaks National Monument for assisting with this research.

Utah Forest Dynamics Plot

Five years back, I remember sitting on a log within the Yosemite Forest Dynamics Plot (YFDP) (see California Surveyor issues #159 and #163) thinking that “surveying just couldn’t get any better than this”. When Jim Lutz called last year and requested assistance with the survey of another beautiful big-tree plot, this one within Cedar Breaks National Monument in southwestern Utah, I jumped at the opportunity. “The campground even has showers”, he promised, reminding me of the primitive camping conditions of the YFDP. As if any encouragement was really necessary.

The Utah Forest Dynamics Plot (UFDP) was established in 2014 as a third research plot in a network of old-growth forests in the western United States. Within each plot, over 30,000 trees and shrubs are tagged, identified, and mapped. Every tree or shrub that reaches a diameter of 1 cm at breast height (1.37 m from where the plant exits the ground) is part of the study. The tags make the research a ‘permanent plot’ study, where the individual trees are revisited every year to assess their condition (mainly whether any existing trees died, and how, or if new trees have grown enough to join the data

set). The UFDP is located at about the highest elevation where closed-canopy forests occur in the United States – about 3,000 m. The forest trees include: bristlecone pine (the longest-lived individual tree on earth), limber pine, subalpine fir, white fir, Engelmann spruce, Colorado blue spruce, aspen, Douglas-fir, as well as a few individuals of ponderosa pine, two-needle pinyon, and juniper. Because trees in old-growth forests live a long time (more than 500 years in the case of the UFDP – and maybe even 1,000 years), to understand how forests change it’s necessary to follow them for decades.

The three western plots (UFDP, YFDP, and the Wind River Forest Dynamics Plot in southern Washington state; WFDP) are in turn nested within a global network of 62 plots coordinated by the Smithsonian Institution Center for Tropical Forest Science (www.forestgeo.si.edu). The ultimate goal of this network of large plots is to understand how the world’s forests work. An important part of the research is learning how trees and shrubs interact with each other, and mapping their original rooting location accurately is critical to this objective. Once a 20 m grid is established, individual trees are referenced to the

Continued on next page



grid with a combination of tapes and handheld lasers. (Laser Technology Impulse 200 LR). This is basically a station/offset method using a slope-corrected tape as a baseline. For a small, relatively cylindrical tree, our objective is to locate the tree to ± 0.10 m of northing and easting. For larger, less symmetric trees, an accuracy of ± 0.25 m is more realistic. In either case, our primary objective is to map close inter-tree distances accurately (i.e., relative distances between trees), with longer inter-tree accuracies being less important. However, some of our research uses LiDAR data to assess canopy structure, and to match the LiDAR data with the tree locations requires a high degree of accuracy across the entire plot.

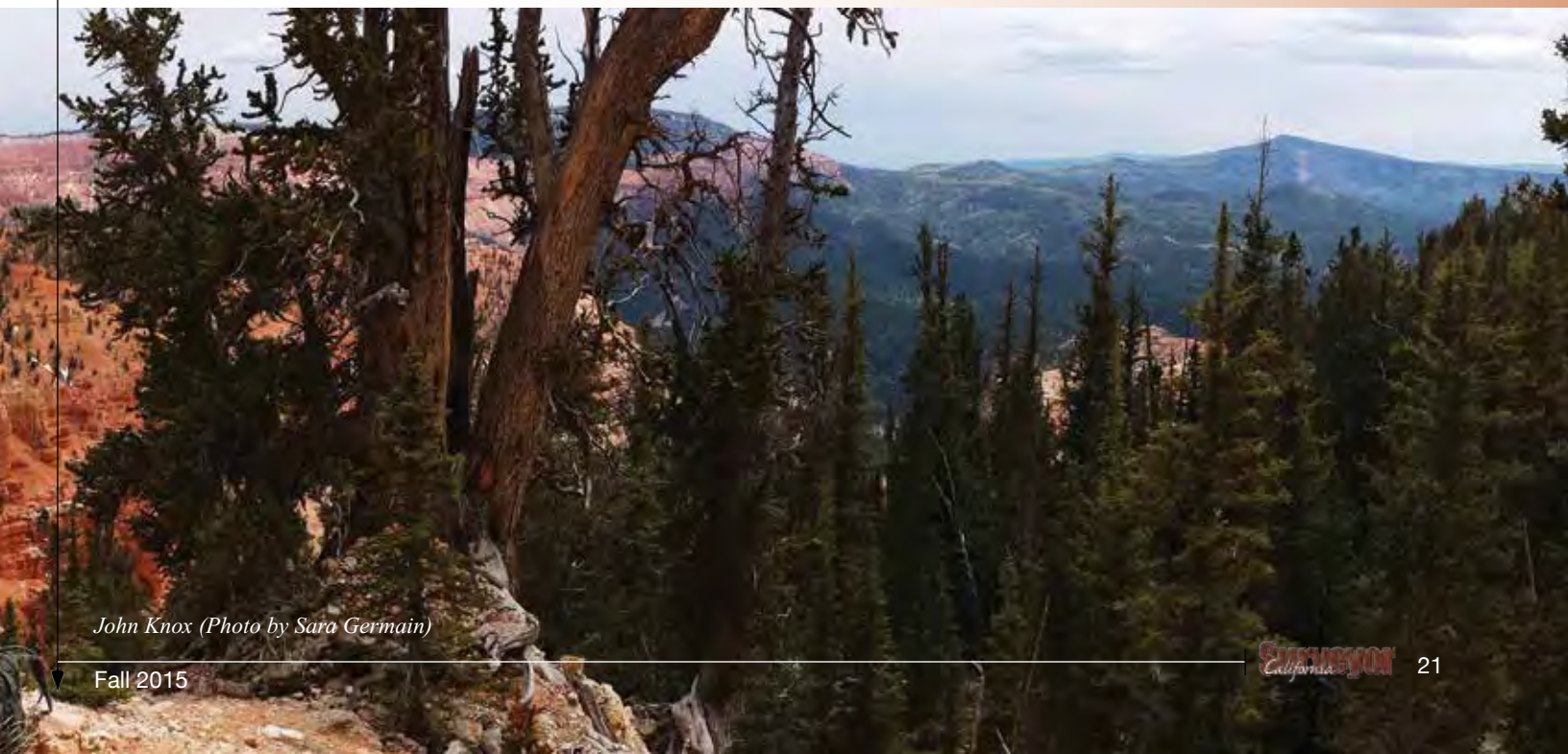
The task of the surveyors was to establish a 20 meter rectangular grid, from which the trees and shrubs will be located and tagged. UTM coordinates were provided for proposed grid corners, with an allowable positional variance of ± 0.10 meters. Traverses would zig-zag through the plot via a series of interconnected loops, with grid corners staked out along the way. Basic closures would be monitored to ensure against blunders, but the final positions of traverse points and grid corners were to be established by least squares adjustment. In theory, and on paper, this sounded like a piece of cake, but experience gained within the YFDP told me that this would be no easy task. First off, the physical challenges. Each day began with a 45 minute downhill hike, carrying food, water, survey gear, and rebar, lots of rebar, with aluminum caps. But downhill was fine, even when the only trail veered off to elsewhere. After ten hours of scrambling through the forest, the days would end with a 60 minute uphill slog, a serious grind, and most days with soggy mud-caked boots. Add to that the elevation - 3000+ meters - and the old timers (John Knox, PLS and Patrick Busby, PLS) were regularly spotted with hands on knees, fighting for air. Night time temps regularly dipped into the low 30s, and nearly every day brought rain

and hail, with the occasional horizontal snow. Plus that “grid to ground” thing ... dealing with a combined scale factor of 0.9994 meant that raw field data would have to be scaled before traverse closures could be reviewed or stakeout of corners performed. And of course, the trees, always a tree or two on line, and strict instructions against the wielding of steel (“My kingdom for a brush hook!” was muttered a time or two).

2014

The surveying began in spring of 2014, when Lutz and Tucker Furniss, a master’s student at Utah State University, weathered inclement conditions (read: snow!) to install monuments and perform static GPS observations on four primary control stations. The data was sent off to OPUS, but sadly, due to 50+ mile distances to the nearest CORS stations and the unavoidable problems presented by tree canopy, only two of the four positions could be resolved to our satisfaction. Ultimately a better control solution would be needed, but in the meantime the two resolved positions provided a respectable inter-visible baseline from which to begin traversing. In late June I met with Lutz and Furniss by the campfire at the YFDP for a strategy session, and to familiarize us all with a new data collector and software package. Due to scheduling conflicts, I couldn’t be present to kick off the traversing, so I called in a favor from fellow PLS and close friend Patrick Busby. As Busby had been part of the team that surveyed in the grid corners at the YFDP a few years back, I knew I could sucker him into driving to Utah and donating his vast wealth of knowledge and wisdom for a week or so. He teamed up with Furniss, who had been a member of our survey crew at the YFDP, and Kendall Becker, a Ph.D. student at Utah State, to begin the traversing. Periodically, when the unfamiliar software proved sufficiently perplexing, we held teleconferences to get the field crew back on their feet. The survey and tree tagging operations continued throughout the

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John Knox (Photo by Sara Germain)

Utah Forest Dynamics Plot

Continued from previous page



John Knox (Photo by Erika Blomdahl)



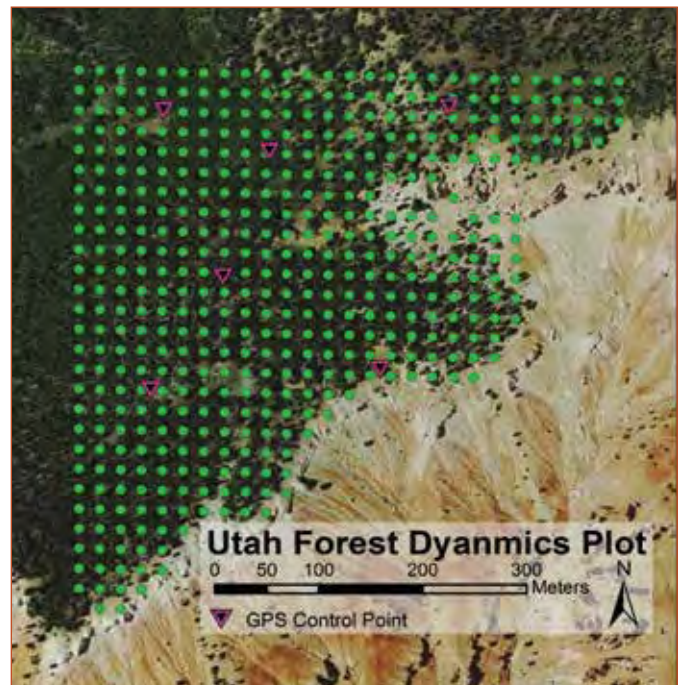
UFDP location plot is inside the rectangle. (Photo by John Knox)

summer, during which time the GPS network was extended to two additional primary control stations. In September, I stopped by the plot for the purpose of training two new surveyors, Erika Blomdahl, Chief Field Operative for the Western Forest Initiative, and Brian Moe, a summer hire working on the project. Blomdahl skillfully assumed the role of crew chief, and together they continued traversing and stakeout until the snows came and ice crystals graced their pillowcases each morning. Note: winter camping as part of an adventure may be fun, but as a home away from home while working in the forest, not fun.

Data Processing

Data for 2014 was compiled and adjusted using a Star*net least squares adjustment. The GPS baselines that could be resolved were processed in Trimble Business Center (TBC) and exported to Star*net input file (DAT) format. Total station raw data files were also converted to DAT format. The final 3D adjustment was performed by combining all processed GPS baselines and total station data, fixing only the CORS stations. Adjustment results were outstanding, considering the obstructed sky and long length of GPS baselines, and the unavoidable short legs and poor geometry of traverse data. After realistic weighting strategies were applied, error factors for measured angles and distances were a shade under 1.0 and for zenith angles was 2.0. GPS deltas weighed in predictably at 4.1. Coordinate standard deviations for primary control stations were under 0.01 meters, while those of secondary traverse points mostly fell under 0.02 meters. With exceptions for the few grid corner positions that happened to fall on trees or fallen logs, all set corners fell within the desired 0.10 meter variance.

Continued on page 24



Grid points and GPS control prepared by Tucker Furniss.

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Utah Forest Dynamics Plot

Continued from page 22

2015

After (most of) the snow had melted, the crew regrouped in June 2015 for a final wave of surveying. Lutz provided the personnel needed to fill out two three-person survey crews. Knox and Busby were joined again by Furniss, Blomdahl, and Becker, and newcomer Sara Germain, an undergraduate student at Utah State, was occasionally able to break away from her botanical duties to assist with the surveying. Our goal was to set grid corners within an area that had recently been added to the plot. The Busby crew began by running a long circuitous traverse around the perimeter, adjacent to the drop off. The Knox crew cut across the center of the area, through the dense forest, and tied into Busby's traverse in three locations. Some loops closed as tight as 0.015 meters before adjustment. Grid corners were set as the traverses progressed, at an average of 15 points per crew per day. Slow going by urban survey standards, but collectively we were quite satisfied with the progress. Considerable time was spent mentoring the four crew members, as they will be called upon to complete the survey later in 2015. All learned quickly and participated enthusiastically, taking turns running the total stations and the layout rods, setting sights, and pounding rebar. The ultimate size and shape of the plot will be determined by the progress of the tree taggers - additional cells will be surveyed as needed just ahead of tagging crews, right up until snowfall once again calls the game.

At the conclusion of this season's efforts, all survey data from 2015 will be adjusted in Star*net, holding positions from the 2014 adjustment as fixed.

The following field equipment was used for this project:

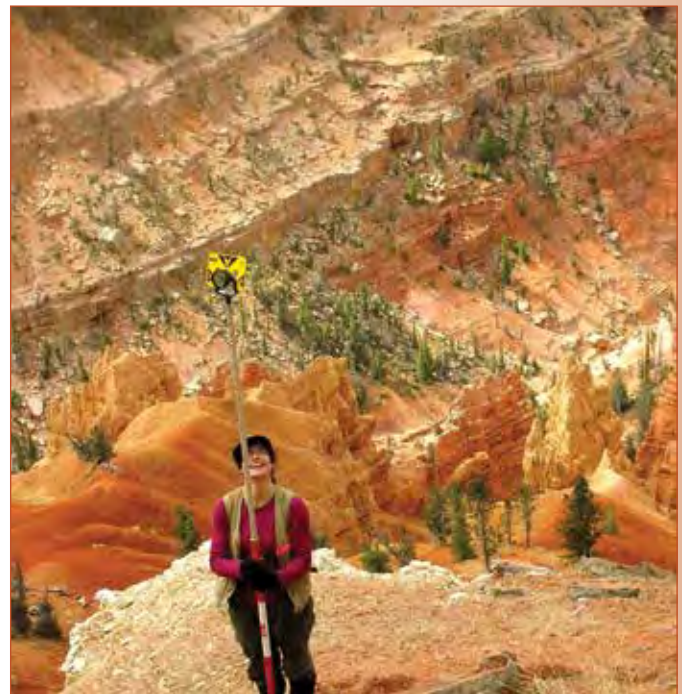
- **Leica GS15 GNSS receivers (2)**
- **Topcon Hiper SR GNSS receivers (2)**
- **Topcon OS105 total station (with Magnet running on-board)**
- **Topcon GTS312 total station with Topcon FC2600 Field Controller (also running Magnet)**

All in all, it was another fantastic experience - great friendships and lifelong memories were forged. Despite the challenges brought about by inclement weather and steep terrain and by the complexity of the task, we (nearly) never stopped smiling. Not during the wild thunderstorms and close lightning strikes. Not during frequent pelting delivered by hailstones. Not after crawling out of damp tents to see the entire campsite covered with a sheet of ice. Not on that long uphill march at the end of each day. And only sometimes, while getting our near-daily rain soaking and slopping our way through the muddy forest, or while eating dinner while huddled under a tarp in muddy work clothes and full rain gear. Perhaps Dr. Lutz will surprise us by establishing yet another big-tree plot, but topping the UFDP experience ... doubtful.

For more information about the UFDP, YFDP, and WFDP on the web, visit ufdp.org, yfdp.org, and wfdp.org or follow the work on Facebook: "Utah Forest Dynamics Plot", "Yosemite Forest Dynamics Plot", and "Wind River Forest Dynamics Plot". ❖



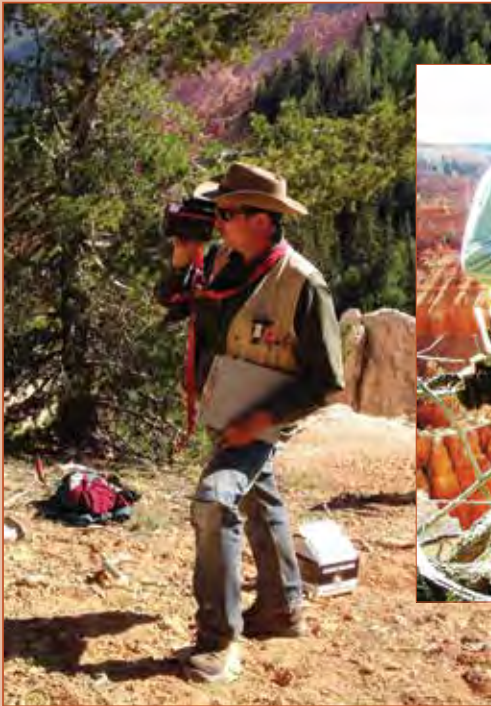
Erika Blomdahl (Photo by Patrick Busby)



Kendall Becker (Photo by Patrick Busby)

Continued on next page

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Jim Lutz and Sara Germain
(Photo by Erika Blomdahl)



Patrick Busby



Sara Germain, Kendall Becker, John Knox,
Tucker Furniss, Erika Blomdahl

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By: Phil Danskin, PLS

Phil is the owner of a small land surveying business - a father-son firm, a past editor of the California Surveyor, and a past secretary of Northern California Section ACSM.

What the CLSA Central Office Does

Editors Note: This article was first published in *California Surveyor* Issue #139, Fall 2003. The point of republishing it now is this: Many of our directors have little or no idea what the CLSA Central Office does. That is a problem because our directors vote on the issues that steer the course of the Association. Uninformed voters make unwise decisions. Please read this article carefully and inform yourself on this important aspect of CLSA.

The CLSA Central Office is your “front” and “back” office, acting as liaison to outside vendors and fulfilling requests for information about the Association, while managing committees, distributing newsletters and keeping track of association documents.

Membership Services

CLSA Central Office is the contact for all member inquiries. The Central Office maintains a database with member and prospect information, verifies and approves membership applications and develops and executes recruitment and retention campaigns.

- Process membership applications
- Invoice membership dues
- Process membership dues
- Maintain database with current information on members
- Design, preparation and delivery of certificates and awards
- Accounts Receivable
- Accounts Payable
- Invoicing
- Telephone/Fax/E-mail/List Serve
- Correspondence Coordination
- Process mailing list requests
- Develop office policies
- Develop and implement membership promotion programs
- Identify and secure source lists
- Review and recommend membership benefits
- Maintain Who’s Who with contact information on all state Officers chapter Officers and Committees
- Geographical Queries
- Develop and implement membership promotion campaign for new licensees
- Assemble current membership material and setup membership booth at annual conference
- Secure staffing and provide membership material and booth at other statewide events. Provide membership booth instructions/policies
- Maintain current membership list

Board/Executive Committee

The CLSA Central Office identifies and executes Association programs approved by the Board of Directors and assists Association Officers and Committee Chairmen in their responsibilities. The Central Office organizes and attends all meetings of the Association and assists with the development of the organizational structure, policies and procedures.

- Prepare and distribute meeting notices
- Prepare and distribute agendas and addendums
- Prepare and distribute minutes
- Prepare and update Board Handbook
- Attend Board meetings
- Annually update directors manual
- Review Strategic Plan
- Schedule conference calls
- Fill requests for Board Members, Officers and Committee Chairs
- Provide administrative assistance and/or correspondence for Board Members, Officers and Committee Chairs
- Prepare and distribute slate of candidates
- Secure autobiography from candidates and prepare for mailing with the ballot
- Prepare and distribute Ballots
- Serve on the Tellers Committee when appointed by the President. Maintain a tally of ballots received.
- File all necessary forms with the Secretary of States office
- Prepare and distribute summary of major actions at the annual meeting
- Maintain calendar of events to avoid conflict with other activities
- Prepare reports including membership status quarterly report, CLSA Central Office Report and others as needed
- Maintain all filing requirements with the Fair Political Practices Commission in conjunction with CLSA-PAC
- Maintain name badges and tents for all Board Members
- Prepare, organize and distribute handout material
- Prepare and distribute Resolutions
- Maintain a historical record of
- Bylaw amendments
- Agendas and Addendums
- Minutes
- Resolutions
- Financial Records

Continued on next page

Finances

CLSA Central Office manages the association bank accounts as directed by the Board of Directors, organizes the approval and payment of all expenditures, process income and produce quarterly income and expense reports, file the annual tax returns and assists with budget development.

- Accounts payable
- Accounts receivable
- Balance monthly bank statements
- Prepare and distribute quarterly and annual financial statements to the Board of Directors
- Prepare State and Federal tax forms and file with the IRS and Franchise tax board for the State and 23 local chapters
- Maintain insurance and bonding programs
- File quarterly reports on sales tax with the Board of Equalization
- Handle accounts receivable and payable for CLSA Education Foundation
- Provide quarterly report on the CLSA Education Foundation to the Board of Directors
- Handle accounts receivable and payable for the CLSA-Political Action Committee

Committee Relations

- Provide assistance to all committee chairmen as needed and/or requested

Legislative Committee

- Notify members of amended bills and request responses on an as-needed basis
- Receive and compile responses
- Forward compilation to the reactive chair for CLSA position
- Notify lobbyist of CLSA position
- Update lobbyist website with CLSA position
- Prepare and distribute Legislative Report to members every month
- Arrange meeting date and location
- Send meeting notices
- Attend Legislative Committee meeting
- File digitally and by mail the quarterly reports with the Secretary of State's office as a lobbyist employer

Chapter Relations

- Verify that chapters are reporting as required by the State bylaws
- Prepare and file chapter tax forms
- Notify chapters of new state members
- Qualify chapter representatives
- Maintain contact information on chapter officers
- Maintain files on chapter correspondence

Cal Surveyor/CLSA NEWS

The Central Office is responsible for the distribution of the quarterly magazine, the Cal Surveyor, and the bi-monthly publication, the CLSA NEWS.

- Design, layout, formatting
- Secure right to reprint if necessary
- Input articles as necessary
- Review and approve final Blue Line

- Oversee printing
- Provide updated mailing list and oversee mail distribution
- Maintain advertising contracts
- Advertising sales
- Compile, verify and maintain advertisements received by vendors
- Prepare run sheet for each issue of the Cal Surveyor
- Provide administrative support to the Cal Surveyor and CLSA NEWS editors

Publications

The Central Office is responsible for producing publications on California Laws as a member benefit as well as a source of information for the surveying profession.

- Update annual publications (SMA, PLS/PE/Board Rules) from current year chaptered legislation
- Design, layout and format annual publications in two sizes; 8 1/2" X 11" and booklet size
- Update Numeric PLS Roster and Alpha PLS Roster from information secured from the Board of Registration
- Oversee printing
- Promote/market publication sales
- Process publication orders
- Maintain inventory of all other publications

Website

CLSA Central Office acts as the Association Webmaster, performing general maintenance and updating the Calendar of Events. The Central Office also provides technical support for posting on the Forum (discussion and classified pages).

Conference

CLSA Central Office handles all advance planning, from site selection, contract negotiations and blocking hotel rooms to arranging for food and beverage service, audio-visual equipment and exhibit management. The Central Office works with the Program Committee on program development and agenda creation, handle the mailing of invitations, registration and promotion material and process advanced registrations. During the meeting, the Central Office manages all event logistics, including speaker and program arrangements, on-site registration and materials including speaker handouts for meeting attendees.

- Site selection and scheduling
- Hotel contract negotiations
- Layout/Design/Printing of media materials:
- Registration brochures
- Flyers & programs
- Ads
- Design, print and distribute certificates/awards
- Promotion of Conference
- Exhibit management
- Contracting with decorator, coordinate booth assignment with decorator
- Assign booth space
- Exhibitors Prospectus and contract
- Negotiate and coordinate ground transportation

Continued on next page

What the CLSA Central Office Does

Continued from previous page


- Coordinate optional activities
- Advanced and On-site Registration
- Financial management
- Order all conference supplies
- Develop and maintain staging guide
- Prepare audio visual requirements and contract with an audio visual company
- Maintain hotel rooming list for speakers
- Mail conference invitations to VIP's and guests
- Assign moderators
- Secure speaker bios
- Secure security guard service
- Design, print and distribute name badges
- Design, print and distribute final program
- Design directional signs
- Distribute ads to local chapters for inclusion in newsletters
- Publish ads in Cal Surveyor and CLSA NEWS
- Arrange for student assistance
- Solicit door prizes/raffle items
- Photograph all events for conference reporting
- Make hotel and airline reservations for speakers, guests and students
- Send letters of appreciation to speakers and exhibitors
- Distribute attendee list digitally to exhibitors
- Handle guest and VIP amenities
- Track continuing education and issue certificates of completions

Seminars

- Site selection and scheduling
- Hotel contract negotiations
- Layout/design/printing off media material
- Registration brochures
- Flyers and programs
- Promotion
- Pre-registration and on-Site registration
- Accounting
- Design and distribute PDH Certificates of Completion
- Audio/visual requirements
- Contract with speaker
- Handle travel arrangement for speaker
- Secure moderator
- Food and beverage

Miscellaneous

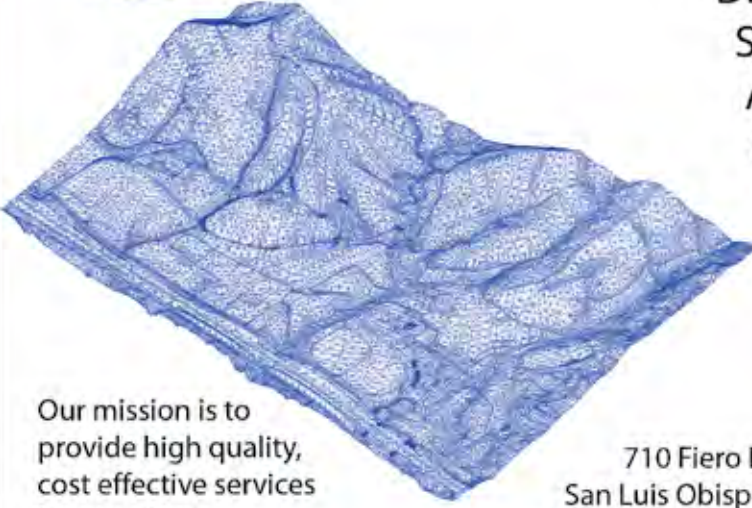
- Update annual forms
- Update stationary
- Maintain all mailing supplies in stock and reorder as necessary
- Maintain e-mail distribution lists
- Handle all list serving
- Research and surveys
- Request the declaration and order the resolution for Land Surveyors Week ❖



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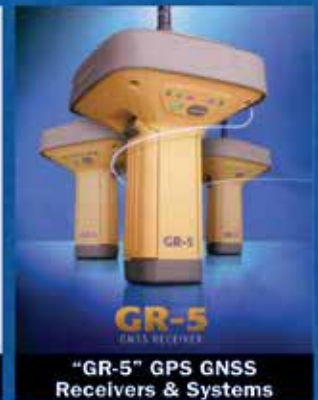
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Answer:

It's an ice drill used by climate scientists to extract core samples. It is part of the Greenland Ice Sheet Project, a decade-long project to drill ice cores in Greenland that involved scientists and funding agencies from Denmark, Switzerland and the United States. The ice cores provide a proxy archive of temperature and atmospheric constituents that help to understand past climate variations.



Geography Quiz Answer

Question on page 11



Photograph of a section of the Greenland Ice Sheet Project ice core from 1837 m depth with clearly visible annual layers. Source: Wikipedia.

By: Stephen Hughey, P.L.S., Ph.D.



Stephen is a past president (2 terms) of Los Angeles Chapter of CLSA and currently sits on the Board of Directors and chairs the Scout Surveying Merit Badge Committee. He served from 2003-2008 as Director of Surveys for Land Design Consultants and subsequently as senior surveyor on several Pipeline Safety Enhancement Plan (PSEP) surveys subcontracted for SoCal Gas. He stays busy with boundary surveys and consulting, but has found time to teach four quarters at Cal Poly Pomona, most recently Advanced Surveying Lecture and Lab and Introduction to Surveying Lab during the Winter and Spring of 2014-2015. He still has his 1967 Scouting Handbook, and has served as Assistant Scoutmaster, Troop 175 for two years with Scoutmaster Gary Bishop. Prior to that he served as Hikemaster for Cub Scout Pack 175, organizing monthly hikes for four years. He still displays his Las Colinas District 2010/2011 Committee Member of the Year plaque on the wall with his surveying license. He is a merit badge counselor for surveying, astronomy and fishing.

Bring the Scout to the Scullery!

Toward a CLSA Recipe for a Successful Scouting Merit Badge Event



Some of the earliest records from Mesopotamia, the very birthplace of writing and record making, have to do with beer recipes (http://cdli.ucla.edu/pubs/cdlj/2012/cdlj2012_002.html). So what does that have to do with CLSA's Scouting Merit Badge program, you ask? Think about it! The human race learned early on that you may get lucky and brew a single good batch of beer, but if you want to replicate, improve on it and even export that success, planning based on a few notes from past successes is absolutely indispensable. Subconsciously thinking along these lines for the article John Wilusz asked me to submit for the Cal Surveyor, and not having the good judgment to avoid mixing themes of brewing and Scouting, I called up Jim Dickey, Eagle Scout, P.L.S. and past chair of the CLSA Boy Scout Surveying Merit Badge Committee, and asked him to share his basic recipe. I want to thank him for taking time out of the grueling work schedule he is currently under to not only answer all my questions, but also to read through this article and make sure I got most of it right. Two CLSA chapters are already using the draft of this article to plan their events, and will hopefully help me elicit feedback in a sort of after action report. I will continually pull together whatever I see or hear by way of "tweaks" to make available for other chapters through links on the CLSA web pages (<http://www.californiasurveyors.org/meritbadge.html>).

Studying the official Surveying Merit Badge Pamphlet is a must for even the most qualified instructor, and at \$5 each they may be distributed at cost in an advance visit to the Scout Troop. Jim uses the advance visit as an opportunity to show the CLSA "Choose Your Path" video, and mixes in enough back and forth afterward so that by the time he leaves the prospective participants have already accomplished requirements #1 and #6-8. The eight requirements for the badge may be Googled from various sites and published articles with much helpful advice. The following list is from Meritbadge.org:

Surveying merit badge requirements

1. Show that you know first aid for the types of injuries that could occur while surveying, including cuts, scratches, snakebite, insect stings, tick bites, heat and cold reactions, and dehydration. Explain to your counselor why a surveyor should be able to identify the poisonous plants and poisonous animals that are found in your area.
2. Find and mark the corners of a five-sided lot that has been laid out by your counselor to fit the land available. Set an instrument over each of the corners and record the angle turned between each line and the distance measured between each corner, as directed by

your counselor. With the assistance of the counselor, compute the error of closure from the recorded notes. The error of closure must not be more than 5 feet. From the corners, take compass readings or turn angles to trees, shrubs, and rocks and measure to them. All measurements should be made using instruments, methods, and accuracies consistent with current technology.

3. From the field notes gathered for requirement 2, draw to scale a map of your survey. Submit a neatly drawn copy.
4. Write a metes and bounds description for the five-sided lot in requirement 2.
5. Use one of the corner markers from requirement 2 as a benchmark with an assumed elevation of 100 feet. Using a level and rod, determine the elevation of the other four corner markers.
6. Get a copy of the deed to your property, or a piece of property assigned by your counselor, from the local courthouse or title agency.
7. Tell what GPS is; discuss with your counselor the importance of GPS and how it is changing the field of surveying.
8. Discuss the importance of surveying with a licensed surveyor. Also discuss the various types of surveying and mapping, and applications of surveying technology to other fields. Discuss career opportunities in surveying and related fields. Discuss qualifications and preparation for such a career.

If I may continue my recipe analogy, Jim's first advice had to do with "filtering" the "ingredients" with respect to maturity. He has found that Scouts younger than 14 have trouble with the tripods and are typically more interested in climbing trees than accomplishing the requirements. Jim also pointed out that the older scouts generally have more experience with land navigation skills and orienteering which are closely related to the new skills they will learn. I think it is a good idea to plan to arrive early at the advance meeting to set up some robotic equipment or a scanner for a "wow" factor. My contacts with both private and public surveying professionals indicate a willingness to make even the most expensive equipment available for this excellent recruiting opportunity. The only danger I can think of is adding too much so that the actual requirements are not accomplished. I am also a counselor for both the Astronomy and Fishing Merit Badges, and I can tell you that what is not accomplished at the event itself will almost certainly never be finished. Keep the focus on the requirements!

Continued on next page



Jim's recipe calls for accomplishing requirements #2-5 at a single day-long event. Those of us who have been responsible for two dozen engineering students taking an Introduction to Surveying lab know the drill: any more than four students to a group means someone will be left out of actually engaging and learning very much if anything at all. Jim recommends groups of two or three scouts to one supervising surveying volunteer who is preferably a senior student in a surveying program, since Scouts always seem to learn faster from student instructors. To observe with your own eyes the attraction and interest level generated by student volunteers, I suggest attending an astronomy outreach program at a major university like "Astronomy Live!", the one put on at UCLA (<http://www.astro.ucla.edu/~outreach/>).

Before I leave the topic of selecting volunteers, I should mention three more things. First, the event is a recruiting event, not a boot camp. Volunteers, like Scouts, must be cheerful and helpful, not negative or aspiring drill instructors. Any presentations should be planned and rehearsed to meet time requirements and must involve beaucoup back and forth with participants. At the event keep everyone involved by following the KISS principle and "Discere Faciendo," the Cal Poly Pomona motto "Learn by doing." Second, there must be at least one Merit Badge Counselor who can sign off on each requirement on each blue card. Otherwise the Scout will not receive one of the rarest and original merit badges from 1911. Oh, and just in case you were wondering, the requirements published in 1911 for the original surveying merit badge were:

1. Map correctly from the country itself the main features of a half mile of road, with 440 yards each side to a scale of two feet to the mile, and afterwards draw same map from memory.
2. Be able to measure the height of a tree, telegraph pole, and church steeple, describing method adopted.
3. Measure width of a river.
4. Estimate distance apart of two objects a known distance away and unapproachable.
5. Be able to measure a gradient.

The third thing I wanted to add in connection with volunteers has to do with evaluation, and as such it also connects to the event planners as well as to everything else in the "recipe": give the Scouts an opportunity for input by asking them how it "tasted" and how the "recipe" might be improved for next year. At the end of the event distribute written questions along the following lines:

1. How would you rate your experience earning this merit badge as compared with other badges you have earned? For example, if you have a total of 12 badges, and you had the most fun earning the surveying badge, you would rate the first item like this:

Fun: 1 of 12 total badges earned.

a. Fun: ___ of ___ total badges earned.

b. Value: ___ of ___ total badges earned.

c. Challenge: ___ of ___ total badges earned.

2. What was the part you liked best?

3. How could it be improved next year?

The results will be not only be useful in planning your next event, they will also help CLSA "sell" the merit badge event in emails, letters and publications targeting scout troops and districts. We can use the data to show what already seems certain: that the reason this badge is so rare has nothing to do with the comparative fun and value in earning it as opposed to more common badges, but only in the comparative difficulty for scout leaders in organizing and staffing a surveying merit badge event with qualified volunteers.

Jim's "recipe" also calls for drafting the map for requirement #3 on the day of the event and not letting them take it home to do later. Jim attended the annual event put on at the Boy Scout National Jamboree where the NSPS sets up CAD stations the Scouts use to accomplish the drafting requirement.

The main point of this article is to suggest one change in the CLSA recipe, but it has to do more with the "kitchen" than the basic recipe itself. To date CLSA organized events have not been held on the facilities of educational institutions with surveying programs. (refer to <https://www.californiasurveyors.org/colleges.html> "Colleges and Universities Offering Surveying Education"). I believe we may have overlooked the advantages of "cooking" up success on an existing layout on centrally located facilities with professional planning expertise and with qualified staff and suitable equipment. And it isn't just the logistical planning involved; it is the attitude. In my experience the directors of the camps where merit badges are offered have their hands full with merit badges already being offered on reptiles, the environment, first aid, swimming and survival to name only a few. Coming to them with an offer to add another one is simply not something about which they are going to get all excited and offer to help out. On the other hand, the Community Colleges are ideal partners with deeply held recruiting goals aligned perfectly with CLSA's. Very recently a successful Boy Scout Welding Merit Badge event was held at College of the Canyons, and it became the catalyst for what is now being planned as a biannual surveying merit badge event by Regina Blasberg, Chair, Engineering Technologies Department. The first event is to be in December of this year and the second in the spring of 2016. Using this event as a model, CLSA chapters can partner with key staff at community colleges. Instead of carting the kitchen out to the camp, we can facilitate and reduce costs involved in our "recipe" by simply bringing the Scout to the Scullery. ❖

My Other Hat



The new pilot flies solo.

So I get this courriel from Crissy at Central Office:

"Hi Phil We are working on the Cal Surveyor and John asked me to reach out to you to see if you would be interested in writing an article for the "My Other Hat" column. I thought you could possibly write about flying. Please let me know if you are interested."

So here goes . . .

To tell how I had another hat and ambitions would be to tell how I got into surveying. As it has been said by other surveyors over and over, they were doing and going somewhere else when surveying called. This thing is going to bounce around a bit, so bear with me.

It all started August 6, 1965. I was fifteen and my late father, Moe, (he hated Elmo as much as he hated his middle name, Leroy), took me to Petaluma Sky Ranch in Petaluma, California the town of my birth. It was a one hour "familiarization" flight in a Piper Colt (N4606Zulu). And just as the "familiarization" flight advertises . . . it was to "familiarize" one with flying like some might "familiarize" oneself with heroin! Needless to say I was "hooked". But as a fifteen year old working minimum-wage at my father's franchise Dairy Belle Freeze, it was too expensive. So I hopped on my ten speed and off to Schellville airport on highway 121 in Sonoma. I must have been "hooked" because if you "Google" this airport seven miles from my house you would see this is not a road anyone should be biking on – it's a Russian Roulette kind of road.

I climbed the stairs to the flight school . . . and was greeted by a man a little older than my father. His name was John Thomas and he was hungrier than Wylie Coyote. I could see in his eyes he felt this kid might have enough money for him to be able to add a slice of bologna to his tomato sandwich. That all fizzled when his saw the beat up green Raleigh ten speed with the broken kick stand lying on its side instead of a convertible MG.

It was when I inquired "how much" . . . that was when he realized this kid's lacking a silver spoon but could see my passion and made me an offer: "Kid, you come down on weekends and fuel planes and wash my planes and we'll trade labor. Your wage will be minimal wage and I'll charge you at my going rates. In other words, you work about a weekend and a half and I'll teach you for an hour". Being fifteen and not yet having discovered girls I said deal! After ten months

By: Phil Danskin, PLS

Phil is the owner of a small land surveying business - a father-son firm, a past editor of the California Surveyor, and a past secretary of Northern California Section ACSM.

... Pilot

of getting high on avgas and soap suds I soloed a month after my sixteenth birthday. When my father came to witness the accident (my first solo) he realized my addiction was a bit dangerous and didn't want to sleep on the sofa for the rest of his life should something become of me and my mode of transportation. He offered the family wheels to get to the airport - a '55 Chevy four door.



Phil Danskin

There was a problem with Schellville airport from a flying business standpoint. Its dirt runways were in a flood plain and when Sonoma Creek flooded (yearly) the runways were covered in a blanket of water. Only the taxiway was available to land on and that consisted of about 800 feet of dirt. This rendered his flying business useless until the waters receded (about one to two weeks).

It was on July 10th 1967 that my Private Pilot's check-ride was performed to Captain George Justman of Petaluma Sky Ranch fame - thus becoming the number 1771200 pilot. Being the Wylie Coyote of flight schools - he was "scouting" other locations in Sonoma Valley to build an airport. And that my friends is how I got into surveying. You see, John Thomas, being a consummate barterer, had another student-addict, Eric Yarborough. Eric was an engineering student at Napa Junior College. And as such he designed and construction staked the new

Continued on next page

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Sonoma Skypark on Eighth Street East in Schellville. That was my first taste of surveying. I had no idea what Eric was doing but I loved it. Outdoors. Smashing wood into the ground and not a tree on the site - so it was hot as hell!

After the runway was staked, Thomas bartered with Tom McCaffrey, a grading contractor who was a P-47 pilot during WWII. And being the barterer he was, he knew he had a pocket full of flying-addicts and offered my services to the grading contractor. It was with Mr. McCaffrey that I learned how to drive a steam roller, (not steam but not today's "compact") and a 1940s GMC water wagon. What was amazing about Yarborough was not only did he design and survey the airport, but his yardages balanced! No importing of dirt. No carting it off. And most of all - no engineer(s), soils testing, plan review, etc. Getting the airport approved for a "Use Permit" took all that Mr. Thomas could muster in permit fees. After the surveying and construction of Sonoma Skypark, I had a boat-load of instruction owed me. I felt like the gangsta Tony Montana in the movie Scarface - now my addiction might be satisfied.

A couple of weeks after my nineteenth birthday I passed my Commercial pilot's check ride. It was at this point in my life that when driving home from the airport, "driving" felt un-natural. So at home with flying that I had to "think" how to drive. Crazy, huh? Then I began flying from the "right seat" in preparation for the Certified Flight Instructor (CFI) ticket, (as the pilot occupies the left seat due to instrumentation critical to flight). In order to bring up some grades in high school some of my high school teachers went flying. My hopes were that the high-dee, might bring a low-cee. Ha.

October 1970 was a flight to Oakland's Flight Standards District Office (FSDO) where the skeptical examiner, Mr. Gentry, went through a lengthy oral review followed by a detailed review of my log book for the Certified Flight Instructor's exam. So detailed was his review, that he asked if I took three contractor passengers on a "charter" flight to Redding eight months before receiving my commercial ticket. I thought fast "I do not recall" the details of that flight . . . whereby my nose almost knocked the P-51 Mustang model right off his desk. Then it was flight test time. We launched and flew over the east bay town of San Ramon whereby performing a get-out-of-a-boxed-canyon maneuver called a chandelle . . . the nervous examinee red-lined the engine and Gentry said "lets go back". I knew that was the end of that check-ride.

Thirty days later - back to see Mr. Gentry. This time the flight went as though we were two buddies goin' up for a scenic flight. No air-work at all. Instead to my good fortune, someone in a Citabria (Airbatic backwards) was doing aerobatics within a Victor Airway. Eagle Eye Gentry motioned me closer for him to get the feather numbers of the Citabria and



*From the top:
Petaluma Sky Ranch.
Preparing for aerial combat.
Phil in younger days.
Commercial pilot.*

Continued on next page



Sky camping.

back to his office, probably to make a call and/or an "action" to the owner of the Citabria. That was 6 October 1970 that I received my CFI. Now I could get paid for my addiction.

At the time Vietnam was going full bore. My instructor said that if one had an Associate Arts degree the Marines would take you if you also had a ticket to pilot. He had an "alternate" that would allow me support myself and get the needed degree the Marines wanted. He suggested an apprenticeship, (shipfitter in particular), at Mare Island Naval Shipyard. Well that didn't go well. As an apprentice with vinegar in my bladder I was not happy at a career in clock-watching. After one year I quit and enrolled at Santa Rosa Junior College in Hal Walker's Civil Engineering program (1969 to 1971). And just like the word "geomatics" SRJC employed that high fallutin' course name to suck 'em into "surveying" - my "back up" vocation. I loved every minute and every class. And math! (I guess my high school math teacher didn't know how to teach - as later evidenced when my children attended, he was vice-principal.) In those days the only way to an airline career was military experience. Thanks be to God for my Lottery Draft Number #261 which was never called.

So there you have it, folks - my other hat. Now don't forget to wash your hands and put the seat down. ❖

An advertisement for SURV-KAP surveying products. The top section shows various surveying caps and markers in different colors (yellow, orange, purple, red) and sizes, along with a central gold-colored cap that says "The Landmark Name SURV-KAP In Survey Products". Below this, the text reads "QUALITY BEYOND MEASURE" in large, bold, blue letters. Underneath that, it says "EASY ONLINE ORDERING!" in red, followed by "Your Satisfaction, Guaranteed." in black. At the bottom, the website "SURV-KAP.com" is listed, along with "SURVEY MARKERS, CAPS AND ACCESSORIES" and the phone number "800-445-5320". A gold seal in the bottom right corner says "SATISFACTION 100% GUARANTEED".

Postcards



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Surveying cowboy, date and location unknown, but appears to be somewhere in the American West.

Submitted by Dennis Good, via Anne Hoppe.

Welcome New CLSA Members

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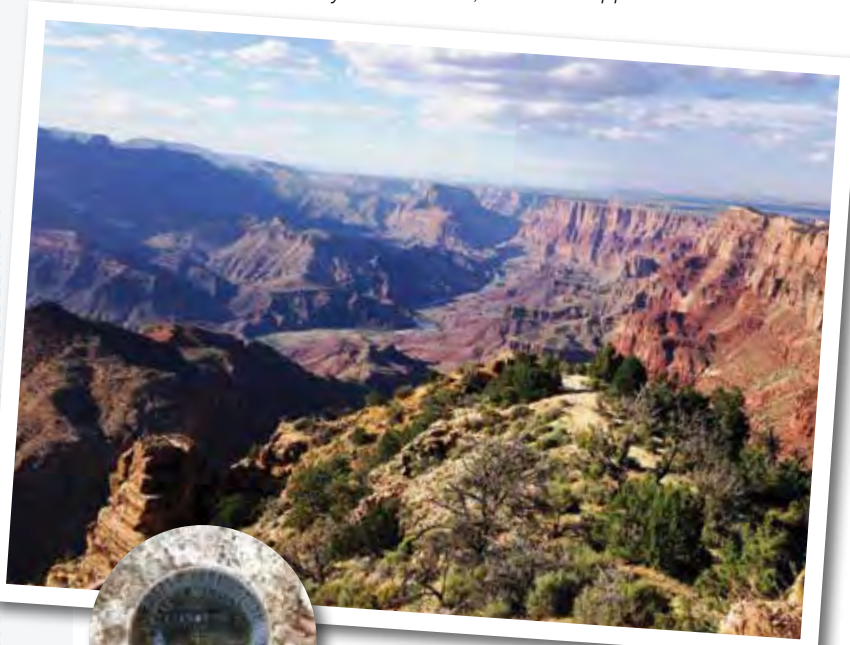
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U.S. Department of Agriculture brass disc dated 1936 on the south rim of the Grand Canyon.

Photographed by John Wilusz in August 2015.

Use a regular camera for surveying

Draft your CAD maps directly on images of regular cameras



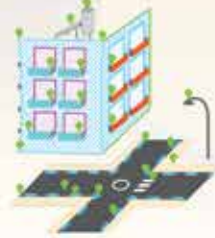
Shoot

Photograph the surveyed area using a regular camera



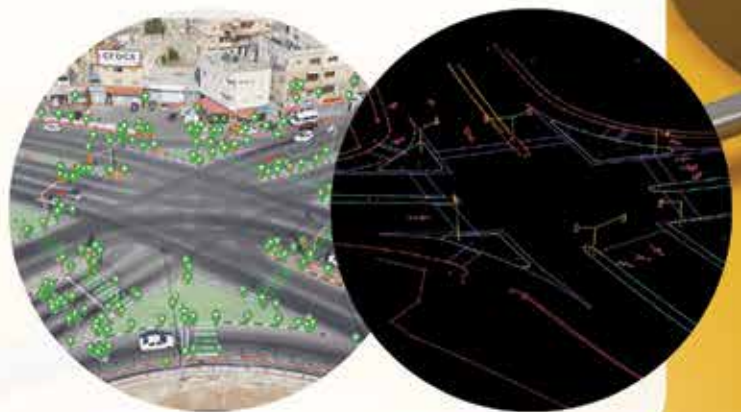
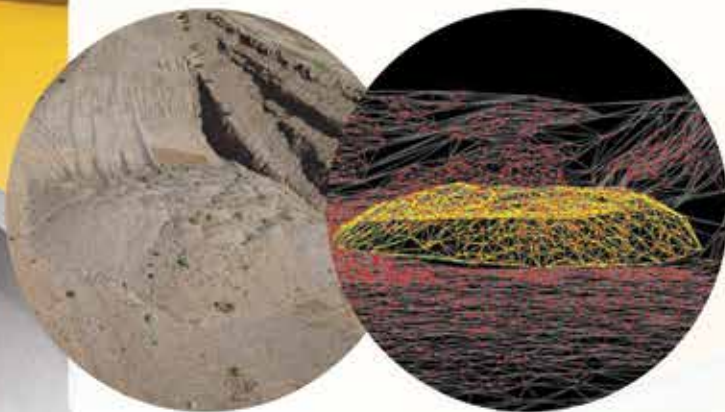
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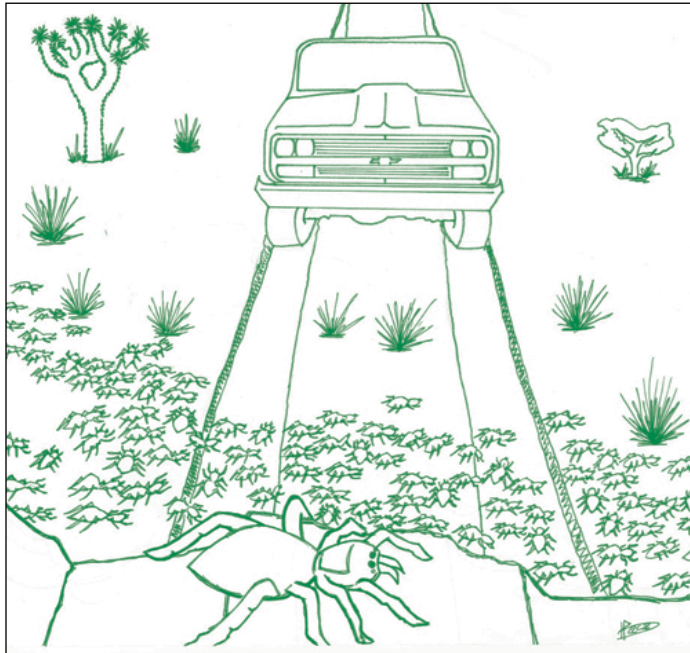
Carl & Connor C. de Baca

By: Carl C. de Baca, PLS, illustrated by Connor C. de Baca

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

Shine On China Lake



Countless black hairy patches slowly traversing the hillside and crossing the jeep trail in front of the truck. Like something from a fever dream or glimpsed at the intersection of Tequila Lane and Peyote Place, it is neither. Rather it's a spring day in the Mojave Desert and I am in the right place at the right time. Or maybe not, from a productivity standpoint. It takes a good fifteen minutes for the last of the stragglers from the arachnid army to clear the path so that we can get on our way. Their headed for parts unknown and I have been forewarned that they tend to come back the way they came in the evening so I might have another delay coming.

This was in the days before the smart phone or even the digital camera, but it wouldn't have mattered anyway – our security clearance expressly forbade photographs. Too bad, because during my time on this project I could have captured images not just of tarantulas, but of sidewinders, roadrunners, a variety of lizards, scorpions, petroglyphs, miners' ruins, stark black cinder cones, some with rocky calderas still evident, and a whole host of interesting military gear.

It was the late-middle years of the 80's, deep into the Reagan era and early in "Star Wars" weapons research. Much of this research took place, and probably still does, at the China Lake Naval Weapons Center, near Ridgecrest. China Lake, the largest, in terms of acreage, naval base in the free world, as they used to

say, is also home to some first rate geothermal activity. Blessed, (or cursed) with a thin crust at the edge of a tectonic plate just past the eastern toe of the Sierras, this spot had long drawn the attention of energy companies, hoping to develop the geothermal resources. Finally a company had successfully lobbied the US Navy for the right to explore and exploit this resource and in the years that my employer was involved in the surveying down there, we located drill pads, core holes, existing roads and new roads, produced topographic mapping, staked power lines, caissons for the overland geothermal pipes, and a couple geothermal power plants.

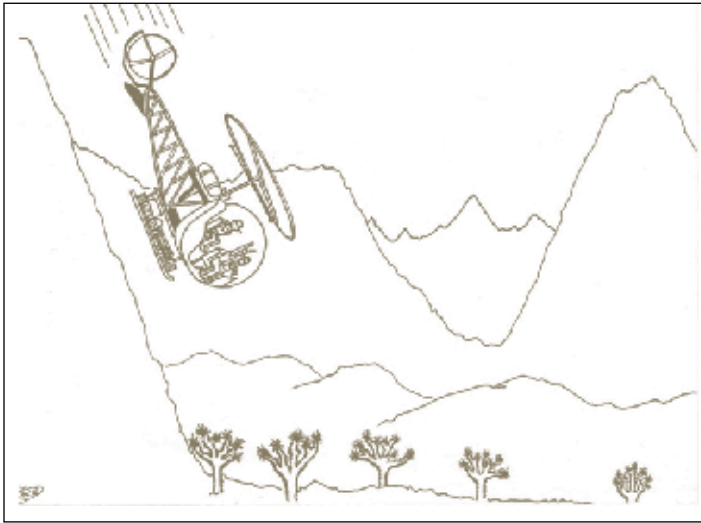
Now a cursory look at a map will reveal that China Lake is basically just over the hills from Death Valley and it is similarly hot and desolate there. In describing the possible photographs I could have amassed, I probably touched on most of the wildlife one could expect to see down there. Vegetation is pretty sparse too. The area where we worked was a place called Coso Hot Springs and it was a vast area made up of cinder cones, and more cinder cones with a limitless supply of black, heat-trapping basalt, through the cracks of which grew salt cedar, creosote bushes and Joshua trees, though without much real enthusiasm. Strewn about in great abundance were spheres of all sizes of obsidian. 'Bombs' as the obsidian globes are called, were easy to find and would be easy to pick up if the Navy didn't also expressly forbid collection of any material of any kind from within the bounds of their desert base. An archeologist once told me that the obsidian thereabouts was so abundant and of such good quality that it was traded by Native Americans all over the southwest. I can believe it. Fantastic arrowheads were also strewn about in other parts of the base. Again, I wish I could have had a camera.

To get to other parts of the base, east of Coso Hot Springs, where we saw petroglyphs and arrowheads, and remains of old miners' habitation, such as purpling whiskey bottles and the like, we had to cross a huge valley. We were over there laying out power line routes from the new geothermal plants, off and on, for a few weeks. The only reasonable way to get there was by helicopter. Ever notice how for a while every helicopter pilot was a Viet Nam Veteran? At least it seemed that way to me and it also seemed like since they had beaten the odds and survived that war, they had no fear of death. Our pilot for these forays across the base liked nothing better than to fly off mesas and let the hot desert air fail to provide adequate lift so the chopper would fall like an elevator with a broken cable. He also liked to get down on the floor and go as fast as the rickety thing would fly, with the

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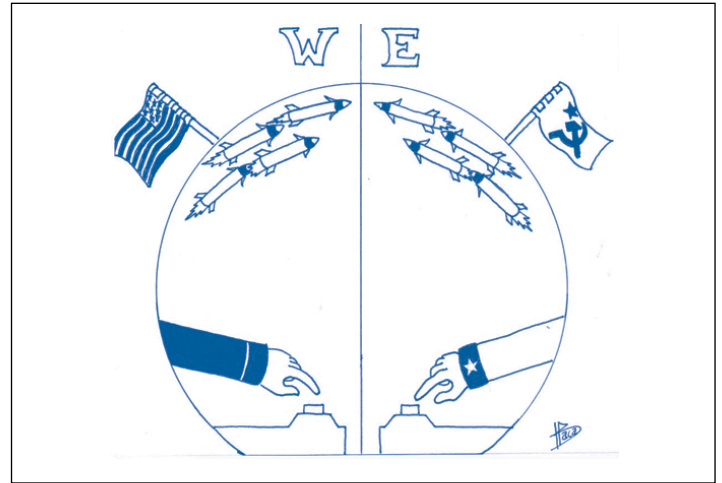
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plexiglass bubble facing downward so that a terrified passenger would have a grand view of the last place he would ever see. Or so it seemed to me the first few times. After getting over the sheer terror and becoming used to the pilot's occasional whoops of joy, I was reminded of riding a dirt bike as fast as I could go on some fire road, except that the helicopter never made my kidneys hurt. Once we were well on our way across a valley when the Navy radioed that we needed to climb to a thousand feet and hold our position until further notification. The pilot climbed to the ridiculous height and then sat, as stationary as he could for about 10 minutes until he got the all-clear. The hot desert air made the helo rise and fall unpredictably. It was like being on a frozen lake where you know the ice is too thin to support your weight and that you are going down any second...only a thousand times worse. I haven't been in a helicopter since that project, nor wanted to.



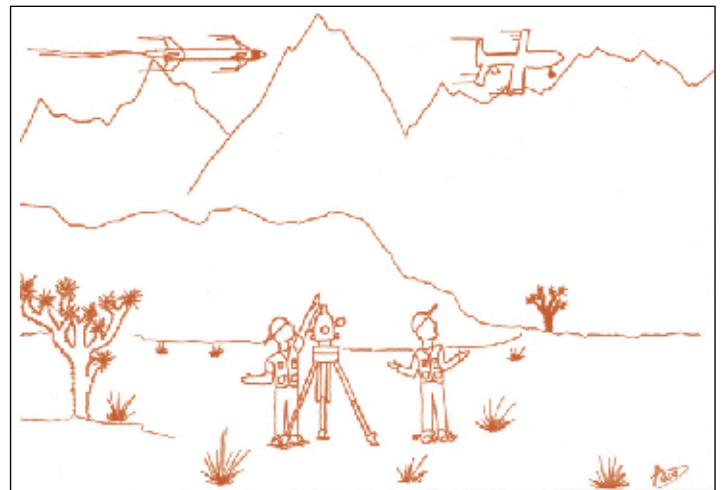
We stayed in Ridgecrest. A nice small town, bloated by an enormous influx of money from defense contractors. You would drive down the street and see mini-malls on both sides of the street but instead of nail salons, video stores and donuts, you would see Bendix, McDonnell Douglas, Northrup Grumman, Motorola, Teledyne and dozens of bland-looking offices with obscure initials. We witnessed a few things in the desert that were the fruits of these firms labor and I'm guessing it was a heady time to be working there on assignment for such a firm. I wonder which of the things we saw out there could still get us in trouble for describing?

Several of the hilltops surrounding our work area had large, white domelike structures on them, still visible now in Google Earth imagery. Once or twice I was manning the HP3820 set up on the side of one of these hilltops and one of these domes behind me was close enough to investigate. It had huge roll-up doors on six sides and once when I was there, two of the doors, not quite on opposite sides, were open. The building was empty except for a large and very sturdy looking mirror on a wheeled platform sitting in the middle of the structure and (presumably) aligned so as to reflect a light source entering from one door and out the other. I always wondered what kind of light show the Navy put on at night. The music I was listening to at the time was rife with themes of impending collision between us and the Soviets. 99 Red Balloons, Red Skies at Night, Red Rain, Hammer to Fall, Two Minutes to Midnight, Two Suns in the Sunset, etc. Hell, even



Crazy Train referenced the cold war. Given that palpable tension, seemingly worse every year, and the amount of speculation about the Star Wars program in the news at the time, it felt like we were in the epi-center of the new paradigm, on the very tip of the spear, ready to see a cold war get hot, laser hot. Thank goodness that Ronnie and Gorby worked it out. But I digress.

Another time we were staking a caisson route and were told via radio to stay put and not look east for the next half hour. Who is going to obey such a command, if they think they are not being observed? A command like that is really more of a subtle invitation to peer intently east if you think about it. And so we did, just in time to see a small fairly silent missile fly by at a couple hundred feet above the ground followed a split second later by a much larger missile – probably a Tomahawk as I remember thinking at the time. Ah, shooting down drones, if only...



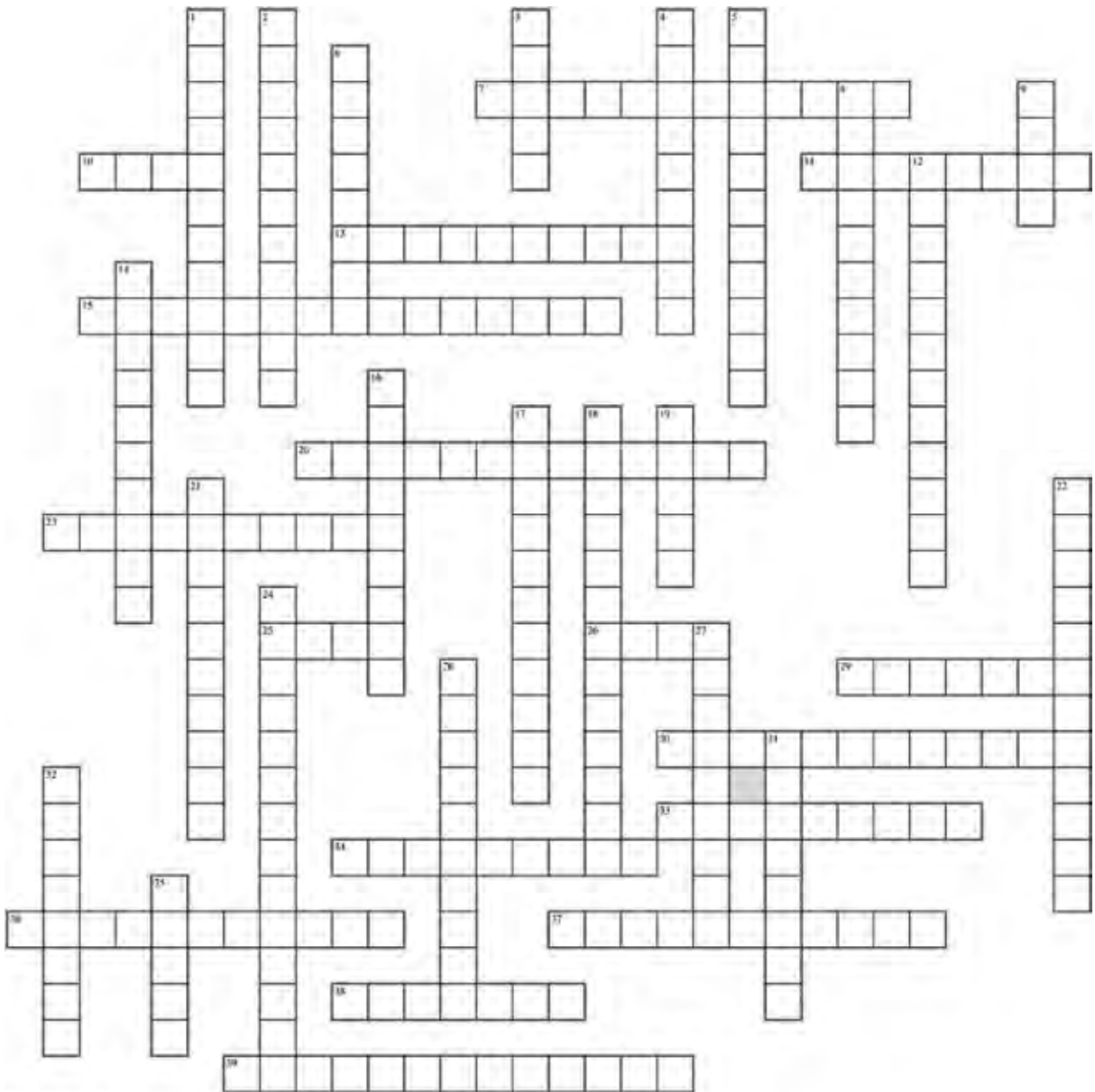
As I sit here pondering the bowling-ball-sized orb of obsidian sitting on my bookshelf (now where did that come from?) and reflecting back on running three-wire levels for miles in the summer sun and setting up the acoustic coupler on my SDR2 data collector so that I could send topo data over the phone lines from the sweaty motel room I pseudo-lived in back then, I close my eyes and see rusting ships in the desert sand, petroglyphs of remarkable beauty and durability and the stone wall ruins of the old Coso Hot Springs resort, decaying slowly for seventy years. I most vividly remember the outstanding desert sunrises filled with promise and the surreal desert sunsets. And those damned tarantulas. ❖



Scott Martin has been working in surveying since 1977 and he obtained his California license in 1987. He worked in the private sector until 1993 and has been employed by the State of California since then. He lives in the Gold Country and enjoys collecting, restoring, and using Coleman lanterns in his leisure time. The lantern in the picture is from 1920.

Crossword Puzzle by Scott Martin

CLSA Crossword Puzzle # 35



EclipseCrossword.com

Across

7. Required when CCS83 coordiantes are shown on a map
10. County with the highest and lowest in the lower 48
11. CLSA Distinguished Service Award namesake
13. The "N" in GNSS
15. Banked ramps have these
20. HP notation
23. 2.54 in an inch
25. Where two railroad rails cross or an amphibian
26. A musical composition or NGS product
29. An educated guess to start with
30. It is almost always conditional
33. A required element of adverse possession
34. A type of spruce found in the UFDP
36. Height obtained from h-N
37. A lost art of "talking" without radios
38. A line run to determine area, not boundary
39. Walking around to determine the boundary of a legal area

Down

1. It bogs the GPS signal down
2. Lightning shape or something to be staked for a building
3. History of title or a unit of measure
4. 8771(b) of the PLA aims to perpetuate them
5. Often an accessory to a PLSS corner
6. The "G" in AMG
8. One happened on June 30, 2015
9. Number of NGS CORS owned by the State of California
12. He used a shadow in a well to calculate the earth's circumference
14. Droughts can speed this down up
16. State Lands Commission has jurisdiction over these lands
17. They can be seen at China Lake, but not photographed
18. As the oxen plow, or how the sections were laid out in a Township
19. March 14th
21. It will change as sea level rises
22. It abuts the North American plate on the west
24. It has a circle around it on a stake
27. Clarke developed three of them
28. Bare earth from a LiDAR sensor?
31. About 95% of the time
32. It can be dependent or independent
35. Allows for a one person crew

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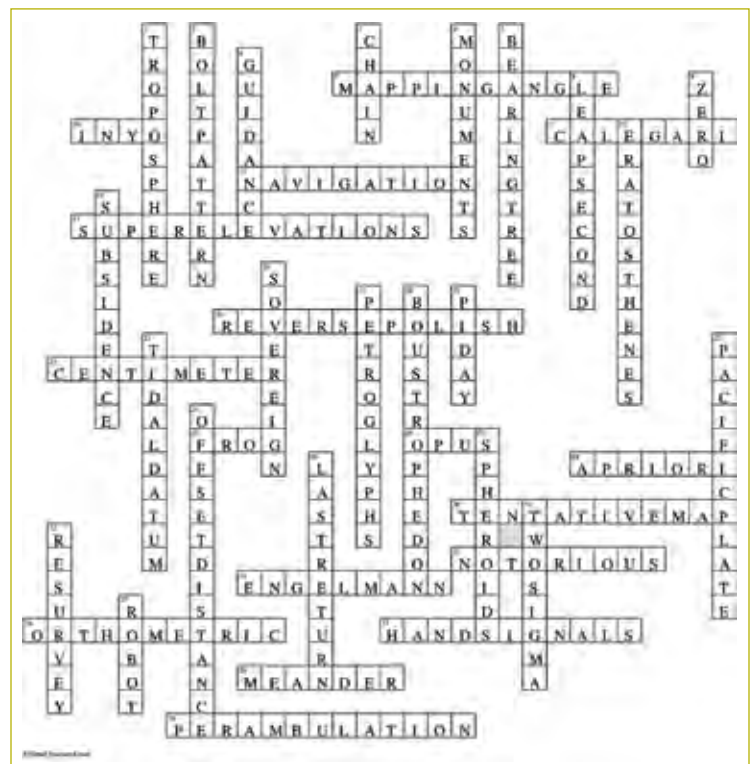
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Key to CLSA Crossword Puzzle # 34

(Surveyor Issue # 181)





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Top Caption for issue #181

“Y’all missed it! The main survey marker thing is that oak tree over there with the 26 nickel-size brass washers with numbers stamped on them, sometimes 4, sometimes 2.”

Submitted by BJ Tucker, PE, PLS

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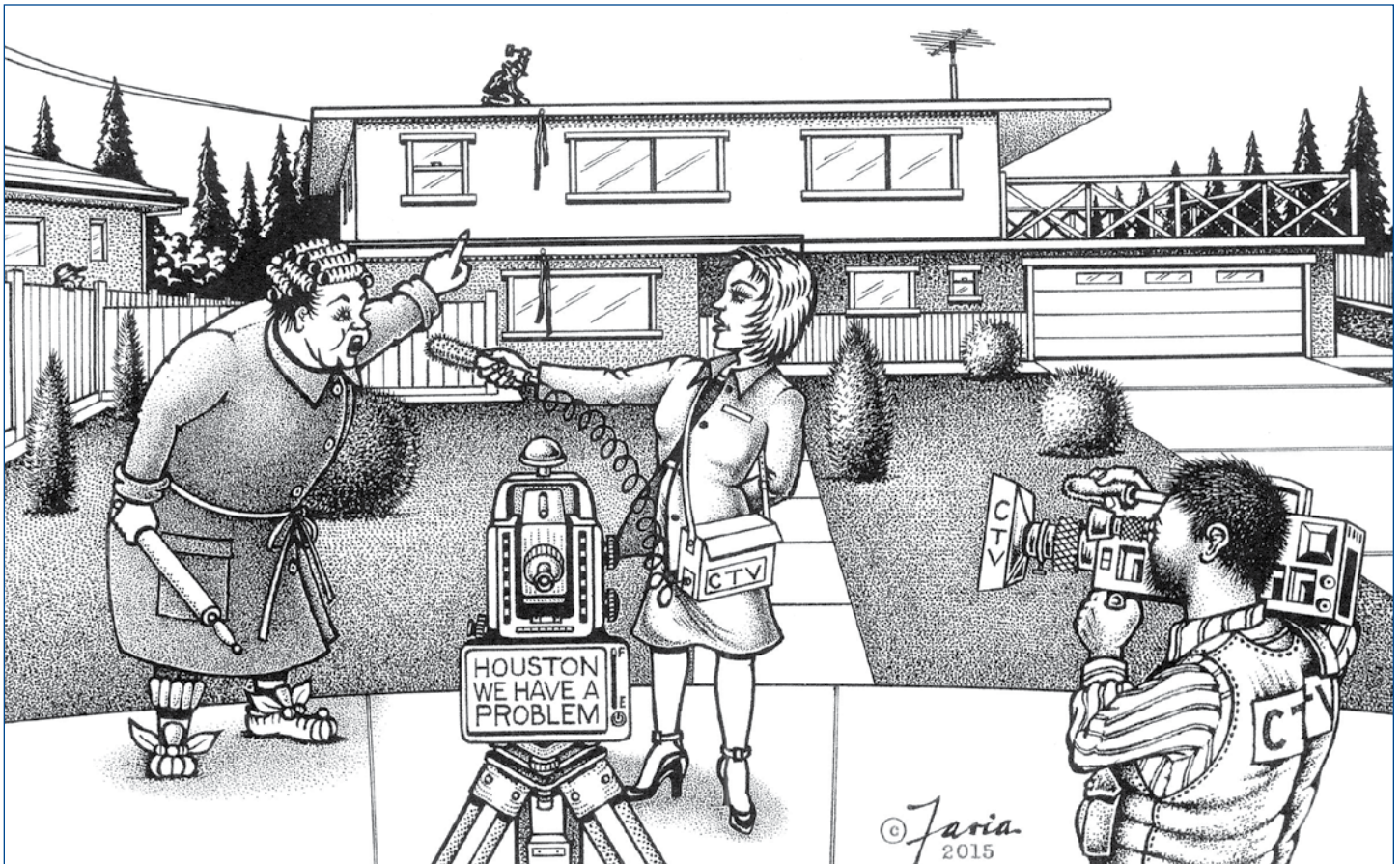
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