



Central Valley Chapter - California Land Surveyors Association
www.californiacentralvalleysurveyors.org

Central Valley Chapter THE PRISM



Date: May 25, 2016

Time: 6:00 p.m.

Location: Perko's @ 901 North Carpenter Road, Modesto

Speaker: Evan Page

Topic: Survey Narratives

Date: June 22, 2016

Time: 6:00 p.m.

Location: Perko's @ 901 North Carpenter Road, Modesto

Speaker: Mandy Ollar, North American Title Services

Topic: Recent Changes to the Land Title Industry

2016 Chapter Officers
 President: Landon Blake
 Vice President: Will Paul
 Secretary: Rich Brown
 Treasurer: Warren Smith
 Chapter Director: Keith Spencer
 Chapter Director: Kevin Genasci
 Alt. Chapter Dir: Landon Blake
 Alt. Chapter Dir: Will Paul

2016 Chapter Committees
 By-Laws Committee:
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 Construction Committee:
 Landon Blake (Chairman)
 Education Committee:
 Kevin Genasci (Chairman)
 Membership Committee:
 Rich Brown (Chairman)
 Monument Preservation Committee:
 Mike Quartaroli (Chairman)
 Newsletter:
 Rich Brown (Editor)
 Professional Practices Committee:
 Mike Quartaroli (Chairman)
 San Joaquin County Liaison Committee:
 Kevin Genasci (Chairman)
 Stanislaus County Liaison Committee:
 Rich Fultz (Chairman)
 Website:
 Keith Spencer (Web Master)

2016 Chapter Programs
 Adopt-A-Road:
 Rich Brown (Coordinator)
 Boy Scout Merit Badge:
 Zachary Wong (Coordinator)
 TrigStar:
 Bill Koch (Coordinator)
 Workshops:
 Rich Brown (Coordinator)

Announcements

STATE CLSA SECRETARY TENDERS RESIGNATION

During the Executive Board Meeting held on April 30th, it was announced that Jeff Steffan turned in his resignation as State Secretary. The Board voted and approved Ron Nelms to be our new acting Secretary for the remainder of the year.

CHAPTER MEMBERSHIP IS DOWN

Our 2016 Chapter Membership drive has concluded. Chapter membership is down about 15% from 2015. It is not too late to join. Please help support our Chapter and the great programs that we offer like Scholarships, Adopt-a-Road, Boy Scout Merit Badge, local workshops & seminars. We can't do these things without the support of our members. Go to our Chapter website to join today

<http://www.californiacentralvalleysurveyors.org/join.shtml>

COUNTY SURVEYORS APPOINTED

Merced County has appointed Zach Janz as the new Merced County Surveyor. San Joaquin County has appointed Warren Smith as the new San Joaquin County Surveyor. Make appropriate corrections on all map submittals.

CHAPTER OF THE YEAR

Central Valley Chapter was awarded CLSA Chapter of the Year at the 2016 State Conference this past March. This award would not be possible without the help and support of it's great members.

SCOUTING MERIT BADGE MIDWAY

The next Scouting Merit Badge Midway will be held on August 27th. If you would like to help with this great event contact Zach Wong at wongenginc.aol.com

ADOPT-A-ROAD CLEANUP DAY

The next Adopt-a-Road Cleanup Day is tentatively scheduled for June 11th. We are in need of volunteers to help. More information at the next Chapter meeting.

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Classes, Training, and Continuing Education

CAD Masters - AutoCAD Level I (3-Day Course)

May 11-13, 2016 Walnut Creek
 May 23-25, 2016, Sacramento
 June 6-8, 2016 Walnut Creek
 June 20-22, 2016, Sacramento
 July 5-7, 2016 Walnut Creek
 July 18-20, 2016, Sacramento

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CAD Masters - AutoCAD Level II (2-Day Course)

May 31-1, 2016 Walnut Creek
 June 23-24, 2016, Sacramento
 July 11-12, 2016 Walnut Creek

[Register here](#)

CAD Masters - AutoCAD Level III (1-Day Course)

June 30, 2016, Sacramento

[Register here](#)

CAD Masters - AutoCAD Civil 3D Intro (3-Day Course)

May 16, 2016, Sacramento
 May 31, 2016, Walnut Creek
 June 13, 2016, Sacramento
 June 27, 2016, Walnut Creek
 July 11, 2016, Sacramento
 July 25, 2016, Walnut Creek

[Register here](#)

Mark Your Calendars

CAD Masters - AutoCAD Civil 3D Adv. (2-Day Course)

June 13, 2016, Walnut Creek

[Register here](#)

CAD Masters - Civil 3D for Surveyors (2-Day Course)

June 15-16, 2016, Walnut Creek

[Register here](#)

Land Use Navigators - Subdivision Map Act

June 30, 2016, San Rafael

July 14, 2016, Pleasanton

[Register here](#)

Lorman Education - Understanding the Risk

June 7, 2016, Live Webinar

[Register here](#)

If you have information about a training or class, please submit to: editor@californiacentralvalleysurveyors.org

Editor's Message



C.L.S.A. celebrated a milestone this past March. Surveyors from around the state gathered to celebrate the California Land Surveyors Association's 50th anniversary at its annual convention. The majority of the time our conference is shared with N.A.L.S., the Nevada Association of Land Surveyors, in either Reno or Los Vegas. This year, however, it was held separate and in Rohnert Park, CA. It was an amazing site to see and hear so many survey professionals from around the state. Over 400 members attended, including several from the Central Valley Chapter. Vendors were set up in the only room large enough to hold them. So, a large tent had to be erected out back for us to have the Scholarship Auction and Awards Presentation.

Three of our chapter members also supported the Conference by giving lectures on related topics. Keith Spencer taught Survey Law in the L.S. Review curriculum, Rich Fultz joined up with Ron Nelms to present information about Monument Preservation, while Landon Blake gave lectures on Lessons Learned and Conceptual 3D Modeling.

At the Awards presentation, The Central Valley Chapter received a great honor by being awarded the "Chapter of the Year".

Despite all the challenges and difficulties, I feel that the Conference was a great success, thanks to the Conference Committee and our Central Office. Without all the hard work of these and many more individuals, C.L.S.A. wouldn't be the success it is today. Thank you to all who have contributed their time, money and knowledge to advance our profession.

If you would like to comment on this topic or suggest another, please submit it to: editor@californiacentralvalleysurveyors.org

National News

The Formation of Surveyors

By *J. Anthony Cavell, PS*

It is always interesting to watch fads come and go, hemlines go up and down, and "political correctness" morph from one ideal to another. The practice of surveying is not immune to this. We've heard for some time, mostly from outsiders to the profession, but then parroted within, several things that deserve further scrutiny before endorsing.

Let's take these one at a time, tying them together as we go.

1. There aren't enough surveyors

OK. How many surveyors is enough? I think it is fair to say, generally, that the work of surveying is somehow getting done presently, with some places experiencing lulls and others clamor. Given that, let's ask "how many surveyors do we have now?"

- NCEES estimates there are about 822,600 engineers in the U.S. and 54,000 surveyors for a ratio of 15.2:1 nationwide and locally the ratio is 19.3:1 with 823 surveyor licenses.
- The current number of attorneys is 1,270,000 for a ratio of 23.5. The Bar estimates about 18,500 in La. for a ratio of 22.5:1. So again it seems a fairly representative.

- There are about 970,000 active physicians in the U.S. for a ratio to surveyors of 17.9:1, a check in my state shows about 16,300 physicians for a ratio of 19.8:1.

That very quick look at statistics indicates a fairly consistent ratio for these four professions nationwide and in my own state: 17:1 for engineers, 23:1 for attorneys, and about 18.5:1 for Physicians. For convenience let's use 20:1 for other professions compared to surveyors.

A couple of things become apparent. It doesn't take as many surveyors to fulfill the public's needs. Using other profession's models for development of new professionals may not be appropriate. Another interesting thing gleaned from searching these data was that ALL of those more populous professions are lamenting the lack of new members and are asking, "How can we improve recruiting?"

Let's bear in mind that in each case there is an accessory group whose business is directly dependent upon the number of new applicants: universities, associations, licensing agencies and the like. For surveying it is no different. NCEES wants more test takers. Associations and their managers desire more members with dues and functions to provide. Universities are a special case for surveyors. Undergraduate Universities' bread & butter is matriculating new students. Most programs must produce 10 graduates a year to be considered viable. If successful in becoming licensed at 75% that would mean 75 additional surveyors per decade. If we assume a nominal career lasts 40 years, in one career each school would produce an additional 300 surveyors in that time.

We all know how very much more a surveyors needs to learn besides what is possible to teach in 4 years of school. A graduate program makes the 30 (typical) hours requirement attractive to those majoring in other fields, adds to the 300 new surveyors and at a much lower cost, and provides a stepping stone to form more PhDs.

More than a few of those reaching retirement age became licensed but practiced as very good technicians rather than exercising the professional aspects of a license. As they leave the practice they are replaced by others not requiring a license, thereby skewing the estimates even more.

2. Surveyors are growing old

It beats the alternative, doesn't it? Life is, after all, a terminal illness. I think several influences have converged to cause a statistical blip in the data.

- Most states opted for a bachelor's degree prerequisite for licensure roughly between the mid-1990s and mid-2000s. Those in line for licensure sped up applications before new requirement affected them. This was followed by a down turn in applications immediately following.
- The 1990s saw the broad adoption of GIS as computing power enabled combining statistical analysis & metadata to positional data. A good number of geographically talented folks opted to follow that technology in lieu of the professional route to surveying.

Continued on page 12

WANT TO WORK ON CALIFORNIA HIGH SPEED RAIL?

SANDIS is seeking SBE/DBE/DVBE firms to provide the following services for the California High Speed Rail CP 2-3 Contract.

THE PROJECT

The project involves the design and construction of the California High Speed Rail CP 2-3 sections. The project alignment is divided into 3 roughly equal segments (from American Ave in Fresno County, the length of Kings and Tulare Counties) extending for a total length of 65 miles. The project work consists of embankments, grade separations and aerial structures and retained cuts, and underground and overhead utilities.

Project elements include 15,000,000 ccy of embankment, underground / above ground utilities and approximately 65 concrete bridges with MSE walls, pile caps, columns, abutments and bent caps with girders or cast in place box girders.

SERVICES

Field Surveying All aspects of construction staking and as-built surveys including but not limited to analyzing data files from the designer, confirming primary project survey controls, establishing secondary project survey controls, and perform quantity topographic surveys, and quantity verifications.

Staff Augmentation Office survey staff to support construction staking including but not limited to analyzing data files from the designer, confirming primary project survey controls, prepare survey reports and drawings, check and certify field layouts, perform quantity computations.

Traffic Control/Safety Traffic control, flagging and street closures (including electronic signage).

INTERESTED FIRMS

For any interested firms, please submit the following information by **May 11, 2016**.

- Firm Background
- Proximity to project site (Fresno, Kings, Tulare Counties)
- Hourly Rates
- # of Officer Surveyors
- # of Field Crews
- Union Status (if any)

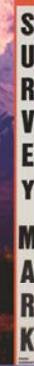
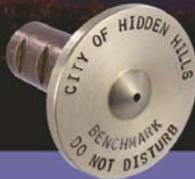
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Contact **Tracy Allen** at either **559.908.2901** if you have any questions. Submit your information to: **tallen@sandis.net**

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Technology

The Practice of UAS

Written by John Perry

Advice from a pro on introducing UAS into your practice.

UAS ARE QUICKLY TRANSFORMING from cutting-edge to standard tools for geospatial mapping and surveying. How will your firm be competitive and turn this technology into a profitable business?

Get Smart about Regulations

The greatest challenge to the industry has been navigating the thicket of FAA compliance. The good news is that regulatory uncertainty and complex compliance requirements are almost behind us. Since 2015, the FAA has made steady progress with sensible rules that make commercial operations practical.

For example, instead of the notarized paper-based process for registering your UAS, a simple online form is available at <http://registermyuas.faa.gov/>. The FAA also now provides a standard Certificate of Authorization to all exemption holders that lays out the rules of the road (or airspace, I suppose), so you don't have to wait for authorization on each project. Plenty of resources are available on the FAA website on how to register your drone and conduct authorized operations, with reputable providers offering short webinars to get up to speed.

Better yet, you will soon no longer be required to obtain an exemption. The FAA has been working on a new set of regulations, 14 CFR Part 107, for several years. The final step of this process is currently underway, and the anticipated date for new regulations is June of this year.

Invest in the Right Equipment

Purchasing a drone can seem daunting (there are over 1,200 models registered with the FAA), so good business sense and a decent understanding of both the aviation and geospatial technologies is crucial. Here are a few key factors to consider:

1. Operational Capability

"Should I buy an airplane or a multi-rotor?" is usually the first question we're asked by the uninitiated. Multicopters are typically easier for beginners but are practical only in very low winds and smaller project areas, up to a couple of hundred acres at most. Airplanes can be operated in a wider range of conditions and can acquire data efficiently over thousands of acres but need more training for the pilot. You should also consider specialized features, such as water-landing capabilities for coastal projects or the ability to capture oblique imagery of structures.

2. Platform Stability

From a safety perspective, aerodynamically stable airplanes can safely glide to the ground in the case of an emergency, and some multicopters are designed to safely recover from the loss of one or more rotors. In either case, it is crucial that the aircraft is designed to fly safely within the regulations and minimize vibration, turbulence, and wind disturbances so that high-quality imagery can be captured. Photogrammetric accuracy depends on the resolution of the imagery, so the quality of your drone will affect the quality of your data!

3. Sensor Quality

Of course, the quality of the sensors available on the drone is the most important factor for geospatial data production. Geospatial professionals understand that accuracy or resolution figures depend on the particulars of each project. No matter what is advertised, ask detailed questions about the quality of the imaging sensor, lens, and other optics, GPS receivers and antennas, and any other sensor and data quality control features available. Better data in is better data out, and the sensor specifications give you an apples-to-apples comparison of the value of the data you can acquire.

4. Support and Maintenance

Drones that are designed for day-to-day surveying and mapping use are priced from \$10K and up and are a substantial business investment. Unfortunately, the truth is that price is often not an indicator of quality. Moreover, the training, repair, and maintenance costs are not to be ignored. Flimsy parts and hobby-shop builds lead to frequent downtime that will end up costing you time, money, and reputation when clients are waiting on their data. Look for

Continued on page 11

Pictures of the Issue

California Land Surveyors Association 50th Annual Conference - Rohnert Park, CA
March 19-23, 2016

The Central Valley Chapter was well represented by it's members at the 2016 State Conference.



*(L) Kent Hysell
(R) Warren Smith*



*Pictured above from
left to right:
Chad Johnson, Scotty Atchinson,
Larry Fontana, & Rich Brown*



*(L) Landon Blake
(R) Scott Myatt*



*(L) Rich Fultz &
Tristan Higgins
(R) Keith Spencer &
Dave Paul Johnson*

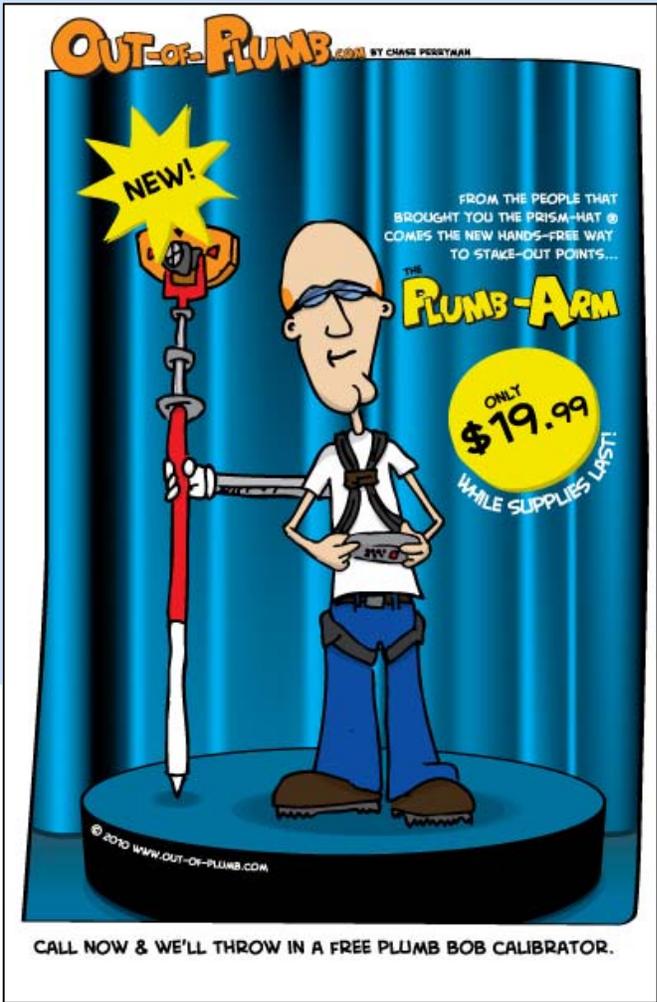


If you have a historic or interesting photo you would like to see in a future edition of The Prism, please submit to:
editor@californiacentralvalleysurveyors.org

Just For Laughs

Originally posted on
 October 15, 2010
 Out-of-plumb.com

Again, thank you to
 Chase Perryman
 For allowing us
 to share his
 great work.



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Solution to March's KENKEN Puzzle

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3	⁵ 5	6	²⁺ 2	4	¹⁻ 1
³⁺ 2	³⁺ 1	⁴⁻ 5	^{72x} 6	¹ 3	4
6	2	1	4	^{16x} 5	3
¹⁶⁺ 4	6	2	3	⁵⁻ 1	¹⁻ 5
¹ 1	4	³⁻ 3	5	6	2

Classifieds

Mid Valley Engineers seeks Licensed Land Surveyor or L.S.I.T.

Full Service Engineering & Surveying firm located in California's Central Valley, is looking for a Qualified Licensed Land Surveyor (California required, Nevada also preferred) or is an LSIT looking to become a Licensed Land Surveyor. Applicant must have expertise in directing and performing all aspects of acquiring, processing, analyzing and compiling data to prepare maps, documents and deliverables for boundary surveys, topographic surveys, control and design surveys, subdivisions, records of survey, ALTA/ACSM surveys, lot-line adjustments/easement acquisitions, and be able to perform outside field survey work.

Email your resume to jobs@mve.net along with a list of 5 - 7 Business References.

O'Dell Engineering has Openings

O'Dell Engineering has openings for several positions in their Modesto, Fresno, and Pleasanton Offices.

Go to: www.odellengineering.com/profile/employment/

for more information, online application, and submittal instructions.

Welty Eng. Seeking Surveyor

Welty Engineering has an opening for a seasoned Land Surveyor. The successful candidate will be asked to perform the following duties:

Field:

- Proficiency With Robotic Total Station (Trimble S6) And GPS Systems (Trimble)
- Topographic And ALTA Surveys
- Constructions Staking
- Boundary And Mapping Surveys
- Field Personnel Training
- Equipment Maintenance And Calibration
- Ordering Survey Supplies
- Travel Maintain/Stock Survey Truck(S)

Office:

- Construction Staking Bidding
- Setup Calculations In CAD For Staking And Mapping
- Project Management Assistance
- Client Relations
- Processing Field Work For Hand-over To Technicians And Project Staff
- Work With Project Staff In A Professional Manner

Job Requirements:

5+ years of Field Survey Experience
Current CA Driver's License
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VISTA



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Monument Obituary

By Mike Quartaroli, L.S.

Survey Monument Sheriff Mike was called to a rural area of San Joaquin County on a report of a suspicious object. A local farmer discovered a suspicious object in the weeds near his common property line with a PGE substation. Sheriff Mike confirmed the suspicious object was a deceased, displaced survey monument, cordoned off the crime scene, and called the survey monument coroner, Dr. L.S. Mike from Manteca. The coroner gently and respectfully removed the remains to the coroner's truck. There, the remains were prepared for transportation to the lab for a thorough autopsy. The coroner's autopsy report lists the cause of death as gross negligence and violation of Sec. 8771 of the Professional Land Surveyors Act. The survey monument was identified as a 4" diameter aluminum disc stamped "Pacific Gas and Electric Company Property Corner LS 3576". The Aluminum Disc sits on top of a 3/4" x 28" rebar set in a 8" x 24" concrete pedestal. This PGE monument was set in 1977 as noted on Record of Survey Map Book 27, at Page 110, San Joaquin County Records. This monument was set at the southwesterly property corner of a 3.57 acre PGE substation. It was typical for these monuments to be set a minimum of 18" deep. Great pride and effort went into setting this survey monument. At the crime scene, Sheriff Mike concluded that the PGE survey monument was murdered by the undergrounding of communication utilities. A utility vault now occupies the space where the PGE monument was set. Very few clues remained at the crime scene and Sheriff Mike classified the murder as a "Cold Case." No family members came forward to claim the monument remains. A hearse from the MQ Survey Monument Mortuary picked up the monument's remains and transported them to the LS 4450 Survey Monument Mausoleum for internment. A private service, presided by Preacher Surveyor Michael, was held at the Mausoleum, and sadly only a CAD Technician was in attendance.

This is another poignant example of the result of not complying with Sec. 8771, together with the lack of accountability.

Donations of your time to the CLSA Central Valley Chapter Monument Conservation Committee is requested in memory of PGE Monument LS 3576. There are many tasks with which you could help. Ask about the "Adopt a Monument" program. Make a lasting contribution to the land surveying profession.



The Practice of UAS, *cont. from page 6*

proven drone models from providers who are ready to support your business, not just sell you the drone.

Focus on Business Fundamentals

We understand that reliably delivering cost-effective and useful geospatial products to your clients trumps the “wow” factor of drones. The truly successful business operations we’ve seen come when a geospatial firm identifies a specific client need, usually among existing customers, and carves out a competitive advantage in delivering that with their UAS compared to their existing approach.

From state and federal agencies to State Farm, John Deere, Exxon Mobile, Duke Energy, Bechtel, and Rio Tinto, the steady stream of press releases hint at the amount of market development happening. We often hear from smaller firms that the market seems to be out of reach for them. The reality is that the thousands of small- to mid-sized surveying and mapping companies and other geospatial data providers have to seize the potential of this market.

Yes, a few of the early adopter firms have gotten off to a false start, stymied by poor equipment choices, unprepared for the regulations, or without a plan for delivering value to their customers. But in the end, no one understands your client’s needs better than you, and in most cases the financial benefit of using drones works only if the equipment and assets are utilized in a local region.

The most important advice we give to our clients is to understand that there isn’t any magic in the drone business. The fundamentals of how you have built your surveying and mapping business are still the keys to success. Building customer relationships and educating them about your services, training and efficiently managing your field crews, building a competitive advantage with higher-quality data products or more efficient data production workflows: these are all the same things you need to focus on when you start your drone operations.

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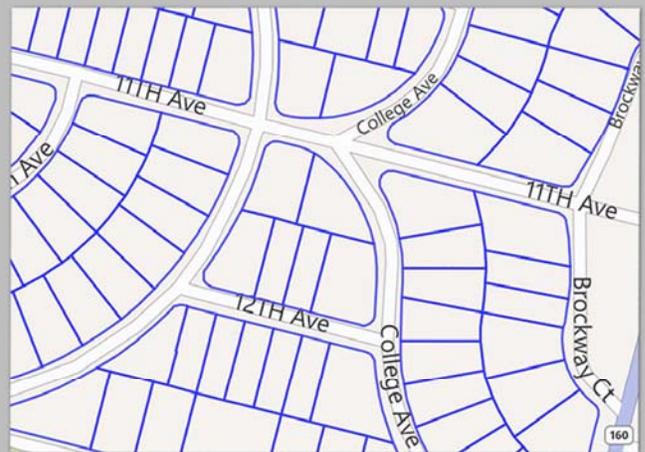
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The Formation of Surveyors, cont. from [page 3](#)

3. Young people aren't entering the profession

This is a sister point to #2 above. Since the 1990s, computing boom, the environment of young people has changed drastically. As adolescents, it seems all answers are available on-line or, if not, it represents a failure. This converges with technological developments serving our field about which we fret.

We describe many of our field technicians and even a few licensees as buttonpushers, meaning they tend to believe an answer from a computing device over personal observations. It makes GIS more attractive to some because the answers appear so much more certain. One counter example to the statement is the development and enthusiastic growth of the F.I.G. Young Surveyors group in North America.

4. Surveying isn't respected as a professional practice

The Greeks in 3rd century BC observed "Beauty is in the eye of the beholder"-- people differ in what they find beautiful. This begs a VERY important question. Do YOU respect your profession? Really respect it?

The public tends to adopt the attitude presented to them by those they respect as socially influential. That tendency can be overridden by a personal experience with the subject of an attitude. A popular musician who impolitely treats a waiter, taxi driver, or fan will lose high esteem he once held. Likewise a scruffy day-laborer, someone in a "hoody" or even a used-car salesman, by acts of genuine courtesy, lose the low esteem assigned to them. Respect (like charity) starts at home. Respect for self is not just correctness of final product. It is respects for presentation of self and product in public. It is respect for and mentoring of subordinates and colleagues. It is respect for communication with client. It is self-respect for the profession. Respect from others cannot be expected before those things are habitual.

5. Changing the name to something sounding high-techish will improve perception

Again, in that decade of disruption from the mid-1990s, there was felt a great need to develop 4 year bachelor's degree programs around the country. That involved a large but little recognized paradigm shift to attract new professionals into surveying.

Historically, surveying is not a glamorous profession in the eyes of adolescents. Oh, to be an aeronautical engineer or a brain surgeon or CEO or savior of endangered species or play in the Super Bowl, those are desirable careers in the eyes of a teenager.

With the states legislating a prerequisite bachelor's degree for surveying, schools responded by trying to create programs for candidates to attend. They had little understanding or respect for surveying. With so few needed few in academia experienced much contact with surveying. They feared that selling a "Surveying" degree to teens and their parents would lack necessary pizzazz for recruiting. Many tried to gild the lily by calling Surveying, Geomatics. (Geomatics is, in fact, recognized as a subset of Surveying1) This had the unfortunate effect of further harming the respect and esteem for Surveying.

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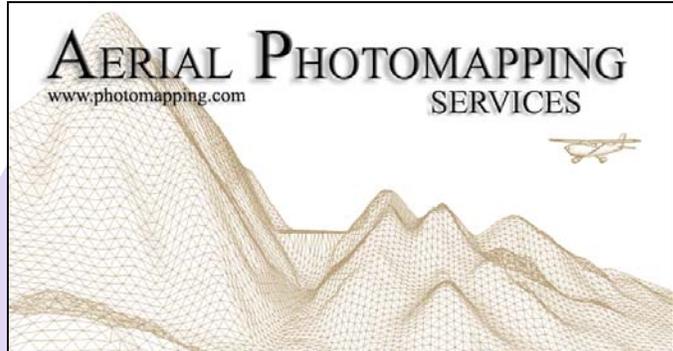
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CLSA EDUCATION FOUNDATION

Land Surveying Photo Gallery



California Land Surveyors Association Education Foundation would like to thank Bryant Sturgess for generously donating his collection of historic images.

The proceeds from the photos sold on this website will be used to fund scholarships for land surveying students.

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