

The Voice of the Land Surveyors of California

# SURVEYOR

*California*

Institutional Affiliate of American Congress on Surveying and Mapping

Fall 2001

#132



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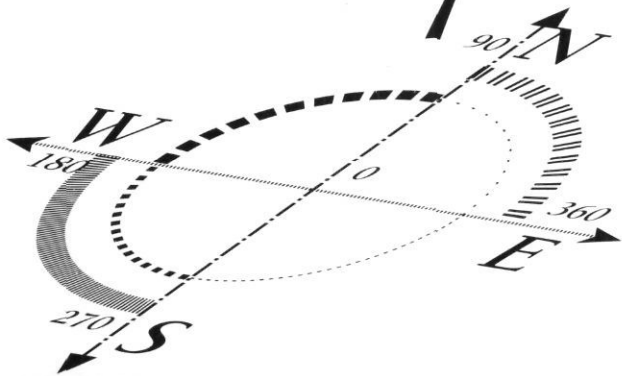
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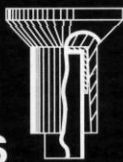
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"Recognizing that the true merit of a profession is determined by the value of its services to society, the California Land Surveyors Association does hereby dedicate itself to the promotion and protection of the profession of land surveying as a social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

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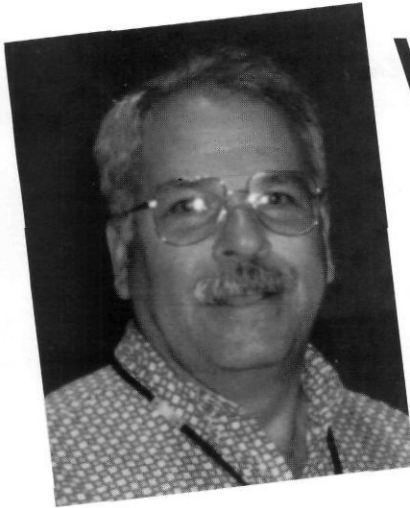
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### On The Cover

Melvin Thorton, PLS (1895-1977)  
 LS#2661, Circa 1936.

Photo provided by Bud Uzes.





# Who needs 'em . . . ?

Years ago, (1971), I was a volunteer fireman with one of the best fire districts in the golden state. At the time, I felt: time to reciprocate towards a community that gave generously to its youth. For twelve years I trained, gave

up sleep, took fire science courses at the community college 20 miles away, and in times of disaster, slept at the fire house - away from my family. Just like my fellow firefighters. Being a volunteer gave us a sense of involvement with our community. Besides - we loved to drive the big shiny red trucks . . . wear attire waterproof-enough to crew on a leaky submarine . . . and don the helmet a French pompier would envy.

When one could "draft" (suck from a lake, pool, etc.) water from the old '51 White pumper - you had really made it! It required exponential finesse. The primer pump-handle had to be pulled up until you heard a bellowing that sounded like Paul Bunyon had stepped on Big Blues testicles! At such time, you would quickly engage the main pump, say four Our-Fathers, eight Hail-Marys, kick the hard-suction, and pray water came out where it was suppose to . . . and if a crowd was gathered you'd better be successful . . . or the letters to the editor regarding ineptitude would appear in next weeks issue of the local rag, (which might cause it to swell to six pages)!

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***For the sake of our community ... won't you don the helmet of membership in our professional societies?..***

---

Firefighting of yesterday is not the same as it is today. When I began, admittedly it was a group of good ol' boys, where promotions were based upon seniority - not knowledge. Everyone appeared to be the same color, sex and religion. Training consisted of bi-monthly drills and actual-alarm experience. Those that sought outside education, were praised by a pat on the back. First Aid was basic - together with a newfangled technique called Cardiopulmonary Resuscitation. The Heimlich maneuver, along with glow-in-the-dark rosary beads, were thrown in for good measure. For safety reasons, riding on the tailboard was limited to about ten. The brass pole exiting the sleeping quarters on the eighth floor had to be cleaned before each shift. If you didn't, upon the next alarm you would practice your free-fall from the olive oil-soap concoction placed by the previous shift. Whereby the first down would endure the receiving-end of a pile-driver!

**THAT WAS THEN...**

## **THIS IS NOW . . .**

The firefighter of a few decades ago is not the same, just as the land surveyor of today is not the same. Both have evolved. In the past the public perceived both as blue collar jobs. Now we are professionals striving to perpetuate that perception. In order to maintain that "professional" perception we should be more educated. We must be atop a new issues that affect our profession - both locally and nationally.

In this issue you may observe copious ink regarding the virtues of ACSM/NSPS. Because of past fiscal blunders, some may think good riddance to ACSM/NSPS - the organization which is out of touch with its constituents. Well, if all those that complained were active members things might have been different. Take another look at ACSM/NSPS. Exaggerate time. Think geologically. ACSM *was and is* a noble society. Let's not let it flounder like an ill fish for the sharks to feast on. And . . . *"If you can't say anything nice . . ."*

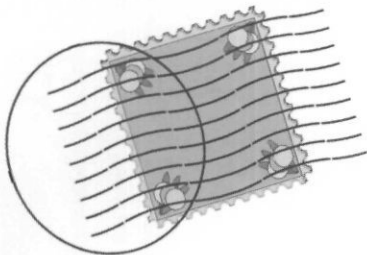
Like fire departments ACSM and CLSA are for your protection. If there's an alarm the "involved" grab a pail of words and snuff the issue. Some alarms are as minuscule as a cat in a tree. Others are major conflagrations, requiring state and national aid.

Some could give a damn about NAFTA. Why? Because they haven't been affected - yet. But some in our organization are affected. Our representatives, ACSM/NSPS have spent much time and thought attempting to protect the affects of NAFTA on our profession and related professions.

The same goes for ALTA standards which is influenced by three entirely different disciplines: attorneys, title companies and geomaticians. ACSM/NSPS suggests standards to better coincide with evolving technology, which better serves the consumer, better serves the profession. If ACSM/NSPS were not be involved - the title people and lawyers would dictate the standards of an ALTA and it would be too late to whine!

For the sake of *our community*, whether here or there, won't you don the helmet of membership in our professional societies . . . grab a hose, and aid on fire lines? Whether it's a cat in a tree or a major conflagration, we need you!

# Letters to the Editor



In reading the article on your purposed "Code of Conduct" the only part that I completely agree with is "to increase our exposure to liability."

Every new law opens the door for additional litigation, ask any attorney. That is why attorneys are always pushing for new laws, it increases their potential for revenue.

In reading the purposed "Code of Conduct" I find two things:

- 1.) A number of those rules are already covered in the LS Act.
- 2.) Of the rest, I find it very hard to find a rule that doesn't increase my exposure to litigation.

Maybe the creators of this purposed "Code of Conduct" should send copies to various Errors and Omissions Insurance companies for their opinion.

Walter T. Foster, PLS

Carl C. DeBaca's edited response:

*I must say that I, and probably every other Professional Land Surveyor in California, agree with your sentiments wholeheartedly. I fear, however that you are laboring under a misconception about the origin of this proposed code. This code is not being promoted or sponsored by any group of professionals, be it CLSA, CELSOC, or whomever. Quite the contrary. The origin of this code, is the legislature's sunset review committee headed by Senator Liz Figueroa. This committee has been reviewing and evaluating each regulatory board operating under the department of consumer affairs and has been eliminating some boards, reconfiguring some boards, making some adopt new rules, etc. Our board, BPELS, has been directed to adopt a professional code of conduct within the next year. Credit BPELS with contacting organizations like ourselves and asking for input rather than simply crafting some language and enacting it. I look on our role, and CELSOC's role as 1) identifying possible rule duplication, 2) identifying significant liability issues and 3) offer reasonable alternative language. The code will be enacted, whether we participate or not. I fully expect that the final version of the code will be much less odious to us as professionals than the preliminary draft version. Many other states are enacting similar rules and yes these rules generally offer more ammunition for attorneys. I don't think anybody really has a solution for that.*

*(Thanks for the response, Carl! - Ed)*



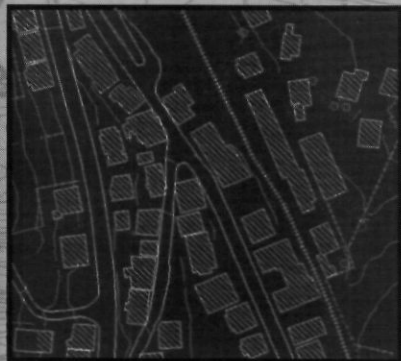
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# President's Message



Recently I was in attendance for the 150<sup>th</sup> anniversary event commemorating the setting of the Initial Point on Mount Diablo. This venue provided a wonderful forum for land surveyors to get together and reflect on the societal significance of our generally under publicized and somewhat misunderstood profession. I took the opportunity to converse with several members of the general non-Survey community regarding what we do and what it all may mean to the public at large. I was pleasantly surprised to discover that there are at least some people out there who may actually have a real desire to know more about what makes the Survey world tick. This event also featured a historical vertical (to borrow an oenological term) display of vintage Survey instruments arrayed from past to present. These drew a good deal of quizzical looks. I thought about all of this and wondered if we have always been an arcane and distant presence within our society and, if so, what might we do to change this perception?

At other times image may be as important as actions, at least as far as general impressions go. I had the opportunity to be a speaker at a program for attorneys and land surveyors. I certainly consider both surveyors and attorneys as professionals. During the program I noted the attire, attitude and actions of the audience. I honestly believe that I could spot each and every surveyor in attendance just by their appearance. While I certainly do not think it is required to wear a three piece suit in the field, it strikes me as reasonably appropriate to at least wash one's levis before attending a professional seminar. Whether we want to admit it or not, attire, attitude and actions have a good deal to do with our image in society.

Sometime later I again had the opportunity to meet with a number of Surveyors, this time from different areas of the state. I spoke with an officer from the San Joaquin CLSA Chapter who was, in uncomplicated and effective ways, taking action to mainstream our profession.

---

***“Whether we want to admit it or not, attire, attitude and actions have a good deal to do with our image in society.”***

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For example, her Chapter decided to purchase over a hundred copies of a Survey coloring book to distribute to children in the community. Her Chapter had also created a syllabus for a class specifically designed for students with some level of interest about the surveying profession which had been added to the local junior college curriculum. These public relations programs were models of simplicity and effectiveness. I wonder how many other such opportunities are staring us directly in the face?

Sometimes we seem to be our own worst enemy when it comes to advancing our professional image. For example, earlier this year the Central Office of the California Land Surveyors Association received a call from an upset property owner. The property owner was annoyed because a surveyor had cut a four foot wide swath through the bushes near his house. The surveyor was performing this survey for a neighbor and did not bother to request permission to enter this property. The owner, understandably, questioned the surveyor's right to trespass and deface property. The surveyor presented the owner with a copy of the right of entry law and said obtusely, “I have a right to be here.” This condescending attitude towards a member of the general public did a disservice to all of us.

The National Council of Examiners for Engineers and Surveyors held their annual meeting in Little Rock, Arkansas earlier this year. The meeting was attended by hundreds of Civil Engineers, Land Surveyors and members of the various boards of registration from throughout

the United States. In contrast to those attending the aforementioned speaking program, the Land Surveyors in attendance at this event could not be singled out simply by what they wore, how they spoke or what they did. I was extremely impressed with the eruditeness of their presentations. Can what we wear have a bearing on how we behave? I believe that it can and does. This might be something to think about the next time you attend a professional event attended by your peers.

We should also be a bit more cognizant about the fact that the public interacts with land surveyors only a very few times in their lives on average. Each one of these contacts is meaningful to our profession. Our collective public image is forged, to a large extent, by the sum of these individual contacts. If we want to be thought of as professionals we need to pay closer attention to our appearance and demeanor. It is how we will be judged by others, at least in terms of first impressions. We should also consider our manners, our language and our appearance and be aware of how these things impact our status in society. Individually, each of us has the opportunity to elevate or to diminish the status of land surveying each day. It is up to me and it is up to you.



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# CLSA

## Code of Ethics

### THE FUNDAMENTAL PRINCIPLES

Professional Surveyors uphold and advance the integrity, honor and dignity of the surveying profession by:

- I. Using their knowledge and skill for the advancement of human welfare;
- II. Being honest and impartial, serving with fidelity the public, their employers, and clients;
- III. Striving to increase the competence and prestige of the surveying profession; and
- IV. Supporting their professional and technical societies.

### THE FUNDAMENTAL CANONS

Professional Surveyors shall:

1. Hold paramount the safety, health, and welfare of the public in the performance of their professional duties.
2. Perform services only in the areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
5. Build their professional reputation on the merit of their services.
6. Act in such a manner as to uphold and enhance the honor, integrity, and dignity of their profession.
7. Continue their professional development throughout their careers and shall provide opportunities for the professional development of those surveyors and mapping scientists under their supervision.

Adopted July 27, 1991

# NSPS

## SURVEYOR'S CREED AND CANONS

As a Professional Surveyor, I dedicate my professional knowledge and skills to the advancement and betterment of human welfare.

I pledge:

To give the utmost of performance;  
To participate in none but honest enterprise;  
To live and work according to the laws of humankind and the highest standards of professional conduct;  
To place service before profit, honor and standing of the profession before personal advantage, and the public welfare above all other considerations;  
In humility and with need for Divine Guidance, I make this pledge.

**Canon 1.** A Professional Surveyor should refrain from conduct that is detrimental to the public.

**Canon 2.** A Professional Surveyor should abide by the rules and regulations pertaining to the practice of surveying within the licensing jurisdiction.

**Canon 3.** A Professional Surveyor should accept assignments only in one's area of professional competence and expertise.

**Canon 4.** A Professional Surveyor should develop and communicate a professional analysis and opinion without bias or personal interest.

**Canon 5.** A Professional Surveyor should maintain the confidential nature of the surveyor-client relationship.

**Canon 6.** A Professional Surveyor should use care to avoid advertising or solicitation that is misleading or otherwise contrary to the public interest.

**Canon 7.** A Professional Surveyor should maintain professional integrity when dealing with members of other professions.

# GPS To The Rescue

As a land surveyor, I typically think of GPS as a tool for locating boundary points and mapping topography, and if pressed, I will admit to knowing something about 'resource-grade' GPS for locating GIS features, but as I found out last year, it can be useful for locating other things as well. Following is story that is not really related to surveying yet still may be of interest:

## Holiday Weekend

My wife, kids and I were visiting friends and family in Hawthorne, Nevada over Memorial Day weekend, 2000. Hawthorne sits on the south end of Walker Lake, one of two remnants of ancient inland sea known as Lake Lahontan. (Pyramid Lake, North of Reno is the other remnant.) We had spent most of Sunday at Walker Lake, at "20 mile Beach", so-called because it is roughly twenty miles north of Hawthorne. Some of our friends were camping next to the beach. Camp trailers, jet-skis and four-wheelers were abundant.

One of our friends, Glen, is a long time member of Mineral County Search and Rescue, (S&R) a local volunteer organization. Because of his S&R duties, Glen takes his scanner with him everywhere, especially on holidays, and this day was no different. We were barbecuing around 6:00 in the evening when we heard chatter on the scanner indicating that a hang-glider had crashed in the mountains around 80 miles south of Hawthorne. By 6:30 requests for assistance from Search and Rescue were coming in from the sheriff's department. Glen rounded up two other S&R members that were at camp and asked two others and me if we would like to go along. We quickly loaded Four 500 cc Polaris 4 wheelers onto two trailers and headed for the highway. One of the guys had a brand new Magellan GPS handheld unit with him, still in the box.

## Hanglider Down

The emergency dispatcher radioed that the accident was near the junction of Nevada Highways 360 and 6. The site was said to be unreachable by truck or quad and the victim's condition was thought to be pretty bad. It wasn't clear how reliable that information was. As we sped to the scene, Glen regaled us, (me mostly), with grim stories of prior S&R operations. It seems that when these involve people falling from the sky, the operations are usually long on 'search' and short on 'rescue'. This particular victim's condition was unknown but at least he had company on the mountain. Two other glider pilots who had landed earlier and retrieved their vehicle had found their way to him and briefly had radio contact with authorities. The victim had a handheld GPS unit and had relayed his position to the other glider pilots, who navigated to him on foot via their GPS unit. They were at 38°03.21' north latitude and 118°12.52' west longitude. The quad map shows that position to lie on the barren slopes of Miller Mountain.

We arrived at the highway junction at 7:50 p.m. On the scene were a deputy sheriff and an ambulance. The deputy was glassing a high mountain ridge about ten miles north with his binoculars. He said that the two people that were with the victim were last seen on top of that ridge. Radio contact had been lost. The ambulance driver said he had initially tried reach the victim on a dirt road but it was too rough and he had to turn back. The expectation now was for a Seahawk helicopter with full night operating capability to be dispatched from Fallon Naval Air Station, approximately 100 miles north. The chopper would be able to fly directly to their reported coordinates. At 8:10 Fallon reported that a helicopter had indeed been dispatched but that it was sans night capability and would be turning back at 2100 hours, (9:00 p.m.) whether the rescue was complete or not. This plan seemed stillborn and sure enough, a few moments later Fallon radioed to say the mission was aborted. The only option available now was if the Air National Guard At Stead, north of Reno, could send one of their Blackhawks. That would be a 150 mile trip thus any such chopper was assured of arriving long after nightfall.

## Saddle up

With darkness fast approaching, it was decided that the S&R unit should try to reach the victim on the quads. They would take the backboard and cervical collar from the ambulance. If no helicopter

*Continued on page 12*

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was available, they could perhaps walk out carrying the victim if his condition warranted it. If the chopper did come, they could at least have him ready to be transported. The deputy said the other glider pilots indicated that the last mile or so would have to be traversed on foot due to the extreme terrain. I volunteered to ride up with the quads to assist in carrying the victim should that prove necessary.

Five of us took off, following the dirt road that had turned back the ambulance. Glen decided that he should stay at the trucks and head up communications between the Sheriff's Department, the Air National Guard and us. The road was in pretty bad shape and as it got steeper, it got worse. Several miles in, we came around one particular corner and found a Range Rover with glider racks, parked in a switchback. That it got this far is a testimonial partly to the durability of the Rover and mostly to the skill or determination of the driver. We were still about two miles mostly west of the victim and well below the ridge where the other glider pilots had been spotted. It was obvious why the Rover had stopped. The road above inclined at a slope approaching 100 percent and was strewn with boulders for at least a couple hundred feet before becoming more reasonable. Clearly no one had driven a truck up that road in several years. Negotiating the quads up that stretch was difficult but only one of them flipped over, (no one was hurt), and eventually we crossed the ridge. The road headed downhill to the northwest while the ridge inclined to the northeast. We chose to follow the ridge, (sorry BLM). By now it was after 9:00

p.m. and fairly dark. We topped the ridge and stopped to check our GPS position. After some tribulations, (the Magellan GPS unit was brand new and no one knew exactly how to use it, plus it had taken a beating when the quad flipped over), we got our position. We were at 8,000 feet above sea-level, about a mile west and a half mile north of the victim's position. We rode the ridge another quarter of a mile, until we reached the western slope of Miller Mountain, the end of the line for wheeled travel. It was a little after 10:00 p.m. and completely dark.

### Mind your feet

Carrying flashlights, the backboard, a first aid kit and our GPS unit, we dropped off the ridge heading a little south of east, on foot. The terrain was barren and volcanic, alternating low ridges and deep washes with huge basalt boulders and scattered piñon pine trees. Visibility for star-gazing the clear mountain air was tremendous but for picking out a path, it was negligible. About 15 minutes into our walk we spotted a faint light in the distance and knew we had found our man. We had apparently dropped into a canyon though we could not visually verify it with any certainty. We yelled out toward the light but the wind kept us from hearing any reply. We kept heading in the direction of the light and could make it out every once in a while but it didn't seem to be getting any nearer. At one point it looked like there were two lights, an upper, brighter light and a lower, dimmer light. Walking was difficult and we were starting to stretch out pretty far in our single file line. Rocks and branches were taking their toll on my legs.

Continued on page 13

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## Discovery

One at a time we stepped through the pinions into a clearing where a small campfire blazed. Chad, one of the two glider pilots who hiked in initially, stood there with a radio. He was manning a signal fire at the edge of a relatively flat alluvial plain where it seemed a helicopter could land. The victim, was a couple hundred feet up the side of a steep hill to the southeast. We could see a dim flashlight beam above us. Onward and upward we went.

We found the victim, a fellow named Eric, lying with his feet pointed down-hill under the boughs of a pine. He had wrapped himself up in his yellow para-glider. Foot and ankle injuries, possible compression fractures in his lower back and a small cut on his forehead seemed to be the extent of his injuries. He was in moderate pain, though able to carry on conversation. It was 11:00 p.m., very dark and starting to cool off. I wished I'd had worn garments with sleeves and pant legs. LeAnn, the other glider pilot, had been with him since late afternoon. She and Chad were in radio contact with each other but their radios could not reach out of the canyon. Our GPS coordinates at the site were identical to those radioed to us earlier in the evening. Navigation by handheld GPS is indeed bulletproof!

At this point my friend Jim Rackley, a fellow surveyor, took over, for he amongst us had significant emergency medical training. He assessed Eric's injuries and general condition and relayed that information to Glen back at the highway. We were hearing over

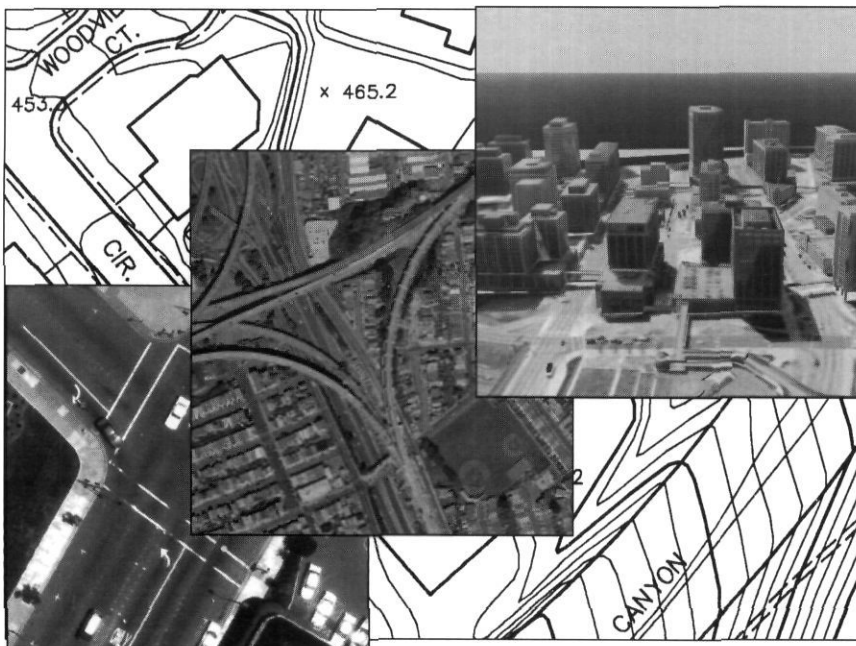
the radio that the Air National Guard was sending a Blackhawk but no one was sure when it would arrive and we couldn't contact it directly. Since Eric's condition was stable but we weren't sure about the extent of his spinal injuries, Jim chose not to put him on the backboard or affix the cervical collar until the corpsmen from the chopper arrived. There was nothing to do but wait for the Blackhawk and talk to LeAnn and Eric.

## Soaring

Eric had been flying a para-glider rather than a hang glider as reported by the emergency dispatcher. The difference between the two is that there are no structural members on a para-glider. When aloft, pockets in the fabric fill up with air, giving the craft a semblance of rigidity. Eric had launched from near Bishop, California, some 50 miles west, that morning and had flown over Boundary Peak, the tallest mountain in Nevada with an elevation of 13,145 feet above sea-level. He said he had reached altitudes approaching 18,000 feet during the flight. LeAnn said she had been between 15,000 and 17,000 feet up, as well. Eric came down in 40 mile per hour winds roughly 16 miles northeast of Boundary Peak just south of Miller Mountain. The wind drove him backwards into the side of a steep hill at about 7,800 feet above sea-level, and as he fell through the tops of the pinion pines, he unbuckled his harness and smashed into the ground. He thought the accident occurred at about 4:00 p.m. He crawled to his harness, got his GPS unit and his radio and after some time, made contact with Chad and LeAnn. They had landed earlier that day and driven back to Bishop but noticing

*Continued on page 14*

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that Eric was not among the returning pilots, decided to drive west and look for him. It was very lucky for Eric that they did.

### Rescue

At 11:45 the Blackhawk came in stealthy and low. We finally heard their radio transmissions just as they spotted our flashlights and the campfire down below. They landed near the campfire and let out one corpsman, who climbed quickly up to where we sat. After assessing Eric's condition, the corpsman, Rick, directed us in strapping him to the backboard. We affixed the collar and immobilized his arms. Rick ordered the Blackhawk into the air and had it hover overhead so that it could lower down a sked from a cable. The prop-wash, darkness and steepness of the hill made retrieving the rolled-up gurney rather challenging. Once we had unhooked the sked, Rick had the chopper move off while we unrolled it and laced it up around Eric. When we were done, Eric resembled a mummy with the sked curled up around his sides, feet and above his head, with crossing straps laced throughout. Various cables came together in Eric's midsection and connected to each other with a large carabiner.

Eric signaled the helicopter to come back overhead. He put on his night vision helmet and directed the Blackhawk into position to start lowering a cable. The prop-wash was scouring the skin off my legs as I looked up to see a most peculiar sight. The bottom of the chopper was dark. It was probably no more than 75 feet above our heads. About all I could see was a circle of sparks of static electricity flashing as the blade edges cut through the cold desert air. Rick attached the cable to the sked's carabiner and waved to someone in the chopper. Eric was being slowly reeled up. Once the sked was about four feet off the ground, Rick grabbed the cable with both hands and they rose up together. It took a couple minutes to get Rick and Eric up and into the Blackhawk, then they were gone, headed for Reno.

### Wrapping up

We packed up the para-glider gear, hiked down to Chad, extinguished the fire, and started hiking down the wash. The dry creek bed we chose to walk in was, if possible, rougher and more obstacle strewn than our earlier cross-country jaunt. We hiked westerly until we reckoned we were roughly adjacent to where we had left the quads. Of course, now we were hundreds of feet below them somewhere. We turned up out of the canyon and hiked straight up the hillside. At the top of the ridge, we somehow managed to cross our own footsteps and followed them right back to the quads. Chad and LeAnn chose to hike down to their Range Rover and we rode, carrying the para-glider gear. We arrived pretty much simultaneously at the Rover

and everyone shook hands. They decided to spend the night at the Range Rover and drive out in the morning; we chose to leave right then. By 3:00 a.m. we were back at the highway and were loading the quads onto the trailers. No one was injured, the damage to the quad that had flipped was superficial, and the mission had been accomplished. A pretty nice feeling, all in all.

### In closing

I have to say that the Polaris four-wheeler with its independent suspension is the most rugged and versatile off road vehicle I have ever encountered. The Magellan GPS Unit was simple, reliable and invaluable for this application. I can't say enough about the United States Air National Guard. They are truly lifesavers. The Mineral County Search and Rescue, and all Search and Rescues everywhere are practitioners of routine heroics. It's too easy to take these folks, who commit to helping strangers whenever called, for granted. It is good to know that the volunteer spirit descended from our western heritage is still alive and well.



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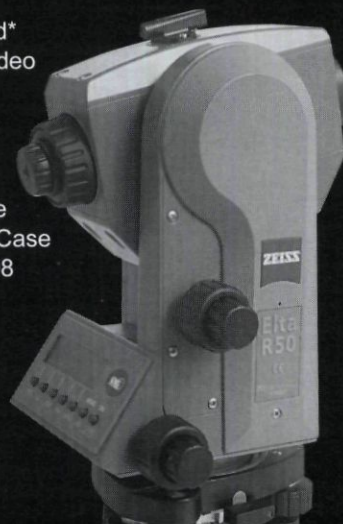
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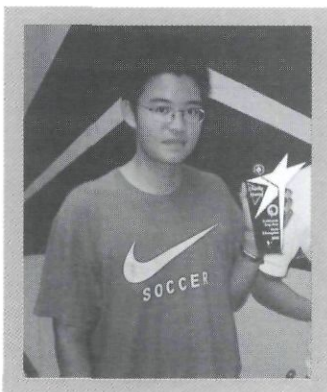
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2001 Trig-Star State Champion  
Charlie Huang

# California Honors Trig Star 2001 Winners

Charlie Huang of Trabuco Hills High School is this year's State winner. A freshman and son of Shih-Szu Fu and Dah-Ming Huang living in Rancho Santa Margarita in Orange County. His time was the fastest in the state as compared with the other top students taking the exam. CLSA awarded Charlie \$750.00 and a plaque acknowledging his efforts. Charlie is enrolled in several honors courses at Trabuco Hills High School his interests include basketball and video games. Mike Fatigati (Charlie's classmate) took second place in the state. Mike received \$250.00 and a plaque from CLSA. In addition to the honors courses Mike Fatigati is enrolled in he also participates in Freshman Basketball and is active in Ministry at his church.

Steven Robitaille, Honors Geometry Program instructor, has been teaching for 13 years at Trabuco Hills High School. The honors geometry program has incorporated a rigorous trigonometry section with mostly multi-step problems that challenge students Mr. Robitaille reported. He is quite impressed with his student's achievements and enjoys participating in the Trig Star program each year.

Trabuco Hills High School was co-sponsored by Guida Surveying of Tustin and the Orange County Chapter. Alan Brooks of Guida Surveying gave the presentations and administered the exam.

Again this year's involvement from our membership has increased over last year. We had 350 students at eleven high schools throughout the state. Six chapters ran successful programs together with private companies and one public agency. Below is a chart showing participating Chapters and members.

Chapter	High School	First Place	Local Sponsor	Coordinator Surveyor
Orange County	Trabuco Hills, Mission Viejo	Charlie Huang	Guida, Surveying	Alan Brooks
Sacramento	Florin, Sacramento	Stella Chu	Caltrans	Ken Fritz
Marin County	Sonoma Valley, Sonoma	John Simonitch	Phil Danskin & Assoc.	Phil Danskin
Central Coast	Paso Robles	Brett Banakis	Randy Woodjack	
Central Coast	Templeton	Ryan Bulger	Randy Woodjack	
Central Coast	San Luis Obispo	Brian Koellish	Randy Woodjack	
Central Coast	Morro Bay	Sam Lin	Randy Woodjack	
Central Coast	Mission College Prep	Michael Morici	Randy Woodjack	
Sonoma County	Maria Carrillo, Santa Rosa	Natalie Valentine	Hogan Ford Land Surveying	Mike Ford
San Diego	Rancho Buena Vista, Vista	David Chung	BHA Inc.	Armand Marois
San Diego	Mesa Program, San Diego	Bernadette McNurlan	Rick Engineering	James Arnold Don Woolley



L-R Alan Brooks, Charlie Huang,  
Mike Fatigati, and Ralph Guida, IV



David Chung

The National Society of Professional Land Surveyors (NSPS) administers the annual competition. The program's goal is to recognize the best students of mathematics across the United States. NSPS creates the test utilizing real life scenarios of problems that surveyors encounter. Once a State winner has been determined the student will take another exam to decide who will be the first, second and third place finishers in the nation. The winners are awarded the Richard E. Lomax National Trig Star Scholarships as follows:

National 1 <sup>ST</sup> Place	\$1000.00
National 2 <sup>nd</sup> Place	\$ 500.00
National 3 <sup>rd</sup> Place	\$ 250.00

Continued on page 17



# Concerns Regarding Land Surveyors Right Of Entry

## Pursuant to B&P Code Section 8774

Over the past six to eight months the Board has received numerous complaints against land surveyors who have entered private property to perform surveys. Most of the complaints were relative to the lack of courtesy and notice given to property owners by the land surveyors in question. Many of the property owners stated that they were home and that the land surveyor did not come to the house to announce the purpose of being on the property and inform them of the surveyors right to be on the property to perform surveys. A few of the land surveyors were rude and discourteous. Some of the problems created by the surveyors were cut landscape trees and bushes, broken gardening pots, painted fences, driveways and walks, torn down fences and monuments and stakes left above ground in pastures and fields containing livestock. Other surveyors have driven vehicles onto properties without permission. Even though notice is not required, either a visit to the residence on the property to inform the property owner or their agent of the purpose of entry, or a letter stating such is suggested.

The point of this article is to alert the land surveying community that the Board, as well as a few legislators, are receiving such complaints and that the "Right of Entry" to perform surveys may be in jeopardy if these types of actions continue. Please use this very unique right in a courteous manner and respect the property rights of the public. Surveyors must remember that they only have the right of entry to perform surveys and that they are civilly liable for their actions on private property.



### NEW ITEM!

**CLSA has added  
Right of Entry Door Hangers  
to the publication list**

*See Publication Order Form*

### Trig Star - Continued from page 16

The Richard E. Lomax Teaching Excellence Awards are distributed to the students' Math Teachers

- National 1<sup>ST</sup> Place \$1000.00
- National 2<sup>nd</sup> Place \$ 500.00
- National 3<sup>rd</sup> Place \$ 250.00

The Trig Star Program is an excellent tool to help build awareness of Land Surveying as a profession among high school students, career guidance counselors, and high school math teachers. With our current shortage of a skilled workforce we need the benefits that Trig Star provides. So I encourage all surveyors to take up the challenge and find a high school to compete in next year's contest.

Please contact Armand Marois, California's Trig Star Coordinator, for more information at [amarois@attglobal.net](mailto:amarois@attglobal.net) or visit the ACSM/NSPS web site at [www.acsm.net/nsps/trigstar.html](http://www.acsm.net/nsps/trigstar.html)

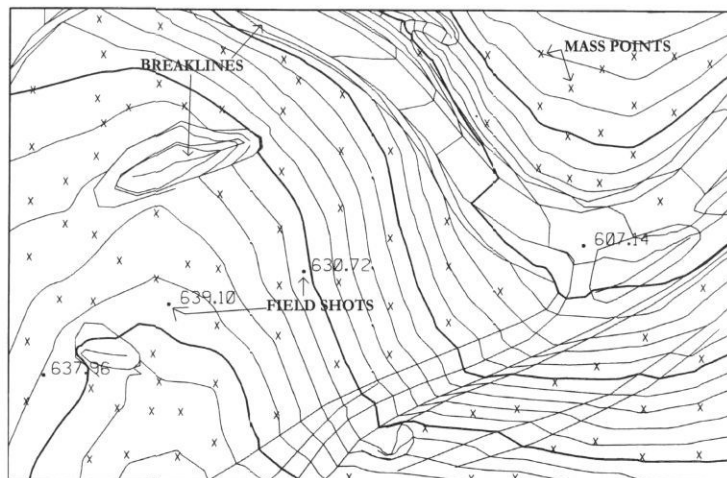


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# Testing Photogrammetrically Compiled Mapping for Vertical Accuracy

Photogrammetry is a highly efficient and accurate method for collecting topographic data. There are, however, numerous areas where the accuracy of photogrammetrically collected data can be affected. Mapping accuracy can be affected by ground control, aerial photography, photo scale, aerotriangulation, stereo plotter operator inexperience, etc. A necessary component of any mapping project is a topo check where field surveyed ground points are compared to the terrain surface collected by photogrammetric methods. This terrain service is typically generated from a network of triangles produced from the photogrammetrically collected breaklines and spot elevations (mass points). It is this digital terrain model (DTM) that is not only used for contour generation, but is also used for engineering design and earthwork calculations. As such, it is the DTM and not the contours that should be tested for map accuracy. Field collected profiles should generally be run in every fifth photogrammetric model. A minimum of 20 points which fall in unobstructed, well-defined areas should be collected for each sample. The accuracy of this survey should be to 1/20th of the contour interval.



$RMSE = [S(\text{elevtopo} - \text{elevfield}) / \# \text{ of shots}]^{1/2}$ . The RMSE is often referred to as the standard deviation, sigma (s)

Statistically stated, a randomly measured elevation taken from the topographic mapping has a 68 percent probability of being within one standard deviation of the mean. It is this standard deviation that provides an indication as to the estimated accuracy level for the mapping. Acceptable limits are relative to the final contour interval which in turn determines what the accuracy of the DTM needs to be.

Another number that comes out of the topo check is the average difference between the field measured elevations and the corresponding topo elevations. This mean difference should be near zero. If it significantly differs from zero, further investigation is warranted. This difference is known as the bias and may be used to calibrate the DTM.

Black Mountain Ranch Topo Check - Lusardi Creek (2' ci)  
 Date of survey: 8/29/96, Date of photography: 8/22/96  
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 Average: 0.08 Count: 28  
 Std Dev: 0.39

Easting	Northing	Fld El	Topo El	Resid
6295875.38	1943179.11	627.35	627.47	-0.12
6295906.61	1943196.14	637.96	638.11	-0.15
6295972.67	1943232.09	639.10	638.79	0.31
6296044.01	1943248.79	630.72	630.69	0.03
6296191.38	1943262.92	607.14	607.40	-0.26
6296231.39	1943301.99	600.02	599.38	0.64
6296241.68	1943317.72	592.82	593.05	-0.23

## Map Accuracy Standards

The results of the topo check are compared to accuracy standards to determine compliance. Map accuracy standards have been evolving yet essentially say the same thing (purists will argue with me). The ever familiar National Map Accuracy Standards (NMAS) were established by the Office of Management and Budget (OMB) as the "United States National Map Accuracy Standards" in 1947. These standards essentially said that 90%

An excerpt from an actual topo check

(E90=1.645s) of the solid-line contours tested should be within plus or minus ° the contour interval. The remaining 10% of the contours should be within one contour interval. Since 1947, numerous renditions of these accuracy standards have been published. The verbiage has changed yet the overall idea remains the same. In 1990, the American Society for Photogrammetry and Remote Sensing (ASPRS) refined these accuracy standards. These ASPRS90 standards stated that the RMSE (1s) from a sampling of 20 or more field shots should be within one-third of the intended contour interval with a blunder level of 3s. The currently in-vogue accuracy standards are those drafted by the Federal Geographic Data Committee entitled "National Standard for Spatial Data Accuracy" which can be downloaded from <http://www.fgdc.gov/standards/status/swgstat.html>. These express accuracy levels relative to the 95% error (1.96s) where the RMSE should be less than 0.58 of the contour interval and the blunder level is twice the 0.58ci.

The testing methods remain the same. The standards with which to compare the results of the test evolve yet are "hold it up to the light" equivalent. The bottom line is to check your topo and inform the end-users of its accuracy such that it is used appropriately. ❖

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# Mount Diablo Surveyors Historical Society

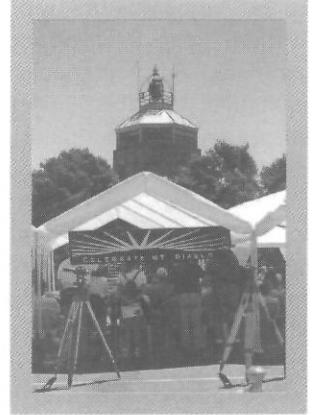
## Sesquicentennial (150<sup>th</sup> Anniversary) of the Setting of the Mount Diablo Initial point

July 17, 1851, Colonel Leander Ransom, General Land Office Deputy Surveyor, was under instructions from the Surveyor General for California to establish the initial on the Summit of Mount Diablo (The Devil Mountain), so he began his journey up the mountain. After reaching the summit and discovering there was no wood for a flagstaff, Ransom and team went back down the mountain and returned the following day, July 18, 1851 with a 28 foot long, wood flagstaff to support the 4' x 6' red and white checkered flag (for sighting) and finally set the original initial point for the Mount Diablo Meridian.

By: Keith Nofield, PLS

On Saturday July 21, 2001, the Mount Diablo Surveyors Historical Society (MDSHS) held the, Sesquicentennial (150<sup>th</sup> Anniversary Celebration) atop the mountain. This celebration at the summit was to recognize the achievement of Colonel Leander Ransom 150 years earlier.

After 18 months of planning and numerous hours of meetings, the July 21<sup>st</sup> event was one that impressed all that attended. Even the Park Rangers commented on how they have never seen, or heard of an organization come in and successfully hold an event like the MDSHS performed in the parks 80 year history. Never had they seen a smooth operation keep the traffic flowing at the summit and the use of a free shuttle van (donated by Kier and Wright Civil Engineers and Land Surveyors, Pleasanton). The shuttle was for the public attendees to reach the summit from the lower parking lot, approximately 1/2 mile from the upper parking lot. The upper parking lot is a small lot, approximately 90' x 80', and was blocked off for the days festivities.



Continued on page 22

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## Mount Diablo Surveyors Historical Society ...

The days activities were designed for multiple functions. First and foremost, the celebration to recognize the achievement of Col. Leander Ransom 150 years prior. Second is the ongoing educational process to educate the public about the history of, and current practice of land surveying. The importance of the initial point at Mt. Diablo is

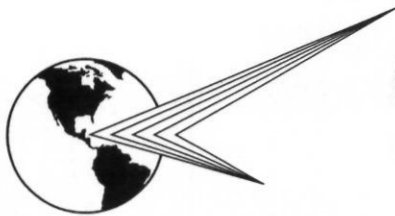
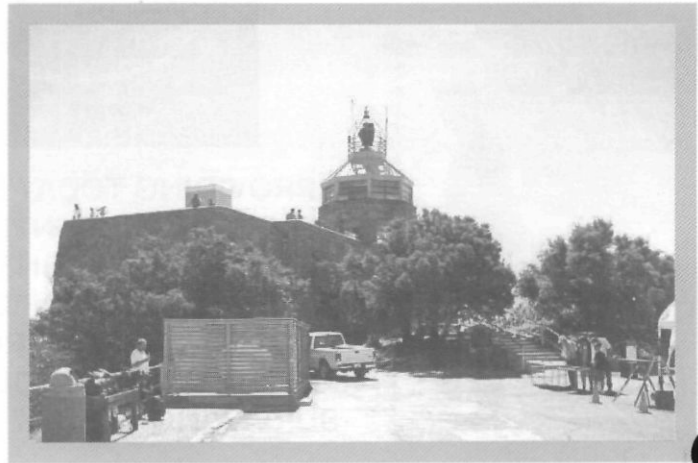


unknown to the majority of the public. During the days activities, the attendees were educated by the numerous MDSHS members in attendance on the importance of the initial point, and how it controls the

majority of California and all of Nevada for land surveys. By the time they left the celebration they had a better understanding and appreciation of the initial point, not to mention the appreciation of the history of land surveying. Everyone seemed amazed to hear that George Washington, Abraham Lincoln, and Thomas Jefferson were all land surveyors in their days.

The middle of the day was when Mr. Michael J. Foley, PLS gave a brief talk on the history of how Ransom and his crew traveled up the mountain to set the initial point. After his talk, Mr. Lance Bishop, Chief Surveyor, from the CA, Bureau of Land Management (BLM), presented to the MDSHS a copy of "A History of The Rectangular Survey System", by C. Albert White for their library.

The layout of the parking lot consisted of a centerpiece, being three large tents combined to create one area 20' x 30' for the public to gather, and rest out of the sun. Chairs were set up so



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individuals could relax, socialize and listen to Mr. Foley as he spoke. Outside of the shaded area, along the sides and rear, there were a number of historical surveying instruments set up for the public to view, look through, and see demonstration of how they operate. On the asphalt ground to the rear, you would



also find a long piece of white plastic laid out with an old Gunter's Chain stretched out for anyone interested to see what it feels like to "Pull Chain". Around the exterior of the parking lot, numerous 10' x 10' spaces were set up by several organizations with displays and informational material. The MDSHS booth displayed a glass cabinet that contained a 1850's surveyor's compass, 1880's transit, 1880's level, along with an old Gunter's ° chain, and



early 1900's chaining pins spread out. Other Organizations who participated with an exhibit, included Bay Area Orienteering Group, Bureau of Land Management, Haselbach Surveying Instruments (displaying the evolution of the Wild T-16, along of a Wild T-12, which is a neat little expedition theodolite), Mount Diablo Interpretive Association, National Geodetic Survey, Save Mount Diablo, Topcon California, and United States Geological Survey.

The weather on July 21, 2001 for the day's celebration was exceptional and everyone who attended from across the state had a great time celebrating the 150<sup>th</sup> anniversary of the setting of the Mount Diablo Initial Point.



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# American Congress on Surveying and Mapping Why Joint Membership?

*Many state surveying societies across the country are currently discussing this question.*

Recently, the National Society of Professional Surveyors (NSPS) Restructure Committee released a report in which the concept of joint state society and ACSM/NSPS membership was proposed. It is important to note that this report is only a report. It is not a mandate, as some have suggested. The report is asking for consideration of the joint membership concept and comments from the state societies regarding their thoughts on how it can work.

For many, the first question that comes to mind is, What is the current relationship among ACSM, NSPS, and the state societies? ACSM is comprised of individual members who are involved in the fields of cartography, surveying, and GIS. Each member also belongs to one of four member organizations within ACSM, the largest of which is NSPS. While NSPS has become an incorporated entity, its members are still part of ACSM. The state surveying societies are individual member organizations, usually incorporated, and each has an affiliation agreement with both ACSM and NSPS. The affiliation agreement does not currently require that each member of a state society also be a member of ACSM and NSPS. Within the past year, the state societies in New Jersey and Alaska have decided to take advantage of a reduced dues structure offered by ACSM and NSPS as a pilot program. The reduced rates were offered as an incentive to begin the joint membership program in which all members of a state society would also be members of ACSM and NSPS. The reduced rates apply to basic ACSM membership and NSPS membership; the dues associated with any of the other three ACSM member organizations remain unaffected. Several other states have expressed strong interest in participating in the program but to date, none has finalized an agreement. Obviously, the ultimate goal is to have every member of each state society also be an ACSM/NSPS member. What is critical, though, is that enough members from each state society agree to join ACSM/NSPS to allow a discount in dues, and to build a stronger organization. The answer to the question "Why Joint Membership" is really quite simple. If I were to choose one word to define that answer, it would be "strength." Other words such as teamwork, camaraderie, and brotherhood also come to mind, but they all lead ultimately to "strength," which is the key to the perpetuation of the profession of surveying and mapping. As long as we continue to focus more on our perceived weaknesses, difficulties, and differences than we do on our common goals, that strength will never be developed. The result will inevitably be the demise of our profession, or its devolution into a subset of another profession(s). Only the

strength created by numbers and resources will allow us to attain the things we all say we want. We want recognition as professionals.... we want to enjoy a certain status in our communities and with those we seek to serve, and as leaders among the other professionals with whom we work. Let us not fool ourselves into thinking that we can buy the status we desire; that can ultimately only be achieved by the way we conduct ourselves and our business. However, the positive exposure and influence which can be obtained through the activities and public relations efforts of a strong national organization of surveyors will certainly create an awareness of who we are and what we do to serve the public.

The question of "Why membership, joint or otherwise," is merely a preamble to other questions people ask themselves when they think of joining ACSM. They want to know, above all: What do I get out of it? What's in it for me? Why should I support an organization I've been told has, until recently, not been run well and wasted money in the past? While all of these questions are legitimate, they should not be the only questions we ask. We should also ask ourselves: What happens if I don't support the organization?

Who will work with the Accreditation Board for Engineering & Technology (ABET), which gives credibility to the surveying degree programs across the country? These programs are developing those who will become the future of our profession. ACSM currently pays dues to ABET based on the number of accredited programs in the country's colleges and universities. ACSM also provides and funds the program evaluators and visitors who review the program content periodically. ACSM has representation on ABET's Board; this ensures that the surveyor's point of view is considered when educational policies and programs are formulated.

Who will represent surveyors to the National Council of Examiners for Engineering and Surveying (NCEES)? ACSM and NSPS each have a representative on the NCEES Participating Organizations Liaison Council (POLC) to which the leadership of NCEES turns for assistance regarding policies, model definitions for professional practice, and many other issues. Dues to NCEES, and funding for the POLC representatives, are paid by ACSM and NSPS.

Who will represent surveyors in the ongoing dialog among Canada, Mexico, and the United States concerning NAFTA and all of the associated policy making to come? ACSM and NSPS have taken the initiative and become recognized by the

*Continued on page 27*

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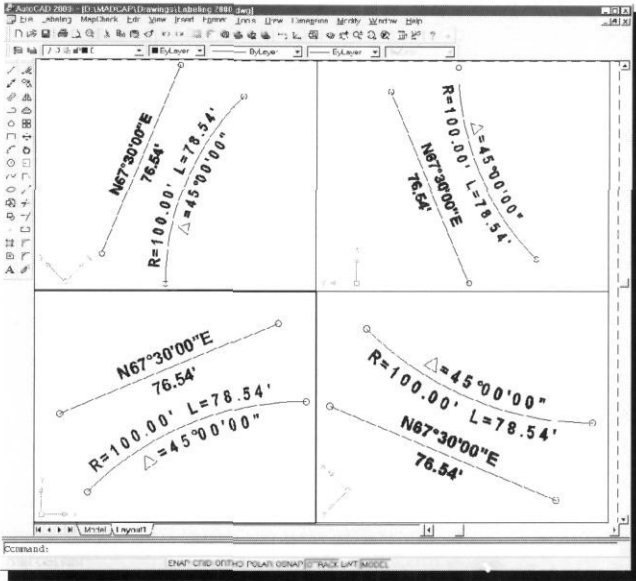
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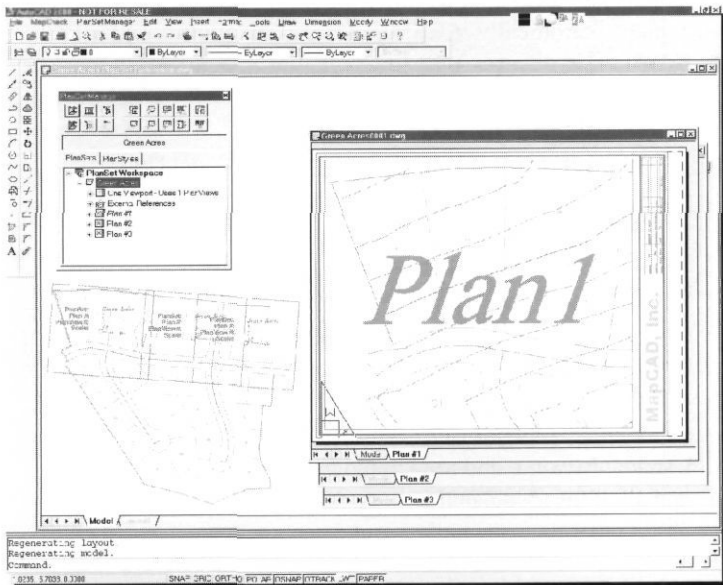
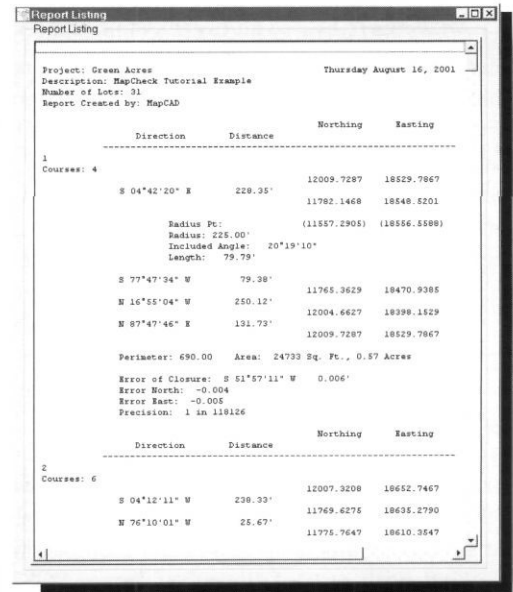
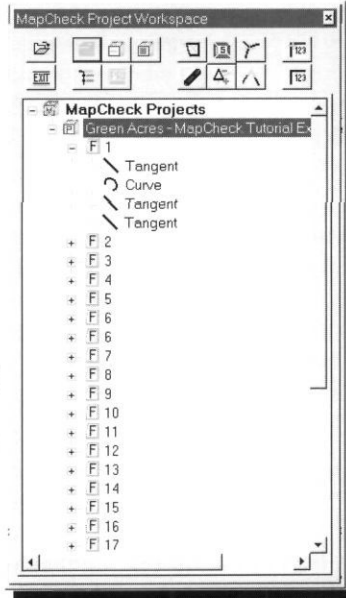
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U.S. Trade Representative's Office as the joint organization from the U.S. to represent surveyors and mappers. The three-country group establishing definitions for multinational industry product descriptions has recently turned to ACSM for assistance.

■ Who will monitor and initiate action where needed with regard to national-level lawmaking and regulatory policy affecting surveyors and mappers? Already decreases in available funds have begun to inhibit our ability to focus ACSM's full attention to these matters. We cannot afford to allow our participation in this process to weaken.

■ Who will represent surveyors in the continual review of ALTA/ACSM Land Title Survey standards? While not perfect, increasingly, these standards have better addressed issues of importance to the surveying profession, including how we interact with our clients. This fact is a direct result of the participation in the review process by ACSM/NSPS members who actually perform ALTA/ACSM surveys.

■ Who will represent U.S. surveyors in the International Federation of Surveyors (FIG)? FIG is an organization that brings together surveyors from around the world. Currently, ACSM is the U.S. organization representing surveyors to FIG. ACSM members sit on most of the nine Commissions of FIG, and oftentimes pay their own travel expenses to do so. Due to lack of strength that support and resources bring, instead of standing at the top of the ladder among our international counterparts, we are sometimes viewed less than positively. This is an absolute shame.

The answer to the question "Who will" is "Someone else" — if we

do not develop enough strength to allow ASCM and NSPS to not only continue our current activity, but also to increase and expand our participation and influence. You don't have believe me when I say that there are others out there who would pretend to represent our interest, but they surely exist. If we allow our apathy to diminish our ability to speak for ourselves, we are not going to like how others speak for us.

With regard to the concerns about poor management, if that is the correct term, it cannot be denied that ACSM has experienced this. Within the past two years, with the help of many members and state/regional surveying organizations, the negative tide has been turned around. The often criticized headquarters facility has been sold, and ACSM staff has moved to a more appropriate, and less expensive, location. We were fortunate to realize a positive net from the sale, which allowed us to pay off some of our debt and begin to rebuild reserves. Although this is certainly good news, we cannot assume that we are home free. Continual attention to budgets and the efficiency of our efforts must be foremost in our minds, just as each of us must be on our own businesses.

If your state society is not already discussing the joint membership proposal, I encourage you to prompt your leadership to do so. Let ACSM and NSPS know what you think about it. Your NSPS Governor is a good resource for communication in both directions. If you prefer, or if you have comments/questions about the proposal that you would like to talk about, contact me directly at 240-632-9716, ext. 106 or e-mail me at [csumner@acsm.net](mailto:csumner@acsm.net).



# Why You Should Be an ACSM Member

Simply put, it is a matter of strength.

At a time when advances in technology, better educational opportunities, and public awareness are driving a number of professional practice areas toward a central core of activity, it is more important than ever to display a credible presence in the arena of the policies and standards which influence the way we work.

We must ask ourselves the question "Who Will?"

If there is no ACSM to work hand in hand with the agencies from which come many of the criteria, standards, and opportunities associated with the services we provide, who will?

If there is no ACSM to provide assistance to ABET in accrediting the curricula necessary to meet the requirements for being allowed to serve the public through our profession, who will?

If there is no ACSM to provide liaison to the NCEES to assure that licensing laws correctly identify the definition of practice and the criteria for being allowed to provide services, who will?

If there is no ACSM to represent the interests and positions on issues of our members to other professional groups such as ALTA, FIG, ICA, and IRWA among others, who will?

If there is no ACSM to be recognized as the appropriate organization to negotiate NAFTA guidelines as they relate to our profession, who will?

The answer to these and other related questions is "someone else". We probably won't like the way our profession is represented by "someone else". Although it is not always readily visible, the work of ACSM and its volunteer member participants is consistently at the forefront of issues which affect our future.

Without the strength and credibility attained through a robust membership base, ACSM will not continue to be the recognized voice of the surveying and mapping profession.

The issues that are today's topics of discussion will become tomorrow's laws and regulations. We cannot afford to let the influence of ACSM go silent. Support this important work by becoming a member today.

## What is ACSM/NSPS?

The American Congress on Surveying and Mapping (ACSM) and the National Society of Professional Surveyors (NSPS) are nonprofit associations dedicated to serving the public interest and advancing the profession of surveying and mapping. The ACSM and NSPS membership is made up of professionals who are surveyors, cartographers, geodesists, GIS/LIS experts, and related professionals from private industry, government and academia. The association also has corporate members who provide high-quality products and services to the surveying and mapping profession.

## Why should I Join ACSM?

This answer is simple. ACSM offers members the opportunity to open doors to all the information needed to keep up-to-date on the latest and most crucial issues of the profession.

## WHAT ACSM DOES

- Monitors and influences Federal and State legislation for the surveying and mapping professions.
- ACSM is recognized as the official representative of the surveying and cartographic professions among Federal Agencies.
- Represents the professions in such international forums as FIG and ICA.
- Promotes scientific progress within the professions by providing publishing opportunities in its peer-reviewed academic journals.
- Informs members of ACSM activities, new technology, and industry news through the ACSM Bulletin, the Government Affairs Update (e-mailed), and the ACSM Web site: <http://www.acsm.net>.
- Offers members of the profession peer networking, recognition, and continuing education opportunities during the annual spring and fall conference and exposition.
- Offers certification programs for survey technicians and hydrographers.
- Works with schools to attract young people to the professions.
- Supports geospatial education through scholarships, fellowships, and awards.
- Supports continuing education efforts through its book adoption program.
- Provides an E-Store for books and membership.

### What Does ACSM/NSPS Do?

ACSM/NSPS represents the surveying and mapping profession at the national level. The collective clout of our membership helps pave the way for legislation which in turn helps support the profession of surveying and mapping. Through annual conventions and workshops, we provide opportunities for continuing education and professional growth. Numerous publications in the way of technical journals and a bimonthly magazine insure that members keep abreast of critical issues affecting the profession. Through the development of industry standards and certification programs for surveying and mapping technicians, ACSM/NSPS have set the trend nationally for growth in the profession. The ACSM/NSPS Legislative Committee has repeatedly achieved great results in Washington, D.C. ACSM/NSPS have represented our members, particularly well in support of the Brooks Act which governs the procurement of professional services by public agencies.

### How Does ACSM/NSPS Work?

Each State society is asked to elect a representative from their State. Semi-annually the representative from each State, Puerto Rico, Canada and Mexico gather to conduct the business of ACSM/NSPS. The results of their efforts are passed on to the appropriate committees and the to Board of Directors of both ACSM and NSPS. Once items are acted upon, they are implements and begin to have a positive effect on the surveying and mapping profession.

### Does My Membership Really Make a Difference?

Most definitely your support and membership helps to provide the clout needed to make a difference on Capitol Hill. It also helps us present a united front on the political scene both in Washington, D.C. and across the country.

### Member Benefits

- A Government Affairs program that monitors state and federal laws and regulations that affect surveying and mapping professionals.
- Continuing education programs and workshops.
- Registration discounts for ACSM Conventions.
- Discounts on books.
- Reduced rates for professional liability and group health insurance.
- ACSM Bulletin, a bimonthly magazine about surveying and mapping.
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# Here's Some Important Information About CLSA

The goal of the California Land Surveyors Association is to promote and enhance the profession of surveying, to promote the common good and welfare of its members, to promote and maintain the highest possible standards of professional ethics and practice, and to elevate the public's understanding of our profession. CLSA represents all Land Surveyors, whether they are employees or proprietors, whether in the public or private sector.

## Representation

**LOCAL:** Your local chapter represents you in local issues. Through your chapter representative to the State Board of Directors, the individual member can direct the course CLSA will take. **STATE:** The Surveyor is represented at the state level through an active legislative program, legislative advocate, and liaison with the State Board of Registration. **REGIONAL:** CLSA is an active member of the Western Federation of Professional Surveyors. This Federation is composed of associations throughout the western United States and addresses regional issues. **NATIONAL:** Through institutional affiliation with the National Society of Professional Surveyors and the American Congress on Surveying and Mapping, CLSA is represented at the national level.

## Educational Opportunities

CLSA presents annual conferences which provide technical and business programs, as well as exhibits of the latest in surveying and computing technology. Seminars and workshops are presented to assist in continuing education. CLSA publishes the California Surveyor magazine and the CLSA NEWS to keep the membership abreast of changing legislation, legal opinions, and other items which affect our profession.

## Business and Professional Services

CLSA provides a fully staffed central office which is available to answer questions or to provide up-to-date referrals concerning legislation, educational opportunities, job opportunities, or other issues concerning our membership. Professional liability insurance programs are available to members.

## JOIN CLSA TODAY!

- **CORPORATE MEMBER** \*\$159.00 + Entrance Fee. Shall have a valid CA Professional Land Surveyor or Photogrammetric license.
- **CE CORPORATE MEMBER** \*\$159.00 + Entrance Fee. Any California registered Civil Engineer who is authorized to practice land surveying pursuant to Article 3, Section 8731 of the PLS Act and must be actively practicing land surveying and show sufficient proof thereof. CE Corporate membership must be approved by the Board of Directors.
- **AFFILIATE MEMBER** \*\$79.50 + Entrance Fee. Any person who, in their profession or vocation, relies upon the fundamentals of land surveying.
- **ASSOCIATE MEMBER GRADE** \*\$79.50 + Entrance Fee. Any person who holds a valid certificate as a Land Surveyor-in-Training.
- **OUT-OF-STATE CORPORATE MEMBER GRADE** \*\$79.50 + Entrance Fee. Any person who resides in a state other than CA, who is a member of the other state's Association, and meets the requirements of Corporate Member.
- **STUDENT MEMBER GRADE** \*\$15.90. A student in a college or university actively pursuing a surveying education.
- **SUSTAINING MEMBER GRADE** \*Annual Dues \$318.00 + Entrance Fee. Any individual, company or corporation who, by their interest in the land surveying profession, is desirous of supporting the purposes and objectives of this corporation.

1. Member Grade Applying for \_\_\_\_\_ Date \_\_\_\_\_
2. Name (Full) \_\_\_\_\_  
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4. Mailing Address is: Business Residence 5. Bus. Phone \_\_\_\_\_
6. Res. Phone \_\_\_\_\_ 7. Fax \_\_\_\_\_ 8. E-mail \_\_\_\_\_
9. Name of Firm, Agency or College \_\_\_\_\_
10. California License Number PLS# \_\_\_\_\_ LSIT# \_\_\_\_\_ RCE# \_\_\_\_\_ EIT# \_\_\_\_\_
11. Have you previously been a member of the State Association? Yes No Year \_\_\_\_\_
12. Signature of Applicant \_\_\_\_\_

Mail your completed application to:

**CLSA Central Office  
PO Box 9098  
Santa Rosa, CA 95405**

### Questions?

Phone (707)578-6016  
Fax (707)578-4406  
clsa@ca-surveyors.org

**\*First Year Dues are to be prorated from date of application**

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CLSA PUBLICATION ORDER FORM	CLSA Member Price	*Non-Member Price	Quantity	Total
2001 Complete Package including PLS Roster, Pre-'82 CE Numerical Listing, PE & PLS Act with Board Rules, Subdivision Map Act & Binder	\$28.00	\$49.00		
2001 Complete Package (as above) including PE & PLS Act with Board Rules and Subdivision Map Act on Disk	\$36.00	\$63.00		
2001 Refill Package including PLS Roster, PE & PLS Act with Board Rules, and Subdivision Map Act	\$20.00	\$35.00		
2001 Refill Package (as above) plus Disk	\$28.00	\$49.00		
PE Act & PLS Act with Board Rules - 2001 publication (5 1/2 x 8 1/2)	\$6.50	\$11.50		
Subdivision Map Act - 2001 publication (5 1/2 x 8 1/2)	\$6.50	\$11.50		
2001 Celestial Observation Handbook and Ephemeris (Sokkia) - with HP-41, HP-42 and HP-48 Programs	\$5.00	\$7.50		
California Coordinate Projection Tables - NAD '83 by Ira Alexander, C.E. PLS and Robert J. Alexander, PE	\$8.00	\$14.00		
Right of Entry Cards (minimum order is 2)	\$1.50 each	\$3.00 each		
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Land Surveying Brochures "How the Profession Serves the Public" (Pkg. of 50)	\$15.00/Pkg	\$30.00/Pkg		
Standard Contract Forms - Agreement for Professional Services (Pad of 25)	\$6.00/pad	\$12.00/pad		
Land Surveying for the Land Owner and Real Estate Professional by Daniel E. Beardslee, P.L.S.	\$8.00	\$12.00		
CLSA Decals Or Bumper Stickers ( ___ Decals OR ___ Bumper Stickers)	\$1.50	N/A		
Land Surveying Story/Coloring Books (Pkg. Of 10)	\$24.00/Pkg	\$36.00/Pkg		
CLSA Video "A Career Without Boundaries" (A 10 minute video)	\$8.00	\$12.00		

- Member Prices are only available to State members of the California Land Surveyors Association
- Fax orders accepted with MasterCard or Visa only at (707) 578-4406
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## SUSTAINING MEMBERSHIP

Membership in the California Land Surveyors Association, Inc. as a Sustaining Member is open to any individual, company, or corporation who, by their interest in the land surveying profession, is desirous of supporting the purposes and objectives of this Association. For information regarding Sustaining Membership, contact CLSA Central Office, P.O. Box 9098, Santa Rosa, CA 95405. Tel: (707) 578-6016 Fax: (707) 578-4406

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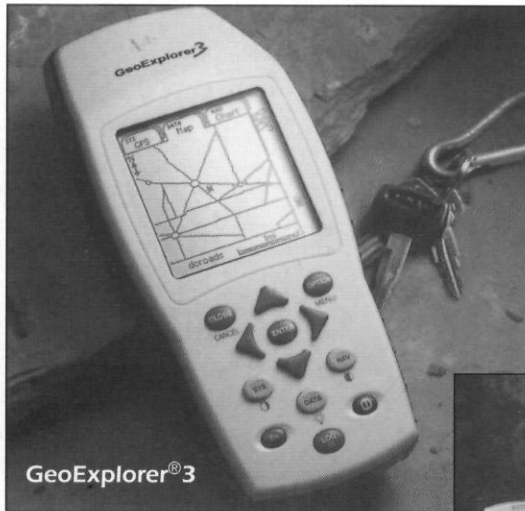
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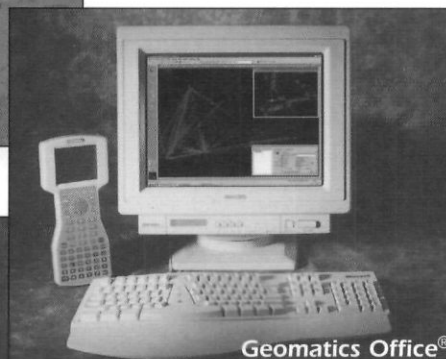
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