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Summer 2005 Issue #145

Spotlight on the Surveying Profession

Article by Robert Reese, PLS
page 20



A Visit to the State Lands Commission

Article by Carl C. deBaca, PLS page 10

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

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

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P.O. Box 9098, Santa Rosa, CA 95405-9990
E-Mail address: clsa@californiasurveyors.org
CLSA Homepage: www.californiasurveyors.org

EDITOR

Carl C. deBaca, PLS

ASSISTANT EDITOR

Dave Ryan, PLS

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Media 94

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EDITOR'S ADDRESS

Carl C. deBaca, PLS
P.O. Box 770
Pleasant Grove, CA 95668
E-mail: carl.cdebaca.@notte.com

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Inside This Issue:

Features:

A Visit to the State Lands Commission

By: Carl C. deBaca, PLS10

Scouting Merit Badge

By: Robert Fredricks, PLS14

Surveying for Par

Adobe & Assoc., Santa Rosa, CA19

Spotlight on the Surveying Profession

By: Robert Reese, PLS20

Closing Thoughts

By: Carl C. deBaca, PLS24

Surveyor's Right of Entry26

Nafta MRD Update

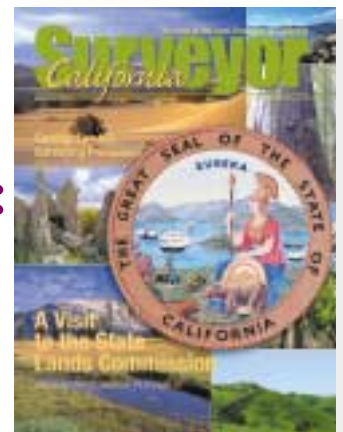
By: Carl C. deBaca, PLS28

Department:

From the Editor	6
Welcome New Members	16
Index to Advertisers	31
CLSA Publication Order Form	32
CLSA Membership Application Form	34
Sustaining Members	38

On The Cover:

A Visit to the State Lands Commission



From the Editor



The conversation started over a friendly glass of wine near the end of a local chapter holiday get-together. Four surveyors, shooting the breeze in a rare moment of relaxation in these busy times. The usual topics were covered: How much technology has changed since we were party chiefs; how there seems to be fewer opportunities for entry-level people in our profession than there used to be; how the commitment to learn, to grow and to perform at the highest level just doesn't seem as great as when we were young. Of course, that last one has been spouted by every group of surveyors since the first rope stretchers hired their nephews for that big upcoming pyramid project...

After a carafe (or two) of the house red, the conversation seemed to pick up some heat. Why can't we find good help anymore? Why is the pass-rate for the professional exam consistently low? Where is this profession heading? (Why do I always get into these debates?) I was hoping to steer the group toward my favorite windmill: mentoring, or more precisely, the lack of mentoring. From my point of view, we are all too busy to spend much time mentoring and that is one distinct difference between today and twenty or more years ago. As a young surveyor-in-training, I had dedicated mentors because they saw it as a responsibility of their rank. I may be stepping on toes here, but I don't think that old perception followed us to today.

However, that line of conversation was not to be. One of my carafe-mates, who is a **CLSA** member, but not an active one, had decided to take aim at the **CLSA**. "What are you accomplishing?" he asked. "It seems to me the issues that **CLSA** is focusing on are the same ones as ten years ago," he noted, adding, "Why should I get involved?" (I must confess to still being taken aback by the "what's-in-it-for-me" argument.) As the room emptied and the waitpersons cleared every table but ours, and as our discussion got louder, I tried to parry every

thrust. "Why don't we have continuing education in this state, shouldn't that be something **CLSA** supports?" "It's time for a mandatory four year degree. Where does **CLSA** stand on that issue?"

I'd like to think that my rebuttals were colorful and articulate, maybe, maybe not. I know my tongue felt like it was growing hair after the last couple glasses of vino, and I recall the waitress on the far side of the room kept checking her watch. If I leave out the more florid aspects of my responses and paraphrase the rest, it goes something like this:

CLSA is a representative organization. The more members we represent, the better our voice is heard. It is true that many of the issues we face are not within our authority to solve. For instance, the state legislature's Business and Professions Subcommittee opposes implementing either a continuing education program or a mandatory degree program. However, **CLSA** can focus on making educational opportunities available to our professional members and to those wanting to become professionals. We lobby the legislature, propose legislation, maintain communication with our licensing board and present California's concerns at the national level through our NSPS representative. We assist in preparation and grading of our exam. We attract newcomers to our profession through the Trig-Star and Scouting merit badge programs. And, we remain vigilant regarding things that might impact our professional practice, such as the NAFTA Mutual Recognition Document and the NCEES Model Law. In this organization there is always room for one more person to step forward and participate.

In short, **CLSA** promotes and safeguards the profession in which we make our livelihood. When asked why someone should join our organization, I have to turn that query around and ask, "*Why would you not join?*" ❖



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The California Surveyor is a quarterly magazine written and edited specifically for land surveying professionals. Quarterly, it provides in-depth articles on issues affecting the profession as well as current events, and general interest articles. Our readers are members and non-members of CLSA. They are Land Surveyors in private practice and public employees, Land-Surveyors-in-Training, employees of title companies and other related industry professionals.

FINDING THE MINDSET

Personal experience is probably your best source of article ideas. As a Land Surveyor, you have encountered problems, made mistakes and found solutions that can be shared with your colleagues. Have you worked on a unique project you would like to share with the profession? Do you have a fresh approach to an old problem or a cost-effective solution to a new one?

Examine back issues of *The California Surveyor* to get a feel for the kinds of articles that are published and the way they are written. Visit the *California Surveyor* page on the CLSA website at www.californiasurveyors.org/files/calsurv.html

Before you write the article, feel free to write or call the editor to discuss your ideas.

EVALUATION & ACCEPTANCE

All articles submitted will be reviewed by the editor. We may accept your article outright, accept it for a staff rewrite, or accept it contingent on your revision. Your writing style is your own, and we make every attempt to preserve it as we prepare your article for publication. But we will try to make the copy as substantive and clear as possible. If your article is substantially revised, we will email you the edited version, and you will have approximately one week to review it and make any additional changes.

For questions, please contact CLSA

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A Visit to the State Lands Commission



solidated inside the Department of Finance and in 1938, pursuant to the State Lands Act of 1938, the legislature created the State Lands Commission. The CSLC is made up of three commissioners being the Lieutenant Governor, the State Controller, and the State Director of Finance. As you might imagine, with the commissioners being politicians, the mission of the CSLC can sometimes take on a very political air.

While the CSLC is one of the largest revenue generating agencies in the state, it has fallen prey to the same budgetary problems that have plagued other state agencies and all vacant positions were eliminated during the last fiscal year. The Commission is an independent agency however, the commission's budget is under the State Resources Agency. As such, all monies brought in are allocated to the state's general fund and any budget changes must be requested by filing a BCP, an odious and uncertain process.

The CSLC website indicates there are approximately 200 employees on staff however, the true number is closer to 190, of which only 7 are working with boundaries. The bulk of CSLC staff work is in the Sacramento Office but there are two additional offices: one in Long Beach, where the focus is on mineral resource management, and the Marine Facilities Division in Hercules where the focus is on inspecting and monitoring marine terminal operations.

Ms. Olin notes the current boundary staff represents only 15% of the staff level in the 1990's and the reduction has directly led to significant increases in the amount of time it takes for a project to reach completion.

Upon admission to the United States in 1850, the state of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways. California holds these lands for the benefit of all citizens for

On a day in late April, at the invitation of Kelly Olin, PLS Supervising Boundary Determination Officer and Michael Bell, PLS Senior Boundary Determination Officer, The California Surveyor paid a visit to the staff offices of the California State Lands Commission (CSLC) in Sacramento. These very gracious hosts took time out of their busy day to give a complete tour of their facilities, including their map room, libraries and law library.

We had a wide-ranging and informal discussion of the origin and history of the CSLC, the philosophical changes the agency has gone through over the years, the recent budget cuts, ever-diminishing staffing level and the seemingly steady workload. We also discussed the work boundary determination officers do, and the resources they have, or can access, to do their research.

The CSLC dates back to the original California Surveyor General's office. In 1929 the Office of the Surveyor General and the Bureau of State Lands were con-

Continued on next page


statewide Public Trust purposes including waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. The landward boundaries of the State's sovereign interests in areas that are subject to tidal action are generally based upon the ordinary high water marks of these waterways, as they last naturally existed. In non-tidal navigable waterways, the State holds a fee ownership in the bed of the waterway between the two ordinary low water marks as they last naturally existed. The entire non-tidal navigable waterway between the ordinary high water marks is subject to the Public Trust Easement. Both the easement and fee-owned lands are under the jurisdiction of the State Lands Commission. The locations of the ordinary high and low water marks are often related to the last natural conditions of the river, and may not be apparent from a present day site inspection.

The Commission has exclusive jurisdiction over all unpatented tide lands, submerged lands owned by the State, the beds of navigable rivers, streams and lakes. Since statehood, much of this land has been granted in trust to municipalities. California also received a grant of the swamp and overflowed lands within the state and disposed of much of this land into private ownership for purposes of reclamation. Their mission statement reads:

The California State Lands Commission serves the people of California by providing stewardship of the lands, waterways, and resources entrusted to its care through economic development, protection, preservation, and restoration.

Frequently the CSLC is called upon to settle a title dispute over a piece of property, often for development purposes. This can lead to a title settlement agreement or possibly a quiet title action. Boundary Determination Officers research the facts of the case, using available historic records, maps, photographs, field notes, and antiquated topographic and hydrographic surveys to establish the original physical limits of the public trust lands. A case is made for the lands in question: location, limits, extent of public trust rights, and most importantly,


Continued on next page



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A Visit to the State Lands Commission

A Title Settlement Agreement is a principal tool of the CSLC, used to settle title disputes to sovereign lands of California. The CSLC has used Section 6307 of the Public Resources Code to exchange a public trust interest in land that is no longer useful for trust purposes for land that has greater trust utility. Over the years, the CSLC has entered into numerous agreements using Section 6307 of the Public Resources Code which says in part:

Whenever it appears to the commission to be in the best interests of the state, for the improvement of navigation, aid in reclamation, or for flood control protection, or to enhance the configuration of the shoreline for the improvement of the water and upland, on navigable rivers, sloughs, streams, lakes, bays, estuaries, inlets, or straits, and that it will not substantially interfere with the right of navigation and fishing in the waters involved, the commission may exchange lands of equal value, whether filled or unfilled with any state agency, political subdivision, person, or the United States or any agency thereof.

A recent appellate court has ruled that interpretation and use of Section 6307 for many of these land exchanges by the CSLC is not the appropriate vehicle, bringing to a screeching halt several ongoing settlements (including one semi-high-profile case being worked on by yours truly).

It is anticipated that emergency legislation will be introduced which will modify the language of Section 6307 to permit such agreements.

value. This case is developed as a coordinated effort of the agency's boundary staff, legal staff, appraisers and often the Attorney General's office.

Where litigation is involved, the Attorney General's office acts as litigator on behalf of the agency. Many times, the CSLC comes to terms with the opposing party and settlement is reached through either a Boundary Line Agreement or a Settlement Agreement, which will allow use or development of the lands in question while protecting the public trust interest by exchanging the sovereign interest in a parcel no longer useful for trust purposes for a parcel of equal or greater value with potential trust value, or receiving funds to be put into the Kapilof Land Bank for future purchase of lands that would be useful for trust purposes. [See sidebar for current issues concerning land exchanges by the State Lands Commission]

As noted above, the CSLC staff works closely with the Attorney General's Office. In another time, when the supervising boundary determination officer was our own Roy Minnick, the CSLC was seen as an aggressive advocate of the public trust. The Attorney General's office was a catalyst for this proactive behavior under the lead of Greg Taylor, head of the Land Law Section of the Attorney General's Office. Minnick and Taylor both retired from state service at about the same time that a new administration brought forth a much less aggressive approach on behalf of the public trust, and coupled with the CSLC's loss of Minnick and Taylor, ushered in a less aggressive CSLC. Given the decline in numbers by 85 percent in the boundary staff, the CSLC clearly have their hands full, and have to pick their battles much more carefully than in times past.

Typically, the boundary staff does not perform many field surveys. Most work is research, compilation of historical data, and preparation of land descriptions for settlements and leases. If they do prepare a map and subsequently file it, it will be generally found in the "Miscellaneous Maps" index.

In the 1950's and 1960's the CSLC was actively surveying the Ordinary High Water Mark (OHWM) and the Mean High Tide Line (MHTL) and the extent of the granted lands. These surveys represent the location of the line at the date of survey. While they are useful for determining the position of the line at that time, circumstances may have changed the current position of the line and for that reason the map may not be conclusive by itself for boundary purposes.

A trip through the CSLC map room and libraries reveals a treasure trove of valuable information. They are the repository for all the records of the California Surveyor General's office. They have many of the records of the Board of Tideland Commissioner's surveyor George Allardt, PLS 95, dating back to the 1860's. The filing cabinet with Allardt's records collection is one of a few that is locked up, complete with a chain that goes through the drawer handles and a padlock at the bottom! They have original swampland surveys and tideland surveys and much of the historical Hydrographic and Topographic Surveys of the California Coast. Their index of aerial photography, representing in-house copies of photography and information on photography kept elsewhere by other agencies, are impressive indeed. They have a significant collection of historic quad maps of California, as well.

The lack of a modern GIS has not adversely impacted the operation of the CSLC to any great degree. Over the years, they have developed their own 'paper' GIS which starts with a large map of the state broken into grids which are themselves broken into smaller grids in a series of large-format books. These

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Scouting Merit Badge



My first encounter with the Scouts and surveying was several years ago when I was asked to make a presentation on surveying to a Den of Cub Scouts. The Den Mother was quite persuasive and my dinner that night hinged on my answer. Yes was easy since I didn't like missing dinner. The next day I called my friend, John, another surveyor and the father of one of the cub scouts. We set a time and location to do our presentation and made plans to bring some equipment and mapping. Because of the age of the kids, we took the fun approach. I had a topography map for them to look at. We explained that contours close together meant a slope and you probably didn't want to go that way. As we talked a little bit about what a surveyor does, and when interest began to fade, we put a tool belt, vest, and hard hat on one of the scouts. Everything was a little big. We took the boys outside and let them look through a level at a rod and talked about what the numbers meant. This group wasn't quite ready for the Lenker Rod. Some surveyors aren't ready for the Lenker Rod. John had brought the secret weapon, a robotic total station. Now we had their attention again. We talked about pacing and let them measure their paces on a 50-foot tape. They were now ready to try and pace 100 feet. We gave them hubs and a hammer and they put their initials on their best guess. We told them we were going to measure with the robotic total station when they finished. Curiously, one boy was not happy with his marking. He was no where near the other scouts. He pulled his hub, paced his distance and now smiling set his hub in the middle of the pack. John fired up the robotic and moved to the correct distance. Oddly, it fell real close to where the one scout had pulled his hub and moved to the pack. I know I've seen this before? Ironically, the boy was John's

son and we now had a good lesson for the boys. Believe in yourself, don't follow the group. A good lesson for the adults too, especially surveyors.

My second encounter with the scouts was a few years later. My son was now a Boy Scout. His Troop Leader was a great guy and, on a snow campout, found out I was a surveyor. He mentioned that there was a Surveying Merit Badge and wanted

*When I met
with my first
group on
Saturday I gave
them a real
world scenario.*

to know if I was interested in helping a few scouts get the badge. He told me it was one of the original scouting merit badges. With all that he was doing, how could I say no. He first asked if I would come to a troop meeting and do a presentation so he could see if there was any interest. Time to call John again. Through the years John and I have crossed paths as sports coaches and interested parents. His son and mine have been friends and John always volunteers. John even got me to follow him through the local chapter of CLSA session of officers.

One evening we made a presentation to the boy scouts. We brought some equipment, hand tools, maps and some trade magazines with cool pictures of pyr-

amids and canyons. The whole presentation took maybe a half an hour. A couple of weeks later, I got a call from the Scoutmaster and there were a lot of kids interested in surveying and the merit badge. It was explained that I needed to become a Merit Badge Counselor and to do this I needed to take a Child Protection class. I had done something like that as a sports coach. It was a couple of hours on a Saturday. Some people were there for scouts and some as sports coaches. We saw a video and talked about the do's and don'ts. I was given a card after completing the class. I then signed an application and submitted it to the Boy Scouts to be a Merit Badge Counselor. It is a two-year commitment and your name is put on a list for boys to call when they are interested in working on a merit badge. Each badge has one or more names. I noticed that there were several surveyors listed in my area.

I then had a call from the scoutmaster telling me he had sixteen boys interested in the scouting merit badge. Sixteen! I was going to have to figure how to do this. I suggested doing groups of four at a time. The boys are required to get the merit badge book ahead of time and look at the requirements. As part of the youth protection, I arranged for adult volunteers to meet with the boys and myself on a Saturday morning.

I went to a local park in my town. It is kind of a natural terrain with oaks and up and down topography. With the help of my son, I laid out a five-sided traverse and measured the angles and distances. I also assumed an elevation of 100 feet on one point (per the merit badge requirements) and ran elevations to the other points. We laid out a 100 foot distance on a level area for pacing (an old merit badge require

Continued on page 18

A Visit to the State Lands Commission



grids are broken into yet another, smaller grid for which an acetate overlay gives the ability to narrow down to the property ownership level. Previous work done by CSLC staff is referenced by these grid numbers in another large book so in a couple of minutes you can determine if CSLC has worked on a given site or in the vicinity of the site. This is a clever, simple and effective system making use of resources they already have.

Though their "paper GIS" is very effective, the California State Lands Commission is a state agency that cries out, more than any other, with the possible exception of CalTrans, for a modern GIS system. The amount of data they possess is incredible but even more incredible perhaps is how little of it exists in digital format. Indexes for most of the data are computerized now, though plenty of index cards still get rifled. Unfortunately, the process to capture more budget is difficult in the best of times and these are not the best of times. An agency that cannot even replace employees when they leave is unlikely to come into the cash necessary to convert their voluminous resources into a unified digital base. This is not to say that the CSLC is completely behind the eight ball in this respect. They are making small efforts as opportunities present themselves. Maps and photos are being scanned on an ongoing basis, and the original mapping of the Board of Tidelands Commissioners has been scanned so that the original maps may then be forwarded to State Archives for preservation.

With the pressing workload and diminished staff, it is difficult to get expedient help from CSLC staff these days. Mr. Bell likens it to queuing up at the DMV. When there are multiple windows open, the line shortens up and everyone moves through the line faster; when there is only one window open, the line is long... and slow. But resources and assistance for the common surveyor are still available. They do not have a public counter, however if you call them and arrange for an appointment they will do their best to accommodate you. If you need help establishing a mean high tide line or the ordinary high or low water line for a navigable river, give them a call at (916) 574-1900.

Many thanks to Kelly and Mike for making time to meet with me, show me around and answer my not-so-probing questions. ❖

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Scouting Merit Badge

Continued from page 14

ment), measured and marked an unknown distance for the scouts to pace.

When I met with my first group on Saturday I gave them a real world scenario. They worked for a private surveying firm and their company was asked to do a boundary and small topography map for an area in the park. The firm had sent a survey crew out the day before. That crew had found and marked the monuments they were going to traverse. Remember, the age group is 10 years to 16 years of age typically. Terminology can be confusing. I also told them we would be running elevations to the points we were first traversing. I had them gather at the back of the truck and showed them the equipment a typical survey truck would have. The machete was by far the favorite. I made a mental note to hide it. There were four other dads there so I was going to have plenty of help. As I began unloading the truck, one of the dads quietly told me he had volunteered because he wanted to know what surveyor really did. I got the idea he figured a half an hour to an hour would be all he needed. I smiled, I didn't want to lose a helper.

At the first station I explained how I was setting up the legs of the tripod over the point and leveling the instrument. I got two boys to volunteer to hold rods and the backsight and foresite locations. I showed them how to use a couple of lath to steady the rod. The one dad that had talked to me earlier asked a lot of questions. I decided he would be great over at the pacing exercise. I told him and one other dad I would send one boy at a time over to count his paces in the 100 foot area and to have them pace the unknown distance. The scouts had to be within 5% or 15 feet of the unknown 300+ foot distance. It took most a couple of tries. One took several but all completed it.

Since there were five stations I showed all what to do at the first station and then let each boy turn angles and measure distances at one of the following stations. My son had worked with me on weekends for a few years and was a big help in showing the boys how to keep the rod plumb and where to go next. I explained how to set up the instrument to each boy but did the set up myself. I think it would have taken too long for the boys to do that part. My instrument had a set zero so it was easy for them to zero on the backsight. I told them which knob to loosen and had them double their angles being careful to turn the correct knob. I checked their sighting and suggested to them to re-sight when they were off. The boys did great. I explain why we doubled angles. Each boy kept notes at his station and shared that information before the next occupation. To make things easier and have a good record of the work the boys were doing I made note sheets up ahead of time. The sheets had occupation points with backsite distances and foresite distances. They recorded their first and second angles and I figured their mean. This seemed to go fairly well and we moved pretty fast.

We then ran levels and again I worked with a different boy for each station. What really helped was the stations were close enough so they could set up between two stations. I also made sure the grade change was small enough to do it in one turn. I had notes made up ahead for this too. The boys just filled in the information.

When we did topography mapping I had the boys use a compass and rag tape. I explained how to do it with the instrument but felt locating trees and rocks would be better for them with a compass. Most had used a compass and this was something they may use in a camp situation.

One of the last requirements (that is no longer a requirement) was to locate a remote height. I picked a light standard in the area we were working. Since these boys have not had trigonometry or even geometry I explained it as simple as I could. A relationship between distance and angle. When we had finished I got a 25-foot rod to check what we had done. Now they believed me.

The last step was to sit down with the boys and draw our traverse. I had got clipboards, protractors, pencils and scales at discount store. I showed the boys which line we were going to assume as north and how to use the protractor and scale to draw the traverse to scale. When they finished I overlaid a CADD plot to check their work. A couple had to redraw their traverse but all finished. When we were finished I had a complete package from each boy proving he had done the work. It had his name and date of the work. The cover was his scaled traverse. We then returned to the truck with our equipment and found an ice chest with cold sodas. It took about four hours to do the work with four boys in a group. I was able to help sixteen boys get their Surveying Merit Badge in just four Saturday mornings. The best part was that I was invited to their Court of Honor to see each boy formally receive his badge.

This year the requirements have changed a little. The pacing is out. The remote height is out. The boys now have to write a metes and bounds legal description. This could easily be done from their traverse work. They also have to get a deed to their property or a property of the counselor's selection. Both are good additions.

I found the work with the boys to be easy and rewarding. They were eager to learn and having things planned out well ahead eliminated any dead time. The California Land Surveyors Association (CLSA) is just beginning a state wide Scouting Program. Please consider volunteering to be a merit badge counselor with your local CLSA Chapter. The effort is minimal and we have a chance show a large number of boys what a great career surveying can be. There is good information on the topic on the CLSA Website (www.californiasurveyors.org). When I did my first presentation to the Boy Scout Troop I asked, does anybody here like computers? Every hand went up. The kids are eager to see how they can make a living and still have fun. Whether it's working outside on a crew, drawing maps on a computer in an office or running a business, there is something they will enjoy. ❖



Surveying for Par

Adobe Associates of Santa Rosa, California was recently hired by Lawson's Landing at Dillon Beach to locate the limits of a "Sand Quarry" that was previously permitted through the County of Marin and which has been used as a quarry for the past 15 years. Local dairy ranchers in Sonoma and Marin Counties use the sand that is excavated as bedding material for cattle.

Equipped with a plat prepared in 1980 and an unrecorded legal description, Aaron Smith, PLS and Leonard "Gabe" Gabrielson, PLS set off to find this quarry.

Picture # 1 finds Gabe practicing his short game while Aaron sets up a conventional baseline to use and check their RTK equipment. Aaron is computing the description in order to stake it out in the field.

Picture # 2 shows Aaron setting an 8-foot T-post in the sand. Due to the size of the stake they used the height of the ATV to get leverage on the post.


Picture # 3 shows Gabe locating the spot to drive the post into the ground.

Aaron noted that of his many visits to Dillon Beach, this was one of the best days he had ever seen out on the coast. Aaron generally works on client contacts, contracts, scheduling survey work, and mentoring the staff. Like many of us, Aaron does not get to do as much field work as he would like. He recalls this as a special day. Days like this are what keep many of us in the profession.

Thanks to Aaron and to Adobe Associates for sharing this project.

- 1) "so the boss thinks we are actually working"
- 2) "if I can't get time off during the daylight to practice, I'll make time during the work hours"
- 3) "so you think he remembers how to work his calculator"





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Spotlight on the SURVEYING PROFESSION

How many times have you been asked "What do you do?" and replied "I'm a Land Surveyor", only to get the response "Oh, you're the guy on the side of the road looking through that telescope thing", or "Oh, you're the guy with that stick thing. What do you say to that?"



You may respond that, true, Land Surveyors do survey work on the side of the road, but surveying is so much more. You could say that Land Surveyors provide geodetic positioning — location on the face of the earth to centimeter accuracy. Or, you may respond that Land Surveyors also provide mapping, boundary determination, forensic mapping and consulting, legal parcel determination, among other services. Land Surveyors also go places others never get to see, to set markers that will be left for posterity and for future Land Surveyors to discover, measure and preserve. Land Surveyors have to sleuth locations of century-old (and more!) markers left by our predecessors and determine their meaning, veracity and importance for boundary location.

Land Surveyors are the first to appear, and many times the last to leave, not only on a local project, but also on the face of an era. It was Land Surveyors who first determined alignments of railroads in the push to conquer the West, for better or worse. Land Surveyors show land formations, property title lines and later, the works of man as indelible imprints on our planet. Regardless of your philosophy or political affili-

ations, you must acknowledge the significant imprint Land Surveyors have had on our planet.

It is not hard to foresee that it will be Land Surveyors among the first to arrive on distant worlds to set up the planetary reference systems, the planetary reference points and later, the location of features that will be used for adaptation to mankind's needs. The tools and products that the surveyors of the future will use are yet to be made, but surely the Surveyor will bear the burden of spatial systems for mapping the new worlds.

Seem fantastic? Perhaps, but this fact is certain: not much of the works of man gets done without a Land Surveyor. We provide the initial spatial assessment of a project, the transfer from design to construct and later, the locations of the improvements as made.

So how is it that we Land Surveyors have such a large part in the march of civilization yet what we do is so misunderstood by the public? Something should be done.

The Problems

When it comes to supply and demand for licensed surveyors, our profession is not providing enough licensed professionals to keep up with the supply side, let alone those with experience. The graying of the profession also contributes to the net attrition rate. It has been estimated that the annual registration rate for Land Surveyors has decreased from

150 in the 1980s to a current 100 per year. At these current rates of attrition, the number of licensed Surveyors in California could decrease from 14,000 in 1980 to 3,000 or less in 2025.

And the demand is increasing. As society moves toward heavier dependence on spatial information, this has led to more demand for GIS, mapping, remote sensing and cadastral experts. Where there is low supply, market pressures will drive fulfillment for qualified personnel - and they may not necessarily be licensed Land Surveyors.

Low enrollment in accredited programs and the paucity of baccalaureate programs available across the country partially accounts for a dwindling number of surveyors. Administrative educators of surveying programs suggest consolidation of surveying curricula with other engineering programs, which points to the pressure to deal with lower demand for college survey programs. CLSA has even been solicited for funds to help mitigate budget cuts threatening one California institu-

Continued on next page

tion's ability to provide a full course selection for surveying. Taking longer to complete a degree program makes surveying less attractive to potential graduates.

The low number of Land Surveyors passing the state test (and the low cut scores) is constantly under scrutiny. The debate as to why is not germane here, only the fact. Better training or better preparation may lead to higher pass rates, but the number of new applicants is still not meeting demand.

The related problem is ignorance about what surveying really is, and all that it can be. If guidance counselors, educators or career track designers don't understand the nature and breadth of surveying, they can't be expected to suggest surveying as a career to suitable students. If a student indicates a proclivity to working outside and has a demonstrated aptitude for math skills, land surveying doesn't show up as a potential career.

Some Solutions

To improve the rates of entrants into land surveying, I believe several things must happen. An understanding of what surveying encompasses must be provided to those who counsel career tracks and to those who are potential entrants. An image of surveying as an attractive, dynamic and satisfying career with a superior earning potential is also important. Universities, colleges, technical schools and other resources must be readily available to satisfy the educational needs of potential entrants. So, who is best suited to get the word out, to start the flow of new surveyors through the pipeline? It is you, me, and the rest of the profession.

Some Solutions

We live in a pretty visual world these days. Efforts by other state surveying societies and professional groups have resulted in videos and promotional programs that rely on distribution to the right individuals and on their subsequent promotion of the information upon receipt. The results have been a little dry, or have shown a fairly narrow view of surveying that only confirms surveying as a construction related trade. So the thought occurred to me to do an active presentation, one that conveys a message directly to the target audience through TV spots, radio and other media. Like the very successful Army, Navy and Air Force programs, the Land Surveyor program would portray the widely varying activities that comprise surveying, showing various situations wherein a surveyor has a leading role and make it look appealing. The goal is to have the target audience say "That's me! I see me in that role and I want to do that!" So begins an effort I called Operation Spotlight, to spotlight the profession and put us center stage. An interesting thing is the byproduct of Operation Spotlight. A majority of the audience of TV, radio or printed media don't want to become a surveyor. That's OK, but they will know much better what a surveyor does and how surveying plugs in to society's needs today.

The Plan

Like any mission, there needs to be objectives, targets, execution, schedules and verifiable success. Operation Spotlight, or OpSpot, is no different. The primary objective of OpSpot is a recruitment. The secondary objective of OpSpot is increased awareness of the land surveying profession and increased understanding of what surveying is and does.

Operation Spotlight

OpSpot has multiple targets. CLSA Central Office has done much marketing research already and provided a wealth of information. The primary targets for recruitment are students of all ages. The group K-6

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(the awareness stage) will be contacted through active participation and presence by surveyors, and through materials distributed directly to the teachers. A surveyor coloring book is already available along with other resources. Grades 7-8 (children in the exploration stage) will continue to have materials distributed to their teachers, but also participation in programs like the Scouting Merit Badge and Career Days will broaden the exposure. Grades 9-12 (students in the preparation stage) can be presented with the Scouting Merit Badge program, TrigStar and career guidance materials. After high school, students and high school grads and individuals in the work force looking for alternate employment or training (the advanced preparation stage) will have post-secondary school educational opportunities and technical training opportunities. They need to know that scholarships are available through CLSA's Education Foundation. They also need to know that there are many employment opportunities **right now!**

Phase 2 - Distribution

The distributed materials can range from the coloring book, to media packages with info-mercial videos, to printed details on where to get more information, how to contact local surveyor groups such as local CLSA Chapters, and lists of college or technical educational facilities. CLSA Central Office personnel have worked hard to identify marketing vehicles, such as printed brochures, articles in local newspapers, website access, phone numbers for more information, materials for

Spotlight on the SURVEYING PROFESSION

educators, an expanded audience for TrigStar program, an active promotion of the Scouting Merit Badge program — all must be organized as available resources. Part of OpSpot includes preparation of a 30-second TV spot, or commercial, or a 60-second spot, and a long run version for inclusion as DVD in brochures and as streaming video on the CLSA website.

The schedule for OpSpot is an aggressive one. Phase 1 includes identifying recipients of the information, preparation of information and assembly of materials, including the long run video. Phase 1 has been going for a while, now. The added video materials will need to be done through selection of a qualified media agency with proven expertise in creating, writing, producing and editing such materials and who can work within a budget. Ultimately, enough visual material needs to be collected to edit a long run, high definition video for posting on the CLSA website and for inclusion in the distribution materials.

Phase 2 is the actual distribution process. The materials prepared under Phase 1 will be distributed to educators and newspapers. Your involvement at the local level is needed to provide face time at schools and at career fairs, to write interesting short articles about surveying for local newspapers, to assist with the TrigStar and Scouting Merit Badge programs.

We are shooting to have Phase 1 & 2 operational by late 2005.

Phase 3 - TV Spot and Media Buy

Phase 3 is the event that will rely on the foundation of awareness built in Phase 1 & 2. Phase 3 is the editing of a hot, dynamic 30-second TV spot from material assembled in Phase 1 and a media buy in a test market. Also, radio spots for airtime in selected markets is part of Phase 3.

Consider the following brief outline for a 30-second commercial. A host or voice over asks if you have considered surveying as a career, if you know whether it is right for you. The host, whose attire changes to match that of the scene, walks past a series of images showing what surveying is and asks Do you like construction and working outside? The scene shows a young woman running a robotic total station on stakeout then blends into high-rise surveying. Our host then asks Perhaps you would rather work in the wilderness with high tech equipment? The background scene shows a solo surveyor backpacking a GPS unit to the summit of a mountain with a breathtaking view. Next, our host says Perhaps you prefer mapping, GIS and CAD work. The background scene shows a surveyor going over maps with engineers, shows a mapper using GIS software at a work station. The next scene presents our host in professional, office environment attire, asking Did you know you can join a large company management or work directly with clients? The scene shows a surveyor running a meeting in the corporate environment, and then a small firm surveyor working with mom and pop clients. The host says Would you like explore forensic survey work, or perhaps research? The background shows a surveyor explaining a map to a jury and then moves to a scene in a recorder's office. Finally, our host closes with All this and much more is available with a well-paying career as a surveyor. For more information contact your local or state surveying organization. The spot fades to the phone number and web address of CLSA set up for the response.

Phase 3 is planned for execution in 2006.

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Cost and Assessment

Everything has its price. Although the Board of Directors approved a budget item for CLSA to implement Phase 1 & 2, CLSA will explore sponsorships and sale to other organizations as a way to defray costs to our organization.

It is hoped and expected that there will be an immediate response to the distribution in Phase 2, particularly from the group between ages 18 to 22. The response mechanisms for inquiries need to be in place.

It is hoped that the TV spot will be the catalyst for a much wider audience seeing who we are and what we do. Again the immediate response to a TV ad campaign must be met with available resources for those who want more information and who see surveying as a possible career choice.

Success may only be identifiable in a minimum of two to four years, the time it takes to complete an associate or baccalaureate degree program. Another indicator of the success of Operation Spotlight would be an increase in available surveying office and field technical personnel, through regular employment or work/study programs.

So that's the idea and the plan behind Operation Spotlight. Having been given the privilege and honor to be next year's President of CLSA, I am hoping this will be a worthwhile contribution through this organization to support our profession of surveying. I also know that this can only be done with your help and support. So stay tuned ❖

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Closing Thoughts...

For those of you who know Walt Robillard or have attended one of his workshops, you know that he brims with passion and insight about our profession. He comes to his workshops loaded with ideas. The workshop topic is generally only nominal; it becomes a taking off point for musings in any number of directions. Thoughts put forth in his classes are like boomerangs, leaving in one direction and returning from another.

Last year at the ACSM conference in Nashville, Walt gave a workshop on the topic of Abraham Lincoln and Abe's definitive opinion on where a center of section should lie. As you might imagine, it would be tough to stretch the debate over the proper way to set a center of section into an 8-hour presentation, and Walt didn't really try. With a head and heart full of other things to discuss, he threw out the discussion on Lincoln as a metaphor for how deeply we should, but sometimes don't, think about what we are doing as professional surveyors. He delivered more than a few monologues during that day, on the nature and commitments of our profession.

One monologue that struck me, which came from another discussion regarding our professional preparation, started with a rhetorical question: "Why is there so much calculus and so little boundary in a college surveying degree?" Why indeed? Walt pointed out, as he often does that the job of the surveyor retracing the work of a predecessor, is to locate as closely as possible the original position of boundary corners. Better to have poor measurements but the correct position, than to have outstanding measurements to an incorrect point. As quickly as he jumped on this topic, he left it, and it's been lingering in some corner of my mind ever since.

I had hoped to convince Walt to take that germ of an idea and write an article for this journal. However, Walt is currently working on two books and is a bit overextended. Also, as some of you may know, Walt lost much of his home and possessions in the hurricanes of Florida last year. So if we want to explore this avenue, we'll have to carry on without him.

Personally, I don't think Walt was arguing against teaching higher math in survey curriculum so much as he was saying that boundary retracement needs more emphasis. Without a strong focus on cadastral skills, a college surveying degree is a degree in measurement. There's no doubt that measurement is a fundamental part of what we do and mathematics, including calculus is a fundamental part of measurement. For areas of practice such as construction staking and geodetic surveying, measurement is really the final product. But if you are a boundary surveyor, measurement is a means to an end not an end in itself.

It would be interesting to hear your opinions on this topic. Email us me at editor@californiasurveyors.org

The Editor



Postcards

"Jeff Hogan of Hall and Foreman, Inc. locates a monument marking the high tide line in Long Beach while digging for clams."



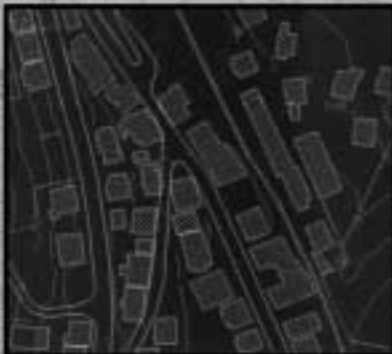
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Surveyor's Right of Entry

JUST A REMINDER...CALIFORNIA LAWS PROVIDING RIGHT OF ENTRY TO SURVEYORS

California Civil Code

846.5. (a) The right of entry upon or to real property to investigate and utilize boundary evidence, and to perform surveys, is a right of persons legally authorized to practice land surveying and it shall be the responsibility of the owner or tenant who owns or controls property to provide reasonable access without undue delay. The right of entry is not contingent upon the provision of prior notice to the owner or tenant. However, the owner or tenant shall be notified of the proposed time of entry where practicable. (b) The requirements of subdivision (a) do not apply to monuments within access-controlled portions of freeways. (c) When required for a property survey, monuments within a freeway right-of-way shall be referenced to usable points outside the access control line by the agency having jurisdiction over the freeway when requested in writing by the registered civil engineer or licensed land surveyor who is to perform the property survey. The work shall be done within a reasonable time period by the agency in direct cooperation with the engineer or surveyor and at no charge to him.

California Penal Code

602.8. (a) Any person who without the written permission of the landowner, the owner's agent, or the person in lawful possession of the land, willfully enters any lands under cultivation or enclosed by fence, belonging to, or occupied by, another, or who willfully enters upon uncultivated or unenclosed lands where signs forbidding trespass are displayed at intervals not less than three to the mile along all exterior boundaries and at all roads and trails entering the lands, is guilty of a public offense. (b) Any person convicted of a violation of subdivision (a) shall be punished as follows: (1) A first offense is an infraction punishable by a fine of seventy-five dollars (\$75). (2) A second offense on the same land or any contiguous land of the same landowner, without the permission of the landowner, the landowner's agent, or the person in lawful possession of the land, is an infraction punishable by a fine of two hundred fifty dollars (\$250). (3) A third or subsequent offense on the same land or any contiguous land of the same landowner, without the permission of the landowner, the landowner's agent, or the person in lawful possession of the land, is a misdemeanor. (c) Subdivision (a) shall not apply to any of the following: (1) Any person engaged in lawful labor union activities which are permitted to be car-

ried out on property by the California Agricultural Labor Relations Act, Part 3.5 (commencing with Section 1140) of Division 2 of the Labor Code, or by the National Labor Relations Act. (2) Any person on the premises who is engaging in activities protected by the California or United States Constitution. (3) Any person described in Section 22350 of the Business and Professions Code who is making a lawful service of process. (4) Any person licensed pursuant to Chapter 15 (commencing with Section 8700) of Division 3 of the Business and Professions Code who is engaged in the lawful practice of land surveying as authorized by Section 846.5 of the Civil Code. (d) For any infraction charged pursuant to this section, the defendant shall have the option to forfeit bail in lieu of making a court appearance. Notwithstanding subdivision (e) of Section 853.6, if the offender elects to forfeit bail pursuant to this subdivision, no further proceedings shall be had in the case.

California Business and Professions Code

8774. (a) The right of entry upon or to real property to investigate and utilize boundary evidence, and to perform surveys, is a right of persons legally authorized to practice land surveying, and it is the responsibility of the owner or tenant who owns or controls property to provide reasonable access without undue delay. The right of entry is not contingent upon the provision of prior notice to the owner or tenant. However, the owner or tenant shall be notified of the proposed time of entry where practicable. (b) The requirements of subdivision (a) do not apply to monuments within access-controlled portions of freeways. (c) When required for a property survey, monuments within a freeway right-of-way shall be referenced to usable points outside the access control line by the agency having jurisdiction over the freeway when requested in writing by the registered civil engineer or licensed land surveyor who is to perform the property survey. The work shall be done within a reasonable time period by the agency in direct cooperation with the engineer or surveyor and at no charge to him or her.

Side Note:

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NAFTA MRD UPDATE: No Good Deed Goes Unpunished...

The last issue of the California Surveyor contained a too-long article touting the NSPS' NAFTA Mutual Recognition Document (MRD), which California helped shape with some eleventh hour assistance. This MRD which has roots dating back some twelve years, was finally completed and adopted by NSPS for "review by relevant bodies" (read NCEES) at the Fall 2004 NSPS meeting in Gaithersburg, Maryland.

It was thought by some that the NSPS meetings held in Las Vegas in conjunction with the CLSA/NLS/ACSM/WFPS Conference would see the MRD adopted once and for all and sent to the U.S. Trade Representative and to Canada and Mexico. Alas, this was not to be.

The NSPS Board of Governors did indeed vote to recommend that the Board of Directors adopt the MRD and pass it along as described above. However, the Board of Directors, after

serious debate revolving around a recently received letter of non-endorsement from NCEES, voted against adopting the MRD.

This surely sends the Mutual Recognition Document back to the drawing board, to the disappointment of many involved in its evolution, not to mention those in Canada who were ready to adopt the document as well. However, there is a silver lining in this cloud. If NSPS can work out the differences with NCEES on the content and format of the MRD, a stronger document is certain to emerge, a document that might be embraced by the various state boards. ❖

A photograph of a surveying instrument, likely a total station, mounted on a yellow tripod. The instrument is positioned on a rocky, elevated point overlooking a vast, flat desert landscape under a clear sky. The text "All that's missing is... you!" is overlaid in a large, stylized font. In the bottom left corner, there is promotional text for a surveying firm for sale. In the bottom right corner, there is a vertical photo credit.

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Photo taken March 2005 on actual job site.

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Index To Advertisers

Aerial Digital Images, Inc. (ADI)	19
Allen Instruments & Supplies	13
Allen Precision Equipment	29
Berntsen International, Inc	35
C&C Aerial Mapping	11
California Surveying & Drafting	40
Cartwright Aerial Surveys	35
CBI Systems, Inc	33
Crow Hill Consulting	28
Digital Mapping	33
Gateway Software Productions	21
Geoline	9
HJW & Associates	11
Latitude Business Software	30
Leica Geosystems	27
Lewis & Lewis	15
Mark-It (Desert Engineering)	16
MicroSurvey Software	31
Office Depot (Member Benefit)	7
RBF Consulting	15
Reese Water & Land Surveying	24
Rick Engineering	4
Santiago Canyon College	22
Silver Shields System	37
Software By D'Zign	7
Spectra 3D	3
Surveyors Service Company (SERVCO)	2, 39
Surv-Kap	24
Tri State Surveying, Ltd	25
Trimble	23
Western Data Systems	36

LEWIS & CLARK UPDATE

January 1805

The Corps attends a Mandan buffalo dance, performed to call buffalo to the area.

February 11, 1805

Sacagawea's son, Jean Baptiste Charbonneau—nick-named Pompoy by Clark—is born with assistance from Lewis.

April 7, 1805

Lewis and Clark send a shipment of artifacts and specimens to President Jefferson; the "Permanent Party" heads west.

April 29, 1805

The Corps marvels at the abundance of game; they kill their first grizzly bear near the Yellowstone River in Montana.

May 16, 1805

One of their boats nearly overturns and Lewis credits Sacagawea with saving their most important possessions.

May 31, 1805

The Corps reaches the White Cliffs region of the Missouri River.



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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.

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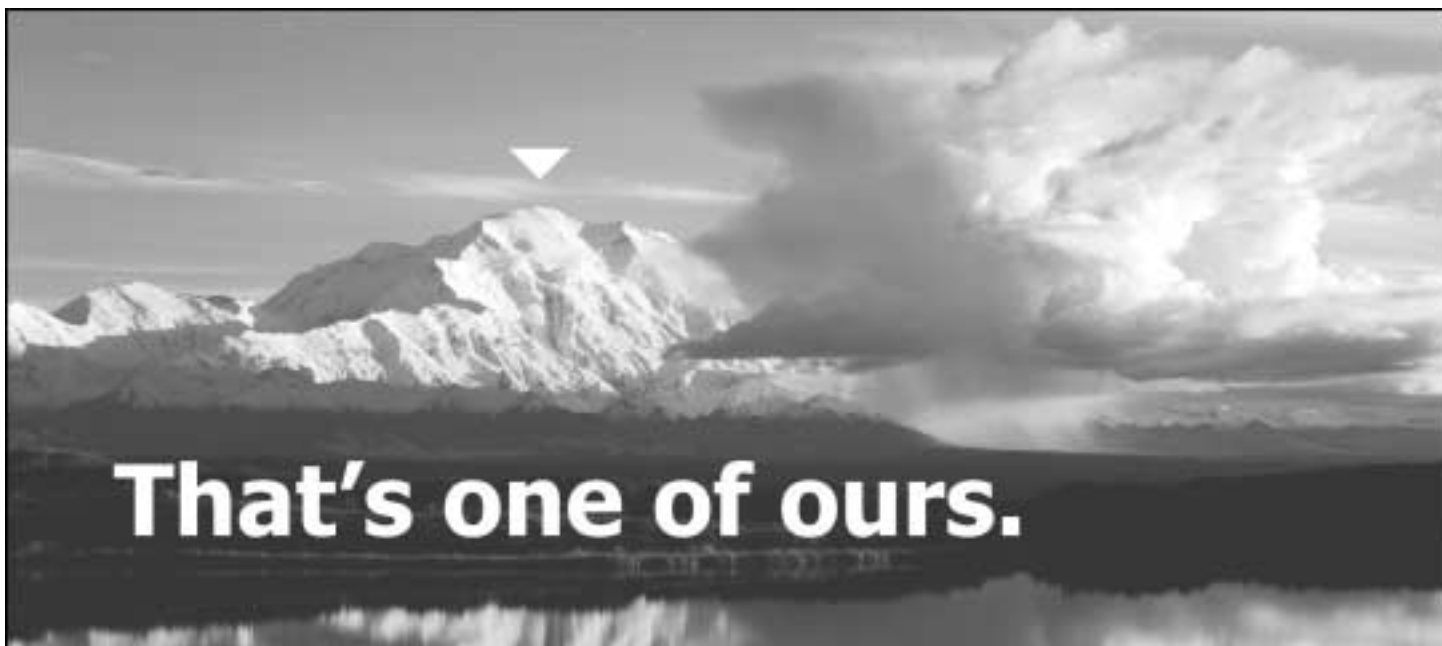
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- A variety of subscription plans are available to meet the needs of GPS users
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