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The California Surveyor

is the quarterly publication of The California Land Surveyors Association, Inc. and is published as a service to the land surveying profession of California. It is mailed to all Licensed Land Surveyors and Land Surveyors-in-Training in the state of California as well as to all members of California Land Surveyors Association, Inc. *The California Surveyor* is an open forum for all surveyors, with an editorial policy predicated on the preamble to the Articles of Incorporation of the California Land Surveyors Association, Inc. and its stated aims and objectives, which read:

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

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

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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 the Editor of *The California Surveyor*.

Editorial Material

All articles, reports, letters and contributions are accepted and will be considered for publication regardless of the author's affiliation with the California Land Surveyors Association, Inc. Contributions submitted on floppy diskette medium is encouraged. For compatibility, the following requirements should be met: 5 1/4-inch floppy diskette, PC DOS or MS DOS format, ASCII text files, and no formatting codes in the text. Material should be sent to *The California Surveyor*.

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Winter November 15, 1988

Articles, Reports, Letters, etc., received after the above mentioned date will be considered for the next edition.

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Cover Photo: C.L.S.A. member Kari Launen monitors a G.P.S. receiver in Orange County.

President's Message

Since my last message to you in the Spring issue, I'm happy to say our membership is again on the rise. I urge you to continue to encourage new memberships. Since our basic overhead is already funded by existing membership, income from new member dues directly increases our ability to provide legislative representation, support of survey education, and membership services.

Many readers of *The California Surveyor* are not aware of CLSA activities, and at the half-way point in the year, I would like to give you an update.

At Sacramento, in addition to SB 1123, which was signed into law last year and regulates the writing of legal descriptions under The Professional Land Surveyors Act, three other bills were sponsored by CLSA this year.

AB 981 was signed by the governor in May. This bill makes technical changes to our Subdivision Map Act which will help insure that post 1982 Civil Engineers are not authorized to sign subdivision maps.

AB 3882 which was signed by the governor in June, clarifies existing language in the P.L.S. Act which hopefully will minimize excessive checking of maps by county surveyors.

AB 3876 includes "land planning" within the P.L.S. Act and contains similar language to a bill passed by the Civil Engineers last year to include the coordination of the work of professional, technical, and special consultants within our act. This bill should pass both houses of the legislature and reach the governor's desk in August.

In addition to our Seminar/Workshop Program, CLSA continues to support surveying education in the university system. A donation of \$2500 was made to Cal Poly Pomona to help fund a full-time chair in the new survey program. At the Annual Conference at Cal State Fresno, \$2900 in scholarships were awarded by CLSA, and a \$2500 donation was made to help fund the purchase of an analytical stereoplotter.

Our 1988 Annual Conference was held jointly with the Nevada Association of Land Surveyors at South Lake Tahoe in March, coinciding with "Surveyors Week" in California. The conference was well attended with 354 registrants and a net profit to date of over \$20,000 even though the Cal Council Conference and the ACSM Spring Convention fell within three weeks of our own. At the closing cere-

monies, a drawing was held for a one week trip for two to Maui, Hawaii, as part of our conference promotion.

Our 1989 conference will be held in southern California near Disneyland and in addition to the professional program, we are planning a wide range of activities for the entire family.

CLSA has printed the most current roster of Land Surveyors, starting with LS 001 and including both alphabetical and numerical references. We have also printed the Professional Land Surveyors Act and Board of Registration Rules, to be updated annually. The Subdivision Map Act will be next.

We continue to work on the CLSA Computer Bulletin Board in order to provide Public Domain Software, a forum for the exchange of ideas and information to the membership. Tom Mastin, L.S., of San Luis Obispo (805/544-6434) is working on this project and would appreciate your comments and suggestions.

We have much more that can be done for the profession and its practitioners. With your help, our services and advocacy can continue to grow and benefit all of us.
Susan A. Jensen, L.S.
President

From the Editor:



I recently taught the state law portion of a Land Surveyors' test review class for the local chapter of the California Land Surveyors Association. The students were all preparing to take the Land Surveyors' exam the following week. While reviewing the Land Surveyors Act in preparation for the class, a few thoughts crossed my mind.

Section 8701 of the Land Surveyors Act had been changed for this year. It now states that a Land Surveyor is a "professional" Land Surveyor and any reference to Land Surveyor in a state law now means "professional" Land Surveyor. Do we really need to tell everyone that we are professionals? Are we truly professionals? How come doctors and lawyers don't put "pro-

fessional" in front of their titles? Are there "amateur" Land Surveyors? (I'm afraid there are probably more amateur surveyors out there than true professional surveyors!) I think I'll keep the title "Land Surveyor" until I'm convinced that we really are professionals. (Actually geomatics engineer [section 8751] is my favorite title, but I haven't figured out what it means yet!)

Section 8741(a) indicates that an applicant who has passed the engineer-in-training exam or who holds a professional engineer's registration, is exempt from the land surveyor-in-training exam. Nowhere in the Professional Engineers Act does it state that a Land Surveyor is exempt from taking the engineer's-in-training exam! For years a Land Surveyor was exempt from taking the engineer's-in-training exam and many aspiring engineers bypassed the difficult E.I.T. exam by obtaining their license as a Land Surveyor first and then taking the civil engineer's exam directly. This change in the rules is probably for the best, but is an engineer or an engineer-in-training knowledgeable enough in the basics of surveying to bypass the Land Surveyor-in-training exam? I have my doubts.

Section 8741.1 explains how an examinee will be tested concerning state

laws and board rules. The section states: "The board shall prepare and distribute to applicants for the second division of the examination, a plain language pamphlet describing the important laws and the board's rules and regulations regulating the practice of land surveying in the state. That portion of the second division of the examination for licensure as a Land Surveyor which tests the applicant's knowledge of state laws and the Board's rules and regulations shall be based upon the information contained in the pamphlet prepared by the Board." I can't bring myself to agree with this section of the Act. I'll agree that the Subdivision Map Act is difficult to understand and poorly organized, but the Land Surveyors Act and the Board Rules are very straight forward and to the point. I think we're letting the examinees off a bit too easy.

The state laws; reading them is a sure cure for insomnia! Knowing them is one step on the road to truly being known as "professionals."

Jeremy Evans, LS
Editor

He Put Mount Diablo on the Map

By Keith Rogers
Times Staff Writer

It was a sweltering afternoon on July 11, 1851 when a determined deputy surveyor, Leander Ransom, and three hired men loaded a steamboat with tools and camping supplies and set out from San Francisco for the summit of Mount Diablo.

They were under orders from Samuel D. King, Esq., the surveyor general of the United States, to explore the Bay Area's most prominent peak and set up markers to be used for all surveying work done in northern and central California (with the exception of Humboldt) and western Nevada. Having paid inflated, "gold fever" prices, they purchased beans and potatoes at \$3.75 per bushel, bacon at 20 cents a pound, horse feed at \$5 per bushel and paid a boat fare of 6 cents per mile.

When they landed in Benecia they were met by Major Allen of the U.S. Quartermaster's Department who, according to Ransom's field notes, "kindly offered to furnish me with such horses, mules and vehicles belonging to the United States as we might need."

The following Monday, Ransom hired two additional men to run chains and chop down trees. He paid them between \$75 and \$100 per month whereas in Michigan or Indiana they would have made only \$13 to \$15 a month in those days, he reported.

When the tide was right, the party of six embarked on a small sailing vessel, crossed the bay and floated up a creek some 8 miles, where they landed at a place called The Embarcadero. "From this place we conveyed our camp equipage to Bishop's Ranch near the foot of Mount Diablo on the west side where we encamped," wrote Ransom.

On Wednesday they moved the camp as far up the mountain as the teams would go, about one-third the distance to the summit.

"The next day having provided ourselves with necessary tools and instruments, we ascended the mountain on foot. The day being exceptionally hot, the thermometer standing at a full 100 in the shade, we suffered very considerably from heat, and some from the want of water, which we were deprived of for more than seven hours, there being no water further up the mountain than our camp," said the persistent surveyor. When they finally

arrived at the summit, Ransom identified a "very prominent, narrow and precipitous 'hog-back' ridge." There they found a solid rock, "not unlike a small 'hay cock,'" where they dug a hold 9 meters deep and 6 meters wide as the point where an east-west base line and a north-south meridian were to intersect.

But their mission wasn't completed because of another unforeseen problem that Ransom encountered.

"Having searched in vain," he said, "for a stick suitable for a flag staff, and being in a famished condition for the want of water and our dinner, at 4 p.m. we descended the mountain to our camp."

On Friday, July 18, 1851, the surveying party acquired a flag staff at Bishop's Ranch and with a horse and two mules they ascended the mountain again, planted the staff at the peak rock and took bearings on three other prominent but lower rocky points.

As Ransom put it, "There can be no possible difficulty in all time to come in searching out and easily finding the prominence."

The survey team remained on the

mountain until September that year tramping through the surrounding valleys dotted with oak and buckeye trees, scoping out more landmarks from the San Joaquin River to Suisun Bay.

"The region of country over which we passed in making the survey, has but a small amount of timber of any kind growing either upon the mountain ranges or in the valleys. Seldom did we meet with trees near enough to our line for bearing trees and where the timber is most dense it resembles in heights and general appearance the old irregular orchards in New York planted by the French before the Revolution."

"The soil," said Ransom, "is very good even to the tops of the hills and only needs proper cultivation and water to make it very productive." And although the region around Mount Diablo as a whole is beautiful, picturesque and inviting only a copper rod stands bolted in the summit, marking the cross hairs of the compass and the toil of Leander Ransom and crew 130 years ago.

Reprint—The Valley Times, March 1981

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Fences as Boundary Evidence

by Dexter M. Brinker

One of the few truly professional services offered by the Land Surveyor is the analysis of existing land boundary evidence. Perhaps the hardest question he has to answer is, "When is a fence a BOUNDARY monument, and when is it just a fence?" The following discussion will not solve the problem but will outline for the beginning Land Surveyor some of the main considerations facing him and the profession as a whole when dealing with boundary fences.

Early in my gyrations as a Land Surveyor I heard the expression, "Oh, he's just a fence-line surveyor." From the way it was said, I knew it wasn't a compliment. The implication was that the person being referred to would assume that existing fences were in the right place (that is, on the property boundaries), make the measurements necessary to delineate these fences, and furnish the client with a pretty map showing everything in order.

Obviously, this method eliminated the need for either record or monument searches and gave this surveyor a great price advantage over the one who insisted on performing all of those wonderful and professional acts of searching and evaluating! Since I was young and idealistic, I determined that I would never resort to being a "fence-line surveyor".

A few years later, however, I found myself involved in restoring a section corner. The original stone was probably part of someone's fireplace, but there was a good assortment of right-of-way fences that seemed to perpetuate the original location of the corner. I knew that if I measured from the nearest available monuments and did a lot of questionable proportioning, I would surely come up with a different location which would probably not be as valid as the one I already had and which would certainly cause a lot of trouble for all adjoining landowners. So, all of a sudden, I became a "fence-line surveyor".

Good, Bad, or Questionable Fences

As years went by, I learned that there were "good fences," "bad fences," and "questionable fences." I also formulated "Brinker's Law of Fences," namely, "All Land Surveyors, lawyers, landowners, and judges will evaluate the same fence differently." All of which brings up the basic question, "Why does anyone want to be a Land Surveyor and take the risk of making fence line decisions?" If you insist on being a Land Surveyor, you had better know your fences!

A very pertinent remark was made by A.C. Mulford in his booklet, "Boundaries and Landmarks." He said, "Loose, faulty and ignorant conveyances, the use of perishable landmarks or no landmarks at all, the temptation to build fences 'off line' for a dozen reasons, good and bad, and innumerable other things have conspired to render the boundaries of land the most uncertain of all things".

In an expansion of this idea, Russell E. (continued on page 8)

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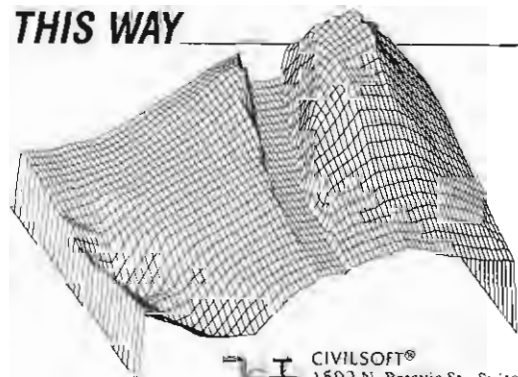
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(continued from page 7)

Kastelle presented a very interesting paper at the ACSM 1985 Fall Convention in Indianapolis. His discussion, entitled "Fence lines, Title Lines and Property Lines," explains some of the reasons why fences often are not where you might expect them to be. On the other hand, you must not ignore the possibility that fence lines *may* be the best possible *collateral evidence* preserving previous survey monument locations. In some cases the fence may actually define the original boundary intent.

Some Guidelines for Evaluating Problem Fences

The fundamental problem is being able to prove, or at least develop a preponderance of evidence to show that the fence can be relied on. Not an easy task! However, here are a few guidelines to help you evaluate problem fences:

(1) Try to date the fence. Sometimes the material and condition will help you determine the age. Examine the part that is in the ground for rust or rot. Compare with fences of known age.

(2) Ask adjoining and nearby residents if they know the history of the fence in question.

(3) Search records for names of previous landowners in the vicinity. Send them a short letter explaining your need and a brief set of questions for them to answer. Perhaps you would want to ask them to phone you *collect* if they have pertinent information.

(4) Study aerial photographs if available. Fence lines are amazingly visible, especially if animals have walked along them.

(5) Try to visualize the terrain, vegetation, land values, and usual surveying techniques at the time the fence was built.

(6) Study the differences between agreement fences, fences of convenience, fences of acquiescence, fences of adverse possession, and fences built at a time when one party owned the land on both sides.

(7) If at all possible, learn whether the fence was built before or after *conveyance*, and whether it was built before or after a survey. These facts may help establish the intent of the conveyance. However, in all cases, the possibility of a defective survey must be considered.

(8) Remember that before 1919 many land surveys were done by engineers and other "non-surveyors," but the resulting fence lines, built in good faith, *may* indeed be *title lines* even though recorded dimensions do not agree with ground evidence. Master your state statutes and case law on the subject and learn the fencing customs peculiar to your region.

(9) Even if the fence were built after a proper survey by a competent licensed Land Surveyor, you will have to deal with the problem of "acceptable positional tolerance at the time the survey was done."

(10) Keep in mind that many physical objects or conditions, other than fences, *may* be considered as collateral evidence. These include, but are not limited to, retaining walls, building walls, party walls, hedges, roads, utilities, changes in sidewalk construction, paths worn by animals along previous fences, rows of rocks thrown from cultivated fields, and variations in vegetation. All should be subjected to close scrutiny on the chance that they may indicate where the ancient boundary was.

(11) If a group of fences seems to fit a recorded plat but does not agree with a survey monument, consider the possibility that the monument may be wrong!

(12) Whether restoring aliquot lines in the public land survey system or ancient boundaries created by any other method, never disregard a fence that may be more than a fence; it may be a *survey monument*. Conversely, do not assume that every fence is a boundary; *do your homework!*

Examples of Fence Problems

Once I was retained by an irate landowner who wanted me to assure him that the fence which he had recently built was in the correct position. It was a beautiful redwood fence solidly set in concrete, but the neighbor claimed it was on his property. I did a meticulous survey to establish the lot line. However, before setting the lot corners I got out not only my dip needle but also my trusty shovel. No response on the dip needle, but the shovel revealed a brass rod at each end of the lot line within 0.02 ft. of where I would have set my markers. These corners were set long before numbered markers were required, but the brass rods were a "trademark" of an earlier survey in the area known to have done quality work. I felt good about my survey but had to inform my client that the fence was, indeed, a foot into his neighbor's land. "How," I asked my client, "did you establish the line for your fence?" "Well," he said, "I bisected the distance between our garage roofs." I guess that has to be a classic example of a "bad fence."

Let us now consider an example of a "good fence," but one not completely free of problems. Several years ago my wife and I were negotiating to buy an 80-acre (more or less) parcel of land described in government survey terminology (i.e., the S 1/2 SW 1/4 of a section). We told the realtor we would buy it if he could acquire for us a road easement across an adjoining's land

to give us access to a nearby country road. The realtor was successful, but in describing the easement relied on an incomplete and defective land survey. Neither monument which controlled the boundary from which the easement started was in existence, and it appears that a theoretical tie was made to an existing quarter corner about 1500 ft. away using the still too prevalent assumption that all sections are exactly a mile on each side and are perfectly square.

Some time later, after we had completed the purchase of the land, our new neighbor and I met on the ground and agreed on the *intent* of the easement location as marked by several centerline stakes. I proceeded to build a fence on the sideline of the easement at the prescribed distance from the centerline. Later, when the road was built, the original survey markers were lost, but as far as our neighbor and we were concerned, this is a "good fence"; that is, it is in the intended location.

However, consider what could happen if we both sold our land before the statutory acquiescence period (20 years in Colorado) expires, and one of the new owners insisted on a resurvey of the easement location. The discrepancy between the record and field location is so great that the easement could easily be moved 100 ft. from its present and proper location unless the new surveyor accepted the fence as collateral evidence defining the original survey. It is very likely that some Land Surveyors would, indeed, accept the fence, but others would rely on the recorded description. In addition, the uncertainty of the starting boundary, coupled with confusion over the basis of bearings, could lead to a wide assortment of solutions. Hence the new owners would probably end up turning their problem over to lawyers and courts with no assurance of ending up with the correct decision.

In our particular case, I hope to avoid such future problems by recording a boundary agreement plat, signed by our neighbors and us with an appropriate note indicating that the fence, as built, is to control over the recorded verbal description.

The Profession and the Center of Section

All Land Surveyors working within the framework of the public land survey system should be particularly mindful of the implications of the discussion on the proper location of aliquot lines in general and the center of section in particular. For example, in the same section of land one fence may be judged to be controlling (i.e., acceptable collateral evidence), while

another may be rejected. When it comes to fences on or near aliquot lines, each Land Surveyor has to make his own decision and live with "Brinker's Law" as quoted above. It is a sad commentary that after 200 years of use and abuse, the public land survey system does not offer any clear and concise standards of positional tolerance for either accepting or establishing aliquot lines. The fact that we are still arguing among ourselves over the proper location for a "center of section" is a disgrace to the land surveying profession. We can only hope that Land Surveyors of the future will attack this problem more aggressively than those of the past, and will quit turning these important decisions over to the courts.

On a more positive note, and one which I hope will guide those future Land Surveyors, let me close with another statement from A.G. Mulford's booklet: "For after all, when it comes to a question of the stability of property and the peace of the community, it is far more important to have a somewhat faulty measurement of the spot where the line truly exists than it is to have an extremely accurate measurement of the place where the line does not exist at all." In other words, there are still some "good fences." □

Reprinted from *ACSM Bulletin*, February 1987

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Working Less, But Smarter

Editor's note: Carol Orsborn runs The Orsborn Group Public Relations. She has learned the secret of success, she says, and it's not working 80-hour weeks to beat the competition. It is, Orsborn says, working less—but smarter. Orsborn spoke with *communication briefings* on the stress of getting ahead.

Too many people work long hours to get ahead but get only grief, according to Carol Orsborn.

The public relations veteran started an agency and worked long hours for more than 10 years, making it succeed. The agency became the 63rd largest in the U.S. It earned a Silver Anvil award from the Public Relations Society of America. She had more clients than she ever dreamed of having.

Orsborn had it all. But she was miserable. Her life, she decided, had to change.

To start, she cut the size of her agency in half. She also:

- Sliced her work week to 30 hours and insisted her employees do the same.
- Formed Overachievers Anonymous,

which now has 10,000 members and offers "no meetings, conventions or fund raisers."

• Wrote *You Don't Have To Be Perfect: Enough is Enough* to help other over-achievers.

"I'm not saying you should drop out," she explains. "But people need to balance work with life's simple joys."

"Eighty-hour work weeks aren't productive. When you work like that, you lose your creativity."

To cope, Orsborn advises:

- Make the most of your strengths. Accept your limitations.
- Set realistic priorities.
- Act on your needs without feeling guilty.
- Learn to relax and find some time to do nothing. □

For a free membership card to Overachievers Anonymous, send an SASE to The Overachievers Group, 1728 Union St., San Francisco, CA 94123

Reprint—*communication briefings*, May 1988

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Picking Up The Pieces

By Michael J. Pallamary

As soon as the dust settled, there was confusion everywhere. Shattered windows and cracked walls were all that reflected the impact of the recent earthquakes striking the Southern California region. There were cracks in highways and bridges were distorted, all following the errant course of the fault line as it wound its way through the valleys and neighborhoods of the quake struck communities.

It is obvious where the buildings and homes have settled, but what of the properties with which they rest upon? Where did the legal properties move to? Where are the boundary lines to be located?

In the Great San Francisco Earthquake of 1906, as much as 20 feet of land was displaced along the San Andreas Fault. Near Fort Ross, fences were displaced from 10 to 15 feet. A railroad track near Wrights suddenly had a five foot jog in it. For a strip 200 miles long, from San Juan Bautista to Point Arena, the surface of the earth was ripped apart as the land was

violently displaced.

Movement along the 700 miles long San Andreas Fault reveals it is gradually drifting eastward at the rate of two inches a year or nearly twenty feet a century. At periods, as the strain builds up, suddenly the earth moves under its own power, quickly and violently.

What of the property owner who has just put up a new fence or the contractor who has just erected a high rise building downtown. Where does his property lie and what does he own? Unfortunately, the answer to these questions are unclear.

During the great quake of 1906, it was a different time. Property values were low and in many cases, because many people owned large tracts of land, most of the problems were worked out between neighboring property owners. Nonetheless, in San Francisco, the problem with higher valued properties was never properly resolved for several reasons, providing no precedent from which to base subsequent activity on.

The largest of the problems were all

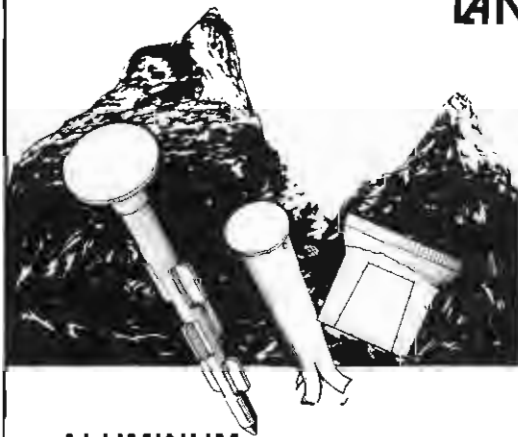
immediately solved due to the nature of the problem itself. Downtown, where the buildings were most heavily congested, most of the buildings were turned into rubble in minutes or turned into ash by the fire that followed. There was thus no need to worry about property lines when there was nothing left upon the land itself.

The fire that followed not only destroyed the buildings, but also equally important, city hall and all of its valuable records. The government's land office records were also destroyed creating problems for researchers, title companies and surveyors not only in San Francisco but also throughout California.

Another effort was made to resolve the problems with the adoption of the McInerney Act. This act allowed property owners whose records had been destroyed in the fire to petition the courts to affirm their titles and cause a new record to be created. If the court deemed the claim to be true and there were no objections, the new records were created.

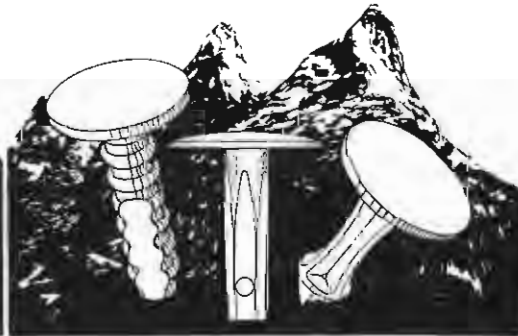
In Alaska in 1969, there was also a

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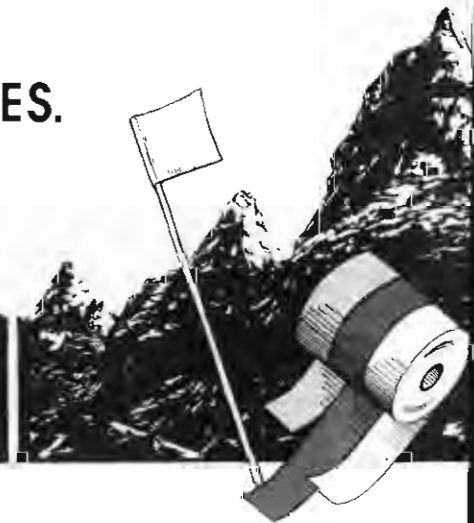
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great deal of displacement with property lines due to that states great earthquake. Because there was a boom as a result of the oil speculation, the State of Alaska and the City of Anchorage arrived at a convenient solution; they simply brought up much of the land where the problems occurred. The area was turned into what is known today as Earthquake Park. Again, no guidelines were set for dealing with the problem of shifting titles and properties.

Later, Alaska passed legislation intended to facilitate the realignment of property boundaries disturbed by earthquakes. The statute allows for the filing of a substitute plat to correct existing public records. This action may be brought by a city, borough or school district or any other entity recognized by the court or granted permission by the court.

In 1972, the "Cullen Earthquake Act" was similarly adopted in California. In both the Alaska and California statutes, the process provides for a single action adjusting the boundaries of a 'reasonably large land area affected by the disaster' as opposed to a series of single actions affecting a single parcel of land or a small number of parcels. Additionally, separate actions may also be permitted by the courts. Unfortunately having a law is one thing, a practical solution is another.

In Los Angeles, following the destructive Sylmar Earthquake of February 9, 1971, a great deal of problems were encountered with land boundaries. An aerial inspection followed by ground surveys revealed that the ground had shifted in areas by as much as a foot. Vertical differences were also noted and over a two block length, as much as seven feet of vertical settlement was detected.

Recommendations from representatives of railroad, utility companies and title companies produced conflicting solutions. One of the problems involved determining the extent of the damages and the magnitude of the problem. The city applied for a federal grant to resurvey the area, both public and private. Eventually, a \$2 million grant was approved with the stipulation that only public property could be surveyed, not private.

Although the city attempted to include private properties in the program, there simply was not enough money as the effort ended up taking two years to complete. The city crews did locate private fence lines in the hopes of providing a minimal amount of documentation in the event disputes arose later.

The city surveyor's office had approached the problem utilizing the concepts of riparian laws or laws relating to water boundaries. As a water boundary,

constantly in a state of flux, similar problems are encountered and because there was no practices to rely on, this approach was the best one.

There are three basic types of earth movement experienced in an earthquake. These include sudden horizontal shifts on each side of the fracture, distortions due to stretching or compression and earth slides.

An examination of court cases relative to land matters as a result of earthquakes produces limited results. Landslides, though, are encountered and are a consideration in many land disputes.

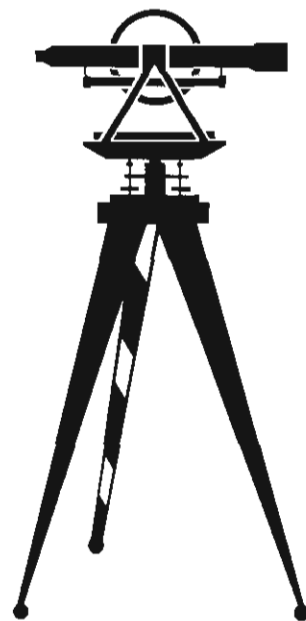
Proration, or distributing the excess land between the properties affected, is a legitimate method of restoring property lines as was done after the Long Beach earthquake. Unfortunately, if extended over lengthy distances, inequities can be created.

In land slides, different problems are encountered. Where a slide results from an act of nature such as an earthquake, the owners still own the land as defined by the undisturbed bedrock underlying the property. Even though the surface of the land may become fluid as when land

flowed into the Alaska Bay, the property boundaries remain where they have always been. This condition is quite different from conditions such as those created by an opening in the earth as a result of an earthquake where the underlying bedrock is disturbed.

In the recent Imperial Valley quake, the Superstitions Hills Fault Line moved by six inches, far from the densely developed towns and the cities of the region. What would we own if a quake of equal magnitude were to strike downtown San Diego or Los Angeles where land sells at such a premium? Hopefully a simple solution other than dealing with piles of rubble can be considered. □

Michael J. Pallamary is a California Licensed Surveyor and is the President of Precision Survey and Mapping of San Diego and Land Survey Service of La Jolla. Pallamary's firms specialize in land boundary matters. He is past president of the San Diego Chapter of the California Land Surveyors Association and has been practicing surveying since 1971.



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Failure to Understand Easements Can be Costly

By Robert J. Bruss

Gross. Appurtenant. Prescriptive. What do these three words describe? If you answered "easements" you get an "A" and go to the head of the class.

Real estate easements affect almost every property, often hurting but occasionally enhancing market value. Very simply defined, an easement is the legal right of another property owner or a public utility to use part of a property without paying additional compensation to the

owner of the burdened land.

To illustrate, a deed may contain the following clause: "An easement for public utilities over the southwesterly 5 feet, southeasterly 5 feet, and northwesterly 5 feet of said land as shown on the map of said subdivision."

In ordinary language, this means the power, phone, water and sewer utilities, can, if desired, use three edges of the land without payment. To be legally valid, an easement must either be recorded in the

public records or plainly visible upon inspection.

Failure to understand the law of easements can be expensive. For example, several years ago a title insurance company in California learned this lesson the hard way.

A few months after a home sale closed, the buyer discovered a manhole cover in his back yard. He found it led to a sewer which traversed his property exactly where, the owner said, he planned to build a swimming pool. Since the owner's title insurance policy failed to note this sewer easement, the title insurer had to pay the homeowner for the greatly diminished value of his property.

Three types of easements.

(1) Appurtenant easement. When a neighboring property owner owns an easement to use part of your land, such as for a driveway or walkway, is called an appurtenant easement. If the neighbor sells his property, the easement right transfers to the new owner.

An appurtenant easement should be recorded as part of the legal description of both parcels. The land which is burdened by the easement is called the "servient tenement" whereas the parcel which benefits from the easement is the "dominant tenement."

Special care should be taken by the servient tenement owner to make certain the easement retains its original use and location. For example, if your land is subject to a road easement for a neighbor to reach his home on otherwise landlocked property, the easement's purpose and exact location should be noted on the legal description.

Then, if the neighbor builds a subdivision of homes and owners try to use the roadway across your land you can probably get an injunction to stop the excessive use.

(2) Easement in gross. The other major type of easement involves an easement held by a non-adjointing owner. An easement in gross is usually owned by a public utility to maintain wires or underground pipes across a property. Most easements in gross are created at the time land is subdivided. As a condition of providing

Bridging The Gap . . .

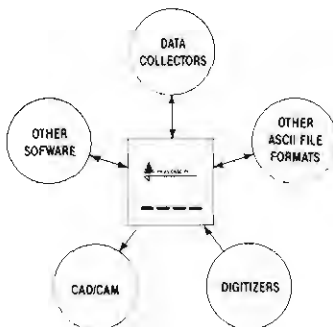
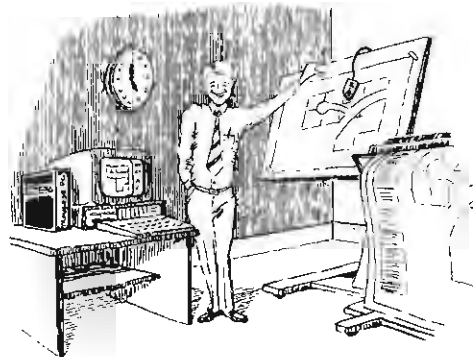


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power, phone water and sewer service the public utilities usually require free easements in gross across the subdivision parcels. However, if a public utility needs an easement across land which will not be directly benefited, payment for the diminished land value must be made to the owner.

If an agreement can't be negotiated, public utilities have an eminent domain right to condemn an easement in gross upon payment for the appraised value of the property taken.

(3) Prescriptive easement. The most troublesome and potentially costly type of easement for most property owners is one acquired by adverse use.

To illustrate, if I construct a fence 5 feet on my neighbor's side of the boundary between our lots and use the 5 feet of space without my neighbor's permission for a specified number of years, I can acquire a permanent prescriptive easement to continue using that portion of the neighbor's land without any payment.

After using part of a neighbor's property for the number of years specified, a prescriptive easement can be perfected by suing the neighbor in a quiet title lawsuit.

But a prescriptive easement cannot be obtained if the neighbor gives permission to use the land. For example, last year after I bought a property I discovered my new neighbor has built a fence using a 3-by-15 foot strip of my land.

Not really caring about this strip but not wanting to give away prescriptive easement, I wrote a letter to my neighbor granting my permission to continue use of the strip "until revoked." By giving permission, I ended any adverse hostile use which is a requirement to obtain a prescriptive easement.

By understanding the three types of easements and their possible consequences for property owners, costly problems can be avoided. To avoid possible title problems when acquiring property, especially from friends and relatives, an owner's title insurance policy should always be obtained.

Prescriptive easement acquisitions by neighbors can be prevented by inspecting your property at least annually to be certain no adverse or unapproved use has occurred.

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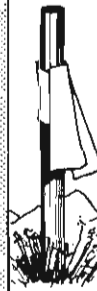
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From The Soapbox

By Joseph H. Bell

Shooting Yourself In The Foot

Psychologists tell us that we are most annoyed when our character defects are reflected back to us in the mirror of another person. Shooting myself in the foot may be the only fame to which my peers will let me lay claim without objection. I am, therefore, particularly sensitive when the CLSA Board shoots itself in the foot.

It took me fifty-four years to figure out why I shoot myself in the foot, and the last board meeting produced a wonderful example. I do not perceive reality in the same way as ordinary men. When I read the proposed joint policy statement, this is what I saw:

Proposed AMA-ABA Policy Statement on Medicine

(Suggested by PLSC, Inc.)

The professional associations of the American Medical Association and the American Bar Association jointly support the concept that medicine is a separate and distinct profession. It is also recognized that certain specialties such as brain surgery require separate licensing. Medicine and Law adhere to many common requirements and standards, and that there are common areas within which both doctors and lawyers may practice. The area generally recognized as "legal medicine" is an area of common practice.

Furthermore, because of the complex nature of the subject matter and services embraced within Medicine, it is recognized that separate educational and accreditation processes are needed—leading to the Doctor of Medicine Degree in Medicine or other relevant discipline as a prerequisite for the Medical license.

I immediately raised strong suggestions to the board because I was offended by the notion that any other society should have any voice in deciding professional issues within our profession. I did not want to persuade anyone of what to me was obviously objectionable. And, it was really non-verbal information which had not even filtered through my cerebral cortex. The proposed statement had jabbed me directly in the non-verbal hypothalamus.

If you saw the world the way I do, you would have seen at once that the American Medical Association would never be a party to such a joint statement. But you do not have my particular vision so I must back track and find in verbal and convincing arguments why we ought not to join in with any other group in defining professional issues within our profession. Perhaps by using another juxtaposition I may convey my point.

Proposed ACSM-AFOFL Joint Policy Statement on Surveying

(Suggested by PLSC, Inc.)

The professional associations of the American Congress on Surveying and Mapping and the Operators Union of the American Federation of Labor jointly support the concept that surveying is a separate and distinct profession. Etc. . . .

In fact, you could substitute any organization of your choice in place of ASCE and it would probably be plain to you that we ought not to be entering into a joint statement about professional issues in our profession. But civil engineers having been granted the privilege of practicing our profession without adequate training and experience for years somehow gives them the right to join in with us to make policy statements about surveying. I am not opposed to joint ventures with other groups in area which are appropriate. The ALTA survey is a fine example. We help a client to define his product in our professional terms. That to me is an appropriate area of working together. It makes no statements about internal professional matters and ALTA makes no claims to be able to practice our profession inappropriately.

My arguments do not persuade. But, perhaps, if they cause you to think about it, you may well persuade yourself.

The other very troubled issue is the continued support of the Foundation for Surveying Education. Although it is a wonderful concept to which many, many selfless hours have been devoted. The course of the foundation needs to be examined. The stated purpose is laudable, but the path by which they travel becomes a path that causes me great concern. The foundation has a dream. They want to create a Survey Department at California Polytechnic Institute in Pomona. Would not we all love to have a strong academic survey department right in our own yard. It is tempting to pay any price for such a jewel. But maybe we had better look very, very carefully at the true price.

Anyone out there who is awake must know there is a stated deliberate attempt on the part of both ASCE and Cal Council to restore the full surveying exemption to all Civil Engineers in the State of California. Are we aiding and abetting the practice of our profession by unqualified people by supplying education to Civil Engineers at Cal Poly? They will still not be held to any experience qualifications the Fresno Graduates in Surveying must meet.

One of the basic problems in our profession is the control of the flow of clients and the control of surveying work by Civil

Engineers. Do we really want to exhaust our limited resources creating a superstructure of specially educated but untrained Civil Engineers to be at the head of our profession?

I consciously elected not to be a Civil Engineer because I did not feel that I could maintain minimal competence in both fields. I spend all of my time trying to maintain minimal competence in only some fields of surveying! I could not possibly do so in both Civil Engineering and Surveying. What part of his time will he devote to continuing education, to reading and to thinking about surveying? There are surveyors who become lawyers. There are even Doctors who become lawyers, but they become a super subspecialist in one or the other of those professions. I personally know of only one surveyor who has become a lawyer whose surveying work remains as professional as or better than his peers. He is an exceptional person and even the test of time may show that he has been lured away from surveying by the press of his responsibilities in the Law.

Do we want to promote the notion that a surveyor must also be a Civil Engineer in order to be a professional?

Finally, and then I will give up the SOAP BOX to anyone with the courage to express himself in print, do we want to dilute our support to the existing and flowering program at Fresno State University? The contention of the Foundation is that it will not hurt the program at Fresno and that the Cal Poly program will make surveying education more available to the local surveying community. If everything went according to the plans of the Foundation, it would doubtless be so. But plans, as any surveyor can tell you, will not always go into the ground. Will education be more accessible? No night classes or nonresident degrees in Civil Engineering are planned much less Surveying degrees. Even the Saturday Classes in Surveying have been cancelled! If one wants to access the program at Cal Poly, he will have to make exactly the same sacrifices that a student going to Fresno. Cal Poly will be in direct competition for students who would attend Fresno. There are only about 60 Surveying majors at Fresno now, could that remarkable program survive with 30 or even 20? Do we want to risk, recklessly, the health of an in place Degreed Surveying program for a distant dream?

I may not be an expert in anything but shooting myself in the foot, but that does make me a reliable observer when my profession is shooting itself in the foot.

The Rush For New Technology

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Like many professions, surveying has been besieged with new products made possible by advancements in microprocessor and other electronic technology. Field crews now have data processing capabilities that ten years ago could have only been handled in the office. The ability to collect and process data has revolutionized survey field procedures. And it won't slow down. With the speed that new advances are being made, it has been reported that over fifty percent of the current technology will be obsolete within five years.

These technological changes have been received with mixed reactions. Many companies have rushed to embrace each new product as a means of increasing the productivity of their personnel. Some firms have discovered that the electronic hardware and software are so reliable and "foolproof" that they can eliminate the

need for highly skilled (higher paid) personnel.

Unfortunately in this mad rush, the use of these new data collecting and processing tools has been confused with surveying skills. A crew, armed with a new total station, may currently have the capability to collect the X, Y and Z coordinates at each of several hundred locations per day, but unless those crew members understand the significance of the information gathered, the real value of that information could be worthless. A party chief with poor math skills, who learns to push a certain sequence of buttons to calculate the layout of a horizontal curve, could cost his company thousands of dollars because he forgot to push one button. Preprogrammed "Survey Chips" are no substitute for strong basic surveying skills. A data collector is a poor replacement for someone who can generate clear, concise and legible field notes.

Please do not view this writing as a condemnation of the advantages that technology has produced. I have spent

too many hours working in the heat of the desert, and in the snow and cold of a Wyoming "springtime" making stadia topo shoots, or calculating the location of control points to not welcome anything that made the job easier and faster. We must realize that these wonderful time saving new machines are just that, wonderful time saving machines.

A paramount issue is that we must guard against allowing the current and future surveyors to become nothing more than "button pushing electronic wizards" that can only derive simple calculations from their computers, or measure two hundred feet with their total station. If the basic principles of surveying math, drafting, and field procedures are not learned in the beginning, the shortcuts will become the only procedures known. □

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Joint Professional Practice Committee of Orange County Chapters of the California Land Surveyors Association, California Council of Civil Engineers and Land Surveyors in Cooperation with the Orange County Surveyors Office

Land Surveyors/Professional Engineers

The Joint Professional Practice Committee (JPPC) has been formed by the Orange County Chapters of the California Land Surveyors Association, the California Council of Civil Engineers and Land Surveyors, and the Orange County Surveyor's Office.

The JPPC was formed to provide a forum for civil engineers and Land Surveyors to upgrade the standards and quality of practice of the surveying profession in Orange County.

The JPPC's main role is to promote the continuing education of Professional Practitioners of Land Surveying, in both the public and private sectors, with regard to the laws, rules, and regulations which affect the way we practice.

The JPPC is available to assist members of the surveying profession who have questions or problems dealing with

1. Interpretation of, and compliance with the Land Surveyor's Act.
2. Interpretation of, and compliance with the Professional Engineer's Act, as it pertains to surveying.
3. Interpretation of, and compliance with the rules and regulations of the Board of Registration.
4. Boundary resolutions.
5. Proper or improper surveying practice.
6. Surveying Standards.
7. Mapping Standards.

The Committee is also available to act as an Advisory Board or as an Arbitration Board pertaining to survey questions as a service to Professional Practitioners.

With your cooperation in these matters, the JPPC believes that great strides can be made in the upgrading of the surveying profession.

Sincerely,

Joint Professional Practice Committee
D. Mark Ware, Chairman

Committee Objectives

1. Education of the professional practitioner on both public and private practice.
2. Review the activity of land surveying practitioners in the County of Orange.
3. Act as an advisory board, as a service to professional practitioners.
4. Promote communication and cooperation between the professions of Civil

Engineering and Land Surveying.

Committee Policy

1. The purpose of the committee is to provide a forum for Civil Engineers and Land Surveyors to upgrade the standards of the surveying profession.

2. The Committee's role is to promote the continuing education of Land Surveying practitioners in every aspect of surveying with an emphasis on the laws, rules, and regulations which affect Land Surveying practice.

3. The Committee, when requested, would review questions on proper or improper Land Survey practice and attempt to resolve these questions.

4. The Committee, when requested, would meet with parties involved in questions of proper or improper Land Survey practice and attempt to resolve these questions.

5. If questions of improper survey practice cannot be resolved and corrected, the Committee, when deemed appropriate will refer such questions to the Board of Registration for action.

6. It is not the purpose of the Committee to search for violations or violators of the laws, rules, and regulations which affect Land Surveying practice.

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- CORPORATE MEMBER GRADE: Shall have a valid California Land Surveyors or Photogrammetric license.
- AFFILIATE MEMBER GRADE: Any person, who in their profession, relies upon the fundamentals of land surveying.
- ASSOCIATE MEMBER GRADE: Any person who holds a valid certificate as a Land Surveyor in Training.
- STUDENT MEMBER GRADE: A student in a College or University actively pursuing the study of land surveying.

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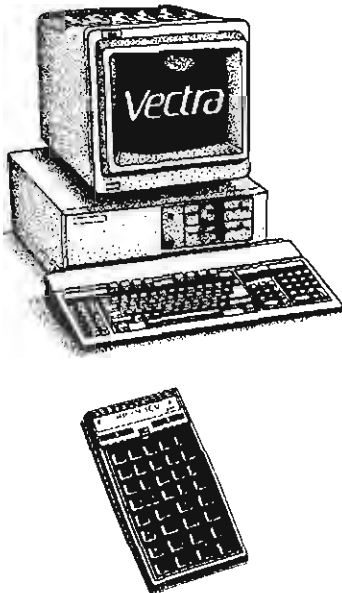
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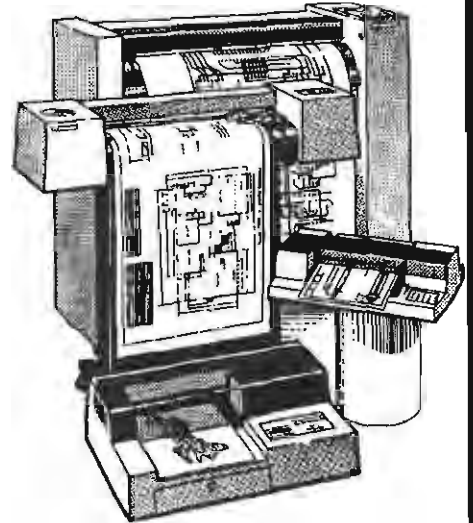
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Using the Right Energy to "Work Smart" Might Save You from Working Too Hard

For business owners, tips on how to do things better should always be welcome, whether they're from your stock clerk or Lee Iacocca. In George Sullivan's book *Work Smart Not Hard: Practical Advice from the Experts on How to Manage Your Work, Your Time and Your Life*. (Facts on File, 1987). He offers practical techniques, insights into correcting negative behavior, and explanations from a broad array of achievers (many of them celebrities) in business, sports, politics, etc. on how they did it. The ideas for organizing your time and tasks apply to running both your business and your personal life.

For example, advice on how to be a better achiever from Madelyn Jennings, a Gannett Company senior vice-president could benefit the most seasoned entrepreneur. "Listen better. Most people listen about 20 percent of the time. . . Move faster and think faster. You'd be amazed how much more is possible. Right now

you're probably using only about 5 percent of your brainpower. . . Have a short memory for mistakes—yours and others'. Look to catch people doing something right; ask who's right and what's wrong."

Many successful people reveal techniques that range from relieving stress by watching birds and sunsets to saving time by reading in the bathroom. Almost all the strategies described by corporation CEO's and powerful politicians down through cartoonists and actors contain the same elements: being well organized, setting priorities and avoiding procrastination, delegating, controlling stress, making your leisure count and "remembering to stop to smell the flowers."

Everyone agrees there's no "best way" to achieve success. However, certain qualities show up among winners. The person with this winning mindset has a single-minded approach toward well-

defined goals, a good education, the ability to control others effectively and the know-how to play the part, dressing and communicating well.

Using Your Prime Time

Using time to your best advantage requires that you determine your own individual "prime time." Because everyone's body rhythms differ, individuals' peak periods vary; your mid-morning high may be your partner's low. Keeping a detailed time chart for a week will enable you to see these patters in both your working and your personal life. When you have a realistic picture of how you use your time on a day-to-day basis, you can tailor your productivity to fit.

Plan your big jobs when you're most energetic; do your routine tasks when you're feeling lower.

There are many standard time-managing techniques: discouraging unnecessary interruptions, hiding out so

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you can concentrate entirely on one task, and the like. There are plenty of gimmicks, too, such as the 25-hour clock invented by a Dallas realtor. It speeds up users by cramming 25 shorter "hours" into the standard 24-hour day. What works well for you is your best solution.

Organizing Your Office, Your Paperwork

To a large extent, your base of operations sets the stage for your business day. Probably most executives can't function well in an office with a desk so cluttered that you can't see the wood. Ditto for sitting on an uncomfortable chair, having to rummage through files to get the right piece of paper, or suffering eyestrain from a glaring light. Of course, certain personalities can tune out anything that doesn't apply to their immediate task. Thus, find out what kind of environment puts you in the best working state and make the necessary changes—anything from refurbishing your office to reorganizing your filing system.

You also should think about how you deal with paperwork and what you do about meetings. Efficiency experts stress the "handle each piece of paper only once" philosophy, and if you can manage

it you'll be rewarded. Among the ways to achieve this is author Arthur Hailey's "Never have a 'pending' tray—it's a procrastination crutch." Another writer recommends a growing trend: Except for important communications, answer short requests by writing your reply right on the same sheet of paper and making a photocopy for your files.

Controlling Job Stress

There's a significant difference between stress and distress. The first is a normal part of everyday life that you should make allowances for. Successful people deal effectively with distress through special techniques: Spending 10 to 20 minutes once or twice a day on relaxation routines, snacking on whole-grain, no-sugar foods in the office, midday exercise breaks and other coping tactics.

Fighting Procrastination

Procrastination seems to be a universal plague of business owners. In dealing with it, your best bet is to explore why you keep putting off certain tasks. Charting the reasons will take you beneath the surface explanations of laziness or lack of time.

Dr. Jane B. Burka, a psychologist, points out that far from being lazy, procrastinators are often so concerned with

their work that they're afraid to get started. She believes procrastinators may often fear both success and failure. Other causes are rebellion against having to do certain tasks, lack of problem-solving skills and perfectionism.

Two good ways to overcome procrastination are dividing big tasks into little ones and making checklists of things you must do. A more unusual idea is author Edwin Bliss's "Tape Talk." You talk to yourself like a "Dutch uncle" into a tape recorder. "Verbalizing your feelings often breaks the log-jam," he says. "You can save the tape and play it back when you need a talking to by the world's foremost authority on you—yourself."

Making Leisure Count

"People who work smart should also play smart." Benefits you get from your leisure are often in direct ratio to how carefully you gear it to your work. If you have a lot of stress in your business, plan restful vacations. If there's too much boredom in your daily routine, design leisure that adds stimulation. □

—from *Profit Building Strategies*, April '88



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Professional Liability Insurance Update

By Thomas J. Sharp, IV and Richard N. Hartman

As a Surveyor, Where is My Exposure?

As most of you know, your Professional Liability application is the major factor in determining your Professional Liability Premium.

One of the most important questions an underwriter reviews when analyzing an application for a Land Surveyor is the types of services performed by the firm. (ie: Boundary Surveys, Construction Stakeouts, Subdivisions, etc.) From an underwriting standpoint each category of services represents a different exposure. The underwriter will adjust the premium based on the level of exposure determined by the service concentration.

Generally, from a Professional Liability underwriter's point of view, services such as construction stakeout and subdivisions represent a higher exposure than boundary and title surveys. Please do not construe this to be gospel, as each application is analyzed and priced separately. Rather, these are general guidelines. The reason one type of service is considered to be of great exposure is due to claims experience. Professional Liability underwriters traditionally have seen a greater frequency and severity in claims for negligent stakeout than they have for negligent boundary and title surveys.

A leading underwriter of Surveyors' Professional Liability Insurance has categorized each service type into one of three different exposure levels. Category I represents, based on this company's experience, the lowest level of exposure for Land Surveyors. The claims from services in this category have probably and will potentially result in lower severity and/or frequency, again, based on this particular company's experience.

Category II represents services of a higher exposure for a Land Surveyor than those of Category I, but from an insurance company point of view do not represent the most hazardous services a surveyor will perform. The claims for these types of services have probably resulted in and will potentially result in somewhat higher severity and frequency.

The services in Category III represent the highest level of exposure based on this company's experience, for a Land Sur-

veyor. In the insurance company's opinion, the services in this category may result in a high frequency and/or high severity of claims. Again, this should not be taken as to apply to each firm. Each application is reviewed individually and certain other factors can affect the overall premium determination. However, this is a general outline of the insurance company's classification of exposures.

The following services would fall into Category I within this company's underwriting guidelines:

Boundary, Title Surveys
Photogrammetric Surveys
Geodetic or Control Surveys
Mapping or Cartography

The following services would fall into Category II within this company's underwriting guidelines:

Subdivisions
Topographic Surveys
Construction Stakeout
Hydrographic Surveys

The following services would fall into Category III within this company's underwriting guidelines. These services this company considers to be Civil Engineering and therefore have the highest exposure:

Plans and/or specifications for Highways, Natural Drainage Systems, Utilities, or Buildings.

It should be noted that this particular company's Surveyors' Professional Liability Program is available to firms whose volume is 80% or more surveying work in Categories I & II and 20% or less Civil Engineering, Category II. These categories play a major role in determining the premium within this insurer's Survey Program.

The Key, however, to receiving the most favorable premium possible is the proper completion of the application. Here, a knowledgeable broker is extremely important. He or she can assist you in completing the application and show you how proper and complete answers to all the questions on the application can lead to a favorable premium.

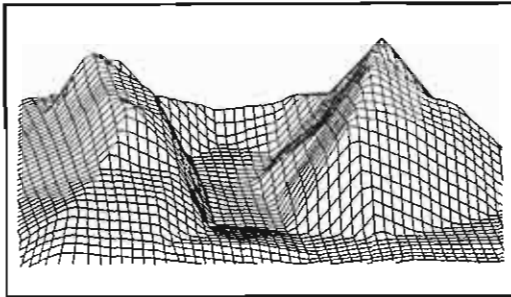
So remember, when you are completing your application, whether for new insurance or renewal of your current policy keep these points in mind. Or better yet call your broker and have them help you. That's what they are there for!

—from THE COORDINATE, Winter 1988

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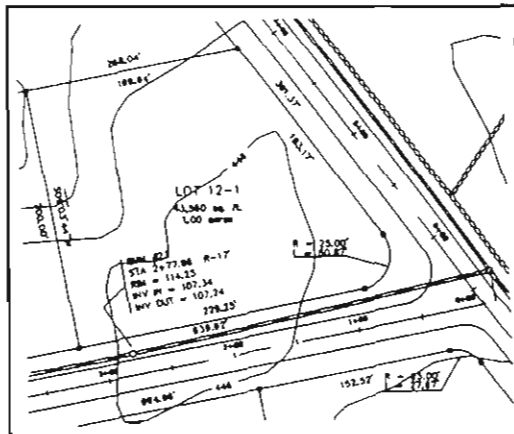
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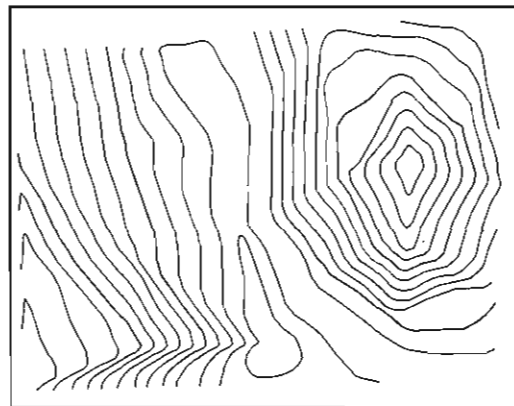
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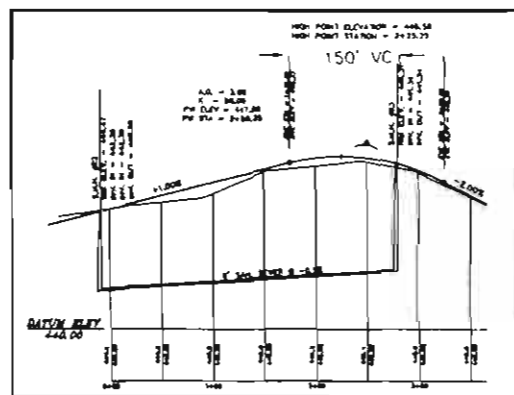
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Carlos Najera, R.L.S., P.L.S., 1943-1988, of Sacramento, California, a Boundary Determination Officer for the California State Lands Commission, met a tragic death on January 20, 1988, at the hands of an unknown assailant or assailants. A 23-year veteran of State surveying service, he spent the first 11 years of his career in control surveys with the State Department of Transportation, and the last 12 years in boundary work with State Lands. The 44-year-old Najera held registration in both the States of Arizona and California.

He was a member of ACSM, NSPS, and was a life member and board member of the Surveyors Historical Society.

Najera held a credential as a California Community College instructor, and taught various Surveying classes at Sacramento City College. He was active on both the Survey Technology program's advisory and curriculum committee's boards.

Najera was also an author, contributing to the recently published *Surveyor's Handbook*. In addition he wrote several articles for various technical journals.

He is survived by his wife Elisa, sons Richard and Michael, numerous other family members, and countless friends in the surveying community.

His love and devotion to family, his deep concern for people's well-being, and his highly regarded professionalism will be sorely missed by all who were fortunate enough to know him.

Any memorial contributions may be made in his name to the Special Care Parents, P.O. Box 22322, Sacramento, CA 95822. For additional information, inquire:

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Visalia GPS Survey

By Steve Frank

When the City of Visalia recently decided to acquire a land information database system they also made the decision to back that database with a solid geodetic control base system using NAD83 State Plane coordinates. City surveyor Derrick Lord contacted CSUF faculty member Dr. James K. Crossfield to see about the possible advantages of using Global Positioning System technology to implement the City's control network. The City and CSUF quickly agreed to a GPS demonstration project consisting of 15 survey points, located at approximately 2-mile spacing, encompassing an area of about 32 square miles. After a preliminary visit by Dr. Crossfield and CSUF student Donn Liddle to plan the execution of the proposed demonstration, the actual project got under way in early January 1988.

A GPS team consisting of Dr. Crossfield, Donn Liddle, and students Rick McCormick and Steve Frank performed the demonstration over a period of 10 cold and foggy nights. A total of 33 GPS baselines were observed to interconnect the 15 control points and to tie them to nearby NGS geodetic horizontal control stations. Two first-order and two second-order NGS points were used in the survey. Hoping for relative network closures of at least 1:100,000, the worst relative loop closure was discovered to be much better than 100,000.

The GPS team also experimented with different field procedures aimed at optimizing observation time by planning and executing efficient moves using their two unit GPS setup.

Moves that required a minimum of 20 minutes at the start of the project were cut to under 10 minutes by the project's end. This saved time can become valuable when one is limited to the current 7 hour GPS visibility "window". City of Visalia surveyor Derrick Lord received valuable GPS training as he assisted with the demonstration.

The collected data is being used at CSUF to help analyze the capabilities of GPS as used under a wide variety of field conditions and observation times. Although only horizontal positions of points were demonstrated, CSUF is also looking at the vertical positions obtained in an effort to analyze the leveling capabilities of GPS. In all, the demonstration was deemed successful, and CSUF would like to thank the City of Visalia and Derrick Lord for allowing us to conduct this project. □

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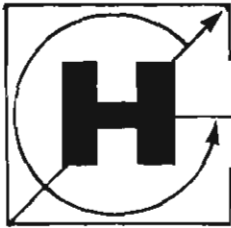
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Analysis & Discussion of the 1986 L.S. Exam

Author's Note: This article is not an exhaustive analysis of the 1986 LS exam but is more a general discussion regarding the complication of collected research.

For many of us, the results of the 1986 LS exam were good news. In recent years, the passing rate has been very low. For example, in 1984, 76% passed, and in 1985 only 3.3% passed. The Land Surveyors took a long, hard look at what was happening in the profession and looked for answers. Were the candidates unqualified or ill-prepared? Was the exam too hard or was it poorly graded? Whatever the reasons, the 1986 exam was a closely-watched event. Did examinees study harder? Was the grading more balanced? Probably a little of both. The 1986 exam breakdown was as follows: 323 allowed to take the exam; 23 no shows; 235 failed; 65 passed (21.7%); and 13 additional passed by appeal to the Board of Registration at their July 10th meeting. The passing score for the exam was 51.5 points.

In an attempt to find out something about the pre-exam preparation undertaken by the new Land Surveyors, the ACSM/NCS Technical Sessions Committee distributed a questionnaire to the initial 65 license recipients. This questionnaire asked about professional associations, how many times the exam had been attempted, formal education, workshops attended, reviews, reflections on the exam(s), references used, and suggestions for continuing education courses. Of the 65 surveys mailed out, 26 were returned, with some interesting results. The ages of the new licensees varied from a low of 25 to a high of 49, with an average age of 35.

The group seems to be highly-educated as well. Of the 65, at least 8 have two-year degrees, mostly in general education. Eighteen have Bachelor's degrees, and one holds a Master's Degree in Geodesy from Purdue. The 18 BS/BA degrees varied from Political Science, Accounting, AG-Engineering, Liberal Arts, Geology (2), Forestry (2), and Business Administration to Civil Engineering (2). There are also 7 with a degree in Surveying: one from the Oregon Institute of Technology and 6 from CSU, Fresno.

On the question of study habits, 16 studied alone, 3 in groups, and 7 used

both. Most of the new licensees are from Orange County, and that was reflected in the LS review classes taken. The Orange County Chapter of CLSA sponsors a course that is fairly successful. It was one of the most attended by successful candidates and given the highest rating in the survey (an average of 8 on a 10 scale). Six went to the CSU, Fresno course (7 on the 10 scale), and 3 went to the Central Coast Chapter of CLSA workshops (8 on the 10 scale). There seem to be a few very popular study guides available that are being recommended to people studying for the exam. The most popular resources are old LS exams. The second most popular is the *Land Surveyors Review Manual*. This manual features old LS exam questions which are answered by a group of surveyors from Orange County. Other study guides recommended are the *LS Test Training Manual* by Minnick, the *Syllabus for Land Surveying Exams* by Safford, and *4567 Questions* by Brinker.

On the question asked about reference texts used for the exam, the 26 lists were almost identical and read something like this: *Boundary Control and Legal Principles* by Brown, the *Manual of Surveying Instructions* 1973 from the Bureau of Land Management, the *Land Surveyor's Act*, the *Subdivision Map Act*, *Legal Descriptions* by Wattles, *Photogrammetry* by Wolf, *Evidence and Procedures for Boundary Location* by Brown, a general surveying text, an astronomy text, and a *Solar Ephemeris*.

The survey next focused on the exam itself and how it was administered. The last question indicated the biggest downfall of the 1986 exam. In the 26 responses, 7 sites were rated. Paso Robles was the only site to rate favorably with the examinees. The common problems were late starts, poor instructions, and noisy, uncomfortable rooms. For example, in San Mateo the instructions were to be there by 7:00 a.m. The doors didn't open until almost 8 a.m., and the exam didn't start until 9 a.m. The applicants were given wrong answer forms, and the exam administrators didn't have any instructions. Most of the problems at all of the sites were blamed on two things: too many disciplines in one room and no one from the Board of Registration that knew what was supposed to be happening.

(continued on page 30)

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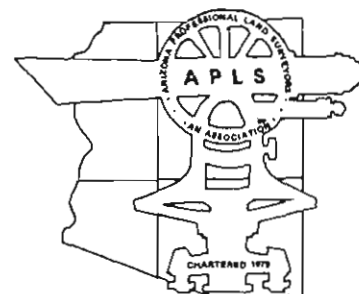
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(continued from page 28)

After the exam was under way, things seemed to settle down alright. The exam was viewed as being very fair and balanced, although heavy on public lands questions. There is a general feeling that a question regarding construction surveys should be included and that the geometry questions should be dropped. Of course, as with all exams, each participant has his favorite and least favorite questions. Overall, the exam received a favorable score from those polled. But please remember - the only ones polled were those who passed!!

The last question of the survey dealt with the needs and interests of continuing education courses. The suggestions ran the spectrum of survey problems from business practices (bill collecting, client relationships, etc.), to new survey techniques (geodetic and hydrographic surveys, the use of GPS), to legal principles relating to boundary determination and other survey practices (mapping and real property law). These are the issues that the Program Committee will be taking into consideration as we plan and prepare future programs. □

By Mitch Duryea, NCS of ACSM Bd. of Directors and Technical Program Co-Chairman

Training More Lawyers Than Engineers

(The commentary below was written by Judy Whalen, Executive Director of the Wisconsin Society of Professional Engineers. It appeared in the January/February 1988 issue of Wisconsin Professional Engineer.)

Richard A. Lamm, former governor of the State of Colorado has expressed concern that American societal institutions are becoming uncompetitive. The statistics that he quoted are alarming. For instance, Lamm states, "Two-thirds of all the lawyers in the world practice in the United States. Japan trains one thousand engineers for every one hundred lawyers. We train 1,000 lawyers for every 100 engineers." Lamm continues, "We have 650,000 lawyers practicing in the United States, and every year we graduate three times as many as exist in all of Japan. That is a litigation crisis. Lloyds of London estimates that 12 percent of its business comes from the United States. We have five times more lawyers per capita than England and 20 times

more than Japan. This situation represents more than just the litigiousness of society, because it also takes brains that are desperately needed elsewhere. Forty percent of our Rhodes scholars go to law school. Do you think for a minute that Japan would take 40 percent of its best brains and send them to law school? This situation tears at the heart of the creative mainspring of capitalism and the American way, which is risk taking innovation. You can't even buy a whooping cough vaccine these days because of the drains of litigation."

"The United States is," says Lamm, "rapidly losing its international competitiveness. We are also losing our societal competitiveness. A nation that trains lawyers rather than engineers is a nation that is adversarial in everything it does rather than cooperative." □

Reprinted from the Wisconsin Professional Surveyor, March 1988

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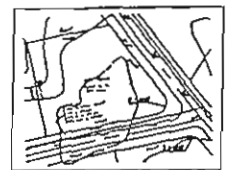
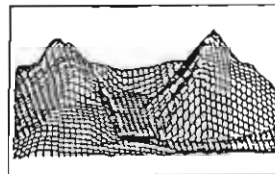
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Are You Afraid to Charge What You're Worth?

By Daniel Beardslee

Let's confront this subject head on. To be successful, Land Surveyors must make a substantial income. To make a substantial income, they must charge a fee that is well above the cost of providing the service.

If they charge enough to make a substantial income, they will be respected in the community. They will be considered professionals—the much sought-after recognition we all talk about at society meetings. If they make a substantial income, and are thereby regarded as professionals, a different set of youngsters will consider entering the profession. Income opportunities will attract young, bright, motivated individuals who now enter professions that already offer substantial incomes and prestige—such as engineering, medicine and architecture.

The obvious conclusion, of course, is that we now charge too little for our services. If we did charge enough, more universities would offer surveying programs and more students would seek entry into the profession. If we did charge enough, we wouldn't have to worry about being regarded as professionals.

That happens to be the truth of the matter. The only thing on this earth that will result in surveyors being regarded with the prestige we crave is to raise the overall income level. No amount of paper writing, lobbying, tie wearing, talk giving, brochure and film producing, or anniversary celebrating will achieve the results we seek. Only an improvement in our income level will do it.

What do we do about this dim-witted situation we have allowed ourselves to fall into? It does not take a genius to see that the prevailing rates charged by surveyors promise no more than a lower middle class income to members of this profession. The bigger step is dealing with an old argument—how can we raise rates with the specter of competition being what it is?

I believe the answer only takes some rational thinking and, more profoundly, courage! The first logical step is to analyze the cost of doing business. I have been all over the country lecturing on Land Surveyors, and I find that they universally have little knowledge of the actual costs of conducting their businesses.

In every circumstance, when a cost analysis is constructed using rational input,

the surveyors conclude that they couldn't possibly charge the kind of rate it would take to make a substantial income. They feel they would price themselves out of business. The implication is that the "competition," who would charge less, would have it all. Do you think that is really true? I certainly don't.

Like any other service, land surveying is a matter of value. Consider if you will the impact of changes in surveying technology in the past 15 years. Instead of three people yelling at each other while dragging around transits, 300-foot chains and five-place trig tables, we now work with auto-reducing total stations. We routinely use powerful hand-held electronic calculators and portable radios. The same work that once took three people can be accomplished by two people in a fraction of the time.

Who has benefited most from these improvements? Is the Land Surveyor better off? Or have things actually gotten worse?

Keep in mind that surveying a property boundary is the equivalent of providing boundary insurance. It is single premium, unlimited liability, unlimited term insurance that extends to third parties who you may not even know.

Real property has appreciated at a proportionately higher rate than other assets. It would seem that the value of determining the boundaries of that real property would appreciate accordingly. If we were still using the old technology, would boundary surveys cost more or less? It seems to me that surveying would cost about the same.

So why do we use new equipment? Do we make more or less money? Is the survey of property boundaries a higher or lower fraction of the total value of the real property?

It seems to me that if a boundary survey were typically worth four percent (just to adopt a figure to work with) of the value of the property, it still should be worth the same proportionate amount using new technology. Given that Land Surveyors typically charge by the hour for their services, does it make sense to do the job faster, with more accuracy and with fewer people? If we can do the same job in half the time, should that increased efficiency be represented by higher profits and better salaries for Land Surveyors or should it be passed along to the land owners?

If the service is as valuable as it has always been, is it immoral to charge what it is worth in a higher priced economy?

I find no reason to spend \$50,000 on computers, total stations, plotters, software, radios and calculators so that I may work three times as fast, charge my client less, and have to scrape up three times as many jobs just to make the same, or relatively the same, revenue as I did with the old gear. On top of that I am still faced with the cost of acquiring all that new technology—not to mention the learning involved and the late-night hours spent fussing over software that doesn't work like it's supposed to.

Many surveyors do just that without reflecting it in their charges because of fear that the guy down the street will do it for less. What about that guy down the street, then? He has the same problems that you do. We all do more or less the same thing.

What do you think the guy down the street would do if he found out, for instance, that you have taken this matter to heart, and that you are charging \$700 for a lot survey instead of the prevailing rate of \$200? What's more, what will he think when he finds out you are getting it? Do you think he might be inclined to think about raising his rates a little? If he found out that you were charging four percent of the assessed value of the property (regardless of the hours involved), do you think he might want to have some of that action?

Does it make sense for only the client to benefit from your more efficient work, or should you? Would you feel better or worse about the profession if the average income were twice what it is today?

Work out the math sometime. Land Surveyors are good at arithmetic. What would happen if you were to double the price of surveying and lost half your work? Would you make more or less money? Think about it. □

Daniel Beardslee is a Land Surveyor in Washington state who lectures on business management for surveyors.

Reprint—the Professional Surveyor, May/June 1988

How To Prevent Complaints

By Bob Volz

Webster's Dictionary defines complaints as, "an expression of grief, pain, or resentment." In common terms, it means that someone is unhappy with something you have done or is unhappy with the fact that you should have done it and didn't. It would be very difficult to eliminate every complaint that someone may have about you or your work. I tried to think of a way that it could be done, and I believe we are talking here today about a legitimate complaint and one that can be substantiated, not the type of complaints that are brought upon by individuals who complain about your work either because they do not know what you have done, do not know the reason why you have done it, or do not agree with your decision. There were only two ways that I could come up with for you to prevent complaints.

The first one is a rather tongue in cheek one—don't do any work. How could someone complain if you haven't done anything for them and have not agreed to do anything for them. This is obviously

not the solution that we would want to follow here today, but I believe the second way that I am going to suggest would alleviate most of the substantiated complaints.

The second way is making a commitment to do a good job. You might call it professional pride. We are going to talk today about policing the industry, about the causes of complaints, about guidelines to use for evaluating complaints, what agency should do the policing—speaking as a Board member we cannot make you do anything. We can give you guidelines, we can give you standards, we can have continuing education, but we really cannot make you do an accurate survey each time. We can only discipline you when a complaint has been filed and then find that you have not complied with the law or with the Board rules. It then boils down to how committed you are to doing a good job and having professional pride.

One of the ways to avoid complaints is for the surveyors to educate themselves in the profession they are performing. Take courses that are geared to not only bring-

ing your skills to what they need to be today for the type of work you are doing, but allow you to expand to do things that will be required of us in just a few short years, such as the use of global positioning stations. The use of continuing education would require that surveyors keep abreast of the new techniques, the new equipment, and the new procedures that research and development bring to us, and complete testing of people to be registered will certainly help the fact that you are licensed and that when a complaint is filed the board will review the complaint and take action if the complaint is accurate and substantiated. This certainly is a factor in making some people observe the standards and is a way to improve the quality of surveying. The threat of a revocation or suspension of a license does make an impression.

To me though, the real thing that stops substantiated complaints is that burning desire to be a professional and to do a good job. This burning desire has to be instilled in us. With that desire we will keep
(continued on page 34)



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(continued from page 33)

ourselves paced with new developments and with continuing education that we all know is necessary.

Ted Engstrom wrote a book called "The Pursuit of Excellence." He said that the people who truly excel in their endeavors are invariably the ones who early on, 1. determine clear-cut goals, and 2. habitually direct all their energies toward fulfilling them. The determination to stay with it is what brings out the quality of excellence.

In the final analysis, questions to each of us will be, did you make the most of your talents, did you work toward developing your potential, did you choose excellence or did you coast, did you rise above the common place or did you survive on mediocrity. Someone has said that the difference between an amateur and a professional is about five minutes more.

As we strive for this professional pride, this commitment to do work properly, don't be afraid to do something for fear you are going to make a mistake. Remember the turtle, he only makes progress when he sticks his neck out. As you take on work, look to see that you have the capacity to do the work and that you have the knowledge that it takes. But don't give up.

Again to me the only way to prevent substantiated complaints, is to pursue excellence, to be committed to that, keep striving to become better educated, keep striving to find new techniques, keep striving to follow the rules that are set for this profession.

A man jumped excitedly into a taxi and said, "quick, do you know how to get to Carnegie Hall?" The cab driver replied, "Practice, man, practice." That means do something for yourself in your profession. Keep striving.

In closing, I feel the commitment to our profession is the most important thing you can do to stem complaints. There is a story of a pig and a chicken who lived on a farm. The farmer was really good to them and really took care of them. The pig and the chicken decided that they were going to do something nice for this farmer because he was so nice to them. They thought and thought of a way and finally the chicken said, "I'll tell you what, let's give the farmer ham and eggs every morning for breakfast." The pig thought a moment and said to the chicken, "that's OK for you, but for me that is a total commitment." What we need to do is provide ham and eggs every morning to our profession.

Reprint from the Missouri Surveyor, December 1987

Surveyor Pays for Crooked Line

A surveyor that incorrectly marked a boundary on a survey used for construction cannot claim that he didn't know the purpose of the survey, a District of Columbia court has ruled. It said the surveyor was responsible for damages suffered by an architect who designed townhouses relying on that survey.

In November 1978, architect Robert A. Bell hired Raymond M. Jones to survey a parcel of land in Washington, D.C. Jones's survey reported that property lines were at 90-deg angles. Two corners of the property, however, were 90 deg 51 minutes. While Jones didn't measure the angles himself, he certified that he had located all the improvements with a transit and tape. The building lines were off by 6 in. due to the survey error, which

increased construction costs substantially.

Bell sued Jones for negligence. The Superior Court found that Jones was negligent in preparing his survey, but also said that Bell was negligent for not telling Jones that construction was involved. The court dismissed the suit.

Bell appealed to the District of Columbia Court of Appeals, which ruled for the architect. It concluded that Jones's negligent certification "was a proximate cause of the increased construction costs." The appeals court then sent the case back to the trial court to determine the amount of damages suffered by Bell. *Bell V. Jones*, 523 A.2d. 982 (D.C. App. 1987). □

Contributed by H.B. Davis, San Leandro, CA

Dear Editor:

This letter is to inform you of cadastral survey plats approved by the Chief Cadastral Surveyor for California during the first and second quarters of FY 88, (October 1 - December 31, 1987 and January 1 - March 31, 1988).

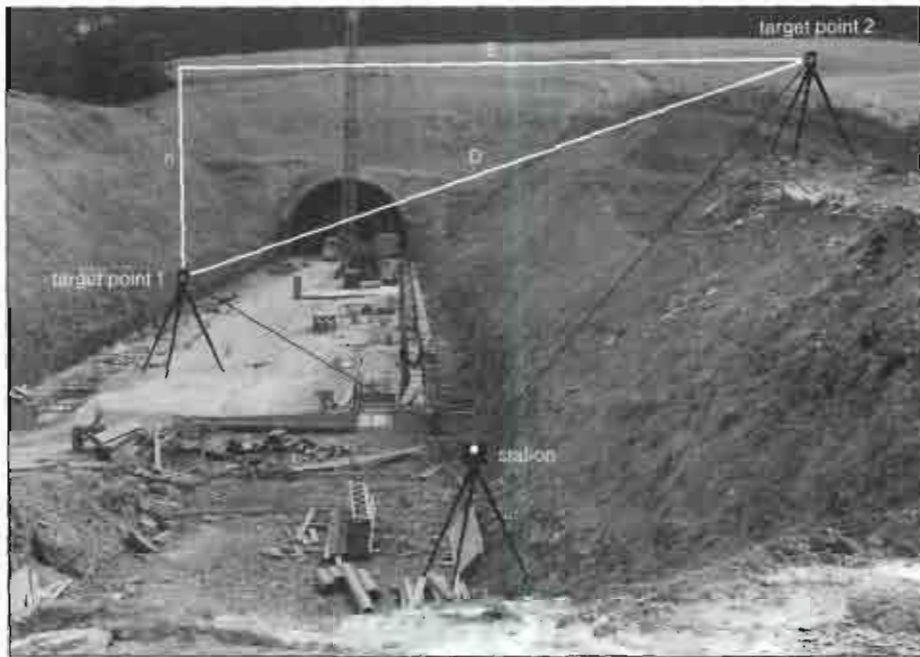
These plats are now on file in the Survey Records Office, Bureau of Land Management, California State Office, 2800 Cottage Way, Room E-2841, Sacramento, California 95825.

APPROVAL	TOWNSHIP	DATE	TYPE OF SURVEY
T21NR14E,	MDM	10-16-87	Supplemental Plat
T27NR11E,	MDM	10-16-87	Supplemental Plat
T29SR40E,	MDM	10-23-87	Corrective Dependent Resurvey
T281/2SR40E,	MDM	10-27-87	Corrective Resurvey
T4SR18E,	MDM	10-29-87	Supplemental Plat
T16SR7E,	MDM	10-29-87	Dependent Resurvey & Subdivision
T12SR16E,	SBM	11-13-87	Dependent Resurvey & Subdivision and Metes & Bounds Survey
T26NR9E,	MDM	01-05-88	Supplemental Plat
Tps2&3NR8W,	MDM	01-25-88	Survey
T4SR7E,	SBM	01-29-88	Supplemental Plat
T21SR37E,	MDM	01-29-88	Supplemental Plat
T13NR3E,	HM	02-02-88	Metes & Bounds Survey of Tract
T11NR6W,	SBM	02-05-88	Supplemental Plat
T12NR5W,	MDM	02-08-88	Dependent Resurvey & Completion Survey
T4SR5E,	HM	02-11-88	Subdivision of Section
T13NR2E,	HM	02-11-88	Dependent Resurvey & Subdivision
T17NR7E,	HM	02-11-88	Dependent Resurvey & Subdivision and Survey
T26NR9E,	MDM	02-11-88	Supplemental Plat
T7SR7E,	SBM	02-25-88	Supplemental Plat
T28NR3E,	MDM	02-25-88	Dependent Resurvey & Survey
T4NR7E,	HM	03-28-88	Dependent Resurvey
T5NR6E,	HM	03-28-88	Dependent Resurvey

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