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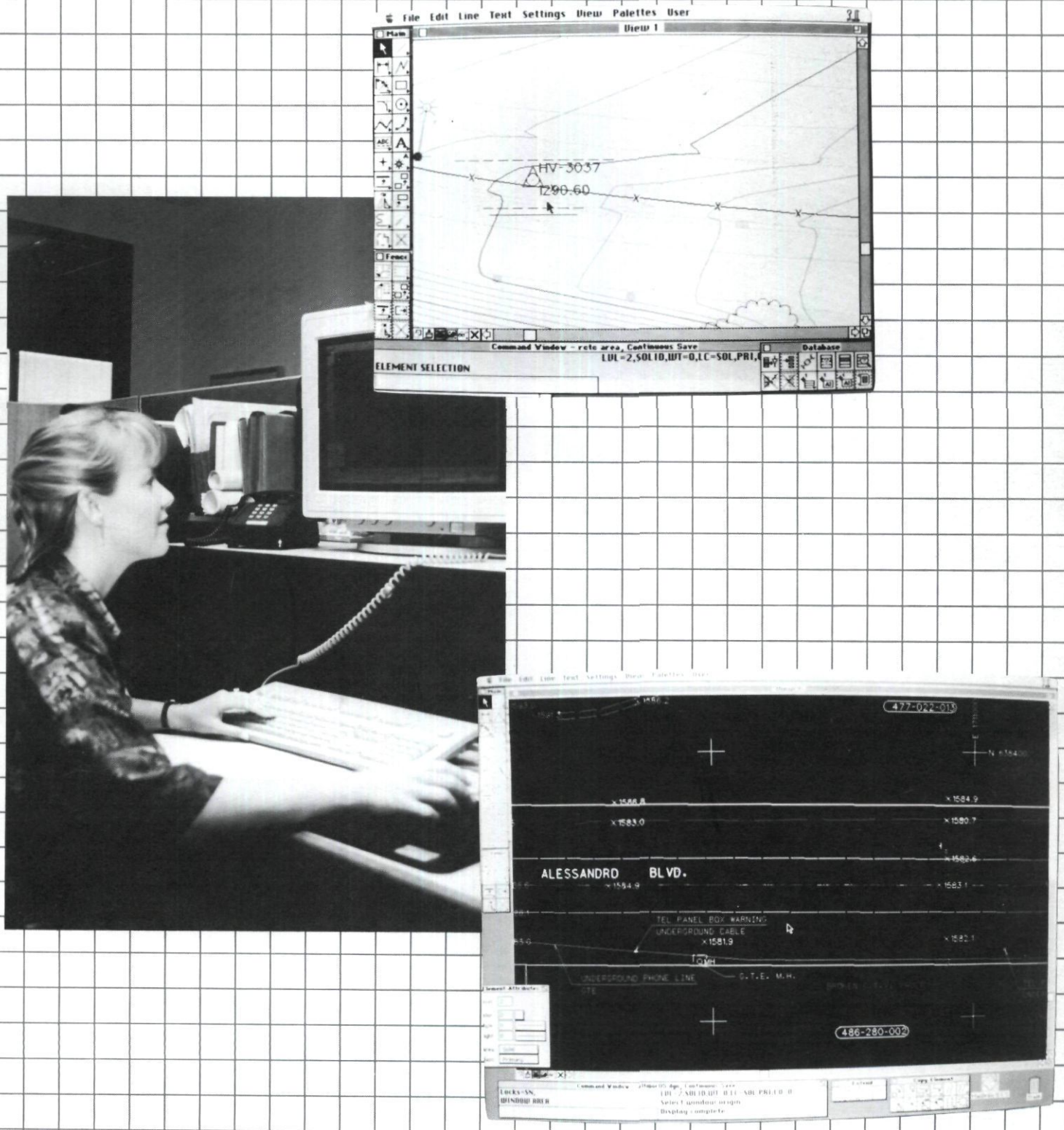
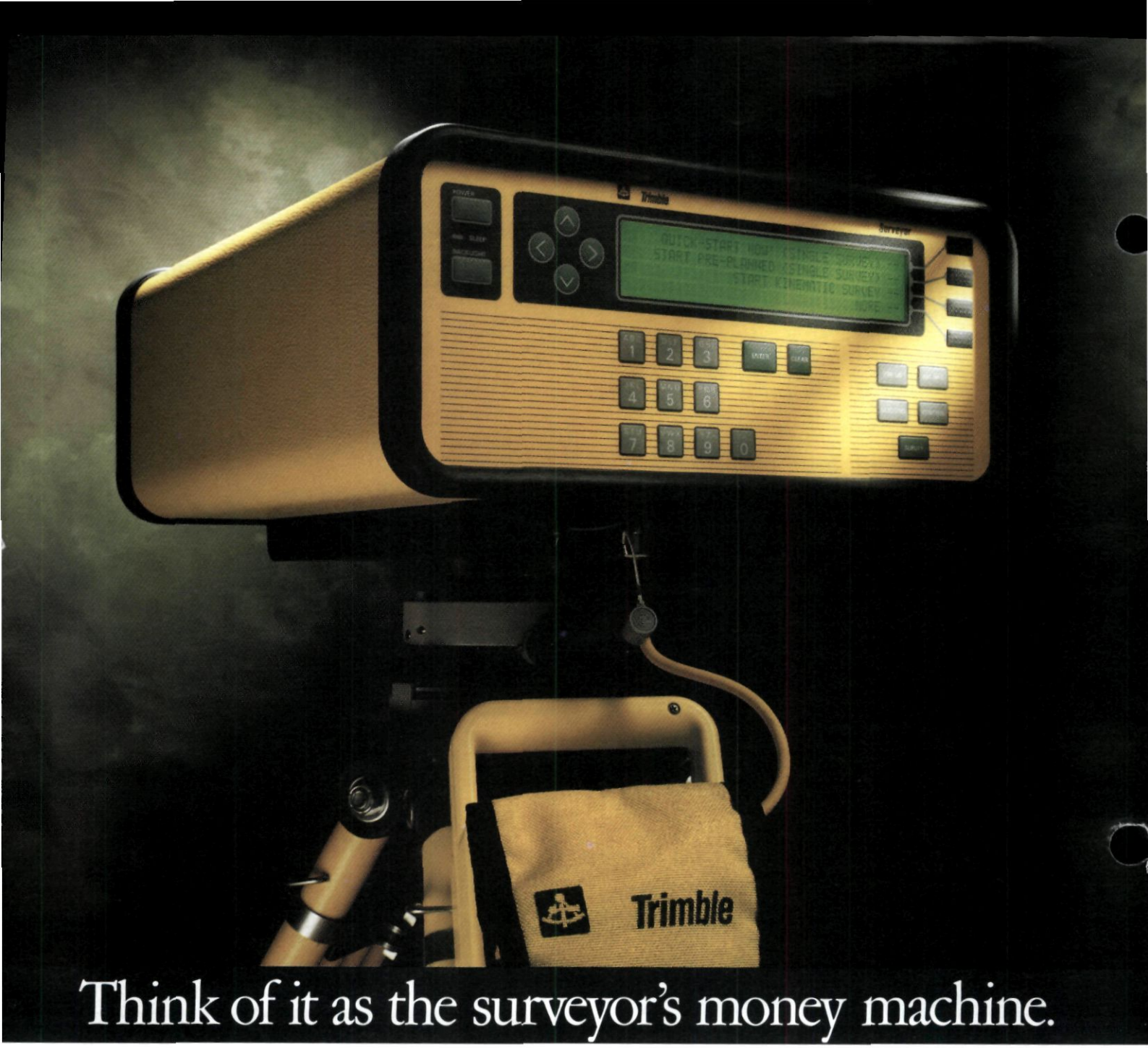
The California Surveyor

No. 94 The Voice of the Land Surveyors of California Spring 1991





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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 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 pro tection 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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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, disks should be 5-1/4 inch, MSDOS (IBM compatible) format. We can accept ASCII text files or word processor files from the following programs: WordPerfect, Microsoft Word, Windows Write, Multimate, DCA (Displaywrite III and IV), Wordstar, Xerox Writer, and Xywrite.

EDITOR'S ADDRESS

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DEADLINE DATES

Fall 1991 . . . . . July 10, 1991
Winter 1991 . . . . . October 10, 1991

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

Cover Photo: CLSA member Kristin Gulino shown preparing a rignt-of-way map using CADD software.

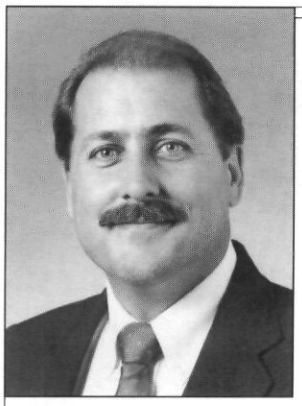
Opinions or assertions expressed in articles in this publication do not necessarily represent the official views of the Association.

Table of Contents

FEATURES

DEPARTMENTS

Index to Advertisers



Message from Howard Brunner

CLSA's 1990 President

LOOKING BACK on my term as your president during 1990, I would like to share some of my thoughts with you. I would also like to thank the members of CLSA for the opportunity to enjoy one of the most professionally rewarding experiences of my career. Though the office of president is a very demanding job, it is rewarding to observe progress being made, in relation to the time expended, in protecting and enhancing the practice of the land surveyor.

In the role of president, successful service would not be possible without the help and support of the other officers and committee chairmen who devote their time and efforts to CLSA. I will take this opportunity to thank them all for their fine work. I also want to extend a special thank you to Dorothy Calegari. Throughout my term as president, she was always available for brainstorming sessions, and to lend support with good judgement and an excellent sense of CLSA and its organizational facets. Without Dorothy, I dare say that CLSA, as we know it, would not exist to the extent and with the stature it enjoys today.

During this term, my goal was to work with Dorothy and the officers to structure CLSA's committees, lobbying efforts, and legal support so that they would be as strong and effective as possible. I believe that we were effectual in fulfilling that goal. All of CLSA's committees were given an outline of their function and their interrelationship with other committees within CLSA. This information is now contained in a binder with other organizational material concerning the structure of CLSA. These binders will be given to every new officer and committee chairman each year. We now have a new lobbying firm, The Gualco Group, working for us. *[See page 7 for an article introducing our new lobbyist. – Ed.]* I have faith in their ability to represent our interests in a progressive and competent manner. We also have the legal counsel of our new law firm, Diepenbrock, Wulff, Plant & Hannegan. They will advise us concerning the "special civil exam" and the Board of Registration's implementation of that exam.

Our networking with the Board of Registration, WFPS (WestFed), NCEES, NSPS, and ACSM has proven to be beneficial and effectual for CLSA and the land surveying profession. Without CLSA's willingness to meet and discuss our views with other organizations, we would surely lose all ground we have gained over the past few years. Whether or not we completely agree with other professional, educational, and technical societies, we must not lose our ability to communicate with them. It is important to do what we can to resolve differences in a timely manner, before we are forced to do so before the Board of Registration or the state legislature.

Though I will not have the privilege of serving as your president this year, I still plan to serve CLSA in a supportive capacity as long as there is a need; I am committed to helping keep CLSA and the land surveying profession as strong as possible. ⊕

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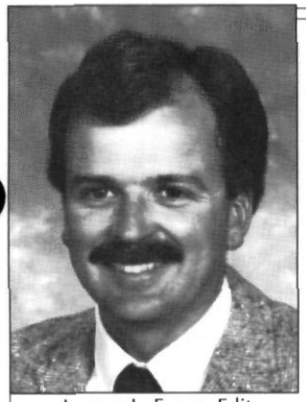
Jeremy L. Evans, Editor

Letters to the Editor

ON THE ISSUE OF CONTINUING EDUCATION

I don't think we should embrace the proposed continuing education legislation simply on the merit that it is a statute in other states or because it contains the word *education;* nor should we reject it out of hand merely for seeming self-indulgent or because it contains the word *legislation.* I think the idea deserves careful consideration provided two protocols are emphasized; one is consumer payback, and the other is proper courtesy to the body of surveyors already licensed. In the former it is reasonable to expect proof that the statute will achieve results that are necessary to the public's wellbeing, and in the latter we are obligated to solicit and carry out majority opinion.

It would be helpful to have a better "map" from the proponents, who have yet to zero in on the details concerning this method of relicensure. They should publish a complete list of the curricula, the instructors, and, most importantly, the justifications for each before any serious discussion of the matter proceeds.

Continuing education is a worthy goal and I hope that our professional organizations pursue it as a fundamental priority.

Sincerely,
Robert Lee McComb, P.L.S.

IN OPPOSITION TO MANDATORY EDUCATION

The letter in the Summer 1990 issue from Mr. Andrew Johnston did an excellent job of articulating the views of what, I suspect, may be close to the majority opinion of licensed surveyors. In addition, I am angered by the prospect of additional government regulation in an often absurd business environment, and I share Mr. Johnston's suspicion of the advocates motives.

I urge all surveyors who have similar concerns to contact their state legislative representatives and the CLSA to voice their opposition to any mandatory education as a prerequisite to license renewal.

Dan Jahns, P.L.S.
Surveying Services

AMEN

I say "Amen" to Mr. Johnston's letter in the Summer '90 issue regarding compulsory education. You seem to be more interested in image than substance. To combat incompetence and/or sloppiness, let's demand that local CLSA chapters police themselves. Peer pressure from fellow surveyors can be effective. (How about a reader's poll on the subject?)

Sincerely,
Stanley E. Siskey, P.L.S.

CALTRANS RESISTS TO THE END

So you "Applaud Caltrans' requirement that all their party chiefs be licensed by 1994." Give me a break. Caltrans is the last state agency involved in land surveying to recognize the value of licensed land surveyors. Other state agencies required party chiefs to be licensed prior to 1982, while Caltrans resisted to the end.

Caltrans was, and is, in violation of the rules and regulations of the Department of Personnel Administration, Public Employees Relations Board, and the Board of Registration for Professional Engineers and Land Surveyors.

Paul R. Ladyman

Editor responds: I wish you had identified the "other state agencies" so we could give credit where credit is due. ⊕

How To Vest Land Use Rights Without Commencing Construction

By L. Paul Cook
C.W. Cook Co., Inc.

YEARS AGO the Building Industry Association was successful lobbying state legislators to enact a new California state law within the Subdivision Map Act, known as the "vesting tentative map." The law went into effect January 1, 1986, and covered all residential developments that were filed as such. On January 1, 1988, it also became effective for **all** subdivision, including commercial and industrial projects, thereby covering all possibilities of new construction.

The prudent developer today is utilizing this powerful tool to assure himself that the development rights he has today will remain intact throughout the life of the tract map, plus an additional period of one to two years after recordation of the final map (depending on local laws).

It is this author's opinion that the vesting tentative map is presently underutilized and consultants are exposed to high liability for not counseling their clients properly on the vesting tentative map rights.

During this period of time when land use regulations are constantly changing and land use rights are always going down, and almost never up; many developers are missing out on one of the most powerful tools available to them today — the vesting tentative map.

One is allowed to file a tentative tract map for just about any type of project that you could imagine. The State Subdivision Map Act allows filing for tentative tract map for condominium purposes, resubdivision purposes, reversion to acreage purposes, merger purposes, and subdivision purposes. If a valid reason for filing a tract map can be found, every developer has the right to file a **"vesting"** tentative map and thereby lock in today's development rights for a substantial amount of time.

In Los Angeles City a tentative tract map is good for an initial period of three years and may be extended for another three years. The vesting period continues for one to two years, for a total of seven to eight years of locking in the development rights. That is longer than it took to go through high school **and** college, which was a substantial amount of time.

Section 66474.2 of the Subdivision Map Act was amended in 1989 to change some of the requirements as follows:

> Except as provided below, the advisory agency shall apply only those ordinances, policies, and standards in effect at the date the local agency has determined that the application is complete.

Unfortunately, starting January 1, 1990, the time to start the 30-day review period does **not** begin until the environmental negative declaration is issued or E.I.R. certified.

Note that the agency has 30 days to determine whether or not an application is complete for the purposes of this section and if it determines the application is incomplete after a refiling of the case the agency will have yet another 30 days to determine if the case is then complete.

> The above restriction shall not apply to a local agency if before it has determined your application to be complete it has done one of the following:
>
> 1. Either **initiated** proceedings by way of ordinance, resolution, or motion.
>
> 2. Or **published notice** in a manner sufficient to notify the public of the nature of the proposed change in the applicable general or specific plans, or zoning or subdivision ordinances. If the local agency has complied with this section it may apply any ordinances policies or standards that are enacted or instituted as a result of those proceedings **which are in effect** on the date the local agency approves or disapproves the tentative map.

In other words if the laws are not in effect at the day that your subdivision is going for approval those laws cannot be applied towards the decision of your case, and your vesting rights would preclude alteration of your conditions of approval regardless of the final outcome of changes in the law in the future.

> The other exemption from above is if the subdivision **applicant** requests change in the applicable ordinance in example of a requested zone change then only those policies or standards adopted pursuant to the **applicant's request** shall apply.

It seems prudent to me that every developer should file at least a tentative vesting map on every project contemplated. This process is a very reasonable cost for "land use insurance." Should the laws remain the same, there generally would be no need to record the final map and thereby avoid the expense. However, **if** the laws did change and the cost of complying with the new laws would exceed the cost to record the final map the choice would be obvious.

Protect yourself . . . because knowing is power.

Editor's Note: *Section 66474.2, as quoted above, is the author's paraphrase of the actual text of the section as contained in the Subdivision Map Act. If you would like to order a copy of the Act for your own reference, turn to the "Publication Order Form" on page 34.* ⊕

Denise Delmatier

CLSA Retains New Legislative Advocate

CLSA HAS RETAINED The Gualco Group as our legislative advocate for 1991. Our lobbyist, Denise Delmatier, possesses a wide background in legislative, political, and regulatory affairs. Ms. Delmatier — who serves as a member of the government relations team of The Gualco Group — came to the firm as a previous employee of over three years with Heron, Burchette, Ruckert & Rothwell.

Ms. Delmatier's most recent public employment position was with California State Assemblyman Dan Hauser (D-Arcata) where she served as legislative assistant. Her assignments included staff responsibility for the management of all subject areas for the Assemblyman's legislation both in the Capitol and district offices, including the areas of local government, natural resources, agriculture, coastal resources, crime, state government, education, health and mental health, small business, timber/forest practices, senior citizens, insurance, legal/judicial, and women's issues.

Before joining Assemblyman Hauser's staff, Ms. Delmatier served as legislative assistant in a Sacramento legislative advocacy/public relations firm. ⊕

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California Streets

By Dan Krieger

ALMOST EVERY driver has been frustrated by the street plan of one or more of California's cities and towns.

California is famous for some of the most crooked roads in the world. These range from short sections of roadway such as San Francisco's Lombard Street to our own Highway One north of Cayucos and north of Mill Valley. But these lanes, backroads, and highways are a cinch when compared to the street plan of some of our cities. I recall my frustrations as a novice driver trying to find a way across San Francisco's Market Street.

The street layout of many of the cities in coastal California is confusing to visitors from other parts of the United States. The Continental Congress' Northwest Ordinances of 1784 and 1787 prescribed a grid plan with 90° intersections. While these can be found in many San Luis Obispo neighborhoods, the Broad Street–Santa Barbara Street axis defies the comprehension of many tourists to our county seat.

But we are more fortunate than other regions. The streets of Santa Barbara, Los Angeles, San Francisco, and San Diego frustrate even longtime residents. Many of the offending streets — such as State Street in Santa Barbara, Market Street in San Francisco, La Brea in Los Angeles, Washington in San Diego, and our own Broad Street–Edna Valley Road — were well-used cow trails long before the first surveys were made. The surveyor had to confirm prevailing usage.

William Rich Hutton, the first surveyor in our region, had a great deal of experience in relating cowpaths to a grid plan. Two years before starting his work in San Luis Obispo county, Hutton served as assistant to Lieutenant E.O.C. Ord in laying out the streets of Los Angeles.

Edward Otho Cresap Ord, a West Point graduate, came to California during the war with Mexico. He was a grandson of England's King George IV by that scandal-ridden monarch's mistress (and later morganatic wife), Mrs. Fitzherbert. Hutton wrote "We commenced [the survey] last Monday, and have gone from the [Old Plaza] church to the last house on main street, about $1^1/_2$ miles."

The last numbered street to the south of the grand pueblo of Los Angeles was Eighth Street, but Ord's map went out into the pasture lands as far as Pico Boulevard and as far west as *La Brea*, "Tar Street," and *La Cienega*, "Swamp Street." What is now Figueroa was called *Calle de Los Chapules*, "Street of the Grasshoppers." In the dry years, the locusts would leave the cienegas and move towards the El Aliso vineyards of Señor Jean Louis Vignes, just east of what is now Union Station on Alameda Street. Just as critical boundaries have been drawn for today's Mediterranean Fruit Fly, so too was Calle de Los Chapules the line at which early *angeleños* began to worry about the fate of future vintages from California's first commercial winery. Ord's work in Los Angeles made William Rich Hutton a veteran surveyor of Mexican pueblos by the time he came to survey San Luis Obispo in 1853.

Other cities did not fare so well. Competent surveyors were in short supply in early-American California. Santa Barbara was unlucky in its choice of a sea captain named Salisbury Haley.

The military district of California was rapidly moving towards statehood in the spring of 1850. The major *pueblos* tried to get a head start on the anticipated real estate boom by having official surveys made. The *ayuntamiento*, or city council, passed an ordinance for surveying the old *pueblo's* streets from the mission to the waterfront, and from the mesa bluffs to the Mission Ridge or Riviera district.

Salisbury Haley was the captain of the coastal schooner *Sea Bird* which was tied up in Santa Barbara's harbor for repairs. When Haley heard of the *ayuntamiento's* interest in a survey map, he made an offer to carry out the task for only $2,000. The next time that the *Sea Bird* put into port, Haley was told that his bid had been accepted.

Haley had some experience as a surveyor. Unfortunately, his "Gunter's Chain" had suffered major rust dam-

age from many years of travel over the salty seas. The chain had orginally been made of one hundred links of mild steel wire, each approximately eight inches in diameter. The links were joined by smaller wire rings. The chain was supposed to be four rods, or 66 feet, in length. That way, ten square chains equaled one acre.

Many of the connecting rings on Haley's chain had rusted away. The sea captain had replaced them with rawhide thongs. Rawhide was a favorite "bonding" material in early California. It was great for strength, such as in tying the oaken or pine cross beams to the upright poles in raising an adobe. But on Haley's "Gunter's Chain," the rawhide swelled when it got wet in the Santa Barbara rains. It shrank in Santa Barbara's blistering sunlight. The chain grew longer on dew covered mornings and shorter in the afternoon warmth.

The situation was made worse through Haley's decision to orient his map to the cow path that became State Street rather than the cardinal points of the compass. Some records suggest that he wanted the survey to align itself with the walls of the Casa de la Guerra, the home of Santa Barbara's leading citizens for two generations.

Salisbury Haley's map looked fine on paper. The pueblo was a perfect grid. Each street was exactly sixty feet in width. Each block was four-hundred and fifty feet on all four sides. Each corner was marked by a neat redwood stake. The city fathers were pleased.

Haley collected his $2,000 fee. On March 1, 1851, he sailed off aboard the *Sea Bird*.

It took some months to discover the gross errors. A rash of civil litigation prompted by boundary disputes made a judicial inquiry necessary. City Judge J.F. Maguire astounded the city counci by reporting that in a short $2^1/_2$ miles, State Street wandered "more than 45 feet off its 'true' course" on Haley's map. Not a single block was found to have exactly 450 feet on any of its four sides. Instead, they varied from 457 to 464 feet. It seems that Captain Haley preferred to work in the dew mornings rather than in the heat of the day. Or perhaps he was merely a generous man with figures. ⊕

GOVERNOR'S VETO MESSAGE ON SB2503

I AM RETURNING Senate Bill No. 2503 without my signature. This bill would change the grading methodology on the second division of the civil engineer's examination so that passage of the seismic safety portion of the exam would no longer be required for licensure.

The seismic safety portion of the examination was added to the civil engineer examination in California to ensure adequate knowledge in the design of structures intended to withstand the impact of earthquakes, which are a fact of life in our state. Relaxing the standards to allow applicants to become California registered engineers without successfully completing the seismic and engineering survey portion of the examination would not only set a bad precedent for other professions licensed in the state, but could ultimately have an adverse impact on our ability to ensure greater safety for Californians during earthquakes.

Mistakes to Avoid When Calling a Meeting

IN EVERY BUSINESS, a full-fledged meeting is the best way to share information, brainstorm, make decisions, solve problems, and get the feedback you need. However, meetings have acquired a bad reputation as time and money wasters. In a recent survey, business executives estimated that they spend two to three hours of each workday in meetings.

Let's assume you've weighed your options and decided a meeting is the way to go. You can make it productive, efficient, and satisfying for all concerned by following these tips:

➪ **Don't invite the wrong people.** Too many participants —or inappropriate ones — are sure to sink a work group. Include only people whose expertise is useful, or those who need the information. Otherwise, valuable time may be wasted explaining things to those without the background to understand what's going on.

➪ **Avoid going in the cold.** A meeting moves better when people are prepared. For the meeting leader, this means setting an agenda that clearly states the meeting's goal, finding a suitable conference space, and arranging such things as audio-visual materials, pens and paper, and refreshments. If help is needed, delegate. Agendas and background material should be sent to participants ahead of time so they'll be ready to contribute.

➪ **Don't waste time.** A sloppy meeting is unproductive and stirs resentment in those whose time is squandered. Your meeting should start and end as scheduled, have a clear purpose, and conclude with a decision — even if it's a decision to hold another meeting. Try to limit your meeting to an hour or two, at most.

➪ **Appoint a leader.** A meeting without an appointed leader will likely go around in circles. One person, usually the one who calls the meeting, must keep things on track; however, too much authority turns attendees off. Observe this rule: Moderate, don't dominate.

➪ **Allow room for play.** Because you're there to do a job doesn't mean you can't enjoy it. Researchers say groups given time to get comfortable with each other get more done. So take time for introductions, casual discussion, and a joke or story to break the ice. Refreshments could be offered. If the meeting is more than two hours, a break is a good idea — but make it clear what time you expect people back.

➪ **Don't let disputes get out of hand.** Meetings may involve highly-charged topics that brings strong reactions — risky new ideas, budget cutbacks, and so on. Though you want different voices to be heard, open disputes can derail the process and make everyone uncomfortable. Serious differences should be cut off and settled privately later.

➪ **Using the wrong tools for the job.** Depending on how they're used, audio-visual aids can brighten a meeting or bore it to tears. A lengthy slide show will put your audience to sleep. That's why some experts advise against turning lights off for more than 10 minutes at a time. But aids that are relevant, imaginatively produced, and skillfully used can enhance a meeting. Options include slides, videos, chalkboards, flipcharts, and handouts. Tips: Use color rather than black and white, if possible; and make presentation boards 30" x 40" or larger.

➪ **Don't let the sizzle fizzle.** Even the most enthusiastic brainstorming session can fizzle out when participants return to their desks. To maintain the momentum that a good meeting generates, have someone take notes. Use these in a post-meeting report for distribution to all participants. It should summarize the meeting, restate its outcome, and outline the actions expected of each participant. Then follow up with the people involved to make sure things are going as planned.

A successful meeting can be a big help in bringing members of your staff together and functioning like team. Morale and productivity will improve and staff will be encouraged to come forth with ideas of their own.

— Paul A. Cuomo, P.L.S.

I-280 Survey Data Reveal Seismic Distortion

By James S. Kor
Sr. Vice President, Towill, Inc.

SHORTLY AFTER the Loma Prieta earthquake hit the Bay Area last year, Caltrans officials assessed the condition of the damaged freeways and shut down those that posed hazards. The agency then contracted with consultants and construction firms to begin a more detailed analysis of the extent of damage, and to propose methods and estimate costs for remediation or reconstruction.

Towill, Inc., a San Francisco-based surveying firm, was awarded a contract through Perini Corporation to look at approximately one mile of Interstate 280 where it passes through the Bayshore District of San Francisco. The assignment was to verify the exact location of columns, determine how much deflection, if any, was caused to each of the approximately 125 columns by the quake, and then independently substantiate the exact location of reinforcing bar within the poured-in-place columns.

When the agency contracted for this work, the initial intent was to make repairs rapidly by one of several methods: placing steel "cans" filled with grout around the columns and welding them into place, or by bolting one-inch steel "collars" through the columns and box girders and tying them, using pre-stressed rods, transversely across the freeway, and by longitudinal bracing using pre-stressed rods. Subsequently, the agency determined that these techniques were not optimum for the level of repair required, and to accommodate other structural concerns. However, Towill's work will be available to the agency for use by future consultants for remediation and repair.

Because Caltrans wanted to have the freeways repaired and functional as quickly as possible, Towill completed the work in approximately four months by putting a team of eight to ten people on it for six and seven days a week, starting in mid-May 1990.

The survey team employed three-dimensional coordinates to define and describe the horizontal and vertical conditions. The shape of the columns themselves made it difficult to use conventional surveying techniques; instead of being rectangular, the columns had a 45-degree chamfer on each edge. Furthermore, the chamfers differed in size; while most were approximately two inches, some were only one inch long. In addition, although one critical calculation consisted of the point where the column met the bend, approximately 30 feet above grade, surveyors could not get access to that point.

To address these constraints, Towill designed aluminum right-angle jig mounts for reflectors used with their Wild T2000 EDM Total Station. These jig mounts allowed Towill surveyors to locate the corners of the columns at four foot vertical increments, and completely eliminated the problem of the chamfered corners. In the first three weeks on the assignment the team took approximately 6000 shots to accuracies on the order of 1/8 inch on all columns. This data was developed to address the condition of the columns for position, plumbness, twist, and elevation. These data points were processed in the Towill office; the resulting three dimensional coordinates were used by other Perini subcontractors to fabricate, and then position, steel components of this retrofit repair.

This initial phase of work was followed immediately by the need to tie in and reference the existing reinforcing steel in the structures. A Perini subcontractor moved onsite to find the steel with magnetic locators. Towill surveyors then laid out the design grid for core drilling. When there was conflict between the existing bar locations and design grid, revised layouts were given to the driller. The as-drilled locations were surveyed at the completion of the core drilling phase in order to provide data to the fabricators of steel components for hole drilling. As the tolerances for this work were very stringent, accurate methodologies were developed for both the performance of field work and subsequent office reports derived from the field work.

Although little data exists as to the dimensional state of the columns prior to the earthquake, the survey effort by Towill provided very timely, accurate information for the repair work being constructed.

James S. Kor is chief surveyor and manager of the Survey Department at Towill, Inc., a position he has held since 1969. He is a licensed land surveyor in 13 states and has substantial experience in most surveying disciplines including geodetic, control, boundary, site, utility, construction, inspection and hydrographic surveying. ⊕

"Go Ahead" Survey Control Systems to Build GIS/LIS Systems

ABSTRACT

The economics of constructing geodetic survey control systems to support Geographic Information Systems (GIS) and Land Information Systems (LIS) presents special challenges for the private land surveying company, the small county, and the small city survey department. The typical budget is inadequate for financing the comprehensive "All at Once" area-wide survey control network often recommended by GIS vendors and in the literature. This article presents the concept of a "Go Ahead" survey net being a phased approach to the development of survey control networks of known precisions by accumulating raw survey measurements made during day-to-day operations in a computer database. The database is periodically processed in the ellipsoid of choice and then adjusted using least squares techniques. Over time, the quantity and quality of survey field measurements increases in the database, allowing the coordinates of each data point to evolve in positional accuracy.

INTRODUCTION

This presentation will focus on a single component, the survey control network, which is the framework that all other data in the GIS is attached to. The problems associated with this component are typical of those found in the other components of the GIS.

"All at Once" GIS

An "All at Once" GIS can be described as a comprehensive GIS system in which all the components of the system are brought together at one time with one uniform standard of accuracy. This "All at Once" approach has very high front end costs for planning, development and implementation and is somewhat risky in that predicted goals may prove to be out of reach once the project is initiated. For the GIS to be effective, the final accuracy requirements and degree of difficulty of the task to be undertaken must be correctly estimated. Any group trying to build such a GIS/LIS database has many difficult choices to balance. Often, there is a downstream realization that the desired level of accuracy for the final comprehensive product cannot be attained due to budget realities. It is very easy for the project developers to find themselves in a situation where they choose to accept a less accurate system in order to at least have a comprehensive, low-accuracy product rather than settle for only a portion of the original project area at the original desired accuracy.

"Go Ahead" GIS

The process of developing a "Go Ahead" survey control network involves the blending together of differing types of measurements from diverse sources with varying quality and accuracy standards to create an economical end product adequate for the needs of a particular GIS. A "Go Ahead" GIS system is designed from the beginning as an evolutionary system. The designers focus on the identification of the most necessary data components required of the initial system rather than on a correct guess as to the final system components and their associated accuracy. Each element of information in a "Go Ahead" system is a database "object" subject to refinement over time in both position and description. This evolutionary approach means that the database will take longer to build than an "All at Once" system.

SURVEY MEASUREMENTS

Standards and Specifications

A classification standard is a more or less arbitrary rule used to classify geodetic control and is based on accuracy. Standards arise from the need to define the quality of a coordinate or dataset and are simply a mechanism for quality assurance; they have the interesting quality that they are completely general and can be used to classify new types of instruments and techniques. Standards define accuracy, and the intercomparision of data is used to measure opinions of accuracy. In other words, the end user doesn't want just a coordinate, they want a coordinate of appropriate quality; the problem is therefore to quantify opinions of quality. Standards are defined as the minimum accuracy necessary to meet specific objectives, and in the future will be based less and less on the capability of electronic equipment measuring systems.

A "Go Ahead" GIS system is designed from the beginning as an evolutionary system.

Specifications are field methods designed to meet a required standard and typically control the precision of measurements. Therefore, specifications tend to measure precision. Specifications are a distillation of procedures that have been followed which produced surveys of particular qualities, and are rules of thumb combined with error propagation. Specifications vary with the instruments (measuring systems) being used, and are essential to promote conduct of field operations and facilitate classification of surveys. Field reports and experience are the basis for development of specifications. Specifications are developed as part of an evolutionary process and are implemented as a set of rules derived from the experience gained in successful past efforts to achieve a classification standard.

CONTINUED ON PAGE 14

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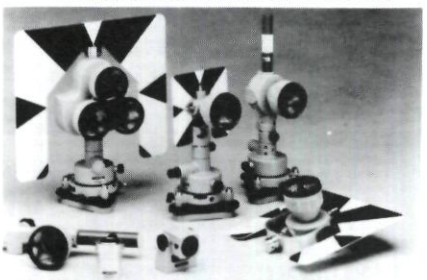

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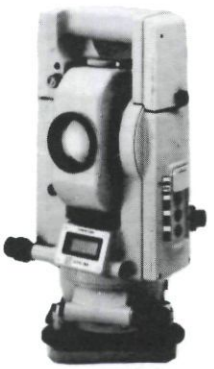

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Definitions for accuracy standards and specifications continue to undergo rapid evolution to compensate for the rapidly changing nature of new cutting-edge technology

Standards Based Mapping (Static Data)

The traditional map sheet carries little, if any, information about the raw data from which the map was compiled and is intended as a representation of a portion of the real world. Since the end user does not have access to the actual underlying raw dataset used to create the map, the practical result is that the map can achieve a classification standard only as high as the least accurate information in the map. A typical approach to the design of a traditional map would be to ask, "What would be the ability of a person to derive information by measuring with a scale or digitizer on a particular scale map?" — then insure that this minimum level of expected accuracy is achieved in the final product. This creates instant problems in a Computer Aided Drafting (CAD) system where scale changes are trivial functions of the system. All that a minimum standard guarantees is that the worst information displayed on the map is no worse than a particular level of accuracy. It says nothing of the accuracy of other information in the map which may exceed the "floor" (minimum accuracy standard) of the map.

A dataset or measurement that does not have an associated estimated or known standard error is "static" data. A typical example would be the type of data storage found in surveying or engineering coordinate geometry programs. It is very difficult to use this type of data for anything other than coordinate generation for local "flat world" design and boundary resolution problems. This is typical of a standards-based mapping system where the attempt is to have measurements of a uniform minimum accuracy. The quality of the final mapping or GIS product is then determined by those measurements in the system with the lowest accuracy. These same minimum accuracy datasets and/or measurements control the final classification standard of the product notwithstanding that there may also be measurements with much greater accuracy contained in the final product.

Object Based Mapping (Dynamic Data)

A dynamic measurement has, at a minimum, a linked data record that contains an estimated or known standard error with an associated level of confidence. The practical result of using dynamic data is that each measurement in the database can contribute to the final adjusted coordinate position in proper proportion to the measurement's known or assigned quality (weight). Databases that contain this fundamental piece of information for each measurement or dataset can safely contain data from varietal sources such as deeds and maps, and different measurement methods such as stadia distance, compass azimuth, chain, transit, steel tape, theodolite, edm, and geoceiver (GPS). Storing and merging existing and new raw survey measurements with their associated standard errors permits the periodic readjustment of the entire database causing the coordinate opinion of a physical object in the digital database to be refined over time.

Storing and merging existing and new raw survey measurements with their associated standard errors permits the periodic readjustment of the entire database causing the oordinate opinion of a physical object in the digital database to be refined over time.

BUILDING "GO AHEAD" SURVEY CONTROL NETS AND DATABASES

Requirements are:

1) a geodetic coordinate system to tie together projects across significant geographic areas. Currently, there are no coordinate geometry programs that correctly deal with geographic coordinates (inverse, traverse, etc).

2) the data of individual projects must be accumulated in such a way that these datasets can be merged with the main dataset.

3) feedback as to the quality of the data or coordinates displayed on computer printouts, listings, and visual displays is essential. This is a constant headache for both the office and field surveyor since there is always mixture of data of varying quality in every survey, and computer coordinate printouts normally do not provide any hints as to quality.

4) the ability to incorporate existing data sources as represented by archived field books, deeds, unrecorded maps and recorded maps.

5) the ability to support the analysis of measurement techniques as an aid in the development process of constructing, tracking, testing, and evolving standards and specifications to meet the particular needs of the GIS, as well as supporting ongoing monitoring for quality control.

Solutions:

The solution to implementing some of the above requirements is to use a measurement database that is then accessed by a geodetic least squares adjustment computer software package.

This software:

1) reduces the complexities of geodetic data reductions to simply another daily task and is no more difficult to run than a CAD or COGO package.

2) is able to perform adjustments in more than one geodetic datum.

3) allows the storage of raw survey data of varying quality from diverse sources in a common database, and also allows manipulation and management of this data.

Storing raw measurements is an absolutely necessary feature. After all, the actual measurements don't change; it is the manipulation of the data required by a particular geodetic datum that varies.

4) allows the surveyor to link the estimated or known quality of the survey measurements and the resulting coordinates during, or after, initial data entry.

5) allows the exchange of data with other databases.

6) provides presentation quality printouts and graphics.

7) provides a survey network pre-analysis mode by utilizing the digitizing capability of a pen plotter or digitizer. Maps or aerial photos can be used for preliminary layout and testing of proposed survey network configurations and specifications.

These computer software tools, combined with normal survey systems and techniques, would enable:

1) the ability to run a survey network or several unconnected networks with all of the data stored in a common database.

2) maintaining varying local and geodetic datums with a single database. This allows the continuance of traditional surveying for boundary solution and projects on local datums until such time as connections are made to the federal control network. The data is rerun and new coordinates generated in the appropriate geodetic coordinate system.

3) ability to reuse prior measurements in new projects. Stored measurements are still valid even though some of the prior physical traverse and network points may have been destroyed or are now inaccessible.

ADVANTAGES OF OBJECT- VS. STANDARDS-BASED DATABASES

The advantage of "Go Ahead" survey control systems based on object-based database concepts are:

1) defined, achievable, short-term goals that are easier to integrate into normal operating budgets. There will be a tendency to favor the most pressing current needs, rather than trying to guess at long range needs, trends, and capabilities.

2) the evolutionary approach that takes advantage of continuing technological advances and corresponding lowered costs of data acquisition.

3) a longer time frame allowing considerable flexibility to adjust techniques and goals as needs evolve and change.

4) accountability and responsibility for each data element by linking data attributes to each raw data element, such as:

a) source of data,

b) time of creation,

c) time-date stamp of last access, and

d) a statement of intended use at the time of creation.

5) mixing of weak and strong data elements and varietal types of data.

6) an estimated or known level quality for each raw data element or dataset (standard error with confidence level).

7) all the advantages of a custom system while retaining the ability to exchange data with other custom-designed systems by maintaining the history of data collection, and standard errors of the datasets.

In contrast, a standards-based system does not have mechanisms to incorporate:

1) raw data and associated attributes

2) data quality, with the result that the database will constantly be outgrown by the new capabilities of rapidly evolving technology, compounded by increasing user queries for clarification about conflicts in the datasets of the database. This is inevitable since the original construction of the database only addressed minimum accuracy for data, and little else.

The Role of the Boundary Surveyor In the Legal Aspects of Possession, Title, and Ownerships

By Michael R. McGee, P.L.S.

"WHAT ARE boundaries?" is a question of **law**; "Where are boundaries?" is a question of **fact**. The **question** for the court to decide is, "What boundary defines the limits of an owners rights?" And the **fact** for the surveyor to determine is where the boundaries are located and what rights **may** be established.

The court reserves unto itself the right to decide the meaning of a boundary when necessary, and delegates to the surveyor the authority to interpret the facts and determine where boundaries are located. In the process of determining boundaries, the surveyor observes possession, determines record title, and offers an opinion of ownership. The surveyor is not usually a lawyer, nor educated in the law per se; however, in practice he is often required to apply the law as it relates to boundaries, and inevitably advise the public of its possible effects. The courts recognize the boundary surveyor as an expert and takes notice of their opinions in settling the "question" as to what line defines ownership. This delegation of authority is referred to as the **quasi-judicial capacity** of the land surveyor.

This capacity is stated in *The Judicial Functions of the Surveyor* by Chief Justice Cooley of the Supreme Court of Michigan in 1885 (reprinted in *ACSM Surveying & Mapping*, April/June 1954).

> "Surveyors are not and cannot be judicial officers, but in a great many cases they act in a quasi-judicial capacity with the acquiescence of parties concerned; and it is important for them to know by what rules they are to be guided in the discharge of their judicial functions.
>
> "It follows that the boundary surveyor requires an understanding of statute and case law as it relates to possession, title, and ownership. This understanding is essential to properly exercise their authority and act in their capacity as quasi-judicial officers of the court in determining the **facts**."

POSSESSION, TITLE & OWNERSHIP

The terms *possession, title,* and *ownership* are used interchangeably to describe property rights by surveyors and the lay public. The following definitions will serve to clarify and provide for a common definition of their meaning.

Open possession is defined in *Black's Law Dictionary* as "possession of real property in such a manner that any interested person can ascertain who is actually in possession by proper observation and inquiry." Evidence of possession, when occupied to, may be improvements such as fences, roads, ditches, and cultivation, or natural features such as streams and bluffs. A possession line may not be a mutual line if only one owner is actually in occupation. Possession and occupation can be synonymous in terms of exercising physical control over land.

Title is defined in *Black's Law Dictionary* as "the **means** whereby an owner of land has the just possession of his property; the union of all the elements which constitute ownership; the right to ownership in land." *West's Words & Phrases* states, "For practical purposes the word *title* means the provable right to own particular property and, in its broader sense, includes the proof by which that right may be established."

A deed is written evidence recognizing title and used to convey the "right, title, and interest" in real property. A deed does not constitute title in itself; title rests in the owner and includes Written and Unwritten Rights.

The Statute of Frauds requires that the conveyance of real property must be based on a written document. Furthermore, it is preferred that these documents (deeds) be recorded so as to impart Constructive Notice to all concerned parties. In California, a deed need not be recorded to be valid, but a recorded deed will usually take precedence over an unrecorded deed regardless of the date of execution.

In the context of boundaries, we can define the *record title boundary* as the written title which is based on recorded deeds. Restated, the record title boundary describes that portion of ownership based on written rights.

Surveyor's locate the record title boundary based on recorded deeds which vest in the owner certain rights and describes the land. Only the **present** status of the record title, at the time of survey, is meaningful. A current title report, or chain of title, is essential to insure that the clients written ownership rights have not been superseded by conveyances and acquisitions subsequent to his original purchase.

Ownership is defined in *Black's Law Dictionary* as "the collection of rights to use and enjoy property, the right to convey to others; the complete dominion, title, or proprietary right"; and perhaps most important, "the right by which a thing belongs to someone in particular, to the exclusion of all others." Possession and title are evidence of **ownership**.

In the context of boundaries, *ownership* can be defined as the legal limits of the owners rights, which are the combined written and unwritten rights as would be adjudicated by a court of law. The surveyor is usually able to determine the extent of the written rights based on the instruments of conveyance, but is limited to

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CONTINUED FROM PAGE 16

offering a qualified opinion of the possible existence of unwritten rights.

WRITTEN RIGHTS

The "Quasi-Judicial capacity" of the land surveyor refers to the application of the law in determining the record title boundary. It is this aspect of boundary law that surveyors should be **willing** to exercise their authority and offer opinions.

Locating the **record title boundary** locates the extent of the owners recorded **Written Rights**, not necessarily the extent of **Ownership**.

The determination of record title boundaries are based on **Rules of Boundary Location** which are **Rules of Law**. Understanding the law is prerequisite to fulfilling our responsibilities and bridging the gap between the courts and the public whom we serve.

Some rules are straightforward, where others are quite abstract and require case studies to understand their application. Consider the following rules taken from statue and case law and how they assist in the determination of Record Title Boundaries.

> The rules of interpreting descriptions for superiority of calls are not only found in case law, but are included in the statute laws of California at Civil Procedures Code Section 2077 & Government Code Section 23071, etc.

> The rule of junior/senior rights is well-established in case law. The junior parcel takes excess or deficiency in the case of an overlap — you cannot sell what you don't own — and simultaneously created parcels share proportionally.

Examples of more abstract areas of the law available to us are:

> The court's position that the original **intent** of the buyer and seller is paramount. In a deed, intent is the meaning of the writing. For example, an old fence is located on, or near, the north line of the southeast 1/4 and a grantor owns on both sides of the line. The grantor and grantee come to an agreement. Subsequently a deed is prepared by a third party without benefit of a survey. The deed calls "along the north line of the southeast 1/4." The meaning of the writing may refer to the fence or to the correct location of the north line of the southeast 1/4, depending on the actual agreement between the parties at the time. The intent of the grantor and grantee may be born out by evidence extrinsic to the deed. The above example is the general basis for a boundary by "practical location" where the fence was the intended boundary, discussed later. If the intent of the conveyance and description is known, or can be reconstructed, then the boundary is known. The court states in Walsh vs. Hill, 38Cal.481 ". . . . The only rule of much value . . . is to place ourselves as nearly as possible in the seats which are occupied by the parties at the time the instrument was executed; then, taking it by the four corners, read it."

When surveyors gather evidence, interpret deeds and documents, apply rules of law, and render opinions based on a preponderance of evidence, they act in a Quasi-Judicial Capacity.

Extrinsic evidence is defined as external evidence or that which is not contained in the body of the document and is used to explain ambiguities, resolve conflicts, explain latent defects in deeds, and determine the intent. The courts stated in 66C.83 and 82C.497, "under the **rule** of that is certain which can be made certain," extrinsic evidence is allowed to apply or give effect to descriptions. Extrinsic evidence can be found in the chain of title, adjacent deeds, maps, found monuments, lines of possession and, to a lesser degree, in parol testimony.

A small gap or hiatus of **no practical value or use** may be given to the appropriate parcel if the **intent** of the writing is obvious. The evidence and circumstances must show that there is no intent by the original grantor to reserve the strip. In 254OR594, 506P2,686 (1973) the court stated, "We have adopted a policy against construing conveyances so as to create strips of land the title to which would otherwise remain in abeyance for long periods of time." California courts have stated in 250C.A.2d248 (1967), "The law of real property abhors the proliferations of gores and strips under separate ownership and strongly favors a policy which passes title of adjoining strips to purchaser of abutting property at time of his acquisition." Application of this rule by the surveyor is limited to the obvious. For example, a deed conveys a subdivision lot described by metes and bounds. The deed calls "north 100', thence east," which agrees with the record map but lacks qualification to the north line of the lot. A resurvey finds the lot to be 100.50' in length. The grantor did not own the lot to the north at the time of original conveyance and the deed on the north side is qualified to the lot line. It appears in this simplified example that the 0.50' gap was intended to be included in the conveyance by the grantor. If the resurvey found the lot to be 105' in length then it probably remains for the owners to remedy the situation through a quiet title action.

The surveyor applies the rules of law to the evidence and circumstances surrounding a boundary to resolve ambiguities and form a cohesive and consistent argument based on the preponderance of evidence. This is necessary and consistent with the court doctrine which requires civil cases, such as boundary disputes, be decided based on the theory of major probability or a **Preponderance of Evidence**.

Thus it follows, when surveyors gather evidence, interpret deeds and documents, apply rules of law, and render opinions based on a preponderance of evidence, they act in a **Quasi-Judicial Capacity**.

Given a sufficient deed and evidence of intent that satisfies the theory of ma-

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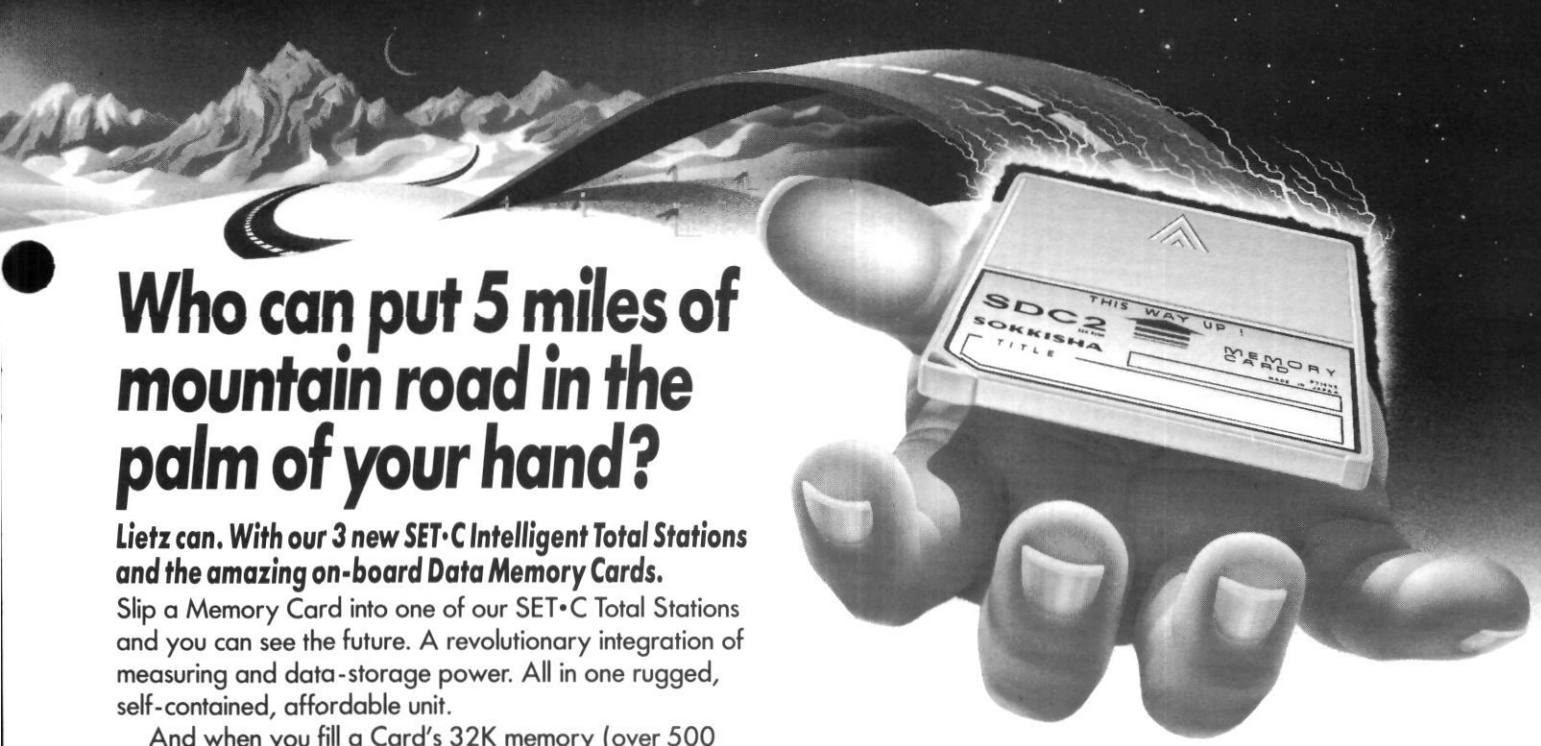

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CONTINUED FROM PAGE 18

jor probability, it is for the surveyor to decide where is the Record Title Boundary; however, lacking evidence of intent, or a preponderance of evidence to show intent, then the "question" is for the court to decide.

UNWRITTEN RIGHTS

Experience and knowledge of the law will insure a correct determination of written rights; however, Unwritten Rights that may be implied by lines of occupation and possession are altogether a different problem.

A question of ownership arises when possession or occupation encroach on the record title or they overlap one another. An encroachment or overlap **raises the question** as to what Unwritten Rights may have been established by the historical use and the conduct of contiguous owners. It is important to remember that the establishment of unwritten rights are dependent on what was in the minds of the parties, their actions and spoken words, as well as the facts on the ground.

The establishment of an unwritten right boundary may occur by *adverse possession, equitable estoppel, practical location, parol agreement* and *acquiescence.*

Adverse possession is where one exercises control over the disputed land by actual, open, and notorious possession and must assert a hostile, continuous, and exclusive dominion thereover for the statue period of time. In California either the taxes must be paid, or occupation be under a color of title, for five years. Although adverse possession is nearly always mentioned as a cause for action it is not usually the basis for judgment.

Equitable estoppel is a doctrine which prevents one from asserting that which they denied, explicitly or implicitly, causing injury to others. It usually occurs as a false representation or the concealment of facts.

Practical location is where a boundary is fixed by a grantor and grantee and the designated line is inconsistent with the boundary described in the deed and is usually discovered some time later. This is a mixed doctrine where equity demands a line move to possession, but there is no clear legal reason. Equity is served when the court does the right thing or what is fair when existing law is not clear or does not fit the circumstances. (French vs. Brinkman, 60C2d547)

Parol agreement is an oral agreement between two parties to fix a boundary line, generally requiring uncertainty (the true line must be unknown to the parties involved), mutual agreement on a new line, and possession or occupation. The agreement can take effect immediately or after a statute period of time.

Acquiescence is agreement by silence and contains elements of estoppel. It is an agreement implied by lack of action for the statutory period as to a line of possession, which arises when a person who knows that he is entitled to impeach a transaction or enforce a right, neglects to do so for such a length of time that, under the circumstances of the case, the other party may fairly infer that he has waved or abandoned his rights.

California has combined **Parol Agreement** and **Acquiescence** into a doctrine where boundaries can be established by **Agreement and Acquiescence**. An agreed boundary may be established deliberately, by acquiescence, or mistake and is usually binding on successors in interest to the properties. The five requirements as stated in 51C.2d702 (1959), 240C.A.2d642 (1966), 82C.A.3d211 (1978), 99C.A.3d691 (1979), and 218C.A.3d887 (1990) are:

1. Uncertainty — a lack of knowledge of the true line, regardless of mistake, or that it may be ascertained by a proper survey. Dispute is not a requirement. Quoting from *Cal Jur III*, vol. 2, page 138, footnote 74, in reference to Roman vs. Ries 259C.A.2d65, 66Cal Rpt120, "the word 'uncertainty' is used to convey the idea that, at the time of the location of the division line, neither of the coterminous owners knew the true position of the line on the ground . . . the fact

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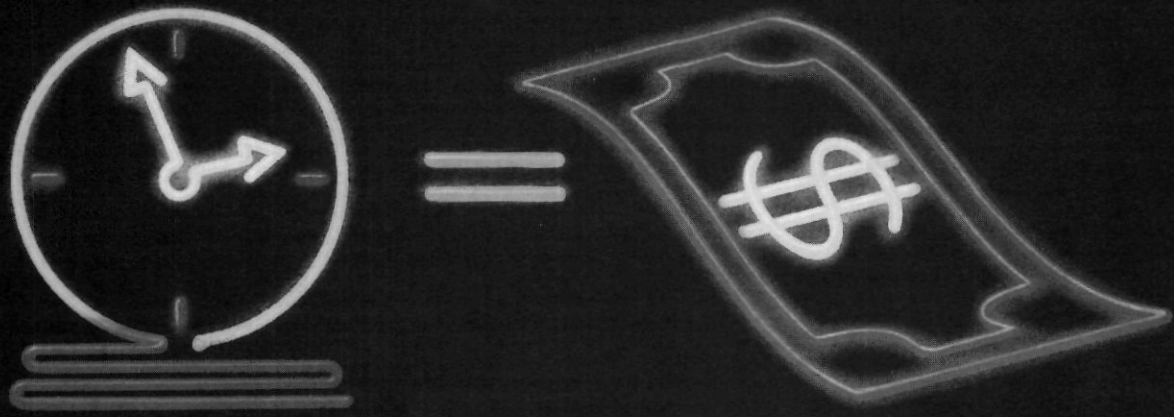

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Boundary Surveyor . . .

CONTINUED FROM PAGE 18

that it was founded on a mistake always appears, and must appear, or else there would be no occasion to invoke the doctrine."

2. Agreement by both owners fixing the line. The agreement may be either expressed or implied from the acts of the parties or acquiescence. Mere acquiescence in what the adjoining owners mistakenly believe to be the true line, without the intent to fix a disputed or uncertain boundary, does not amount to an agreement. In recent years, the courts have looked at long acquiescence as an implication of an agreement. Pra vs. Bradshaw 121C.A. 2d267, Huddart vs. Mcgirk 186C386.

3. Marking the line, as in building up to the agreed line; however, the line need not be marked on the ground if it can be determined, is clear to the parties involved, and can be made clear to others. Occupation to the line is not always required.

4. Statute of limitations requires five years of acceptance and acquiescence except where a substantial loss would be incurred.

In California, the law has evolved in such a way that **inferences** are allowed **absent facts to the contrary** to show uncertainty, agreement, and acquiescence. For example, substantial improvements or an old line of possession can imply acquiescence, and long acquiescence in a line can imply an agreement, as can an agreement imply uncertainty. Subsequent cases have further clarified this point. For a more in-depth study see Ernie vs. Trinity Lutheran, 51C.2d702 (1959), which is explained in a treatise on "Agreed Boundaries and Boundaries by Acquiescence: The Need for a Straight Line from the Courts," 9 Loyal Law Review 637. It is important to note the courts position regarding acquiescence is that an agreement or implied agreement is necessary.

EXHIBIT "A"

SURVEYORS STATEMENT ON THE MAP

The Exterior Boundary lines shown hereon as (——) represent the Record Title Location of that parcel of land described in Book 1234 of Official Records, Page 123, Humboldt County Records and Title Report #1234567 dated August 30, 1980, issued by Humboldt Title. Possession (occupation) is evidenced by old long-standing fences shown as (-X-X-X-). Unwritten rights may exist in the areas between the lines shown . . . the effects of which may . . . .

Figure 1: Exhibit "A"

Fixing a boundary in the manner as above described is an unwritten transfer of real property. If the parties knew where the true line was then an exchange of property would take place in violation of the statue of frauds, which requires the transfers of real property be in writing. The courts play a game of fiction to get around the statue of frauds, and have stated in 228C.A.2d474 (1964);

> "An oral agreement on a division line, established by actual occupation of the parties for the requisite period, does **not** operate to convey title to the land which may lie between the agreed line and the true line, but fixes the line itself, and the description carries title up to the agreed line regardless of its accuracy. The division line thus established attaches itself to the deeds of the respective parties and simply defines, not adds to, the lands described in each deed."

The court recognizes the need for contiguous owners to create stability in their lines, and encourages the settlement of disputes by such agreements; it has so stated in Fogerty vs. State of Cal., 187C.A.3d224 (1986), and many other cases; "the object of agreed boundaries are to prevent strife and disputes concerning boundaries and to make title permanent and stable."

SURVEYOR'S RESPONSIBILITY

The surveyor's responsibility is to gather facts, weigh the evidence, apply the law without prejudice to either side, determine the Record Title Boundary, locate the Possession Boundary, resolve conflicts, and avoid court. The surveyors **primary duty** is to offer a qualified opinion as to what the client **owns**.

The public perceives the surveyor as the person behind the tripod who stakes property lines which are perceived as lines of ownership. The act of staking a Record Title Boundary on the ground is tantamount to offering an opinion to the owners of the extent of their ownership for all the world to see. If there exists obvious evidence of Unwritten Rights, such an act can, and will, be misunderstood; this can only disrupt the community causing unnecessary dissension to the discredit of surveyor and his profession. Quoting again from Judge Cooley,

> "The surveyor has no right to mislead, and he may rightfully express his opinion that an original monument was at one place, when at the same time he is satisfied that acquiescence has fixed the rights of parties as if it were at another. But he would do mischief if he were to attempt to 'establish' monuments which he knew would tend to disturb settled rights; the farthest he has a right to go, as an officer of the law, is to express his opinion where the monument should be, at the same time that he imparts the information to those who employ him and who might otherwise be misled, that the same authority that makes him an officer and entrusts him to make surveys, also allows parties to settle their own boundary lines, and considers acquiescence in a particular line or monument, for any considerable period, as strong if not conclusive evidence of such settlement. The peace of the community absolutely requires this rule."

Ownership is not necessarily limited to the record title boundary. Surveyors should make a concerted effort to educate the public in this regard; take the initiative at the first client interview and, as the survey progresses, to communicate to the client what they, the surveyor, can and cannot do. Explain in layman terms the meaning and limitations of the record title lines that will be determined and the possible effects of occupation or possession thereon.

Failure to educate in the beginning encourages the misconception that

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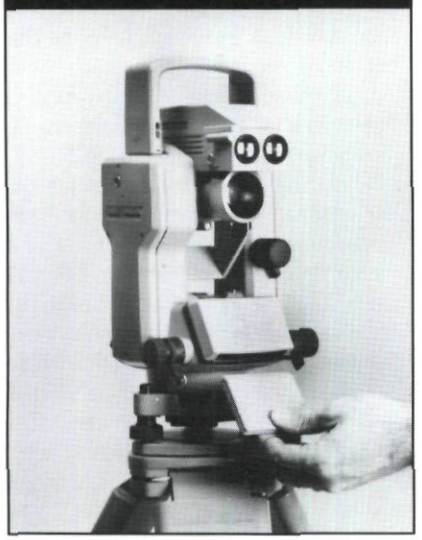

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Boundary Surveyor . . .

CONTINUED FROM PAGE 22

surveyors locate the exact, final, legal and true limits of what the client **owns**, which is usually not the case. It is a difficult task to explain the legal, technicalities of boundary surveying to an objective listener. It is nearly impossible to explain such things to a client after the line is staked and they are elated or hostile over the apparent gain or loss of property.

After completion of the survey, all evidence is perpetuated on a map. Consider additional statements as to possible unwritten rights that concern the client or may affect a future court action. (See Exhibit "A" in Figure 1 for an example.)

The most important document the surveyor can prepare is a narratve **report** to the client explaining what corners were found or set, and what the lines mean. If there are conflicts, then suggest solutions such as a boundary agreement. (See Exhibit "B" in Figure 2 for an example.)

The report should address the status of the client's boundaries in terms of Record Title and Possession, noting Unwritten Rights that "may" exist. Sending the client a map and invoice for services after completion of the survey is insufficient and may incur a liability if the information is misunderstood and relied on to the clients detriment.

The client should clearly understand that the property which is occupied inside of Record Title is theirs, and the property that falls between Record Title and Possession may be subject to adjudication or require an agreement. **State your expert opinion.** That is what the client is paying for. Recommend they contact their lawyer if they decide they need a legal opinion as to what course of action to take.

The Quasi-Judicial Capacity of the surveyor is limited in the determination of unwritten rights. Assessing unwritten rights concerns the human aspect of relationships, agreements, and intent — which are not in writing and subjectively open to interpretation. When the facts are inconclusive, and unless the parties are in agreement or can be persuaded to come to an agreement, then the courts reserve the authority to decide **what** are the boundaries. If the facts are clear, and the intent is clear, and the law is clear, then it is for the surveyor to decide **where** are the boundaries.

The surveyor's duty is to encourage boundary agreements and bring possession and record title into agreement, creating a permanent — and often less expensive — boundary solution. Consider also that agreements may be appropriate before the survey when the record title is indeterminate, or the location of record title is costly and inconclusive. (See "Boundary Line Agreements" by Martin Paquette, *California Surveyor,* Summer 1989.)

Locating boundaries and solving the client's problem, without overstepping the authority of the land surveyor, is a serious responsibility. Understanding these responsibilities requires the surveyor to step beyond *Boundary Control and Legal Principals, Evidence and Procedures for Boundary Location,* as well as other distinguished texts, and study the law. Every rule of boundary location originates in the law. A boundary surveyor's education should include methods of legal research and continuing studies of existing and new cases that establish the **rules**.

Quoting from *Boundaries & Landmarks,* in 1908 A.C. Mulford said;

> "When it comes down to a question of stability of property and peace in 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."

Which is to say, notwithstanding sophisticated equipment and procedures, if you don't understand the law, technology will get you everywhere, except where the line truly exists.

EXHIBIT "B"

ENCROACHMENT LETTER

Owner/Client
123 Eureka Street
Eureka, CA

April 28, 1981

Re: Survey of Parcel East of Ferndale

The field survey establishing the boundary lines of your parcel has been completed. The location of corner monuments set and the lines between them do not necessarily agree with the fence lines. These fence lines are old and long-standing, and represent the lines of occupation or "Possession." The boundary location, as staked by our survey, is the "Record Title" location based on your recorded deed. Those areas lying between the lines of possession and the lines established by this survey are encroachments, the ownership of which depends on the history and use of the property, and conduct of the parties involved.

Ownership of encroachments such as these are generally a question of law. I advise you to seek the advice of an attorney before taking any action. An agreement/compromise with the adjacent owner and exchange of deeds would be the ideal solution, avoiding costly litigation.

We recommend you continue with our participation; expert consultation is vital to permanently and efficiently resolving these matters.

If you have any questions, or we can be of further service, do not hesitate to call.

Sincerely,

Figure 2: Exhibit "B"

Michael McGee is owner of McGee Surveying & Consulting of San Luis Obispo. He specializes as an expert court witness with 18 years experience offering testimony in civil and criminal cases in California. He has served as state president of the California Land Surveyors Association and holds a Bachelor of Science Degree in Surveying from CSU Fresno.⊕

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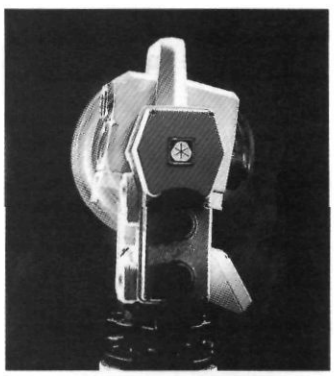

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Land Surveyors Meet In Nottingham, England

By Donald Bender, P.L.S.

A CALIFORNIA LAND SURVEYOR ON VACATION

Can a California land surveyor survey and vacation at the same time? You bet! Every waking moment is an opportunity to learn.

It is Friday morning, September 21, 1990, at Lake Windermere in Great Britain. Our 25th wedding anniversary vacation is devoted to seeing parts of England not seen before, and Scotland. Prior to our trip to Scotland, we have been visiting friends who are very happy expatriates from Sherman Oaks, California.

Friday is also the scheduled time for the British land surveyors to begin their biennial conference. Should we detour from our trip to Scotland? Is visiting with British surveying friends we've met on prior trips a good reason to interrupt our vacation?

After a morning walk along the shore of lake Windermere, and morning coffee with our expatriate friends, the decision is made. We've never been to Nottingham.

Traveling by railroad along the recommended scenic and slow route, we detour from Scotland to Nottingham. With the BritRail timetable and the clockwork precision of the trains, we are able to change trains, stop for lunch, and arrive on time. The driver of the passenger van displaying a lion standing erect holding a range pole (the RICS logo), confirms that the University of Nottingham is the next stop.

A BRITISH LAND SURVEYORS CONFERENCE

Returning to the campus for continuing education is a tradition with the British land surveyors. Attendance is increased and costs are kept reasonable with a weekend conference, lodging in the dormitories, meals in the dining hall, and sessions in a large lecture hall. With this arrangement, including morning coffee and afternoon

Don Bender on the ferry to Skye. The Kyle of Lochalsh is in the background.

tea breaks, ample time is available to discuss any topic with a colleague.

Friday evening is the time to make new friends and to renew old acquaintances. *Imagine my surprise at* seeing Nick Day, another land surveyor from California. After telling a few surveying stories, it's time for supper. A buffet supper in a university dining room is an excellent way for land surveyors and their guests to begin a meeting. Breaking bread together seems to create an atmosphere for sharing and learning.

After supper, everyone adjourns to the private bar area. British land surveyors certainly do enjoy their beer. Since you are expected to be on time for the 0800-0830 breakfast the next morning, the bar is closed at midnight. This evening, I am early to bed. Several discussions, however, continued into the early hours. British surveyors like to talk surveying — just as we do.

The Welcoming Address by President Jon Leonard is scheduled for 0900. Disrespect may be implied if the lecture hall is partially full. It is also embarrassing to enter after the Welcoming Address since there is no break before the beginning of the first session. As an added incentive for being on time, the entrance doors are located at the front of the room.

The scheduled speakers for this biennial conference are organized in six sessions. Four sessions will be held on Saturday, with the remaining two sessions and technical presentations on Sunday.

The first session on "New Skills," included presentations on "Moving from Mapping to Metrology," "Recent Developments in Measured Building Surveys," "Digital Maps and Intelligent Maps," and "Offshore Surveying: Educating the Educators." I was surprised by one comment: "Surveyors are good at collecting data, but too selective in the data we capture, e.g., how many BMW's at each parcel?" The question was also asked, "Are land surveyors data collectors or data managers?"

The second session, titled "New Markets," provided insight on "The Single European Market," and "The Changing Role of Overseas Surveys." I particularly enjoyed the presentation by Jan de Graeve, a Belgian cadastral surveyor. His description of a typical week in his four-person firm was fascinating, and should be considered by every land surveyor. "The challenge for tomorrow will not be to beat the locals on their own premises, but to elaborate joint ventures and work together with local colleagues — who know the law and the people — for a better and larger service for our mutual clients." Jan included in his presentation a description of the legs to the model surveying tripod. The tripod legs were the study of science, law, and economics.

The third session included four topics on "Education for the 1990's" presented by professors from the leading surveying programs in England. It was reported by one professor that applications for surveying are declining. The solution: lowering entrance requirements to meet student quota. Another stressed quality assurance,

CONTINUED ON PAGE 28

Here's Some Important Information About CLSA

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

Representation

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

Education Opportunities

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

Business and Professional Services

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

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Nottingham, England . . .

CONTINUED FROM PAGE 26

and reminded the attendees that "quality means fitness for purpose." During discussion, one attendee observed that the public perceives a land surveyor as a map maker. Another observed that "the public is interested in maps, not surveys."

The fourth session, titled "Institution Affairs" provided insight into 1992 and "All That!," the AGI (The Association for Geographic Information), and FIG 1998. I particularly enjoyed the presentation by Dr. Arthur Allan on the efforts by the Geometers Liaison Committee of the International Federation of Surveyors (FIG) to resolve the problems created by the different scopes of surveying practice. The 1992 European Economic Community (EEC) will bring significant change to surveying practice in Belgium, Denmark, England, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain.

If postmen can go for walks on their vacations, then Don highly recommends that land surveyors spend some time with other surveyors during their vacations.

Saturday evening began with a sherry reception at 1900 followed by the conference dinner scheduled promptly for 1930. The after-dinner talk by a retired professor of civil engineering, Dr. Ayers, was one of the funniest I've ever heard. After an appropriate time of polite discussion, the serious debates began again in the bar. For every issue, there are several points of view. Again without my participation, it is reported the discussions ran into the early hours.

Sunday morning breakfast is served between 0800-0830. Again, with the next session scheduled to begin at 0900, early arrival is encouraged.

Session five, titled "A view from the Bottom" (the title was criticized by several members of the audience), provided an opportunity for five recent surveying graduates to take the podium. The young surveyors shared their experiences in clearing the hurdles to entering the surveying profession. I particularly enjoyed the presentation by Kathryn Crowther and Kate Tennant, recent graduates from the University College in London. These two young ladies described their one year of foreign travel to several countries to work on surveying projects. Regrettably, their employment opportunity in the United States was denied by our red tape.

Session Six was titled "Open Forum" and began with four short personal views on "A Look Back, A Look Round, A Look In, and A Look Forward." Open discussion then followed. Participation by the attendees at the conclusion of each topic is always encouraged at conferences of the Land Surveyors Division. On several occasions, the comments and questions provided the needed closure on a particular point left unresolved by a speaker.

After lunch on Sunday, a number of technical presentations were scheduled. Several state-of-the-art surveying instruments were demonstrated including the Clear Cone, a motorized survey system for road profiling.

THE BRITISH LAND SURVEYOR'S ORGANIZATION

The Land Surveyors Division (LSD) is one of seven divisions of the Royal Institution of Chartered Surveyors (RICS). With 1,694 members, the LSD is the second smallest division of the RICS. Beginning January 1990, the LSD membership was as follows:

375	Fellows
592	Professional Associates
523	Probationers
202	Students
2	Associate Members
1,694	Total

The demanding entrance requirements and expensive dues tend to limit the membership of the LSD. In contrast to the United States, there are no statutory restrictions on who can provide land surveying services in Great Britain. Caveat emptor is still the environment for land surveyors.

The RICS describes land surveyors as follows: "Chartered Land Surveyors are specialists in preparing and handling measurement data and structuring land and property information systems. They use electronic data collection, aerial photography and computer technology to measure the earth and its features. Much of their work is sought in computerized format to be fed directly into the project database."

Don and Dee Bender departing for their vacation in England and Scotland.

THE ROYAL INSTITUTION OF CHARTERED SURVEYORS

The formal beginning of the Royal Institution of Chartered Surveyors dates from 1868. The RICS, however, traces its roots back another hundred years. Granted a Royal Charter in 1881, the RICS has grown to become a very large professional institution. The RICS located in its present headquarters on the corner of Parliament Square in 1895.

The membership in the RICS is in excess of 60,000 fully-qualified members and 20,000 students. A significant number of the RICS members reside outside the United Kingdom. For example, the RICS reports that "at least 30% of all British-trained land surveyors work overseas." Several hundred members of the RICS are presently working in the United States.

The very diverse membership of estate agents and managers, land agents, land, mineral and quantity surveyors, building surveyors, auctioneers, and planning and development consultants are divided into seven specialization divisions. The percentage of membership in each RICS division is as follows:

45.0% General Practice
36.5% Quantity Surveying
7.0% Building Surveying
7.0% Rural Practice
2.0% Planning & Development
1.5% Land Surveying
1.0% Minerals Surveying

The professionally qualified members of the RICS are authorized to display the RICS logo and use one of the following designations: Chartered Surveyor, Chartered Building Surveyor, Chartered Land Surveyor, Chartered Minerals Surveyor, Chartered Quantity Surveyor, Chartered Valuation Surveyor, Chartered Valuation Surveyor and Estate Agent, and Chartered Valuation Surveyor and Land Agent.

EVERY SURVEYING CONFERENCE MUST END

It is Sunday afternoon. The Conference is over and it is time for land surveyors to return to work (or to continue a trip to Scotland). But, the Belgian, Jan de Graeve, has thrown me a curve. He has offered us an invitation to return with him to Brussels in his new Mercedes, via motorway, and ferry across the English Channel. "We will arrive at midnight," he promises. What to do! My wife says, "Let's go for it." "But, we haven't seen Scotland and that was the main destination for our trip."

Hurried negotiations resolve the dilemma. We will take a rain check on the visit to Belgium. We will, instead, ride with Jan to London, since he must stop there to purchase some historic surveying books. Jan is a very serious collector. Also, Dr. Allan has recommended lodging in London. After an unscheduled visit to London, we can continue our trip to Scotland. This detour will provide an opportunity to purchase some publications at the RICS Surveyors Bookshop. The *Mail Order Catalogue* for the bookshop is over 80 pages long. We can visit Westminster Abbey again since its only a short block from the Abbey to the Surveyors Bookshop located in the RICS Headquarters. The decision is made.

With baggage in the trunk and the tape deck playing classical music, Jan begins to drive. Handing me a small scale map, he says, "you're the navigator, get us to your stop in London." Jan is driving on the wrong side of the road without benefit of a local map. After several "roundabouts" (turning circles), I believe Jan is going the wrong way. (Or is he just testing a surveyor from the States?) The setting sun should be to my right.

We find roads have been temporarily closed for a marathon race or repairs. Jan and I both know, surveyors *never* ask for directions. After a few tries, we've got it — the M1 to London. Now, at 130 km/hour, we relax and talk about surveying, both modern and historic — and, of course, other things. Jan and I must not forget that there may be a limit to my wife's good humor on our 25th anniversary vacation.

Don Bender is a member of CLSA who enjoys traveling with his wife Dee, and always mixes business and pleasure. He has been very active in professional surveying societies in the United States, and is a student of the history of surveying and the organizations that represent surveyors. His post-professional society free time is spent teaching surveying and real estate law courses for the International Right of Way Association and the University of California Extension. ⊕

Customer Service: Little Things Mean Everything

By Fred Bruce

AS AVERAGE car buyers, we will purchase $140,000 worth of automobiles in our lifetime, and yet the majority of us will not buy from the same dealer more than once. The reason most cited for not buying from a dealership again is the poor experiences most of us have when buying a car. It might be the salesman who steers you toward the $18,000 car when you said your budget was $10,000. How about the finance person who repeatedly tries to sell you extended warranties and undercoating even after you've made it clear you don't want them? Or it could be a simple omission like the salesman not sending a thank you note or following up to see how you like your new car. It may seem like I'm picking on automobile dealers but I'm not. They are not unique in their ideas on customer service — just one of the more visible examples. Many other businesses treat their customers in a similar manner.

SERVICE IS MORE IMPORTANT THAN EVER

In this age of competition, it is more important than ever to properly care for our customers. Service is one of the easiest and least expensive ways we can differentiate our business from everyone else; yet so often, we don't. Instead, we continue to take customers for granted without knowing the real cost of the way we treat them. In the case of the automobile dealer, if the customer only buys one $20,000 car from them they have lost potential future revenues of $120,000.

Many surveys of customer satisfaction have shown that an attitude of apathy and indifference is becoming more and more prevalent in business today. Fewer than one half of consumers questioned in these studies rated the service they received as good or better. Customers have come to expect mediocre service. When treated with courtesy and respect, most people view it as the exception, not the rule. Service has become a rare, valuable discipline and those that can deliver it stand out from the crowd. When was the last time you were treated like you expected to be? Most of us would have to think a while to come up with an answer.

Remember the 10/10/10 rule; it takes ten weeks to get a customer, ten minutes to ruin the relationship, and ten years before the customer will ever do business with you again. It always makes sense to look at it from the customer's viewpoint.

COMPLAINTS AREN'T THE BEST INDICATOR

The number of complaints you receive in your business isn't always the best indicator of how we are treating our customers either. They are only the tip of the iceberg. One of the hidden costs of poor service is that fewer than 5% of dissatisfied customers ever complain. The other 95% just never come back. Rather than argue or face possible embarrassment they go elsewhere. This means that, on average, if you had just 10 customers complain all of last year (last month!), 190 others just never came back. So don't worry about those who complain, at least you'll have the opportunity to fix what was wrong. Worry about those that don't tell you they were dissatisfied, they represent significant sums of unrealized revenue that you never know about.

THE "MOMENT OF TRUTH"

Peter Drucker, a famous management consultant, says the main purpose of business is to "create and keep a customer." To do this requires meeting the needs of your customer every time they come in contact with your business. Each of these contacts, no matter how remote, is a "Moment of Truth," and there may be hundreds of them in your business every day. Let's take a look at some examples:

- It could be standing by the cash register waiting to pay for something while the clerk is over in the corner talking with another employee.
- It could be the driver of the company truck proudly displaying a "How's my driving?" bumper sticker who carelessly changes lanes in front of you.
- It could be getting in your car after having service and noticing grease on the floor mat or seat.

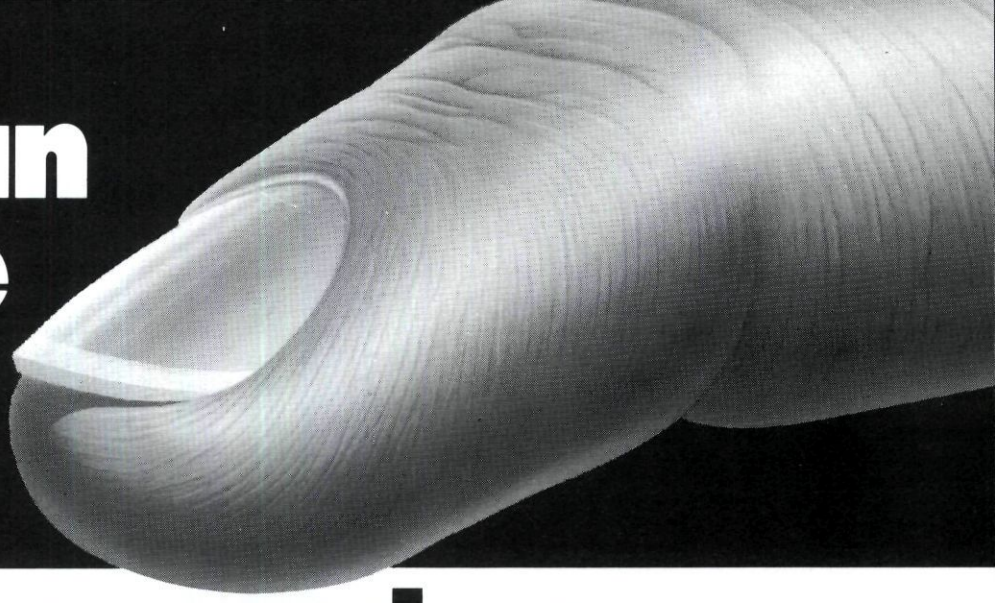
Or, on a more positive note:

- It could be the bank teller who takes time to go next door to a competing bank to find a crisp, new $100 bill for your son's graduation card.
- It could be the saleslady in the department store who recommends a less expensive vacuum cleaner than the one you were considering because it will do the job just as well.
- It could be the attorney who calls to say your work will be ready two days early.

You may consider these "Moments" as just another contact with just another customer. However, to the customer it is an intensely personal experience. They come to you to have their problems solved; the last thing they need is for someone to compound them.

CONTINUED ON PAGE 32

If you can operate one of these,



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Customer Service . . .

CONTINUED FROM PAGE 30

The way we handle these "Moments of Truth" determines how our business is perceived. "Moments" are almost always a positive or negative experience for the customer — rarely are they perceived as a neutral encounter. In each of these "Moments," an assessment of your business is made by the customer: "Did I get what I expected and was I treated courteously?"

In order to manage these "Moments of Truth" so they leave a positive impression on the customer ask yourself these questions:

- Do you really strive to make every contact with your business a pleasant one for the customer"?
- Do the people who work with you know how important it is to keep the customer happy?
- Do you ask your customers on a regular basis "How are we doing for you?"

A LITTLE EFFORT IS ALL IT TAKES

You will notice that I haven't used the words superior, outstanding, exceptional, or remarkable in referring to customer service because these words are really unnecessary. You don't have to be tremendously better than your competition, just a little bit is all it takes. It's just like in a horse race, first place may win $100,000 while second place gets only $50,000. This doesn't mean the winner was twice as fast as second. It only had to be a "nose length" better to be rewarded significantly more. It's the same way with people — exceptional customer service is a matter of inches. It is not doing one thing 1000% better, it is doing things just 1% better.

Let's talk about some of the little things that make such a difference in a customer's perception. You probably won't see anything new, just some things that will remind us how important the basics really are:

Smile. Let them know you are happy to see them. Surveys rated a smile as the number one thing customers wanted to see.

Be courteous. Go out of your way to help. Try standing up when someone comes in your office or store. It may seem like a small thing but it makes a big difference. The customer feels welcome, not like an intrusion.

Introduce yourself. A person's name is the sweetest sound they can hear. Besides, who wants to do business with a stranger. We've all had those awkward moments around others when we didn't know their name; it's not a comfortable feeling. Remember, comfortable people spend money.

Communicate clearly. Ask questions and LISTEN, find out what they want: Use the six honest servers of clear communication; when, where, who, what, how, why. If you are concerned that your customers will think you are nosy, just remember, people don't care how much you know if they know how much you care. There have been many occasions when I have let my clients talk long enough that they came up with an excellent solution to their financial situation all by themselves.

The way we handle these "Moments of Truth" determines how our business is perceived. "Moments" are almost always a positive or negative experience for the customer, rarely are they perceived as a neutral encounter.

Wait on them immediately. Customers don't like having to beg to spend their money. There are billions of dollars spent every day; billions more would be spent if we could just get waited on! Imagine a doctor who would actually see you at the appointment time. They would have so much business they could retire in five years.

Answer the phone promptly. Within two rings, with a smile in your voice: Seem pleased that person is calling. The first contact a customer has with your business is usually by phone. Make sure it is a positive one. Whoever answers the phone IS the company to the caller.

Use a personal greeting. Not boring, memorized phrases like "GoodeveningwelcometoPizzaWorldmayIt akeyourorderplease?" Haven't we all spoken with this person before? Make the customer feel like they are special and you are happy to deal with them.

Be cheerful and enthusiastic. Some people may say "Well, sometimes I just don't feel cheerful and enthusiastic." How about faking it? Most of us would rather be waited on by someone who is acting happy than a sincere sorehead any day!

Say thank you. Let them know you appreciate their business. When it's appropriate, send a thank you note. They are inexpensive to personalize and customers love them. During visits to my clients' offices, I have seen many of them that I had previously sent. When asked why they kept a simple thank you note from me on display they reply, "Because nobody else sends them and I appreciate the thought."

CLEANLINESS SENDS A MESSAGE

Give customers a clean place to spend their money. Take a close look at what the customer sees. I've used some bathrooms where I know I should have had shots before going in! Here are some other judgements customers make based on how clean our business is:

- Dirt around the table leg in a restaurant means you have a dirty kitchen.
- A dirty waiting area in an auto service shop means lousy work was done on your car.
- Coffee stains on the flip down tray in an airliner means they do lousy engine maintenance.

These judgements may not be fair, but in the real world a customer's perception is the reality.

Accept complaints graciously, apologize profusely, and fix them immediately. Have you ever returned some item and been humiliated while someone questions your reasons? Once, after discovering a broken seal on a bottle of antifreeze, I returned it and spent twenty very embarrassing minutes being grilled by the store manager. Guess where I'll never shop again? Then there was the occasion I wrote to Johnson and Johnson about a toothbrush that fell apart shortly after I bought it. They called me two days later, apologized, and sent me what must have been $20 worth of products. Don't you know I only buy J&J now? Remember the 10/10/10 rule; it

takes ten weeks to get a customer, ten minutes to ruin the relationship, and ten years before the customer will ever do business with you again. Even if you are in the right, it always makes sense to look at it from the customer's viewpoint.

MMFI!

Make Me Feel Important! If you would visualize the letters "MMFI" tattooed on the forehead of every customer, your business could improve dramatically. When the customer is with you, they should feel like the most important person in the world. A client once said to me, "Fred, when I leave your office it's like leaving a nice warm cocoon to go back out into the cold cruel world." That meant a lot to me, I really felt I was doing my job and putting the client first.

These are a few of the steps that help customers have a positive experience with your organization. Putting all these principles into practice requires a lot of effort. As a leader, it will take a commitment on your part. Your people will have to buy into the importance of good customer service. Your customers will have to perceive that they are being treated well. This is all a tall order and will take some time to implement. If you're willing to put all this effort into a customer service program, let's take a look at the benefits you can expect to receive.

REMEMBER MMFI?

- You will get repeat business from loyal customers. People will always come back when they get what they want and feel welcome.
- You will get referrals that become new customers. Your customers will tell others about you.
- Increased market share. As your reputation for meeting the needs of your customers grows, so will the customer base.
- You will enjoy higher profit margins. Customers are willing to pay more for good service. On average, organizations that emphasize customer service are two and a half times more profitable than those who don't make it a priority.
- You will get the least expensive and best kind of advertising there is; word of mouth by satisfied customers.

In summary, let's look at a definition that says it all:

CUSTOMER SERVICE

An obsession with giving the customer exactly what they expect and then some. It is underpromising and overdelivering. It is uncommon courtesy. It is attention to detail. It is providing products that work, at a fair price. It is listening to customers and asking for their ideas; nobody knows better than the user just exactly what they want. It is also instilling these ideals in the people who serve the customer. It is having them believe in these principles strongly and feel a sense of pride. Lastly, it is being a leader who can create an atmosphere throughout the organization of total devotion to the needs of the customer. Remember, if you don't treat your customers well, somebody will. There are very few monopolies left today and your products and services are probably available from competitors. Give customers what they want and they will beat a path to your door.

Fred Bruce is a vice president with Merrill Lynch. ⊕

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