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The California Surveyor

SUMMER 1995 The Voice of the Land Surveyors of California NO. 109

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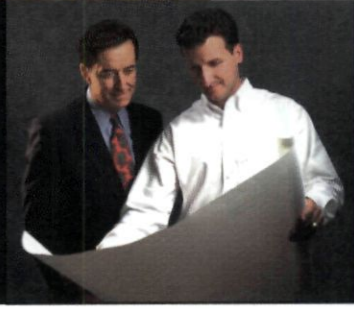

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The California Surveyor

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

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

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

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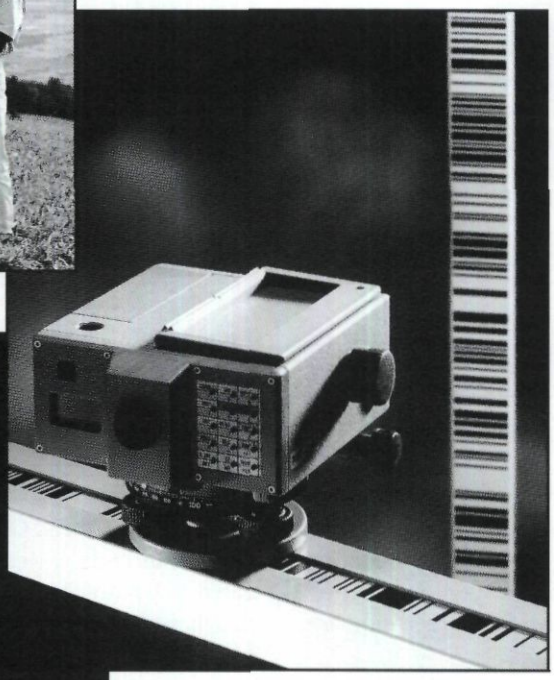

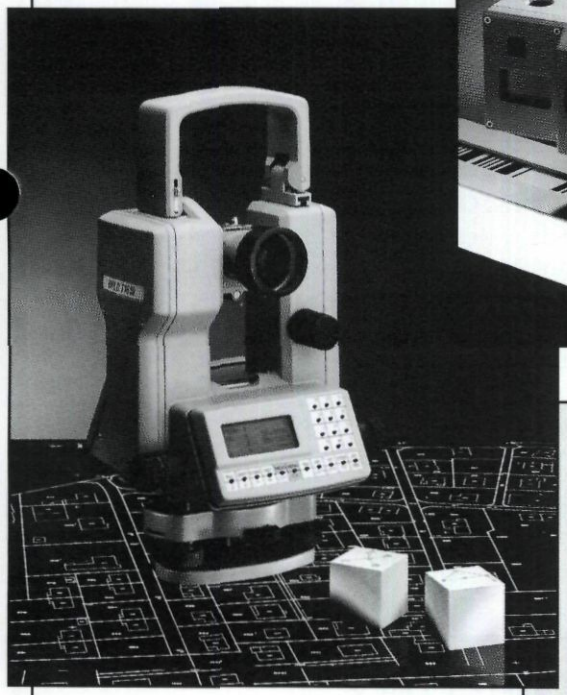

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IN MEMORIAM

Jesse Ernest Newcombe, PLS
1940 – 1995

ERNIE NEWCOMBE, a member of the Channel Islands Chapter, will be missed. He was one of the founding members of the Los Angeles/Ventura Chapter, served as Chapter President and as Liaison to the Board of Registration for Professional Engineers and Land Surveyors.

Ernie was more than a fine and dedicated land surveyor. He was proud of his profession and set a tall example for others. He was a dedicated family man, active in his church, and lived the life the principles of which he was a role model for in all of the good values and traditions. His faith and quiet courage is an inspiration to all those that knew him. We shall all truly miss him. ⊕

Merle W. Eli, PLS
1933 – 1995

THE CHANGING OF THE GUARD is subtle and doesn't happen in a day... it happens over time as those, we have entrusted with the honor of our profession, who pass from this Earth. One day, someone we know is suddenly absent from our lives, someone, who has made a difference in our profession and left us with their legacy. Merle Eli was such a man; a professional surveyor, a gentleman and a mentor, an honorable man for whom it was the good fortune of many that he passed this way.

Merle Eli, 61, of Sacramento, died in early May. He was born in 1933 in Hudson, South Dakota, and moved to the

Continued on page 18

WHERE DOES THE WIND BLOW?

By J.R. Dorsey, December 18, 1974

Where does the wind blow?
The wind blows free
It blows across the tops of the seas,
It blows across the bottom of heaven that looks down on you and me,
It blows down the canyons, across the deserts, and the tops of trees.
It blows to bring us rain and to make the snowflake fly,
and clear the air for all the world to see.

Where does the wind blow?
In a cage where it cannot move, how can it be,
Oh, how I love the wind that blows so free.

If you were all mine, I would share you with just me,
In a cage where you cannot move, oh, where can you now be?
Won't you move and whisper, blow my hair just for me?
How still you lie, no more to move, what kind of wind do you be?

Where is the wind that used to blow so free?
Here in a cage where it cannot be.
There goes the wind, I have set it free.
It blows across the tops of the seas,
It blows across the bottom of heaven that looks down on you and me.
Where does the wind blow?
The wind blows free. ⊕

FROM THE EDITOR

METRICS, CONTINUING EDUCATION, LEAST SQUARES AND MORE

By Tom Mastin, PLS

IT'S *CALIFORNIA SURVEYOR* time and as always, I have not come up with any idea, or as we say in journalism "a concept for the editorial for this issue." There are two ways to come up with a concept that will grab the readers and make them ask for more. The first is to brainstorm with *The California Surveyor* editorial staff all day in our oversized, luxurious conference room; the second is to steal an idea from someone else. So, I've been reading other magazines. I noticed a theme in all the editorials I was reading in the magazines. They were all talking about what was in that issue of the magazine. I thought that's what the table of contents was for, which is why I'm a surveyor and not a journalist. Apparently, in journalism, it is a good idea to repeat the table of contents in editorial form on the following page. This, I assume, is for those that are not savvy enough to understand how to use a table of contents. So hey, this will work great, if only I knew what was going to go in this issue.

We have letters to the Editor. These aren't really letters to me, as the ones that come directly to me are not printable in a family-oriented magazine. Of late, the hot topic (three or four letters) has been the converting of California to the metric system. I have heard it called metrication and metrification, neither of which make sense. I'm sure metrication has something to do with chewing your food enough before swallowing and metrification has something to do with singing in tune. This conversion seems inevitable, seeing as all the other nations of the world aren't converting from SI units to English units. I believe that once it is in place, everything will work smoothly. However, it will probably take 10 years to get in place and those years will be painful and costly. Metric has always seemed a simpler system for me, as long as they don't have a standard meter and a surveyor's meter. Next, we should consider getting rid of the bearing system for direction annotation. Maybe the metric system will take care of that too.

We also have an article by Kristina Davis-Comerer on Voluntary Professional Development. Hold on there folks, the key word there is *Voluntary*. The Education Committee, under the direction of the Board of Directors of CLSA, is initiating a Voluntary Professional Development Program. I know I almost always get in trouble when I discuss continuing education. This program, however, is wholly voluntary. Those, who do not believe in education, need not participate. The program is basically a way for members or non-members to be recognized for their continued pursuit of education. This program is timely; with Nevada instituting mandatory education, California is now one of the few western states that does not have a mandatory professional development system in place. If nothing else, hopefully we can generate some letters to the Editor on the futility of educating professionals. In addition to the article are the program requirements. Any comments on the program or the concept would be greatly appreciated and more than likely reprinted without any cost to you.

Then, there is the article by Marty Hartwig, who does an excellent job of explaining the basic concepts of least square adjustments. Oops, (as a side note, do you know that there is a programming language now called *oops*. It stands for object oriented programming, but what a name, it's like promoting your surveying company with the slogan "as seen on 60 minutes"). That was in the last issue of *The California Surveyor*. Still, it was a good article and interesting topic. It is getting more important, in this age of hand-held G.P.S. units for the kiddies and personal GIS replacing the Almanac, that we, as a profession, are better able to cope with and explain error analysis, which is just what the article did.

That leaves us with the C.L.S.A. Conference. For those of you who worry that this is a plug for the conference, not to worry, it's been over for 2 months, now. First, the attendance was way down. I think this was for a variety of reasons, not the least of which was that the first three months of the year was extremely slow for most surveyors. It is hard to justify going to a conference when you are having a hard time paying your monthly bills. Even most of the Officers and Directors of C.L.S.A. didn't make the conference, which is rare. The program was good and the entertainment was excellent. I thought that the Conference committee worked hard to put on a good conference and there just weren't as many people to appreciate it as there should have been. I hope those of you, who couldn't make it this year, will be able to attend next year. Next year, we hope to see your picture in our conference montage.

Well, as I end this editorial, thinking about how I can expand what I have written into a full page, I am reminded of that interesting story about the old surveyor working out in Death Valley during mid Summer, who runs into a group of surveying students doing a G.P.S. survey. Oh, good now I've got a full page. ⊕

LETTERS TO THE EDITOR

JAMES HAMBLIN SCHOLARSHIP RECIPIENT

I want to extend my extreme gratitude for the James Hamblin scholarship which CLSA presented to me at CSU, Fresno's annual surveying engineering conference. Already the scholarship money has gone to provide for books, supplies, and miscellaneous costs incurred during this semester. Without this aid, I would have likely been forced to borrow more money in one form or another. This aid combined with the opportunities that the profession as a whole provides in the form of jobs are my chief source of income to earn my degree in the surveying field.

To let you know a bit about myself, I am in my third year at CSU, Fresno. (I enrolled there straight out of high school.) I've worked with CALTRANS in many different capacities, both in the field and assisting with their data collection software. I currently work at a private firm which encompasses almost everything that I learn in school, boundary, photogrammetry, GIS, and a variety of other things. I try to attend all of the student CLSA meetings on my campus and I make strong attempts to attend my local chapter (San Joaquin Valley Chapter) of CLSA. I am involved with many activities, such as the conference at our school, and anything I can find to help promote the profession to the general public. I was quite pleased to discover that I had won the CLSA scholarship as it is an organization which I believe to be beneficial to many communities and the surveying profession.

Derrick Peckham

CLSA CONFERENCE STUDENTS

This letter is in appreciation to the CLSA Chapters for their support to the CSUF Students. Thank you for the opportunity which allowed the CSUF Students to attend the 1995 CLSA Conference in Costa Mesa. We found the conference very rewarding and we enjoyed working with such a well organized and professional group.

Working with the surveying professional and seeing the presentations was enlightening and educational. The exhibits offered an immense display of new high-tech equipment and information. It was wonderful being included in the evening activities. The students are still talking about the Friday night Auction and Saturday evening dinner performance.

Again we would like to show our appreciation for the wonderful opportunity of working with and being a part of the 1995 CLSA Conference.

CSUF-Surveying Engineering Students

RE: MOUNT RUSHMORE SURVEY

"The Survey of Mount Rushmore" by Denise J. Smith in the Spring 1995 *California Surveyor* appears to contain some inaccurate information. Ms. Smith writes that a Mr. Tim Vogt went to the National Park Service "looking for survey data only to find that none existed."

In 1972 and '73 while employed by the National Park Service I performed surveys at Mount Rushmore. My survey party photomapped the entire developed area at 400 scale and the Visitor Center and Parking Areas at 100 scale. The control network for the photomapping was tied to the South Dakota State Plane Coordinate System by virtue of a single U.S. Geological Survey triangulation station located near Keystone (Northeast) entrance to the memorial. Azimuth was determined by a series of Polaris observations. Vertical control for the project was tied to the 1929 NVGD network. U.S.G.S. would support coordinates for the triangulation station only to the nearest foot and no other geodetic control was convenient. The resultant coordinates for that network were qualified as "Modified State Plane Coordinates." In the course of these surveys every previously existing known survey point was recovered and tied to the photomapping project. The network eventually contained nearly fifty "permanent" survey stations.

Since the 1973 mapping data was developed for planning and design purposes, the sculpture area itself was outside the

compiled area. I did however establish a "wing point" on top of George Washington's head, and it clearly appears in the aerial photographs.

One of the only difficulties I can recall on the project involved setting that point. Standard concrete nails were unable to penetrate the hard rock surface on top of the sculpture. "Normal" surveyor's tools (like spray paint) are restricted in park environments, so I fixed a small nail with epoxy to serve as the point.

In 1989 I was still employed by the Denver Service Center of the National Park Service, and I can attest that this data was certainly available to Mr. Vogt at that time, and I have no reason not to believe that it still is. I left the Park Service in 1990 about the time the article was originally published in *POB*. I don't recall reading it then, or I would have shared this information with the interested parties at that time.

Most survey data developed by and for the National Park Service resides in Denver. It can be obtained by contacting the Branch of Surveys, P.O. Box 25287, Denver, CO 80255.

Michael L. Binge, PLS

AB 1414 EFFECT ON LSA

I continue to enjoy your efforts in publishing *The California Surveyor*, however, in the Winter 1995 edition, I was surprised to see such an incomplete review of AB 1414 in the article "Summary of Significant 1994 Legislation Related to Land Use." The authors apparently focused on the effects dealing with the Map Act and completely neglected the changes to the Professional Land Surveyors Act.

To the benefit of my fellow members of the East Bay Chapter of the CLSA, this bill has been discussed at meetings and in committee. While the changes to Section 8771 of the PLS Act are relevant to all Professional Land Surveyors, it is of particular interest to those involved in construction surveying and to public agencies that construct public improvements, especially roads and sidewalks. The requirement for the perpetuation of monuments was expanded and made a part of the Streets and Highways Code in an apparent attempt to reach more public agencies not familiar with the PLS Act.

Effective January 1, 1995, Section 8771 will require the filing of a corner record (or other suitable record) **prior** to construction to show the location of monuments and survey control affecting land boundaries that will be destroyed by construction. A **second** corner record will be required prior to the certified completion of construction to show any monuments, etc., that were reestablished or reset in the surface of new construction. The "governing agency or others performing construction work" shall be responsible for complying with these requirements.

I urge all surveyors to review the actual text of Section 8771, as amended, for a more complete understanding of its requirement. Perhaps, The California Surveyor could publish the amended version of Section 8771. Unfortunately, it is vague in defining what "survey control" must be perpetuated, i.e., should a random PK nail set at the back of curb by A. Goodguy, P.L.S. while traversing around the block for a lot survey, be perpetuated? What about a non-record concrete nail found coincidentally close to the intersection of two streets? Obviously, the issue of exactly what should be

perpetuated should be discussed further, possibly at the local level.

In closing, I would like to add my opinion that Professional Land Surveyors are responsible for informing local agencies if the local agencies are in violation of law. If a local agency continues to allow new construction to destroy existing monument, that local agency should be reported to the Board of Registration for further action.

Les Freligh, P.L.S.

Editor's note: Mr. Freligh, is quite right in that the legislation review in the winter issue only dealt with effects on SMA and CEQA. I want to thank Mr. Freligh for bringing to the attention of our readers the effect of AB 1414 on the Land Surveyors Act. As Mr. Freligh requested, below is the current wording for Section 8771 of the Land Surveyors Act.

8771. Monuments set shall be sufficient in number and durability and efficiently placed so as not to be readily disturbed, to assure, together with monuments already existing, the perpetuation or facile re-establishment of any point or line of the survey.

When monuments exist which control the location of subdivisions, tracts, streets, or highways, or provide survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or registered civil engineer prior to the time when any streets or highways are reconstructed or relocated and a corner record of the references shall be filed with the county surveyor. They shall be reset in the surface of the new construction, a suitable monument box placed thereon, or permanent witness monuments set to perpetuate their location and a corner record filed with the county surveyor prior to the recording of a certificate of completion for the project. Sufficient controlling monuments shall be retained or replaced in their original positions to enable land lines, property corners, and tract boundaries to be re-established without devious surveys necessarily originating on monuments differing from those that currently control the area. It shall be the responsibility of the governmental agency or others performing construction work to provide for the monumentation required by this section. It shall be the duty of every land surveyor or civil engineer to cooperate with the governmental agency in matters of maps, field notes, and other pertinent records. Monuments set to mark the limiting lines of highways, roads, or streets shall not be deemed adequate for this purpose unless specifically noted on the records of the improvement works with direct ties in bearing or azimuth and distance between these and other monuments of record.

[Amended, Chapter 458, Statutes of 1994]

METRIC CONVERSION CONTROVERSY

After reading the letter from William J. McGee, I realize that there must be a number of others like him that "don't get" why metrication is necessary in the U.S. What we are talking about here is not simply a system of measurement; we are talking about the standard of living in this country. For anyone that does not believe this; do you realize the implication that there are only three countries on the planet that have not converted to the metric system? They are the United States, Liberia, and Myanmar (better known as Burma.)[1] Liberia and Mynamar are **not** major trading partners of the United States. Even England, Canada, Australia, and China have converted to the metric system.

The change that has made metric usage necessary was the emergence of the well known "global economy" or "global marketplace". In the global economy, products move easily across national boundaries; products are international and different stages in their life cycle may occur in different countries. Products may be designed in one country, fabricated in another country, maintained and repaired in a third country, and finally disposed of in still another country. These products must be compatible with the design, fabrication, maintenance, repair, and disposal systems that are used for these life cycle processes.[2]

Why does this concern a land surveyor? Our economy is complex and interrelated. Industries that export cannot be compartmentalized from other industries; they share the same workforce, the same domestic customers, the same financial infrastructure, and the same suppliers. As long as non-metric units are used in certain industries, we must continue to teach the cumbersome and outmoded inch-pound system in our schools, along with the metric system. The opportunity to eliminate instruction in the inch-pound system is lost. Also, the benefit of using a simpler system of units throughout society is forfeited.

Compare the ease with which volume calculations are made in the inch-pound system and metric systems. To calculate the amount of concrete needed for a floor 200 feet long, 180 feet wide and 5½ inches thick, you must first convert the thickness to feet by dividing by 12. Next you must multiply that value by the floor length and width to obtain cubic feet, then divide the number of cubic feet by 27 — three steps to determine that you need 611 cubic yards of concrete. To find out how much concrete is needed for a floor 61 m long, 55 m wide, and 140 mm thick, you need only change 140 mm to 0.14 m in your head (one meter equals 1,000 millimeters) and multiply the floor length, width, and thickness to obtain 470 m^3. In one step you have calculated the necessary volume of concrete.[3]

The Construction Industry is going the way of metrics, so it stands to reason that if a Surveyor wants to do construction design and stakeout work he/she will have to do that work using metric units. Supply normally follows demand, and once the demand has been established for metric materials, (the feds are creating that demand here at home) the supply of materials will be in metric units. Building materials are going modular and metric. The international building module is 100 mm as set forth in ASTM E 577, *Standard Guide for Dimensional Coordination of Rectilinear Building Parts and Systems*. Producers of nonrectiliear products have been advised to follow the guidance provided in ASTM E 621, *Standard Practice for the Use of Metric (SI) Units in Building Design and Construction*.[4]

Californians have seen the future; and the future is metric. Chapter 611, Section 8802 of the Public Resources Code states in part "For CCS83... The point of control of each of the six zones bear the coordinates: Northing (y) = 500,000 **meters** and Easting (x) = 2,000,000 **meters**." (Bold added by me.)

I would hope that Surveyors would help lead the way into metrication, rather than be stumbling blocks.

Charles Barsuglia, PLS

[1] *"Tech Transfer" Institute of Transportation Studies, University of California, January 1994.*

[2] *"Metrication: An Economic Wake-Up Call"*

Gary P. Carver, March 1993.
[3] *"Metric in Construction" V3, I6.*
[4] *"Metric in Construction" V3, I5.*

METRIC, TOO

I cannot let the letter from Mr. William J. McGee, *"Irate Citizen,"* in the Spring 1995 Edition of *The California Surveyor*, go without a response. From the letter one senses that Mr. McGee is a practitioner of the surveying art, but he is apparently not very proud of it, or he would have used the initials P.L.S. Looking in the roster, I find a William Joseph McGee, LS 4101, but it may not be the same person.

First, I don't think that Mr. McGee fully comprehends the basis of the English system of measurement. He states that the *foot is* the primary basis from which all units are derived. As my letter stated, this is simply not true. All units are derived from the yard, which is a function of the *metre*, (U.S. *meter*). He appears to be one to whom the relationship of the chicken and the egg is perfectly clear: they both came first.

I wonder if Mr. McGee is aware of the revision to the *Public Resources Code*, wherein California has adopted the *California Coordinate System of 1983*, which is in metric units. Or, is he aware of the fact that modern electronic measurement devices operate in metric and convert to the U.S. Survey foot for the convenience of surveyors. I visualize Mr. McGee going to the field in the morning in his buggy, setting up his compass — or possibly a 30" transit — unfolding his steel chain, and proceeding to conduct his survey according to tallys and the True Meridian. In the event that he needs to do topography, I suppose that he uses stadia, or station and offset. Then, picking up his instrument, chain, and pole men, brush choppers, and notekeeper, returns to his office, where he does his calculations on the Monroe hand-crank calculator, and draws the finished project on a linen sheet.

Seriously, utilization of S.I. units will cause the surveying profession to be more productive and efficient, and provide a better service to the public than presently, because all of those in construction will be using the same unit. Surely Mr. McGee has worked on construction projects where the carpenters, pipefitters, etc., have been given plans in feet and tenths, and tried to make them into inches. The wood or pipe is cut short or long, and then re-cut to fit, shortening tempers in the process.

The simple fact of the matter is that the United States is part of the Global Economy, and we must convert to survive. All construction funded by the United States will be in S.I. units starting October 1, 1996. With NAFTA, it is highly probable that California surveyors will be working in Canada and Mexico, as well as other countries, and we must use their system of measurement.

Finally, if Mr. McGee is really concerned that the surveying profession revert to the 19th Century, I and other metrication advocates will be perfectly willing to debate him in a forum of his choice.

Harold B. Davis, City Surveyor, City of Hayward ⊕

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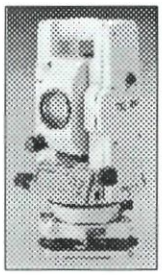

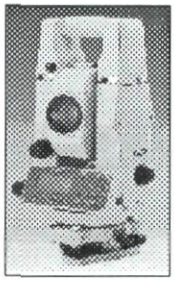

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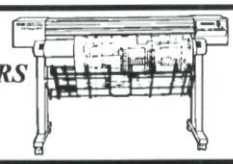

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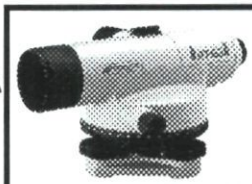

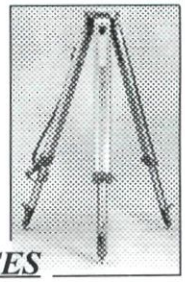

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CLSA ANNUAL CONFERENCE

Costa Mesa, CA — March 31 — April 2, 1995

By The Staff Reporter

THE 1995 CONFERENCE was far from the most attended CLSA conference. What was missed by volume was more than made up for by the content of the program and the involvement by the participants. In addition, there was an excellent turnout by exhibitors, who had all sorts of new equipment on display and gave out some valuable information to those attending.

Friday's program began with the opening remarks by James Sorden of Trimble. Mr. Sorden gave us a glimpse of the future according to GPS. It certainly looks very promising for the GPS industry. Then, we had an interesting talk by Tim Vogt on "Surveying the Faces of Mount Rushmore." Tim is a geologist and went into some interesting detail about the concerns of the stability of the rocks on which the faces are carved. Then, Past CLSA President James Dorsey talked about "Title Problems Caused By Past Surveys." Jim talked about one problem in particular that had been exacerbated by newer surveys relying on the older survey. Assemblyman Mickey Conroy was the luncheon speaker, talking about the "Board of Education." After lunch, Mr. Robert Merritt discussed some of the "New Changes in the Subdivision Map Act for 1995." Then, Lori Kramer followed up by discussing "The Differences Between the Various Title Company Projects;" as seen from the Title company's view. Late afternoon, there was a talk on "Workers Compensation Laws" and what has to be done to comply with it, by Allon Green. The last talk of the day was by Jerry Broadus. Mr. Broadus has a regular column, *The Surveyor and the Law*, in *P.O.B.* and discussed "Ethics and Professionalism for Surveyors."

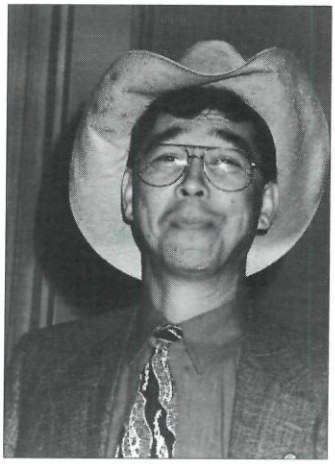
The evening function for Friday was the annual Exhibitor Cocktail Party and the Education Foundation Scholarship Auction. The Auction was split into the live auction and a silent auction. At the beginning of the Auction, Susan Jensen was honored with the *Rusty Chain Award* by Hal Davis for her untiring effort to retire from surveying. Larry Tardie again donated his time to act as auctioneer. Although money was tight and wallets were empty, Larry did generate over $8,000 for the Education Foundation. Larry is living proof that you can get blood from a turnip. Everyone had a great time and the students helped out tremendously, keeping track of the sales during the evening. There were certainly some great bargains realized by some.

Saturday morning, the participants either attended a safety workshop by CALTRANS or took a tour of the Orange County Surveyors Office. The safety workshop was a well-organized workshop that went over the information necessary for those contracting for CALTRANS, or for those working along highway and freeway corridors. The Orange County tour was a marvel in organization and coordination. The participants were broken up into groups and then toured through the County Surveyors facilities, while being given presentations on everything from record of survey processing to GIS implementation. All the staff were knowledgeable in their area and friendly, even after listening to every possible bankruptcy joke. The luncheon talk was by Jerry Broadus and Clarice Clark, discussing their experiences on the Rhododendron GPS Survey in China. The afternoon started off with some financial talks. The first by Marshall Serwitz, discussing "Financial Planning for the Individual." The second talk was by Joseph Malpasuto on "How to Deal with Contract Disputes" and how to use mechanics liens. The late afternoon had two very entertaining speakers. The first was William Carr on "Hydrographic Surveys in Southern California." Bill does many interesting types of surveys and knows the dangers of them all. Bill was followed by Dan Krieger talking about the "History of Surveying in California." Dan is an Historian, who has always had an interest in how land was acquired during the forming of the State of California. Dan kept the crowd entertained and educated, even at the end of a long day.

Saturday's evening entertainment consisted of the Western BBQ Dinner, followed by the famous Gary-Oakie Revue. Until you have seen a Gary-Oakie show, you cannot appreciate the experience. It is impossible to believe that there are surveyors out there with that much talent. The only problem with the show was that it was about an hour too short.

Sunday morning started with a discussion with the Board of Registration Executive Officer, Harold Turner, and the LS Board member, David Slawson. Mr. Turner updated the participants on what was happening at the Board in regards to enforcement, to seals, and to staffing. The conference ended with David Paul Johnson of Trimble talk on GPS: "Basics and Beyond." Actually, David talked mostly about where he sees the future of surveying in GPS and GIS. David is the only speaker who could give the last talk of the conference and fill the room. It was a great talk to end an entertaining and educational conference. ⊕

1995 CONVENT



N HIGHLIGHTS

Photographs by:
Carolynn Nielsen

"VOLUNTARY CONTINUING EDUCATION PROGRAM" IS HERE FROM CALIFORNIA LAND SURVEYORS ASSOCIATION

By Kristina Davis-Comerer, Education Committee Chairman

THE CALIFORNIA LAND Surveyors Association Board of Directors approved the "Voluntary Continuing Education Program" at the October 1994 Board Meeting. The concept of some sort of Continuing Education for Land Surveyors through the California Land Surveyors Association began as a Mandatory Program. Letters were sent to the Board of Registration for Engineers and Land Surveyors and to the California Council of Civil Engineers and Land Surveyors in 1991 to inform them of our ideas. A questionnaire on proposed continuing education program requirements was sent to all members of CLSA in 1992. After compiling the results of over 600 responses to the questionnaire, a "Modified CLSA Mandatory Development Program" was outlined. In 1993, the CLSA Board of Directors felt a "Voluntary" program would be preferred by the land surveying public. The end result is the CLSA Board approved "Voluntary Continuing Education Program." It was developed utilizing concepts from the "Modified CLSA Mandatory Development Program," the NCEES "Continuing Professional Competency" guidelines, CELSOC's "Continuing Education and Professional Development" outline, and various other State's programs.

As shown in the program requirements, there is no application fee for members of CLSA. Each participant is responsible for maintaining records and supporting documentation of an individual's continuing education history. A "Certificate of Recognition" is given upon approval of the application package.

The Education Committee is working to develop a list of approved courses and activities that meet the Required PDU requirement. Our plan is to have conference sessions and workshop/seminars, meeting the Required PDU credit category, specified as such in the individual conference program brochures, and workshop/seminar announcements. The first application package submittal deadline will be September 30, 1995. ⊕

VOLUNTARY PROFESSIONAL DEVELOPMENT PROGRAM

April 1995

A. Statement of Purpose

The purpose of the professional development program is to encourage and support the professional growth of land surveyors and recognize their continuing education activities.

B. General Provisions

This is a voluntary professional development program with recognition being given by the California Land Surveyors Association through the issuance of a certificate.

C. Eligibility for Recognition

Any licensed land surveyors and land surveyors in training engaged in the practice of Land Surveying that meet the professional development program requirements.

D. Program Requirements

Every participant is required to obtain 24 Professional Development Units (PDUs) per 2 year period (for an average of 12 PDUs per year). All 24 hours could be acquired in one year, if desired. A maximum of 8 PDUs may be carried over from one 2 year period to the next. Courses by mail, video, and in person will be allowed for required and elective PDU credit.

Twelve required PDUs are required per 2 year reporting term. Subjects meeting the required PDUs are those that relate to land surveying, including, but not limited to, seminars on the LS Act, Ethics, Legal Description Writing, Public Lands, etc. Courses, that satisfy the required units, must be approved by the CLSA Board of Directors or their appointed committee. Employers, both public and private, as well as local CLSA chapters, educators, and any licensed surveyors may submit documentation for CLSA course instruction approval.

Twelve elective PDUs are required per 2 year reporting term. Elective subjects are those that relate to activities encountered by surveyors while offering to practice land surveying, including, but not limited to, courses in real estate law and transfers,

business law, management, mathematics, safety, computer science, etc. Qualifying elective PDUs shall be acquired in the following manner:

1.Accredited courses offered by a community college or university.

2.Courses that satisfy other continuing education requirements of the state (such as real estate continuing education classes).

3.Courses that satisfy certification requirements for local, state, or federal contracts (such as toxic waste courses).

4.The first publication of a paper or book relating directly to surveying.

5.The first-time preparation for and presentation of survey-related information at technical meetings, short courses, and seminars.

6.Active participation in professional associations using the following scale for PDUs:

a.Maximum of one PDU per year for membership in any state or national survey association that publishes a journal at least four times per year.

b.Maximum of two PDUs per year for attendance at 25% of the total number of local CLSA chapter meetings held.

c.Maximum of one PDU per year for attendance at 25% of the total number of Board of Registration for Professional Engineers and Land Surveyors meetings.

7.Any course that meets the required PDU definition may be applied towards elective PDU requirement.

E. Professional Development Units

1.Seminars and Workshops: one PDU per one hour of instruction.

2.One semester unit granted by an accredited university or college program equals eight PDUs.

3.One quarter unit granted by an accredited university or college program equals six PDUs.

4.Preparation of technical papers published in trade, technical, or professional journal: four PDUs for preparation time per paper published.

5.Initial presentation as lecturer or instructor on professionally relevant subject matter: One PDU per hour of presentation to a maximum of eight PDUs per initial presentation given.

F. Reports, Records, and Recognition

The participant will keep documentation supporting their history of professional development during each two year reporting period. Those wishing to participate in this voluntary program are required to submit supporting documentation and the application form. A Certificate of Recognition indicating the individual's achievement will be sent to the participant upon approval of the application package.

G. Application Fees

There is no application fee for a member of CLSA. The application fee for a non-member of CLSA is $50.00. ⊕

HISTORICAL SURVEY RECORD REFERENCING SYSTEM

BACK IN 1987, the C.L.S.A. Board of Directors initiated a Historical Survey Record Referencing System. The response to the request for Historical Survey record information was spotty. C.L.S.A. received about a 170 responses to records throughout the State. The current Board of Directors of C.L.S.A. is interested in making this a viable service to the surveying community in California.

The historical database contains information regarding the present location of the field notes and files of various Land Surveyors and Civil Engineers who are no longer in practice. We are asking for your help in making this database a worthwhile venture. If you know of the present location of field notes of a Land Surveyor or Civil Engineer who is no longer in practice, please take a few moments and fill out the form shown below. Feel free to make copies of the form as needed. Send the copies to:

HISTORICAL SURVEY RECORDS
C.L.S.A. Central Office
P.O. Box 9098
Santa Rosa, CA 95405-9990
or FAX the form to (707) 578-4406.

HISTORICAL SURVEY RECORDS INFORMATION SUBMISSION FORM

Surveyor or Company _____ LS No. _____

RCE No. _____

Counties of Work _____

Dates of Records _____

Comments _____

Location of Records

Company or Person Name _____

Address _____

City _____ Zip _____

Phone _____ Ext. _____

Person Submitting Report _____ Phone _____

Date _____

Please fill out One entry form for each Location of records! ⊕

Merle Eli (continued from page 6)

Los Angeles area in 1948, where he stared his 42-year surveying career in 1953, working for Rod Curtis and Caltrans.

He moved to Eureka in 1960, working for Caltrans and Griffith & Associates. He managed the Weaverville office of Griffith & Associates from 1972 to 1977, when he opened his own business, Tri County Land Surveying. After 1984, he worked for Del Terra, Inc., Bissel & Karn Engineering, and Greiner Engineering. At the time of his death, he operated MWE Land Surveying in Sacramento.

Merle served the California Land Surveyors Association as State Vice-President and President of the Northern Section. He held California License #3577 and Nevada License #5827. He was a member or past member of the California Council of Civil Engineers and Land Surveyors, American Congress of Surveying and Mapping. Toastmasters, Free and Accepted Masons, and the Lions Club.

Merle was dedicated to his profession and taught for the Apprenticeship Committee of the Operating Engineers Local 3. He loved people and was especially proud of his Norwegian heritage.

Merle is survived by his wife Carol, daughters Catherine Ford and Margery, sons Jim and Mark, the mother of his children Jean Bancroft, step-children Heather and Evan, four grandchildren, and nine step-grandchildren. ⊕

RETRACEMENT

By George R. Dunbar, PLS

RECENTLY, I SPOKE at the California State University, Fresno Surveyors' Conference on the subject of "Retracement." Afterwards, I got to thinking that this might make an interesting article for *The California Surveyor*, since there are so many intangibles in almost every boundary survey that are not and cannot be covered in a classroom.

To begin with, which came first, the deed or the survey? It is extremely important to know this, so as to determine how to approach the problem. A lawyer will undoubtedly advise you that the written word in the recorded document is of paramount importance. Especially, if he is not experienced in boundary determination. In the event the survey came first, and the deed description was most probably prepared by the surveyor; then, the survey itself is a high and holy object, not to be treated lightly. At this point, it becomes extremely important to walk in the footsteps of the original surveyor, no matter how pointy toed or splay footed he may have been. Examine his words in the deed with care, as they may give indications of his intent. Nowadays, many young practitioners (and probably some old ones) are relying on computer programs to write deed descriptions. I am not familiar with any of these programs, other than seeing their advertisements, but seriously question a machine's capability to insert the necessary calls that make a good LEGAL description. For those, who may not realize it, our first duty is to provide our client with good INSURABLE title by any description we prepare.

In the event the deed came first, then the FIRST survey is, in reality, a retracement of the written word, and should be treated as such. If the survey was a good retracement, that has withstood the test of time, it may, in all probability, be treated ALMOST the same as an original survey, while recognizing that, in the event of litigation, the retracement can be subject to attack that an original survey, as outlined above, will most probably withstand, as will your retracement of an original survey, if done properly.

If witnesses are called for in an original survey, they are every bit as important as the original corner monument. More so, if the corner monument is gone. It therefore, behooves the surveyor to be knowledgeable about the local flora and local idiomatic names for it. As an example, if you are performing a retracement in Santa Cruz, Santa Clara, San Mateo, Monterey, or San Benito counties, you may find reference to "Butterwood" trees or to "Mountain Mahogany" trees. These terms were used often by A.T. Herrmann and his brother Charlie, as well as A.T.'s son Frank. Do you know the difference between a Bay and a Laurel tree? There isn't any, they are the same.

Before you begin a retracement, be sure you know WHAT you are retracing. Along these lines, are you surveying a deed line or a property line? Do you know the difference between the two? If not, you had better learn very quickly to avoid trouble for yourself, for your client, and for his neighbors.

A deed line may be determined by the surveyor, who can then advise a client and his neighbors of his OPINIONS and why he thinks they are good. IF THE NEIGHBORS AGREE, then the survey, for the time being, will probably become the property line.

In the event of a disagreement between neighbors, as to where a boundary line may lie, it is incumbent upon the surveyor to notify all parties that only a Judge and the Courts can determine where a PROPERTY LINE is.

To return to the pointy toed or splay footed footsteps of the original surveyor, I like to tell about my great-grandfather's two pole chain (which is on loan in a local Museum). Great grandpa David Lay was the second County Surveyor (the first was a political appointee, who knew nothing about surveying) of Carbon County, Montana. If you compare this chain with a modern steel tape, you find it is 33.1 feet in length. This means great grandpa's 100 feet is about 0.3 feet different than mine, a handy fact to know, if you are retracing his work! But even more important is the realization that you must go where he went.

At this point, I wish to comment on one of my favorite subjects, Accuracy and Precision and just how different the two are from each other.

If I recover an ORIGINAL corner, while making a stadia reconnaissance survey using my trusty engineer's transit and its compass, my location of that corner is 100% ACCURATE!! If I map and locate the corner, using my stadia measurements and compass bearings, by today's standards, my PRECISION stinks. However, for those, who come after me, if I leave a record of what I found and where I found it, the burden is shifted to the shoulders of the new kid on the block to find what I found, employing whatever methods he so desires, and report it, with, I hope, more precision than I did.

I know a surveyor, who, when making a lot and block survey, goes 6 or 8 blocks down the street (outside of the Subdivision in question) through three or four subdivisions, whose origins may be from ten to fifty years different than his lot and block, to locate a re-survey pipe of unknown origin, and together with a found pipe in the next block to his (also outside of the subdivision he his surveying in) and uses these monuments as a Basis of Bearings for his survey. In doing so, he finds that he disagrees with all monumentation and lines of occupation within his block, but being convinced that because he has a "strong bearing base" that he has justified his survey, just because the Assessor's maps show the street as straight.

We have in our County, a survey made by an engineering firm from another locale, which found a stake set in the 1870s by E.D. Perry. Accepting this corner as good (it was) and ignoring all of the rest of Mr. Perry's monumentation, other later survey monuments as well as fence lines and lines of occupation and employing "An Astronomical Basis of Bear-

ings" (their words, not mine), they proceed to survey their deed verbatim, without regard to calls. After eight or nine courses of varying length from 200 to 600 feet each, they came to a course described as "Thence southerly 700 feet to the South boundary of Section so and so in Township so and so, thence along said last mentioned Section line, East 900 feet to the 1/4 Section corner, thence leaving said section line ...etc." These folks went by their bearings due South 700.00 feet (they were 200 feet north of the Section line), they then went due East by their bearings 900.00 feet (the 1/4 corner and it's witnesses were still intact and some 300 feet away from their "corner," they then continued with their verbatim courses and distances until the last course, where they, quite naturally, had to put a very large monkey wrench on this course to make it fit, but justified this, because the deed went "to the place of beginning." Incidentally, this was the ONLY call in the deed that this "surveyor" honored.

Next, immediately adjacent in the section to the south came another engineer (since deceased), who after a perfunctory search for the section corner, set a 2" pipe by single proportion between the found quarter corners, and proceeded to file a number of parcel maps in the NE 1/4 of the section. At this point, I got into the act. Research indicated that the same E.D. Perry, previously mentioned, had recovered the government corner and replaced the original stake with a redwood stake, appropriately scribed. Mr Perry had surveyed from south to north along the east boundary of the section and noted that two chains south of the section corner, he had crossed a ravine. Knowing where the section corner to the south was and where the accepted east 1/4 corner was, I sent my party chief out with instructions to occupy the 1/4 corner and back sight the section corner (this entailed a "double wiggle-in" between the corners to get a back sight), and then to flag a line north until he came to the ravine, and then commence chaining and searching in the vicinity of two chains north of the ravine. This was on a heavily-brushed hillside (no timber for witnesses). The crew had established a point on line at between 2.5 and 3 chains. My party chief went back down the hill to search and called for his chainman to throw down a machete, which he did. Upon crawling into the brush to get the machete, the party chief almost bumped his nose on the old stake, still standing and firm as the day it was set in the 1870s. NOW, we have two "section corners" prior to our find, which we can document. The second corner is about 9 feet north and 40 feet east of the section corner, the other "corner" is so ridiculous, we don't even consider it. Now begins the tragic part of my tale. Three of the second engineer's Parcel Maps overlap the section line by 40 feet, resulting in very substantial encroachments, and a serious loss of area to the lots involved. In an area zoned for 20,000 square feet, the loss is from 4,000 to 7,000 square feet. Further investigation reveals that about half of the 3/4" pipes we find are identified with someone else's tag, and a number of monuments are missing for no apparent reason (we found two lying in the brush). I contacted the man, whose tags I was finding, and he quite proudly informed me that he had removed the prior engineer's tag and replaced them with his own, and that he had found about "8 or 10" pipes that were "wrong," so he had removed them. This gentleman is also deceased (and at the risk of speaking ill of the dead, rightly so).

The upshot of the story is that insofar as the Parcel Maps are concerned, many, if not all of the lots, are incapable of being retraced with any certainty, due to the actions of this third party. I had to file a Record of Survey, showing my findings, so that a number of parcels are (or were) unable to get Title Insurance. These properties will be litigated into the 21st Century. I refused to survey any of the lots in the area, unless the client and all adjoiners agreed to meet on-site with me and come to agreements, as to where their bounds would be, and agree to execute all of the necessary deeds to finalize these boundary adjustments. At the date of my retirement in 6 years, with no satisfactory results, there was always one neighbor who refused to cooperate.

All of the old-timers remember the Winter of 1971, just prior to enactment of the first Parcel Map legislation. Everyone was engaged in writing descriptions (Surveyors, Engineers, Lawyers, Title Co. employees, and some owners on their own). This was when "4 by 4ing" came into its own. All of these descriptions were accomplished without benefit of survey, and some pretty horrendous things happened. What with overlapping descriptions, non-retraceable descriptions (due to impossible conditions), descriptions that described things other that what was owned, the list goes on and on. A newly-licensed surveyor, when presented with a deed that first appeared in November or December of 1971, should approach with extreme caution. Don't take any short cuts in surveying these deeds. If the deed says "thence 200 feet to the east line of the lands conveyed to Jones, thence along said last mentioned line," you had better get Mr. Jones' deed and survey his east line, even if it is 300 feet or only 50 feet away.

Now in 1972, along came Parcel Maps, including COMPILED PARCEL MAPS, I went to survey a compiled Parcel Map with 400 feet of frontage on a county road, one lot had 160.00 feet of frontage and the other 240.00 feet of frontage, both lots were subject to a forty foot right-of-way centered on the common boundary. The Parcel Map boundary closed flat mathematically. Not being an idiot, I obtained a copy of the underlying deed, prior to visiting the site. The ACTUAL frontage was closer to 700 feet. The author of the map had left out a course on the rear of the Parcel and then used a "Crandall Adjustment" for his map boundary. On top of this, an existing road was just about in the middle at 350 feet more or less. How does one survey this? Since all four lots (there were also two in the back) were created at the same instant in time, as attested to by numerous court cases dealing with subdivisions, there were obviously no senior rights. Three hundred feet is too gross an error to prorate. What part did the existing road play? No mention was made of a road on the map, simply a right-of-way 40 feet wide centered on the common boundary. The answer is: that a survey of the lots, as they are, is not possible, let's get everyone together and come to some type of agreement. I would then prepare all of the necessary paper work and maps to affect the boundary adjustments, and would appear as an expert on behalf of the parties, if needed. At least, this story has a happier ending than the previous story. Since everyone was getting MORE than they thought they had, no one was too unhappy (except for the road, which would have to be rebuilt in a suitable location). The author of the map eventually had to pay this cost, which I am sure was 10 to 20 times more than what he originally got for his map (but also 10 to 20 times cheaper than litigation would have been). ⊕

FOR MEMBERS ONLY

IF YOU ARE a current member of C.L.S.A., you are entitled to a substantial discount from TRW-REDI for new installations of their CD-ROM Maps and database, now available for all counties in California. Your Membership Committee has negotiated a discount that would save you more than two years of C.L.S.A. dues. The CD-ROM system will likely someday replace the microfisch cards that are widely in use today. If you are not a member, JOIN C.L.S.A. TODAY! See the TRW-REDI advertisement to the right. ⊕

THE FUTURE OF BOUNDARIES (ALTAS, METRICATION, LEAST SQUARES, AND COORDINATES)

Part 1

By Michael A. Duffy, PLS

[Editor's note: this article is based on Mr. Duffy's talk at California State University, Fresno Surveying Conference on January 27, 1995.]

THE NATURE OF BOUNDARY surveys have taken on a whole new meaning for me, in the last 5 years, here at the Metropolitan Water District of Southern California. In April 1990, I became involved with capital improvement projects, totaling several billion dollars, which generated cadastral surveys covering approximately 207 square miles. The type of surveys included ALTA Maps, Record of Surveys, Boundary Plats, and Geodetic Control Surveys. This experience has produced some thoughts and opinions I would like to share for your consideration on the future of boundary surveys in California.

American Land Title Association Maps

The first area of concern I have with the general boundary survey topic is the apparent lack of control that exists for the review of ALTA Maps. The primary purpose of the ALTA/ACSM Land Title Survey is to limit a buyer's liability by having a special title insurance policy endorsement issued on a property at the time of sale. This is the most complete survey that can be requested by a surveyor's client, in the eyes of the title industry. These surveys usually include parcel boundary locations, roads and utility easement locations, and topography information.

After preparing a 10,000-acre ALTA map for a proposed reservoir site, it came to my attention that the months of boundary analysis, which included: retracement of 24 square miles; recovery of 25 original GLO closing, witness, and section corners, never recovered before; retracement of an entire Rancho boundary; many single and double proportion calculations; and a grant boundary adjustment, will never require a review by a local government agency. Though all other property surveys, performed by Professional Land Surveyors, go through a extensive review by the County or City Surveyor; those falling under the guidelines of the ALTA/ACSM Land Title Surveys Standards are reviewed only by a title company's staff, who, on the whole, are not trained to inspect such a map.

To make matters worse, after requesting that the California Board of Registration for Professional Engineers and Land Surveyors review this policy, the Board stated that unless monuments are set on a survey, Sections 8762(d) and (e) of the Land Surveyors Act have not been violated. In my case, none of the 150 ALTA surveys I performed over the last 5 years required monumentation. This particular section of the map act states that "the establishment of one or more points or lines not shown on any subdivision map" constitutes the need for filing a record of survey. The Board ruled that points or lines are not established unless they are monumented. Many in the surveying community would disagree. Essentially, the acreage of a 10,000-acre parcel can and was surveyed and calculated without the setting of any monuments. The Board, however, did state "if there is a material discrepancy in the position of the points or lines between a survey and any official map or previously recorded map," a record of survey would be required. This stipulation for my survey requires the surveyor to decide when he has a material discrepancy, a possible material alternate position, or material evidence or physical change with a GLO survey

that's over a 100 years old. This is a difficult decision to make, when comparing these standards to more recent surveys and much more so with original government surveys.

What appears to have resulted from this interpretation of Section 8762 is that the real teeth in the section is gone with reference to most ALTA surveys. What's more bothersome is that valuable survey information, collected for these maps, never become part of the public record for use by others. This results in the higher survey costs to the general public. It also allows for alternate interpretations of boundaries, because of the lack of public notice. The information on the survey ends up in the dead file of some title company in three years. MWD is not required to file a record of survey and probably will not — BUT, the title industry has their boundary survey with a professional's signature on it. Only the Corner Records showing the upgrading of the original stone monuments, that were recovered and perpetuated, became part of the public record from my project, but not any of the survey measurements or analysis.

I believe the primary source of the problem of not requiring the review of ALTA surveys is time that is sometimes necessary when filing maps with government agencies. The issue of timing in the review process and what should be reviewed need to be standardized throughout the state. A reasonable solution to the problem of requiring ALTA Maps being made part of the public record could be resolved by adding the following exception to 8762 stating:

(f) The establishment of acreage of a parcel for sale, lease, finance, or title guarantee, the boundary of which is not shown in its totality on any subdivision map, official map, or Record of Survey.

MWD now requires ALTA surveys for all property being acquired, which have or will have major capital improvement facilities, are known boundary problem areas, or are involved in exchange agreements with other agencies. If regulated properly, ALTA surveys could add thousands of maps per year to a state-wide GIS. Expanding the use of this type of survey map through state, county, and city regulations with reference to sale transfers of properties not created through the subdivision map process, would reduce future survey title problems and generate an impressive state-wide GIS database capable of resolving a variety of land-use problems.

One other concern in this area is the standards for ALTA/ACSM maps. I have received some criticism in the past for using GPS to perform the ALTA surveys, because it was not specified in the 1988 standards. The latest 1992 standards again fail to mention static GPS as an alternative measuring method. Positional accuracy standards need to be established for the different survey classes, as well as the traditional angle, distance, and closure requirements already included in the standards. Also, fast-static GPS needs to be incorporated into the standards. The angle, distance, and closure requirements should be phased out in the near future.

Metrication

A second area of significance, which will affect future boundary surveys, is the recent developments in the Federal Government's push to enact the long-dormant Metric Conversion Act of 1975. In 1988, Congress passed the Omnibus Trade and Competitiveness Act, which called for all federal agencies to convert to metric by September 31, 1991. The Federal Highway Administration in turn required that all federal and federal-aid construction contracts advertised for bids after September 30, 1996, contain metric measurements. In response to this action, Caltrans district offices now require all encroachment permits, which include plans submitted after January 1, 1996, to show metric or dual (English and metric units). After July 1, 1998, all applications must be in metric only.

General Counsel for Metropolitan has concluded that although we are not directly subject to the Federal Metric Conversion Act, where we are a recipient or sub-recipient of federally-funded grants or cooperative agreements, we could be required to use the metric system. For instance, where MWD projects cross Caltrans right-of-way, improvement plans will be in metric per Caltrans' requirements.

For surveyors, this push to convert is the perfect opportunity to begin the long-awaited conversion from chains to meters. I say "chains to meters" because surveyors must remember that the general public still does not recognize decimal feet as a measurement. Only fringe professions close to surveying, like architecture, engineering, and the title industry, have begun to recognize this unit of measure. Also remember, the BLM still performs its original surveys and retracement surveys in chains, not feet.

The conversion to metric will be a boon for the surveying profession. Surveyors have historically been seen as the experts in the area of weights and measures, as witnessed by the metric conversion seen within the National Geodetic Survey. Surveyors will be called upon by the general public, engineers, architects, title agents, lawyers, and local agencies to help with the conversion process, which should take several decades.

The place to begin this conversion should be with new survey mapping. All Tract Maps, Parcel Maps, Record of Surveys, ALTA maps, and legal descriptions, both public and private, should immediately begin showing dual units of feet and meters. This will serve as a springboard for educating all the different groups listed above.

Federal, State, and local agencies should put out new standards, requiring these dual units, with a time frame for full conversion. The Federal Government should continue to publish new data in metric only. Caltrans should keep their HPGN network in metric only. County Surveyors should require metric submittals for all mapping in the near future.

Seminars must be put on by surveyors to educate all affected parties of the need for metric conversion. The title industry would be a prime area to target this effort. The millions of documents, which currently exist in the real estate world, will necessitate an extensive conversion process that will only take place as parcels are bought and sold and redescribed. Dual units will exist with legal descriptions for a long time, as is still the case with chains and feet. Through the title industry, surveyors will be able to begin educating the public and make real progress in conversion.

One plus in this conversion process is that most of the equipment, currently used in the surveying community, already perform measurements in feet and meters. Even construction surveying is equipped to measure in meters, if the plans so dictate. Nearly all survey software programs, including all CAD packages, can handle any measurement unit. Field calculators make field conversions simple.

[Editor's Note: In the next issue, Michael will discuss Least Squares, State Plane Coordinates, and State Surveyor General.] ⊕

Professional Association News

NCEES

The Board of Directors of the National Council of Examiners for Engineering and Surveying (NCEES) designated Frances Elizabeth (Betsy) Browne as the sixth Executive Director of the organization.

Ms. Browne, formerly the Managing Director of the Institute of Industrial Engineers (IIE), expects to begin work with the NCEES on July 17, 1995. She will assume her duties as Executive Director on September 1, 1995, upon the retirement of the present Executive Director, Roger B. Sticklin, Jr. ⊕

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Product News

Ashtech Introduces Light-weight High Accuracy Super C/A Surveyor

Ashtech, Inc., the leader in precision solutions for global position technology, introduced the Super C/A (SCA) Surveyor, the industry's smallest and lightest Global Positioning System (GPS) for use in basic static and kinematics surveying.

Available now, the portable SCA Surveyor enables users to establish control points for surveying, including read development and photogrammetric surveys, and is upgradeable for use in various other surveying applications. Its 22-ounce, single frequency receiver is accurate to one centimeter plus one part per million, for baseline measurements under about 30 kilometers.

California Surveying and Drafting Supply, Inc., Received Sokkia Corporation's President's Award

California Surveying & Drafting Supply, of Sacramento, was recently awarded the Sokkia Corporation's President's Award for being the seventh largest Sokkia Distributor in the United States.

The presentation of this prestigious award, at the Sokkia Corporation's Annual Dealers' Meeting in Charlotte, NC, marked the eighth time in 9 years that California Surveying has had this honor bestowed upon them.

Sokkia Corporation is the world's largest manufacturer of surveying equipment.

California Surveying and Drafting Supply Awarded Contract by California Department of Transportation

California Surveying and Drafting Supply has recently completed delivery of metric surveying equipment to the California Department of Transportation. The equipment (valued at over $500,000) will be used to comply with new federal regulations regarding implementation of the metric system on federally-funded projection.

Classic Text Brings Surveying Into the 21st Century

For nearly four decades, boundary control and legal principles has been the authoritative source on the legal aspects of surveying and boundary issues. To meet the growing needs of the rapidly-changing surveying field, John Wiley & Sons, Inc., presents the newest edition of this industry bible. Dedicated to the late Curtis M. Brown, leading surveyor and acclaimed author of the third edition, *Brown's Boundary Control and Legal Principles*; the fourth edition (Wiley; June 2, 1995); $69.95; cloth) follows in the tradition of its predecessors to offer modern surveying professionals a comprehensive guide to the ins and outs of every aspect of boundary control and law.

Geodimeter System 600 Now Upgradeable to a Fully Robotic One-Man Surveying System

Geotronics of North America, Inc., a leading international manufacturer of surveying instruments for the construction industry, announces the upgradability of the Geodimeter System 600 to a fully-robotic surveying system. With total control at the measuring point, robotic surveying provides speed, efficiency, and more accurate results.

For more information on the fully-robotic Geodimeter System 600 model or any of our surveying instruments, contact Geotronics of North America, Inc., 911 Hawthorn Drive, Itasca, IL, 60143, (708) 285-1400, Fax (708) 285-1410.

Nikon Introduces New Mapping Software

Nikon has introduced NS-700, a new low-cost PC-based answer to interface and site plan mapping requirements. This new package allows a surveyor to download a day's field work within minutes of completing it; reduce date to coordinates and view survey information on a computer screen.

The new mapping software simplifies data handling. Field data can be transferred from any Nikon collection system including the DTM-700 Field Station directly via the PCMCIA data card, the DR 48 handheld collector and the new Nikon DTM-300 Total Station.

For more information on the new NS-700 Mapping Software, contact Nikon Inc., Surveying Department, 1300 Walt Whitman Road, Melville NY 11747, (800) 231-3577.

Breakthrough Positions Measurement System Receives Prestigious Construction Industry Award

Recently, the Construction Innovation Forum (CIF) presented its 1995 NOVA award to the Odyssey Position Measurement System, created by Spatial Positioning Systems, Inc. (SPSI). The NOVA Award is the construction industry's highest tribute for outstanding innovations that produce proven cost savings, quality improvements, and contribute to the productivity of the construction industry. Odyssey is the world's first position measurement system that provides instantaneous, three-dimensional position information at the point being measured with millimeter-level accuracy. In a ceremony at the Ritz-Carolton in Dearborn, MI, CIF chairman Roger W. Lane presented the award to representatives of Spatial Positioning Systems, Inc., for conceiving and developing the product.

The Odyssey system uses stationary laser transmitters and mobile optical receivers to instantly measure and record the three-dimensional location of a point, the user touches with a lightweight, hand-held wand. The Odyssey team also development a direct link to Computer Aided Design (CAD) software packages, so that "real-life" objects can be modeled in the CAD environment in the time it takes to touch them. Using Odyssey, users have reported productivity improvements as high as four fold for the most labor-intensive aspect of construction — surveying and site layout.

Odyssey's advantages over traditional surveying and layout tools, such as total stations and Global Positioning System-based systems, include: faster point collection and storage; measurements free from user-induced error; high precision with accuracy's up to one millimeter; one person setup and operation; real-time link, storage, and display of points with CAD files; and the ability to allow any number of people to use the system, simultaneously. ⊕

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1995 Complete Package including PLS Roster, Pre-'82 CE Numerical Listing, PE & PLS Act with Board Rules, Subdivision Map Act, & Binder	$ 24.00	$ 38.00		
1995 Complete Package (as above) plus disk with PE & PLS Act with Board Rules, and Subdivision Map Act	$ 34.00	$ 54.00		
1995 Refill Package including PLS Roster, PE & PLS Act with Board Rules, and Subdivision Map Act	$ 18.00	$ 28.00		
1995 Refill Package (as above) plus disk	$ 28.00	$ 44.00		
PE Act & PLS Act with Board Rules – 1995 publication (5½" x 8½")	$ 6.00	$ 12.00		
Subdivision Map Act – 1995 publication 8½" x 11" Loose Leaf	$ 6.00	$ 12.00		
California Coordinate Projection Tables – NAD '83 by Ira H. Alexander, C.E., P.L.S., and Robert J. Alexander, P.E.	$ 6.00	$ 12.00		
Right of Entry Cards *(minimum order is two)*	2 / $ 3.00	2 / $ 6.00		
Corner Records Forms – FORM PWA-102 (8/88) *(minimum order is 25)*	$ 10.00 (25)	$ 15.00 (25)		
Land Surveying Brochures *(minimum order is 100)*	$ 15.00 (100)	$ 30.00 (100)		
Standard Contract Forms – Agreement for Professional Services	$ 6.00 / pad of 25	$ 12.00 / pad of 25		
Land Surveying for the Land Owner and Real Estate Professional by Daniel E. Beardslee, P.L.S.	$ 6.00	$ 12.00		
Easements and Related Land Use Law in California – 2nd Edition by Donald E. Bender, J.D., L.S.	$ 20.00	$ 30.00		
CLSA 25th Anniversary Commerative Belt Buckle – Bronze	$ 20.00	$ 20.00		
CLSA 25th Anniversary Commerative Belt Buckle – Sterling Silver	$ 80.00	$ 80.00		
COMPUTER SOFTWARE				
Cadastral Survey Measurement Management System Three-ring binder documentation and three disks	$ 50.00 / set	$ 75.00 /set		
GEOID93 – Calculates estimated geoid heights	$ 20.00	$ 30.00		
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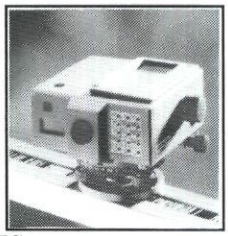
LEVELING EQUIPMENT					
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