



Institutional Affiliate of American  
Congress on Surveying and  
Mapping

# The California Surveyor

THE VOICE OF THE LAND SURVEYORS OF CALIFORNIA

No. 24

SUMMER EDITION

1972

## PRESIDENT'S CORNER

*Chuck Wooldridge, L.S.*

1972 may well be the year of the Land Surveyor. It certainly started with a lot going for us. Much of the progress may not be the immediate result of direct CLSA action but I am convinced none of it would have come about without CLSA activities.

January started with chartering of the Feather River Chapter, our fourteenth. Shortly before then, the Registration Board amended the rules to exempt Land Surveyors from the Engineer-In-Training examination.

Requirements for compulsory continuing professional development are being processed with the potential for upgrading the entire surveying profession. CLSA's position to guide and lead this educational opportunity is well established. Our legislative effort is appropriately slated for interim study.

The California Society of Professional Engineers has joined the ranks of those organizations that recognize the problem. They have proposed a solution under study by all of our committees and other societies. We continue to gain recognition through liaison activity, meeting with more associations to tell the story of the land surveyors and explore areas of mutual concern.

Membership is growing, but a faster rate would help. We need dollars and numbers to carry on these activities. The input from every member on the important issues is essential to our concept of representing the Land Surveyor.

This input is most valid when based on timely discussion. Improved communications encourage review at chapter level, which partly explains the increased interest in more chapters. Efforts to organize local groups have been noted in several parts of the State, with activity leading to possible chapters pending in San Diego, Long Beach, Los Angeles, and Bishop. The Santa Maria organizational meeting was held June 1. Regular nearby meetings create an atmosphere conducive to

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## NEW MONUMENTATION POLICY

*G.P. Katibah, L.S.*

*Editor's note: This article was presented as a speech at the 1972 C.L.S.A. convention in Lake Tahoe. The speech was entitled "The Division of Highways' Monumentation Policy For Perpetuation Of Existing Surveys And Right of Way Location." Permission for publication was granted by G.P. Katibah, Surveys and Photogrammetry Engineer, Division of Highways, State of California.*

The determination of rights of way for highways, canals, powerlines, and similar engineering works are problems in cadastral surveying inasmuch as property ownerships must be altered to accommodate these facilities. Construction activities associated with these kinds of engineering works are notoriously destructive of monuments which define property lines, thus making it difficult or impossible to relocate boundaries of property ownerships in the construction corridor. In some cases when a major corner, such as a township corner, is destroyed property records many miles from the construction zone can be affected by the loss. All agencies, both public and private, involved in heavy construction have a responsibility to protect monuments for ultimate preservation of the public record. Without perpetuation of the public record positive correlation of rights of way with existing property lines is impossible.

Continued on Page 7

## FLASH — New L.S. Board Member — FLASH

John P. Pedri, County Surveyor of Tuolumne County, has been appointed by Governor Ronald Reagan as the new Land Surveyor Member of the State Board of Registration for Professional Engineers, Department of Consumer Affairs, State of California. ▲



## Over 1,500 Surveyors Are Now Using Their New Hewlett-Packard Distance Meters

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*"Great to have an American product in the field of surveying that beats all foreign competition—for less money."*

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*"Extremely happy with our 3800A. (I wonder how we did without.)"*

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If you have a paper-work bottleneck in your office, we can help you there too. The new HP Series 9800/Model 10 Programmable Calculator can handle all of your field data computing and double up as a business computer to handle your bookkeeping and payroll as well.

For more information on services and products for surveyors, and for a "hands-on" demonstration of the HP Distance Meter, write: Hewlett-Packard, Palo Alto, North Hollywood, Fullerton, Sacramento, San Diego.

### Worth Looking Into



DISTANCE METERS

B092/1A R

**BOARD OF DIRECTORS REPORT**

*Harold B. Davis, L.S.*

The Board of Directors of C.L.S.A. met on March 16, 1972 at the Sahara Tahoe, State Line Nevada. Among those attending as guests were Bill Jones, President of C.S.P.E.

President Chuck Wooldridge opened the meeting with remarks concerning the Senate Resolution regarding professional development.

The Committee of Liaison with the Board of Registration reported on the public hearing on this proposal, held by the Board on March 3, 1972. Fred Seiji, Chairman of this committee attended this hearing, wherein the various professional societies presented their views. The Board took all of these various ideas under advisement, and prepared to formulate a proposal at the regular meeting on March 10. Norm Hathaway attended this meeting as the representative of C.L.S.A., held in Los Angeles, at which time the Board produced a proposal to outline legislation containing the following provisions: 1— Contain a minimum of detail and leave broad latitude for board rules; 2— Allow for self-certification; 3— Create authority for advisory committees, both P.E. and L.S.; 4— Requirements to be determined by the board.

Ed Griffin, Chairman of the Legislative Committee reported on the hearing held by Senator Coombs, relative to the C.L.S.A. legislative proposal. After a long session with many engineering and surveying societies presenting their views, the hearing ended with the senator agreeing to introduce a resolution calling for interim study.

The budget for 1972 was the next order of business. The Fiscal and Administrative Matters Committee presented a proposed budget, which was approved by the board after minor alterations, allowing for the expenditure of \$15,821.00.

**Budget 1972**

President	350.00
Vice President	225.00
Secretary-Treasurer	1500.00
Executive Secretary	1800.00
F A M	150.00
Legislative Committee	4000.00
Publications Committee	4621.00
Education Committee	500.00
Membership Committee	200.00
Convention	300.00
Status Improvement Comm.	50.00
Const. & By-Laws Comm.	25.00
Liaison with Bd. of Reg.	400.00
Liaison with C.C.C.E. & L.S.	250.00
Liaison with C.E.A.C.	150.00
Nominating Committee	25.00
Interprofessional Relations	25.00
Liaison with A.S.C.E.	100.00
Public Relations Comm.	25.00
Liaison with A.C.S.M.	25.00
Coordination Committee	625.00
Director's Eng. Adv. Comm.	25.00
Liaison with L. of Cal. Cities	25.00
Nat. Council of Land Surveyors	300.00
Professional Practices	25.00
Seismic Effects Committee	100.00
<b>TOTAL</b>	<b>15,821.00</b>

The board adopted a policy relating to travel expenses:

**Policy on Reimbursement of Travel Expenses**

Subject to approval of the president, in specific cases, travel and meeting expenses be reimburses as follows:

1. Travel to be reimbursed at the rates set for coach by the PUC, direct line travel, and reasonable fare between the airport and final destination.
2. Lodging will be reimbursed only if absolutely necessary.
3. The president shall report to the Board of Directors at the next meeting of the Board on those expenses reimbursed.

At this meeting the Board approved two resolutions. RESOLUTION 72-2 allowing for bonding of the Secretary-Treasurer and RESOLUTION 72-3 setting up a separate account for financing of the annual convention, proceeds from the convention to be kept separate from the general fund.

Prior to adjournment Hank Young announced that Tom Gribbin will be teaching a graduate course at the University of Santa Clara, in the Engineering Department, on the subject of modern surveying techniques. ▲

**New C.L.S.A. Members — First Quarter 1972**

*Regular Members*

James R. Colvin	.....	Sacramento
Gerald E. Compton	.....	Chico
Gary L. Crawford	.....	Modesto
Melvin A. Gee	.....	Walnut Creek
Norman O. Glover	.....	Fort Bragg
James R. Godman	.....	Hayward
James H. Gooch	.....	Bishop
Gerald H. Griffiths	.....	Eureka
Kenneth L. Haskew	.....	Fort Bragg
David T. Ichord	.....	Modesto
Theron C. Irving	.....	El Sobrante
William C. Johnson	.....	Red Bluff
John L. Riley	.....	San Anselmo
Roy Watley	.....	Hayward

*Affiliate Members*

Leonore J. Baker	.....	Carmichael
W. Douglas Ringstrom	.....	Gualala
Reyna L. Shapiro	.....	Citrus Heights
Desider E. Slavoj	.....	San Francisco

*Associate Members*

Alan R. Brooks	.....	Nevada City
Robert D. Hass	.....	San Francisco
Kenneth L. Lichtsinn	.....	Castro Valley
Albert B. Manaresi	.....	Fair Oaks
Fred Mills	.....	Pleasanton
Rodney R. Pitts	.....	Sebastopol
Robert Reed	.....	Chico
Frank W. Raymond	.....	Saratoga
Calvin J. Querel	.....	Anaheim

## BOARD OF DIRECTORS REPORT

*Harold B. Davis, L.S.*

The Board of Directors of C.L.S.A. met at the Royal Inn of San Francisco Airport on April 22, 1972.

President C.A. Wooldridge opened the meeting with comments on the recent state convention at Lake Tahoe, stating that this was probably the most successful convention that the association has had to date. He had sent a request of the board, will send a letter stating the official appreciation of the association as a whole. The other major item of the president's address concerned the resignation of Maurice E. "Gene" Lafferty as a state director and chairman of the Professional Practices Committee, as Gene is relocating to Nevada. His resignation was accepted with regret, and the board elected Larry Cloney to the balance of the unexpired term, as Larry was the runner-up in the last state election.

Executive Secretary and Vice-President Jim Adams reported on the status of membership. As of April 1, the association has 344 members. At this time the board engaged in a discussion regarding collection of dues, as certain members are delinquent. This matter was referred to the Fiscal and Administrative Matters Committee for study.

The Secretary-Treasurer reported on the financial situation. As of April 1, the association has expended \$5,111.84, and has a bank balance of \$6,211.50.

The chairmen of the various committees reported on their activities. The liaison committees with the other professional societies are meeting with varying success. Homer Banks, Chairman of the Liaison Committee with the County Engineers Association stated that it appears as if we are now being accepted rather than tolerated, with these associations now suggesting improvements and modifications in our proposals, rather than merely presenting opposition. The chairmen of the other liaison committees concurred in this view.

Jerry Tippin, president of the Lake Tahoe Chapter was unable to attend, but sent in his preliminary report on the 1972 convention. The convention proved as successful financially as it did in all other ways. After expenses, the state convention account will be enriched by \$950 or more.

Larry Cloney reported on the activities of the 1973 Convention Committee. This convention will be held at the San Jose Hyatt House on February 16, through 18. The committee is operating, and will be sending out the first mailing to potential exhibitors during the month of May.

Ed Griffin, chairman of the Legislative Committee reported on the committee meeting held in Sacramento on April 15. At this meeting this committee recommended certain amendments to AB 239, a proposal to up-grade the Land Surveyors Act. The Legislative Committee is reviewing a great deal of legislation pertaining to land surveying. The first bill of the C.L.S.A. legislative proposal has come out in print form, with the balance still in the mill. The legislative bill room is running behind in its work due to budgetary cutback. The bill in print is AB 1652, an attempt to resolve the differences between Parcel Maps and Record of Survey.

Ed Kulhan reported on the meeting of the National Council of land Surveyors, held in conjunction with the ACSM annual meeting, in Washington, D.C.

At this meeting, the name of this group was changed to COSA (Council of Sections and Affiliates.) With this change this council is represented on the board of directors of the Land Surveys Division of ACSM, and thereby has a more powerful voice in division affairs. This meeting was primarily organizational.

The representatives of the several chapters reported on their activities. Most of the chapters have been holding regular meetings. President Wooldridge requested the chapters to update the notices of time and place of meetings, to enable the state officers and others to attend, if possible.

At this meeting the Board approved three resolutions. The first was proposed by the Secretary-Treasurer, and was administrative in nature. It provides for the Secretary-Treasurer to prepare an annual digest of Board action for reference, approved by the Board as RESOLUTION 72-4. The second was a proposal by the president to set up a convention committee, members to serve four year terms, with two members to be appointed annually. This committee would relieve the chapters of the responsibility of handling the conventions. Approved by the Board as RESOLUTION 72-5. The third was a proposal by Jim Dowden that C.L.S.A. file a brief of Amicus Curiae (Friend of the Court) in a legal dispute involving the location of "Ordinary High Water." Jim stated the rationale behind this suggestion, and after deliberation, the board approved this proposal as RESOLUTION 72-6 approving the expenditure of association funds to the amount of \$300, and giving approval to solicit funds from other surveying societies and individuals. Any funds thus obtained are to be transmitted to the Secretary-Treasurer, to be disbursed as required. It was the opinion of the board that this was a timely activity for C.L.S.A. to be involved in, as the association should be as interested in surveying as well as surveyors. Jim suggested that any person interested in the case read his article in the proceedings of the 1971 Fall Convention of ACSM.

The Land Surveys Division of ACSM has requested the assistance of C.L.S.A. in putting on a series of training seminars in modern surveying techniques. These seminars are designed to be self sustaining. Ed Kulhan commented on a seminar on ortho-photo maps to be held in San Jose in 1973, sponsored by the Northern California Section of ACSM. It was the consensus of the board that C.L.S.A. should be involved in this type of activity, and the president directed the chairmen of the Education Committee and ACSM Liaison to explore this further.

The next board meeting will be held on July 22, 1972 at the Royal Inn of San Francisco. ▲

### CLASSIFIED ANNOUNCEMENTS

Rates: \$2/line CLSA members; \$4/line non-members and business

**LEGISLATIVE COMMITTEE REPORT**

*Ed Griffin, L.S.*

The legislative committee has met four times this year, and we have reviewed 71 Assembly bills and 46 Senate bills so far this year.

The legislative committee attempted to have six bills introduced in the Legislature this year. The status of these bills at present (April 20) is:

1. A land surveyor in training bill. This bill is numbered AB 2276 and is awaiting a hearing before the Assembly Committee on Commerce and Public Utilities.

2. A bill to restrict the title Cadastral Engineer. This bill is dead for this year.

3. A bill to clear up the Record of Survey - Parcel Map conflict. This bill is numbered AB 1653 and is awaiting a hearing before the Assembly Planning and Land Use Committee.

4. A bill to require the Division of Highways to tag its boundary survey monuments. This bill has not been printed as yet.

5. A bill to allow surveyors access to property monuments which control the boundary of the property they are delineating. This bill has not been printed yet.

6. A bill to remove the exception from licensing requirements to practice land surveying. An informal hearing was held on this bill on March 9. The results of the hearing is a proposed resolution to request interim study. The resolution has not been introduced as yet.

The committee is opposed to AB 98 and SB 412 which would remove the parcel map requirement from the subdivision map act. The committee will have someone present for the May 15, hearing on SB 1118 which is an entire new subdivision map act. The committee is in favor of this act but we would like to suggest a few amendments.

The committee wrote a letter of support for AB 615 which will require the Registration Board to issue a news letter twice a year.

We would also like to see SB 335 amended ... this bill provides for floodway maps, but it requires that the map be

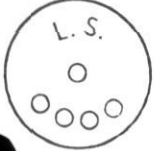

prepared by a registered civil engineer. We believe that Land Surveyors can prepare such maps as well as Civil Engineers and we are attempting to have the bill amended to include Land Surveyors.

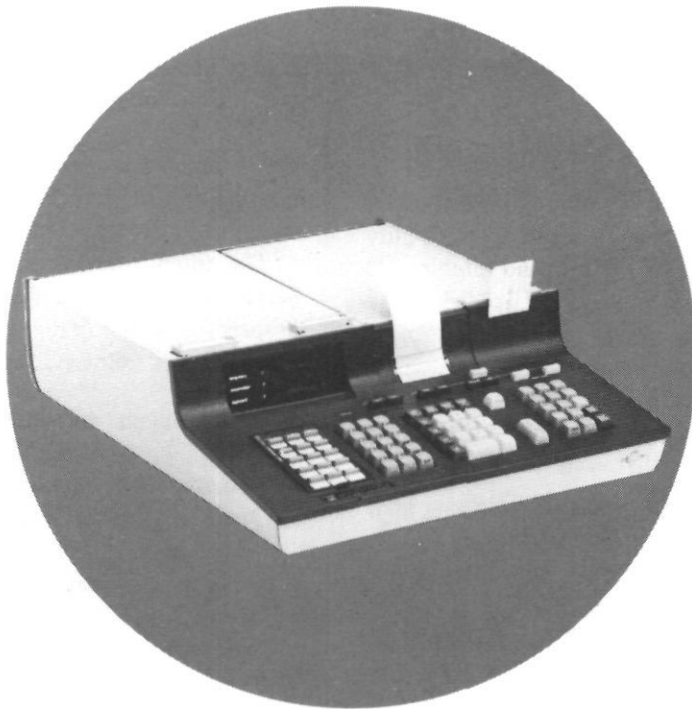
The legislative committee has become aware of a situation that we believe could be very dangerous to our profession. The subdivision map act gives the local government agency control of the "Design" of subdivisions. Parcel splits are minor subdivisions. As the local agencies wish to increase their control over the subdivision process they expand the areas that are considered to be design. The engineering groups contend that land surveyors cannot do any design work. If this contention is enforced there will be an even smaller area of practice available to the land surveyor than there is today. One of the new proposed subdivision laws includes the establishment and location of right of way boundary lines as design. A right of way has always been considered as an estate in land and therefore its boundary determination a function of the land surveyor. However, if the land surveyor can not function in the area of design and the delineation of such boundaries are design you may not delineate the boundaries of these parcels of land under this new conception. We wonder if it might be possible to increase the area of design until the land surveyor might be designed out of existence. Your committee intends to watch this situation closely. ▲

**PRESIDENT'S CORNER** Continued from Page 1

understanding and problem resolution. Your President, State Officers and committees will be glad to assist any group interested in forming a local chapter.

This growth and increased recognition is indicative of our improving stature. It has even been confused as improved professionalism. Nothing could be further from the truth. It may be indicative but professional respect is an individual matter to be earned by each surveyor. When enough of us adopt a truly professional philosophy as our way of life, we won't have to be concerned with professional recognition. As retiring ASCE executive director, William H. Wisely, so aptly said, "The true measure of a profession is the quality of the relationship between that profession and the people it serves." ▲

<p><b>SURVEYORS AND ENGINEERS TAGS</b></p> <p><i>manufactured and sold by</i></p> <p><b>DANIEL'S ENTERPRISES</b> 13007 SUNNYBROOK LANE LA MIRADA, CALIFORNIA 90638</p>	<p><b>BRASS TAGS</b></p> <table border="1"> <thead> <tr> <th>NUMBER OF TAGS</th> <th>COST PER 1,000</th> <th>TOTAL COST OF TAGS</th> </tr> </thead> <tbody> <tr> <td>500</td> <td></td> <td>13.00</td> </tr> <tr> <td>1,000</td> <td>20.00</td> <td>20.00</td> </tr> <tr> <td>2,000</td> <td>19.00</td> <td>38.00</td> </tr> <tr> <td>3,000</td> <td>18.00</td> <td>54.00</td> </tr> <tr> <td>4,000</td> <td>17.00</td> <td>68.00</td> </tr> <tr> <td>5,000</td> <td>16.00</td> <td>80.00</td> </tr> </tbody> </table>			NUMBER OF TAGS	COST PER 1,000	TOTAL COST OF TAGS	500		13.00	1,000	20.00	20.00	2,000	19.00	38.00	3,000	18.00	54.00	4,000	17.00	68.00	5,000	16.00	80.00	<p><b>ORDER FORM</b></p> <p>DATE ..... 19 .....</p> <p>NAME .....</p> <p>ADDRESS .....</p> <p>ZIP ..... PHONE .....</p> <p>L.S. NO. ....</p> <p>P.L.S. NO. ....</p> <p>R.L.S. NO. ....</p> <p>R.C.E. NO. ....</p> <p>NUMBER OF TAGS WANTED .....</p> <p>BRASS ..... ALUMINUM .....</p> <p>your check with order -- we pay postage</p>	
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## Look Into The Series 9800 You'll See Big Savings In Field Data Reduction and General Office Computing.

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### Worth Looking Into

HEWLETT  PACKARD

PROGRAMMABLE CALCULATORS

BO/92/2

There are several approaches to the problem of surveying and describing rights of way, and each has its own adherents. One concept which seems common to most approaches is that the limits of ownerships are described around the facility itself, such as the centerline of construction, and reference to existing corners and property lines contained in the public record is only incidental. The dominant factor attributing to this approach can be traced to the power of eminent domain under which most public agencies operate. The only apparent responsibility the agency has to property owners who are directly affected by the project is that each is reimbursed for the amount of his land occurring within the limits of the right of way. Until fairly recently little concern for perpetuating the public record has been evidenced by public agencies and developers, but as land values continued to increase and as construction projects became more frequent and complex, new viewpoints were expressed.

In 1959, Sections 8771, 8771.5, and 8772 were added to the Land Surveyors' Act. The thrust of these Sections was directed toward monumentation to perpetuate existing lines and to demarc new lines. The wording, however, is not specific enough to constitute directions or instructions, and each organization is left to work out its own procedures for compliance according to an interpretation which it feels is adequate. This has been a learning experience for the Division of Highways in our attempts at formulating policy.

The public interest goes beyond the immediate right of way "take" since property boundaries are altered, and corners and monuments which define the network of land holdings are inevitably destroyed in the process of construction. It is incumbent upon all agencies to direct their attentions to the larger problem of cadastral surveys rather than to the simple right of way "take" to properly correlate limits of rights of way with record data. There is no escape from the fact that right of way lines are also property lines.

There are two major parts to cadastral surveying today; these are retracement surveys and subdivision surveys. Elements of each are associated with rights of way, which consists essentially of withdrawing whole parcels or portions of parcels from existing ownership. Retracements of some type must be made to determine the location of existing property lines which define ownerships of individual parcels. Subdivision of each individual parcel is based upon right of way limits. In those cases where only a small portion of a parcel remains outside the right of way, the whole parcel may be taken: this situation gives rise to the problem of excess property removed from public tax rolls.

Thus, a secondary cadastral problem is created in which excess properties must be defined and regrouped into economically feasible units for resale. In the case of modern freeway projects, service roads are frequently part of design and construction, and therefore are included within the limits of the original right of way. It is Division practice to return these roads to local jurisdiction for maintenance purposes, which constitutes another subdivision of property to distinguish between State property and adjoining city or

county property.

With the foregoing philosophy as background, the Division of Highways has formulated and adopted a monumentation policy for perpetuation of existing surveys and right of way location. We believe this policy will establish a standard for other public agencies to follow.

The intent of this policy is to comply with the Land Surveyors' Act and to fulfill our obligations to the adjoining property owners. This policy can be summarized in 7 statements, as follows:

**1. Establishment and Perpetuation of the Project Control Survey**

In order to have consistency among the many surveys made during the life of a project, a second-order survey will be made, adjusted, and fixed for each project prior to performing any major design surveys. This survey will be known as the project control survey. The project control survey will establish a system of control monuments spaced at intervals of 1,000 feet to one mile along the proposed highway route.

Coordinate values on the California Coordinate System will be established for all project control monuments.

All subsequent surveys and monumentation will be based on the project control survey including all coordinate values for found monuments, reference monuments, and right-of-way monuments.

**2. Perpetuation of Existing Survey Monuments**

In accordance with Article 5 of the Land Surveyors' Act, all existing monuments within the project limits, including recorded and unrecorded monuments, are to be perpetuated. This includes government, control, reference and witness monuments as well as property monuments. However, it will not be necessary to perpetuate monuments that have no relation to the remaining property boundaries or control networks.

Prior to construction, a diligent search will be made for existing monuments within the project limits.

Found monuments to be perpetuated which are subject to possible disturbance by construction will be referenced before the start of construction activities.

Following completion of construction the monuments to be perpetuated, which have been disturbed by the construction activities, shall be reset in their original location or permanently referenced.

**3. Perpetuation of Existing Survey Lines Obstructed by Highway Facilities (No Monuments Destroyed)**

If the line of sight of an existing survey line of basic importance will be obstructed by the construction of highway facilities, the survey line will be monumented, even though no monuments may be destroyed. This is applicable wherever private surveyors will be excluded from the right-of-way and such exclusion prevents them from retracing the line without devious surveys. An example of this kind of situation is the construction of an embankment across a section line.

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## ISOLATING THE ANGULAR ERROR IN A TRAVERSE

Roger Swink, L.S.

*Editors Note: Roger Swink is employed as Chief of Surveys by Touns Engineering Inc., at Dublin, California.*

Although most surveyors would not care to admit they have ever had an angular error in one of their own traverses, we all know surveyors who have had this problem. The usual solution is for the field crew to check the summation of the measured angles of the traverse and, if there is a misclosure, remeasure each angle until the blunder is found; an expensive method!

It is a rare party chief who would knowingly release the notes of a traverse in which the angles did not close. But with the ever increasing costs associated with field work, analysis of the field notes should almost always be done in the office by one man rather than in the field by a two (or more) man field crew. One man can generally find the location of the angular error more economically than can the field crew.

Some "old timers" must be choking by now, but there is an easier way of finding angular errors. The example contained herein is, of necessity, a traverse of few sides and is intended only as a demonstration. When actually using this method to help locate an angular error, it is better if one has more angle points, since only a few of the angles would actually be remeasured in the field.

In the case of any plane geometrical figure, the summation of the angles is equal to  $(N-2) \times (180^\circ)$ . If an angular discrepancy  $\Theta$  is introduced into one of the angle points of a closed figure, (as can happen in a traverse) the apparent summation of the angles is  $(N-2) \times (180^\circ) \pm \Theta$ ; where  $\Theta$  exceeds the acceptable limit for a normal angular closure and is obviously due to a blunder.

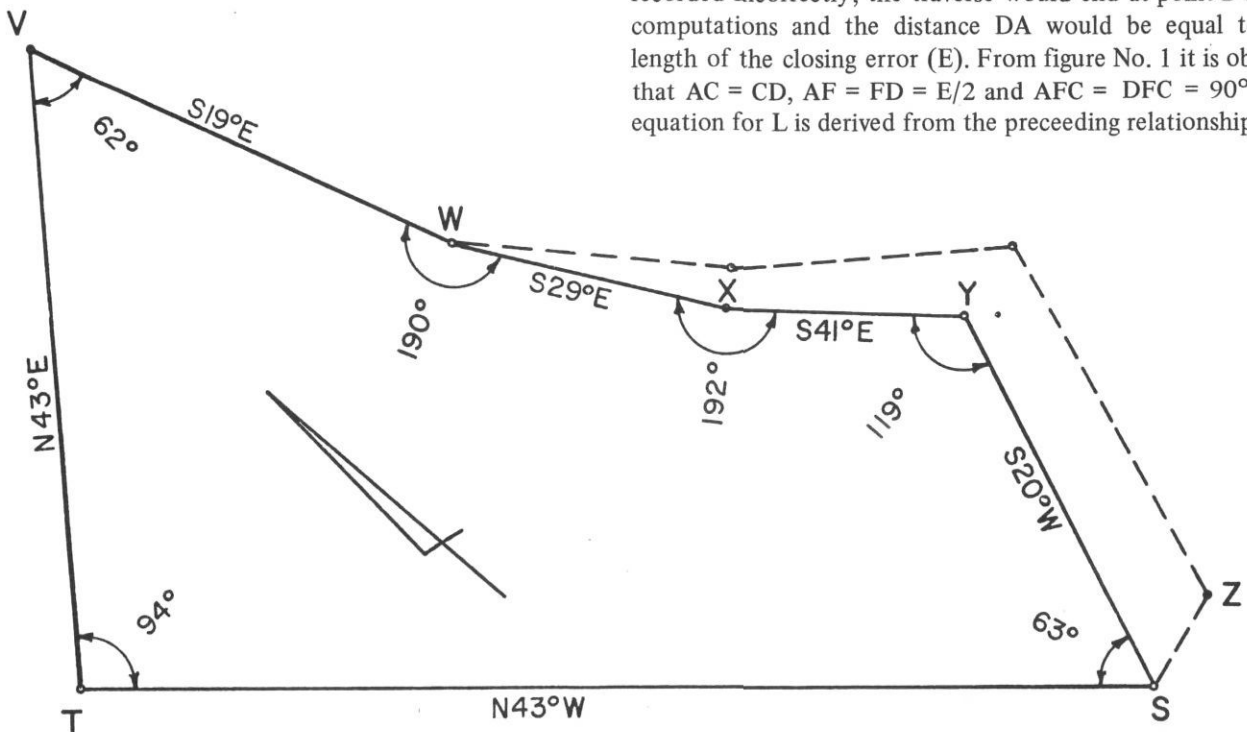


FIGURE NO. 2

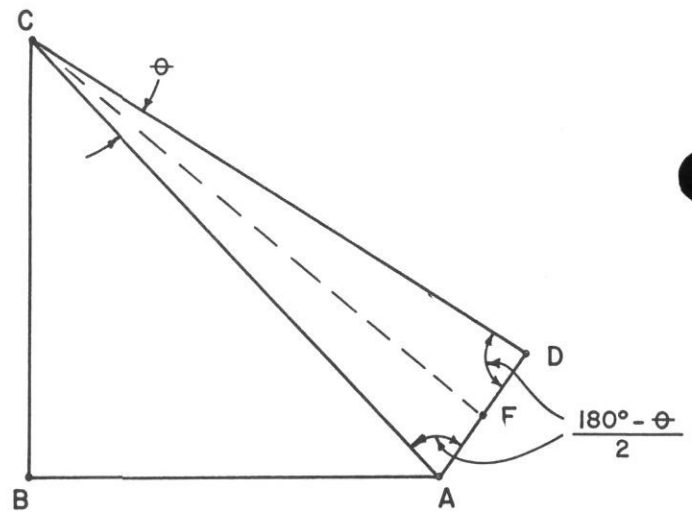


FIGURE NO. 1

In a perfect (except for one angular error) geometrical figure, if the traverse computations are completed with no angular adjustment (since there is obviously a blunder) one half the length of the traverse error in distance divided by the sin of one half the angular error is equal to the distance from the point of beginning to the point where the angular error occurred.

Where:

- L is the distance from the point of beginning to the point where the angular error occurred.
- E is the length of the closing error.
- $\Theta$  is the angular error.

Then:  $L = E / 2 \sin (\Theta / 2)$

The triangle ABC in figure No. 1 is a figure with definite sides and angles. If the angle BCA had been measured or recorded incorrectly, the traverse would end at point D in the computations and the distance DA would be equal to the length of the closing error (E). From figure No. 1 it is obvious that  $AC = CD$ ,  $AF = FD = E/2$  and  $AFC = DFC = 90^\circ$ . The equation for L is derived from the preceding relationships.



Traverse #1 is represented by solid lines in figure No. 2. It is a correct figure to the nearest 0.001 feet.

TRAVERSE # 1

S		5000.000	5000.000
N	43° 00'00" W	1112.000	
T		5813.265	4241.618
N	43° 00'00" E	650.000	
V		6288.645	4684.917
S	19° 00'00" E	470.000	
W		5844.251	4837.934
S	29° 00'00" E	290.000	
X		5590.612	4978.529
S	41° 00'00" E	254.028	
Y		5398.895	5145.186
S	20° 00'00" W	424.495	
S		5000.000	5000.000

TRAVERSE # 2

S		5000.000	5000.000
N	43° 00'00" W	1112.000	
T		5813.265	4241.618
N	43° 00'00" E	650.000	
V		6288.645	4684.917
S	19° 00'00" E	470.000	
W		5844.252	4837.934
S	29° 10'00" E	290.000	
X		5591.022	4979.266
S	41° 10'00" E	254.028	
Y		5399.790	5146.480
S	19° 50'00" W	424.495	
Z		5000.475	5002.455
S	79° 03'02" W	2.501	
S		5000.000	5000.000

S			
N	13° 44'23" W	1326.606	
V			

S			
N	10° 52'00" W	859.666	
W			

S			
N	02° 00'33" W	591.386	
X			

S			
N	20° 07'21" E	425.780	
Y			

Traverse #2 is represented by dashed lines in figure No. 2. A ten minute angular error has been introduced into traverse #1 at W and traverse #2 is identical to traverse #1 except for the ten minute error. The summation of the angles as recorded in the field in traverse #2 would be 720° 10'00" and we would be searching for a ten minute angular error without knowing where the error was located. The calculated distances between the point of beginning of the traverse and the other points on the traverse are shown below the computations for traverse #2.

The line ZS is the forced closure of traverse #2. Placing the values obtained in traverse #2 into the equations for L,

$$L = 2.501/2 \sin (0^{\circ}05') = 860$$

which is the distance SW, and we have located exactly the point at which to remeasure the angle in a theoretical situation.

Unfortunately, locating the error is not quite that easy in a practical situation. If the field work was accomplished to meet a 1:10000 standard of accuracy, the maximum error of closure should be 0.32 feet. If this error was at 90° to the direction of the line ZS, it would have the least effect on the determination of L. If the error was in the same direction as the line ZS, it would have the greatest effect on L. Considering the latter case since this is the one in which we will have the most difficulty in determining the location of the angular error, the equation for L would be

$$L = (2.501 \pm 0.32) / 2 \sin (0^{\circ}05') = 970 \text{ or } 750$$

In either case (L = 970 or L = 750) W is the closest angle point to the circle with a radius of 970 feet or 750 feet and would therefore be the first angle remeasured in the field. If the error was not found at W, the points on either side of W would be chosen as the next angles to remeasure until the error was located.

Occasionally there will be two points on the traverse whose length from the point of beginning are very nearly equal. In the case where L indicates one of these two points as the source of the error, there are two ways of eliminating one of the points. One method is to change the point of beginning in the computations so that they are of different lengths from the new point of beginning.

To discuss the second we must return to figure No. 1. It can be seen that the line CF is perpendicular to the bearing of the line DA (the line forming the closure). In the theoretical situation of traverse #2, it would have been exactly perpendicular had the computations been carried to more places. It will be close to perpendicular in a practical situation. But my experience in using this method indicates that little time should be spent on computations once the forced closure is completed. It is generally easier to plot the traverse to a convenient scale and then draw a circle of radius L from the point of beginning. This will eliminate calculating the distances from the point of beginning to each point on the traverse and allows a person to actually "see" the point or points at which to search for the angular error. ▲

# COMMENTS AND LETTERS, From In, Out and Around

## LEGAL DEFINITION OF A BOUNDARY SOUGHT

James N. Dowden, L.S.

"... what are boundaries is a matter of law, where they are is a matter of fact."

This oft' quoted phrase in numerous cases at bar — past and present — is of vital concern to practicing land surveyors everywhere.

The land surveyor as an officer of the court or agent of a client, is a "fact finder" and not to infrequently functions in a quasi-judicial capacity in the settlement of boundary disputes between adjoining.

In neither of these capacities can the surveyor function without precise legal definitions of "what" constitutes a boundary of real property.

Boundaries are usually grouped into classes and as such, certain rules of law, practice and custom have evolved that govern their determination, perpetuation and ultimate retracement.

Original surveys create boundaries — subsequent resurveys seek only to recreate that which has been done before, and in the case of water boundaries, what has transpired in the interim.

Societies as they mature seek certainty to eliminate the ambiguities of the past to ease the road ahead.

Certainly, no class of boundaries in California present to society and its surveyors, the uncertainties that currently exist with the "riparian" or natural boundary of a parcel of real property and incidental rights thereto.

This subject matter and its application derives its roots from the common law of England, and for 170 years of California history, has been so submerged in a jungle of semantics and definitional concepts that flew in the face of a more enlightened scientific community, that the land surveyor of today is faced with the virtually impossible task of attempting to locate such a boundary for his client.

In 1966, the district court of appeal, first appellate district, in the matter of *People v. Wm Kent Estate Co., et al*, partially reversed the trial court of Marin County and in remanding the case for retrial, stated in part:

"This appeal, requires definition of the statutory term 'ordinary high water mark' (Civ. Code, Section 830), and application of the rule to a situation in which the land itself moves in greater degree, but with less frequency, than do the tides . . ."

(For full text of opinion, see *People v. Wm. Kent Estate Co. et al*, 242 Cal. App. 2nd 156).

That case was recently retried and is currently under appeal.

At the Association's Director's meeting in San Francisco on April 22, 1972, your Board approved Resolution No. 72-6 which authorized the filing of an amicus curiae brief with the

Continued on Page 11

## PROFESSIONAL CODE

It shall be considered professional and consistent with honorable and dignified professional conduct for any member of the California Land Surveyors Association:

1. To devote effort and support programs to raise the professional, ethical and social status of Land Surveying.
2. To maintain a campaign for public recognition of professional contribution to the ethical, economical and social well-being of citizens of California and of the United States.
3. To accept and maintain standards of professional conduct of the highest order to win the respect and admiration of all citizens.
4. To protect the profession of Land Surveying and the public against the unqualified.
5. To promote an effective program of exchange, communication and cooperation amongst its professional members.
6. To maintain a constant effort of understanding between professionals in government service and private consulting, recognizing the common aims and philosophies and mutual respect of the professional society.
7. To promote and stimulate leadership in public service on a community, state and national level.
8. To promote and maintain an effective and continuous program of expanding our knowledge of social and technical advances.
9. To protect the professional reputation, prospects and practice of another professional with the same vigor and determination as he would his own.
10. To manage his professional ethics with the courage to uphold his integrity over all other considerations.
11. To publish thoughtful and subdued public announcements free from ostentatious complimentary or laudatory implications. Professional cards, brochures, posted projects, press releases of worthy news items and project participation notices are acceptable forms of public announcements.

Mr. President and Members:

The members of the student chapter, Fresno State College, California Land Surveyors Association would like to extend their sincere appreciation for making it possible for them to attend the 1972 surveyors convention. Each of the members were duly impressed with the presentations, exhibits, and the fine lectures provided. It is a credit to be connected with such an organization.

We thank you for the support you have given, and we wish you to know we appreciate it.

Sincerely,

James D. Self  
Secretary-Treasurer  
Fresno State College Chapter  
California Land Surveyors Assoc.

## DEAD LINE DATES FOR THE CALIFORNIA SURVEYOR

Fall Edition . . . . . August 12, 1972

Winter Edition . . . . . November 11, 1972

Articles, Reports, Letters, etc., received after the above mentioned date will be placed in the next Edition.  
Editor

**Relative to Professional Development  
for Registrants and Licensees**

*The following Resolution was adopted by the Board of Registration for Professional Engineers on April 14, 1972.*

WHEREAS, A Resolution relative to continuing education was adopted by the Senate on October 18, 1971, requesting that the Board of Registration for Professional Engineers file a final plan on continuing education for its licensees with the Senate Business and Professions Committee no later than June 1, 1972; and

WHEREAS, In accordance with a request in the Senate Resolution, all major professional engineer and land surveyor associations in the State were notified of said Resolution and were requested to advise the Board of their recommendations in the matter; and

WHEREAS, A public hearing was held in Sacramento on March 3, 1972, to allow all interested parties to address the Board; and

WHEREAS, The Board has considered all comments, both written and oral, submitted to it; now, therefore, be it

RESOLVED BY THE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS, That, in the interests of the citizens of California, proposed legislation be submitted to the Legislature authorizing the Board to set forth requirements for continuing professional development for its registrants and licensees; and be it further

RESOLVED, That all registrants and licensees be, and are hereby, urged to review and augment their own personal professional development programs preparatory to establishment of requirements by the Board; that all professional associations, and all schools, colleges and universities offering subject matter essential to the professional development of engineers and land surveyors be, and are hereby, urged to establish programs for continuing professional development and make them available; and that all employers of registrants and licensees of this Board, in the interests of the public, be, and are hereby, urged to cooperate fully with their employees to assist them in meeting their professional development objectives; and be it further

RESOLVED, That this Resolution, the proposed legislation, and a narrative Letter of Intent be submitted to the Senate Business and Professions Committee as a plan for continuing professional development for registrants and licensees of this Board, and that copies be publicized for the benefit of all such registrants and licensees, schools, colleges, universities and employers affected by the plan. ▲

**LEGAL DEFINITION** Continued from Page 10

court of appeal of California in the above entitled action. This action, among other things, offered the services and expertise of the Association and its members — as a friend of the court — that irrespective of interests of the litigants, the land surveyors of California as a class, and the public interests desire a technically sound legal definition of the statutory phrase “ordinary high water mark.”

In addition to authorizing the filing of the A/C brief, the Board allocated the sum of \$300.00 from Association funds for attorney's fees and costs.

The actual costs being difficult to estimate, the Board further authorized the extension of invitations to other professional land surveying organizations to join with C.L.S.A. and in this effort, and to contribute funds for costs if possible.

The solicitation of personal contributions by Association members was also approved, and members so inclined may assist by mailing a personal check marked “Kent Case — A/C Brief” to the Secretary/Treasurer. ▲

**SAFETY AND HEALTH ACT**

*Logan N. Muir, C.E.*

The Williams-Steiger Occupational Safety and Health Act of 1970 requires posting of a notice, the maintenance of a log, and the preparation of an annual summary pertaining to safety and health protection, and occupational injuries and illnesses.

Although the Board of Registration for Professional Engineers does not have direct legal responsibility for enforcing the Act, “Safety on the Job is Everybody's Responsibility” and the Department of Consumer Affairs has suggested that the Act be called to the attention of all licensees.

Copies of a booklet, Recordkeeping Requirements under the Williams-Steiger Occupational Safety and Health of 1970” containing the poster, log and summary are available from: Bureau of Labor Statistics, 450 Golden Gate Avenue, Box 36017, San Francisco, California 94102. ▲



**CLASSIFIED ANNOUNCEMENTS**

Rates: \$2/line CLSA members; \$4/line non-members and business

**LICENSED LAND SURVEYOR**

Responsible charge of varied office and field survey work in aggressive, well-equipped, medium-sized firm. Prefer someone with college background, active in community and professional affairs, with private business experience and ability to work well with others. Contact Mr. Gennis at Gennis, Gray & Justice, Engineers, Sacramento (916) 446-1421 or 944-1667. Equal opportunity employer.



FEBRUARY 16-18, 1973  
WASHINGTON'S BIRTHDAY

**1973 C.L.S.A. CONVENTION**  
**Santa Clara—San Mateo Chapter**

**HYATT HOUSE — SAN JOSE**  
1740 NORTH FIRST STREET



**4. Monumentation of the Right-of-Way**

The right-of-way (including the right-of-way of newly constructed facilities to be relinquished to local agencies) will be monumented in such a manner that it can be established readily on the ground by all surveyors. Monuments will be placed on the right of way line, or right of way reference monuments will be placed near the right of way line.

**5. Establishment of Ties Between the Right-of-Way and the Land Net of Record**

Ties based on measured data will be made between right-of-way lines and found monuments of record which are of basic importance so that the position of the right-of-way in relation to the existing land net of record can be determined readily.

**6. Filing Records of Surveys and Monumentation Maps**

In accordance with Article 5 of the Land Surveyors' Act, a record of survey or a monumentation map will be filed with the County Surveyor for each project within 90 days after completion of the final monumentation work.

When the project survey period extends over two years, preliminary maps showing data such as monuments found, destroyed, referenced, reset, etc. may be filed. If preliminary maps are not filed, the information will be conveniently available in the District Surveys Engineer's Office.

**7. Relations with Other Surveyors**

The Division will cooperate with other surveyors. Survey information will be made available to them upon request.

Encroachment permits may be issued for land survey work within the right-of-way.

When private surveyors are excluded from the right-of-way and they request that essential survey points be referenced outside the right-of-way, such work will be done within a reasonable time period by State survey forces in direct cooperation with the private surveyor and at no charge to the private surveyor.

I trust you will agree that the Division of Highways' monumentation policy goes a long way toward clarifying a confusing situation which for too many years has caused misunderstandings in survey circles. In fact, we think it is a clearer statement than the sections on monumentation in the Land Surveyors' Act. Further improvements will evolve in time depending upon changes in requirements and attitudes, but for the foreseeable future we have a document which provides guidelines for preserving the land survey network of record as new highways are constructed. ▲



**SURVEY MY DEED**

All that certain real property described in the Deed from David Adams Elliott et als to Chas. M. Nissen, dated July 20, 1917 and recorded August 22, 1917, in Liber 2591 of Deeds at page 154, lying northeasterly, easterly and southeasterly of the following described line, to-wit.

Beginning at a point on the northern boundary line of the property described in that certain Deed above mentioned dated July 20, 1917, . . . distant thereon 4125 feet easterly from the northwest corner of said property and which said point of beginning is intersected with a woven wire netting fence; thence following said woven wire netting fence in a southeasterly direction to the intersection of a fence; thence southwesterly to an iron pipe marked N-105; thence following a fence in a southeasterly, southerly, easterly, south and southwesterly direction to a point where said fence runs northwesterly; thence southerly to a gate in a fence about a quarter of a mile southeasterly of an iron pipe marked N-85; thence southeasterly along said fence to an iron pipe marked N-65; thence along said fence in a southwesterly direction to an iron pipe marked N-50; thence along said fence westerly 400 feet, more or less, to a point north of a gulch; thence southerly to the head of said gulch; thence southerly along said gulch to a roadway; thence across said road to the northeast corner of a field known as "house pasture;" thence along the easterly and southerly fence line of said pasture to a gulch; thence southerly along said gulch to the head of said gulch; thence southerly to a fence; thence southwesterly and southerly along said fence line to the southern boundary line of the property described in the Deed executed by William L. McLaine and C. H. Lamberton, as Executors of the last Will and Testament of Mary Ives Crocker to Charles M. Nissen and Sue I. G. Nissen, his wife, as Joint Tenants, and recorded January 31, 1936, in Liber 3287, at Page 131. ▲

**California Environmental Protection Program**  
**Application for Personalized License Plates - Fee \$25**  
 (Mail to DMV, P. O. Box 2770, Sacramento, CA 95808)

NAME \_\_\_\_\_  
PRINT OR TYPE TRUE FULL NAME

**PLEASE READ INSTRUCTIONS ON THE REVERSE SIDE.**  
 I hereby make application for personalized license plates to be affixed to a passenger motor vehicle. I request the following combination of letters and/or numerals (combination not to exceed six positions or be less than two positions):

First Choice						L	S
Second Choice							
Third Choice							

Location of DMV office where I will surrender my present license plates and current registration card in exchange for personalized license plates.  
 Office Name or Location \_\_\_\_\_

I have read the instructions on the reverse side hereof and understand the conditions under which these plates are to be issued.

SIGNATURE \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_ APT. NO. \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

FOR DEPARTMENT USE ONLY

SUSPENSE RECEIPT NO.	DATE FEES PAID
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REG 17 NEW 6/70

## COMPETENCE vs. QUALIFICATION

*Richard J. Stephan, L.S.*

According to the dictionary these two words are nearly synonymous. They are considerably different, however, as they are used pertaining to a profession. Webster's Dictionary of Synonyms states: "Competent and qualified are seldom used to characterize a person or his activities except in relation to a specific calling. Competent implies the ability to satisfy capably all the special demands or requirements of a particular situation, craft, or profession, but it does not necessarily imply, as does qualified in its current strict use, compliance with set standards, such as special training and the testing of one's competence at the end of such training."

The accepted method of determining qualification of a professional man, or an aspirant to a profession, is by examination. Competence cannot be determined by examination and must be judged after the fact. It is impossible for the unqualified to practice competently, hence, qualification is a necessary ingredient of competence. On the other hand, a qualified person may practice incompetently due to the way in which he applies his knowledge. This could be affected by his professional philosophy, his mental or physical condition or economic pressure. ▲



### California Environmental Protection Program\*

#### Personalized License Plate Application Instructions

1. Each application must include a \$25 fee, which will be deposited in the California Environmental Protection Fund. Make check or money order payable to the Department of Motor Vehicles.
2. Duplicate requests will be determined by lottery. If your choice is not available, but you would accept it preceded or followed by a number, 1 through 99, please indicate the number \_\_\_\_\_.
3. DMV will notify you of the plates you will be assigned.
4. Plates will be sent to the DMV office you indicate to exchange your present license plates.
5. If plates are intended for a new car to be purchased, indicate this on the DMV office line on the face of the form.
6. The department has the right to refuse any combination of letters and/or numbers that may carry connotations offensive to good taste and decency, or which would be misleading, or in conflict with any license plate series now issued. (Example BOB123 or 123BOB is not acceptable.)
7. The personalized plates will be your personal property subject to: (a.) Payment of an additional \$10 fee each calendar year. (b.) Payment of an additional \$12 fee each time the plates are transferred to another vehicle. (c.) Must be surrendered when you sell, trade or otherwise dispose of the vehicle to which they are assigned, if you do not transfer the plates to another vehicle at that time.

\*California's Environmental Protection Program: to preserve and protect California's environment, especially by controlling air pollution generated by motor vehicles.

## C.L.S.A. POLICY

The California Land Surveyors' Association holds the following view with respect to the place of land surveying in the engineering profession with all that is implied thereby as to ethical conduct, professional development, education promotion and other duties of a practitioner to his profession.

1. The Land Surveyors Act enacted in 1891 by the State of California established the first registration of the surveyor, so-called "civil" engineers, then in 1929 for the protection and welfare of the public the Civil Engineers Act was enacted, recognizing that special qualifications and education are needed to practice Civil Engineering.
2. The Land Surveyors Act was amended in 1939 to allow Civil Engineers to practice land surveying without a qualifying examination as their education requirements included comprehensive course in land surveying, thus allowing those who practice land surveying to have a minimum quality of expertise in that branch of engineering.
3. During the past three decades the education program for professional engineers have become increasingly science-oriented, eliminating required and optional courses in land surveying, thus creating a new generation of Civil Engineers who can offer to the public the service of land surveying without any expertise in that branch of engineering.
4. For the welfare and protection of the public, future professional engineers who wish to offer the public the service of land surveying be required to show qualifications and be examined in the same manner as a Land Surveyor.



*Sure glad this job wasn't scheduled for January.*

## SUSTAINING MEMBERS

<p><b>RANDLETT CLEGG &amp; FOULK</b></p> <p><i>CIVIL ENGINEERS – LAND SURVEYORS REDWOOD CITY</i></p>	<p><b>RICKETT, REAVES &amp; WARD</b></p> <p><i>CIVIL ENGINEERS – LAND SURVEYORS BAKERSFIELD</i></p>	<p><b>TOWILL, INC.</b></p> <p>ENGINEERS                  SURVEYORS PHOTOGRAMMETRISTS <i>SAN FRANCISCO</i></p>
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<p><b>JOSEPH J. SCHERF</b></p> <p><i>LAND SURVEYOR UKIAH</i></p>	<p><b>HEWLETT-PACKARD COMPANY</b></p> <p><i>Distance Meters Programmable Calculators Pocket Calculator</i></p>	<p><b>EUGENE LOCKTON</b></p> <p><i>LAND SURVEYOR SAN RAFAEL</i></p>

### APPLICATION FOR MEMBERSHIP IN THE CALIFORNIA LAND SURVEYOR'S ASSOCIATION

- MEMBER GRADE:** Have a valid California Land Surveyor's or Photogrammetric Surveyor's Licensed
- AFFILIATE MEMBER GRADE:** R.C.E. or those who rely upon the principles of land surveying.
- ASSOCIATE MEMBER GRADE:** Work in land surveying and be recommended by a member.

a. Name \_\_\_\_\_ County \_\_\_\_\_

b. Address \_\_\_\_\_ Zip \_\_\_\_\_

c. Mailing Address \_\_\_\_\_ Phone No. \_\_\_\_\_

d. Employment: Private \_\_\_\_\_ (Principal \_\_\_\_\_ ) Retired \_\_\_\_\_ Public \_\_\_\_\_

Name of Firm or Agency \_\_\_\_\_

e. Signature and L.S., P.S. or C.E. No. \_\_\_\_\_

f. Recommended by (Associate & Affiliate Grade Only) \_\_\_\_\_

Dues schedule:    \*Member \$50.00                  Affiliate \$25.00                  \*Associate \$10.00                  (\*Entrance Fee \$15.00)

Mail application and check to: California Land Surveyor Association P.O. Box 1363, Santa Rosa, Ca. 95403

FIRST YEAR'S ANNUAL DUES ARE TO BE PRO-RATED FROM DATE OF APPLICATION.

# CALIFORNIA LAND SURVEYORS ASSOCIATION - 1972

OFFICIAL ADDRESS: P.O. BOX 1363, SANTA ROSA, CA. 95403

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## The California Surveyor

Published Quarterly by the

CALIFORNIA LAND SURVEYORS ASSOCIATION

P.O. Box 3707

Hayward, CA 94544

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Roy Watley, Jr., L.S., Redactor

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