



Institutional Affiliate of American  
Congress on Surveying and  
Mapping

# The California Surveyor

THE VOICE OF THE LAND SURVEYORS OF CALIFORNIA

NO. 52

FALL EDITION

1978

## WATER BOUNDARY CONTROL IN CALIFORNIA

By Ronald C. Greenwell

### Introduction

After due study of available literature on water boundary locations, it was my opinion that there was a need for a publication that would deal with California laws in particular. I have prepared this paper as a guide to California surveyors. Whereas most of the available writings on water boundaries deal with the subject on a national level, it is my intention here to clarify the accepted policies in the State of California.

## Jurisdiction Between State and Federal Ownership

With the development of oil drilling technology and the need for more sources of oil, it became feasible to drill for off-shore oil along California's Pacific Coast. When the oil companies applied to the Federal Government for oil and gas rights under the Mineral Leasing Act of 1920, the Federal Government varied in its opinion as to ownership of the lands involved. In 1945 the Attorney General, upon recommendation by an interdepartmental committee, asked the Supreme Court to adjudicate the issue.

On June 23, 1947, the Supreme Court announced the following decision:

California is not the owner of the three mile marginal belt along its coast, and that the Federal Government rather than the State has

*(Continued on Page 10)*

## PROPOSED AMENDMENT TO BROOKS BILL CLARIFIES SURVEYORS' STATUS

On August 7, 1978, Senator Frank Church (Idaho) proposed an amendment to the Federal Acquisition Act of 1977, commonly known as the Brooks Bill. Speaking specifically to Subchapter VI, Section 541, Definitions, (3) which reads (in part):

"...The term architectural and engineering services includes those professional services of an architectural or engineering nature as well as incidental services that members of these professions and those in their employ may logically or justifiably perform ...",

Senator Church explained that his amendment "will clarify the basic scope of the law as it applies to 'incidental services.' The incidental services to which my amendment is targeted are themselves performed by professionals. The best example is surveying."

"Licensing for professions has traditionally been the responsibility of the States, and," said Mr. Church, "I believe that it should remain so. Although States may choose not to license certain professions such as chiropractic, naturopathy or many others, or, as in the case of surveying, to incorporate it into other professions like architecture or engineering, the Federal Government must not override or 'delicense' professions which States do choose to license."

Mr. Church went on to explain that he had been contacted by surveyors from Idaho who had told him emphatically that they have been excluded from consideration for contracts let

under the Brooks Bill procedure. "My amendment," states Mr. Church, "is designed to clarify the fact that they (surveyors) must be included."

For a copy of Senator Church's Amendment No. 3435, you may wish to consult the Congressional Record for August 7, 1978, pages S12770 through S12772. ▲

## LAND SURVEYOR APPOINTED TO BOARD OF REGISTRATION

By Raymond B. Thinggaard, L.S.

Governor Brown recently appointed Fred H. Seiji as the Land Surveyor member to the Board of Registration for Professional Engineers. Fred fills the two-year vacancy left when John Pedri's term expired after serving five years as Ronald Reagan's appointment.

Fred Seiji, who is licensed in Nevada as well as California, lives in Vallejo with his wife and two children. The former Deputy County Surveyor of Solano County is presently teaching surveying and related technologies at the Rancho Murieta Training Center. He is a member of the California Land Surveyors Association and the American Congress of Surveying and Mapping.

It is good to finally see a Land Surveyor on the Board and, I am sure, Fred can count on C.L.S.A. for the help and support he may require. ▲

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#### CALIFORNIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS Written Examination Schedule 1978

Land Surveyor-in-Training—LISIT	*Final Filing Dates
April 7, 1979 (Saturday)	February 2, 1979 (Friday)
November 3, 1979 (Saturday)	August 31, 1979 (Friday)

**\*\*Land Surveyor—LS**  
November 3, 1979 (Saturday)      July 6, 1979 (Friday)

\*Applications filed after the final filing date specified will be considered for the following examination.

\*\*Until further notice, these exams will be given only **once** a year.

NOTE: This schedule is subject to change at any time without prior notice. ▲

## THE CALIFORNIA SURVEYOR....

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

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

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

#### Advertising

Commercial advertising is accepted by "The California Surveyor." Advertising rates and information can be obtained by contacting Almac Technical Graphics, 2476 Embarcadero Way, Palo Alto, CA 94303. Phone 415-327-6785.

#### Sustaining Membership

Membership in the California Land Surveyors Association as a sustaining member is open to any individual, company or corporation who, by their interest in the Land Surveying profession, is desirous of supporting the purposes and objectives of this association. For information regarding sustaining membership, contact the Editor of *The California Surveyor*.

#### Editorial Material

All articles, reports, letters and contributions are accepted and will be considered for publication regardless of the author's affiliation with the California Land Surveyors Association. Material should be sent to *The California Surveyor*, P.O. Box 3707, Hayward, California 94540.

EDITOR: Michael S. McKissick, L.S.

P.O. Box 3707

Hayward, CA 94540

Phone (408) 287-3400

#### DEADLINE DATES FOR THE CALIFORNIA SURVEYOR

WINTER . . . . NOVEMBER 17, 1978  
CONVENTION . . . . JANUARY 19, 1979

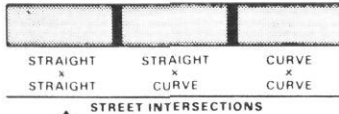
Articles, Reports, Letters, etc., received after the above mentioned date will be placed in the next edition.  
Editor



# SURVEY 31

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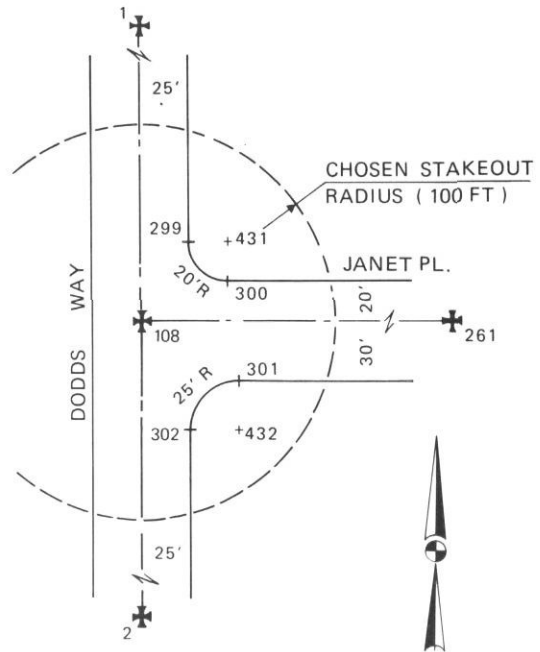
1. SELECT program.
2. ENTER requested data:

(P.I.) POINT# 108.	BACK OFFSET? 30.
(1ST C/L) TO POINT? 1.	(NEXT C/L) TO POINT? 2.
OFFSET? 25.	OFFSET? 25.
(NEXT C/L) TO POINT? 261.	CORNER RADIUS? 25.
OFFSET? 20.	RADIUS= 25.0000
CORNER RADIUS? 20.	DELTA= 90.00000
RADIUS= 20.0000	LENGTH= 39.2699
DELTA= 90.00000	TANGENT= 25.0000
LENGTH= 31.4159	CHORD= 35.3553
TANGENT= 20.0000	(BC/PC) POINT#? 301.
CHORD= 28.2843	9263.0842
(BC/PC) POINT#? 299.	10052.6976
9332.9924	(RADIUS) POINT#? 432.
10027.4417	9238.0843
(RADIUS) POINT#? 431.	10052.7890
9333.0656	(EC/PT) POINT#? 302.
10047.4415	9237.9931
(EC/PT) POINT#? 300.	10027.7894
9313.0656	BACK OFFSET?
10047.5148	

then, for staking out all points within a 100' radius of #108:

STAKEOUT DATA  
Successive Points  
Fixed Point

FROM POINT?	108.
BACKSIGHT POINT?	1.
RADIUS?	100.



... with the stakeout data printed on an optional page printer:

INSTRUMENT PT=	108.	9292.9012	10002.5882								
BACKSIGHT PT=	1.	10000.0000	10000.0000								
STAKEOUT RADIUS=	100.00										
TO PT:	BEARING	N	AZIMUTH	TURNED<	2XTURNED<	DEFLECTED<	2XDEFLECTED<	DISTANCE	NORTHING	EASTING	
299.	NE 31.47444	31.47444	32.00194	64.00388	-	147.59406	-	295.59212	47.17	9332.9924	10027.4417
300.	NE 65.49410	65.49410	66.02160	132.04320	-	113.57440	-	227.55280	49.24	9313.0656	10047.5148
301.	SE 59.14445	120.45155	120.57505	241.55409	-	59.02095	-	118.04191	58.31	9263.0842	10052.6976
302.	SE 24.39132	155.20468	155.33218	311.06435	-	24.26382	-	48.53165	60.42	9237.9931	10027.7894
431.	NE 48.09243	48.09243	48.21593	96.43585	-	131.38007	-	263.16015	60.21	9333.0656	10047.4415
432.	SE 42.28593	137.31007	137.43357	275.27113	-	42.16243	-	84.32487	74.33	9238.0843	10052.7890

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## EDITORIAL

In my years as editor of the "California Surveyor," we have endeavored to produce a magazine which is stimulating, informative and in the best interest of the surveying profession. To this end, the Association has sent this publication to a mailing list comprised of not only our members, but every Land Surveyor, every L.S.I.T., and a myriad of other associated professions. Our philosophy has been to keep everyone connected with the profession in touch by way of the magazine.

Many of you who read this publication are not members of C.L.S.A. and consequently do not contribute to the costs of publishing the "Surveyor." I have also heard that many of you mistakenly believe that this magazine is from the Board of Registration. This is not true. Our funding is from C.L.S.A., not any governmental agency.

I would like to ask that you non-members join C.L.S.A. to support the "Surveyor" and the many programs currently a part of C.L.S.A. If you cannot see your way clear to join the Association, then I wish you would at least consider making some financial commitment on behalf of the "California Surveyor." You receive it, you read it, I hope you like it and I think you could help to support it.

Any contribution is appreciated, and it goes to help strengthen your profession.

## New Members - First Quarter, 1978

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## SCHEDULE OF EVENTS

October 9, 1978

Southern California Section, ACSM Board meeting.

October 11, 1978

Board of Registration meeting, Pacifica Hotel, Culver City.

October 16, 1978

Fall ACSM Convention, Albuquerque, New Mexico.

October 21, 1978

C.L.S.A. Board of Directors meeting.

November 4, 1978

L.S.I.T. Examination. E.I.T. Examination. Feather River/Northern Counties Chapter—Annual Conference, Chico.

November 8, 1978

Board of Registration meeting, Airport Marina Hotel, Burlingame.

November 13, 1978

Southern California Section, ACSM Board meeting—Technical session (Ventura Co. area). Installation of new officers.

December 11, 1978

Southern California Section, ACSM Board meeting.

December 13, 1978

Board of Registration meeting, Pacifica Hotel, Culver City.

March 28–31, 1979

Western States Regional Conference, "New Shape of the Surveying World," Sahara Tahoe, Stateline, Nevada.

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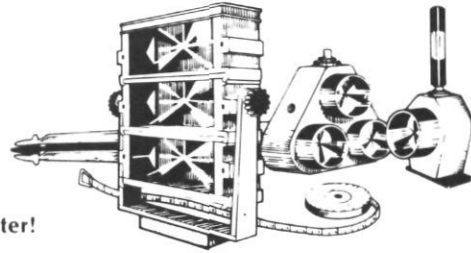
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†Cubic DM-60 Cubitape Distance Meter	25.00	15.00	10.00
†Hewlett-Packard 3805 Distance Meter	25.00	15.00	10.00
†Hewlett-Packard 3808 Distance Meter	50.00	30.00	20.00
†Hewlett-Packard 3810 Total Station	60.00	36.00	24.00
†Hewlett-Packard 3820 Total Station	120.00	72.00	48.00
*†K & E Autoranger with Azimuth Base or mount for Theodolite	30.00	18.00	12.00
Cubic DM-20 Electrotapes—Two Units	40.00	24.00	16.00

## Positioning Equipment:

**Motorola Mini-Ranger with two Coded Transponders	200.00	105.00	70.00
Each Additional Mini-Ranger Coded Transponder	36.00	18.00	12.00
Cubic DM-40 Autotape with Two Responders	300.00	150.00	100.00
Autotape or Mini-Ranger Printer	15.00	6.00	4.00
Raytheon DE-719 Recording Fathometer	25.00	15.00	10.00
Raytheon DE-119D Recording Fathometer	20.00	12.00	8.00

## Optical Surveying Equipment:

*Lietz TM-1A 1" or Wild T2 Theodolite (Direct reading Horizontal and Vertical to 1", Self Indexing Vertical Circle)	25.00	15.00	10.00
*Lietz TM-6 or TM-10C 10" Theodolite (Horizontal and vertical Estimation to 1", Self Indexing Vertical Circle)	19.00	11.40	7.60
*Lietz TM-20C 20" Theodolite (Horizontal and Vertical Estimation to 3", Self Indexing Vertical Circle)	16.00	9.60	6.40
*Lietz T-60D 60" Theodolite (Horizontal and Vertical Estimation to 6", Self Indexing Vertical Circle)	15.00	9.00	6.00
*Lietz TS-20 60" Theodolite (Estimation to 20" Horizontal, 1" Vertical)	11.00	6.60	4.40
*Lietz BT-20A 20" or Geotec T-24 Optical Plummet Transit	8.50	5.10	3.40
*Eagle 6 1/4" (20" Surveyors Transit)	5.00	3.00	2.00
*Eagle 4" (1" Construction Transit)	3.00	1.80	1.20
*Lietz B-1 Engineers Precision Automatic Level	7.00	4.20	2.80
*Lietz B2-A Engineers Automatic Level	5.00	3.00	2.00
*Lietz C3-A Engineers Automatic Level	4.00	2.40	1.60
*Lietz B-4 Contractors Automatic Level	2.50	1.50	1.00

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*Magnetic Locator, Schonstedt	4.00	2.40	1.60
Spectra-Physics LT-3 Laser Transillite with Fan Beam attachment	20.00	12.00	8.00
*American Paulin Model M-2 Surveying Altimeter — 0 to 10,000 feet. 2 foot graduation	4.00	2.40	1.60
*Kern #173 W. Tripod with 3/8" x 11 Adaptor	2.00	1.20	.80
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*Lietz #7533-10 3 1/2" x 8 or #7533-20 3/8" x 11 Standard Wooden Tripods	50	30	20
*Lietz #7311-35 or Wild GDF-6 Tribrach with Optical Plummet	1.50	.90	.60
*Lietz #7311-38 Tribrach Prism Adaptor	50	30	20
*Retro-Ray Single Prism Assembly (round)	1.00	.60	.40
*Retro-Ray Triple Prism Assembly (round)	2.50	1.50	1.00
*Retro-Ray Tilting Single Prism Assembly (round)	1.25	.75	.50
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*Retro-Ray Tilting Triple Prism Assembly (lateral)	3.50	2.10	1.40

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**FOLLOW UP  
TO ARTICLE IN  
VOLUME #46**

*The following letter, dated July 10, 1978, was received by Mr. G. F. Delaney of the Canadian Surveyor from Donald E. Bender, L.S.:*

"The publication of my query in the March issue of *The Canadian Surveyor* was indeed a pleasant surprise. As a former member of the C.I.S., I rank your publication and society well above similar efforts in the United States.

"My brief article, now one year old, was intended to collect recognized source data on the surveying profession. The ready availability of recognized publications is especially effective in attempts to persuade governmental agencies to change their classification of surveying from technical to professional. Future articles were intended to expand upon the remaining six professional elements in

an attempt to persuade surveyors that collective effort would benefit the public as well as the profession. But alas, not one surveyor was interested. Comments in writing or verbal, either for or against, were not received from a single individual among the estimated 3,000 readers of the article. My writing project, therefore, was put aside. You see, apathy is contagious as well as being fatal.

"Publication of the *Occupational Outlook Handbook* by the United States Department of Labor early this year has again demonstrated the failure of United States surveyors to manifest any 'concerted opinion' as to how they view themselves. The Handbook includes surveyors among more than 900,000 technicians that 'assist scientists and engineers' and suggests contacting ACSM for additional information. The number and extent of publications from the United States Government that degrade the surveying profession are now approaching avalanche proportions. The lack of concern and concerted effort to change this situation in the United

States, I believe, can only be explained by our lack of a single professional identity. Canadian surveyors should, therefore, remain vigilant to the tendency of United Nations' publications to be influenced by what is reported in the United States, and then for member nations to follow United Nations' classification structures. The United States may well be the Achilles' heel of the surveying profession.

"The C.I.S. would be well advised to investigate your *Canadian Classification and Dictionary of Occupations*, and related publications. The Royal Institution of Chartered Surveyors has begun such an effort with the *British Classification of Occupations and Directory of Occupational Titles*.

"Again, thank you for the reprint, even though it was done without my permission. I hope some of your members will accept the challenge to identify recognized publications, both national and international, that classify surveying as a field of science or learning. We can then move to the other elements of a profession after laying a solid foundation." ▲

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#### Volume 2

Interlinked programs for field reduction and design including:  
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Distance-Distance Intersect  
Sideshots  
Area  
Enter & Assign  
Curve Computations  
Coordinate List  
Point to Point Area  
Radial Stake-out  
Lot Summary  
Predetermined Area  
Point to Point Angles  
Auto Traverse  
Street Corner  
Street Intersection  
Cul-de-sac  
Right of Way  
Offset from a Line  
Circle Thru 3 Points  
Tangent to a Circle  
Tangent to Two Circles  
Re-number



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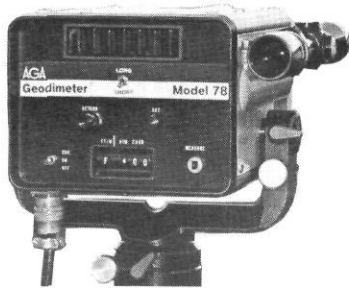
## Geodimeter 14

Medium-range (4 miles) portable, EDM. All the automatic and convenience features of the 12A except tracking, plus the high accuracy of phase measurement. Weighs only 5.5 lbs.



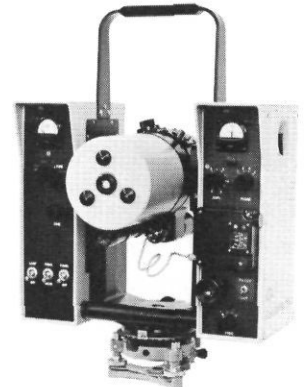
## Geodimeter 78

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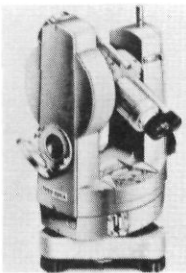


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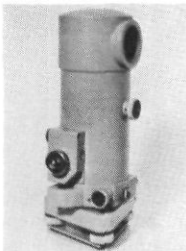
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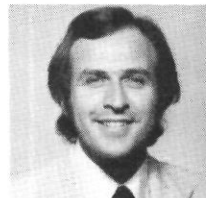


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## CHAPTER NOTES

### San Joaquin Valley Chapter

The San Joaquin Valley chapter has had a series of interesting monthly meetings.

One meeting was devoted to two California State University, Fresno, students giving a presentation of their senior project to get legislative action on removing the Civil Engineer exemption from L.S. Licensing.

Other meetings included presentation on unique monuments found by W. O. Gentry during his career, property description problems by a title officer from Safeco, general discussion sessions by members concerning mutual surveying problems; "Available Survey Information at Cal Trans" by a representative of Cal Trans and also a presentation by Mr. Gentry of slides taken on his trip to Europe with the California Council of Surveyors and Engineers.

The April meeting was a joint meeting with the Student Chapter of C.L.S.A. The President of the State Organization of C.L.S.A., Michael Welch, gave a rundown of S.B. 1850.

### San Diego Chapter

Art Thompson of the County Land Use Coordinating Council (CLUCC) spoke to the chapter about the proposed revisions to the lot split ordinance along with Dick Hartley who suggested we try to come up with some revisions. The chapter later decided to join CLUCC.

The May meeting was held at the First American Title Company where members toured the title plant, followed by a question and answer session.

A "Letter Committee" was proposed to draft letters to the agencies surveyors deal with to allow private sector members to better make their opinions known to local government.

Bob Service discussed the use of Corner Records, followed by a discussion on how many corners could be shown and the use of additional sheets.

Chuck Moore of the County's Development Review section spoke at the June meeting about the review process at the tentative map stage. His comprehensive talk touched on the many Ordinance requirements for both major and minor subdivisions. Some items covered were the field review, road design, sight distance, general requirements, and final notice/resolution conditions. A motion was introduced and passed that the Chapter write a letter to the appropriate County department asking for revision to County ordinances regarding road width and particularly the requirements of GPA 75-02.

The July meeting was a social dinner meeting at the Torrey Pines Inn.

### Monterey Bay Chapter

Stan Nelsen reported that Corner Records do not appear to be needed when a Record Map is Filed. The President reported on the convention and about work shops with other Chapters.

The President was directed to look into Project Noah in Monterey.

Jim Prendergast reported S.B. 1850 & Res. 1874 are dead, but the Engineers Assoc. will help with a new bill if it has a Grandfather clause and Construction Surveying Clause. C.L.S.A. will draw a New bill with

bargaining power for the next section.

The Chapter's summer social and steak B.B.Q. was held July 22 at George Darling's home.

### Feather River/Northern Counties Chapter

The annual Family Picnic was held at the Faniani Cabin on Mill Creek on July 30.

The chapter will be presenting the 5th Annual Northern California Land Surveyors Conference on October 14 at the Holiday Inn in Chico. For more information, contact Margaret Harp, Secretary, Feather River/Northern Counties Chapter C.L.S.A., 124 Fourth St., Orland, CA 95963.

### Sonoma Chapter

A steering committee consisting of Bob Curtis, members of the Recorder's Office, and members of the Sonoma State College History Department has been formed to establish a Records Repository. Presently envisioned is a Directional Facility where one could find out where the information one desires is located. Prospects for outside funding are high.

Neal Campbell presented the film, "The Land Surveyor and You" about 200 persons at the Multiple Listing Service Breakfast.

There has been much discussion in the aftermath of the passage of Prop. 13 as to ways in which the chapter might provide input to the Board of Supervisors and various county Departments. It has been agreed to wait to see what actions these agencies take prior to any actions by this chapter.

*(Continued on Page 18)*

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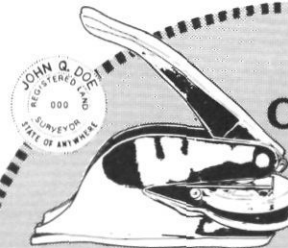
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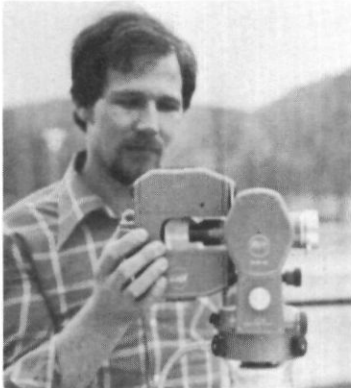
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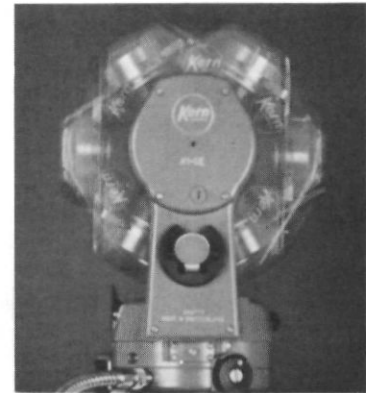


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## WATER BOUNDARY

(Continued from Page 1)

paramount rights in and over the resources of the soil under that water area, including oil. (1)

And there is no reason why, after determining in general who owns the three mile limit here involved, the Court might not later, if necessary, have more detailed hearings in order to determine with greater definiteness particular segments of the boundary. (2)

After the above decision questions were put to the Court as to the position of the boundary line separating Federal territorial waters and inland State waters. The Court referred the problem to a Special Master who was charged with holding hearings on the following three questions:

1: What is the status (inland waters or open sea) of water areas between the mainland and offshore islands, and, if inland waters, then by what criteria are the inland water limits of any such areas to be determined?

2: Are particular segments in fact bays or harbors constituting inland waters and from what landmarks are the lines marking their seaward limits to be drawn?

3: By what criteria is the ordinary low water mark on the coast of California to be ascertained? (3)

The Special Master took testimony and used data gathered from the U.S.C. & G.S. as well as other sources including International Law.

### Summary of Court Decision

The Court had determined in 1947 that the State was the owner of inland waters, and that "inland waters" included all bodies of water within the land territory, such as rivers and lakes, as well as bodies of water which open on the coast and fall within the category of "true bays". The inland waters were established as extending to the limit of the ordinary low water mark on the coast of California. The "marginal sea" was defined as seaward of the inland waters of a nation, bounded by the high seas on the opposite boundary, and can also be called "territorial sea", "marine belt" and the "three-mile limit". It should be noted that the three miles referred to here are three nautical or geographic miles (6,076.1033 feet or 1852.0 meters). (See pg. 25, Shore and Sea Boundaries, Vol. 1)

## Summary of Special Master's Findings

On October 14, 1952, the Special Master filed his report with the Supreme Court. A summary of his answers to the three questions are listed as follows:

- 1) The channels and other water areas between the California mainland and the offshore islands, within the area referred to as the "overall unit area" (4), are not inland waters. He found them to lie seaward of the baseline of the marginal belt of territorial waters, which should be measured in each instance along the shore of the adjoining mainland or island, each island having its own marginal belt.
- 2) No one of the seven particular coastal segments recommended for immediate adjudication is a bay constituting inland waters, historically or otherwise. These coastal segments included: Crescent City Bay, Monterey Bay, San Luis Obispo Bay, Point Conception to Point Hueneme, Santa Monica Bay, San Pedro Bay, and the area east of San Pedro Bay.
- 3) The ordinary low water mark on the coast of California is the intersection with the shoreline (as it exists at the time of survey and without regard to natural or artificial changes since 1850) of the plane of the mean of all low waters, to be established, subject to the approval of the Court, by the United States Coast and Geodetic Survey from observations made over a period of 18.6 years. (5)

Also included in the Special Master's report:

- 1) The extreme seaward limit of a bay is a line ten nautical miles long. Whether a bay constitutes inland waters or not is to be determined by an application of the semicircular rule.
- 2) Where rivers empty into the sea, the seaward limit of inland waters is a line following the general direction of the coast drawn across the mouth of the river, whatever its width. If the river flows into an estuary, the rules applicable to bays apply to the estuary.
- 3) The method proposed by the Government for determining the

termini at headlands of tributary waterways, for pronounced or unpronounced headlands, should be adopted. (6)

The Special Master's report has essentially been adopted by the Court in its settlement of State and Federal boundaries.

The question of who owns the seabed and minerals under the three mile limit was settled by Congress in 1953 with the Submerged Lands Act (Public Law 31) which gives the State control of the sea beds for a distance of three geographic miles from the State's coastline. The Federal Government retained mineral rights from the Federal-State boundary out to the limits of the Continental Shelf and control of navigation on the waters of the territorial sea. It did not change or stipulate the location of State-Federal boundary, but did define the limit of the inland waters as follows:

The term "coast line" means the line of *ordinary low water* along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters.

### Inland Water Boundary Determinations

There is no question as to what constitutes inland waters if they are landlocked or are considered rivers or bays. The real questions regarding inland waters arise when they open onto the territorial sea.

In the case of rivers it is accepted procedure to draw the line across the opening between low water marks however wide the river opening providing the line follows the general direction of the coast.

The recommended methods of inland water boundary determination in the case of "bays" were set down by the Special Master. His report recommends that a ten mile limit be set as the width of the baseline across a bay from point to point, and use of the semicircular method be adopted to determine if an indentation qualifies as a bay (7).

The semicircular method states that if the area of the bay is larger than a semicircle having the center of the base line its center and a radius of one half the base line, then the indentation is not considered a bay and the inland water line should be considered as bounded by the mean low tide line as it follows the sinuosities of the coast.

(Continued on Page 14)

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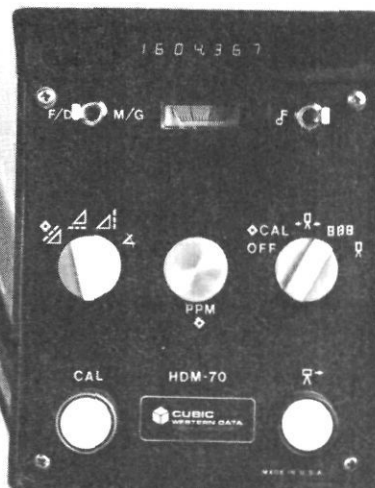
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# THE SURVEYOR AS A PUBLIC CALAMITY

by Neil J. Cummins, Jr., L.S.

*Presented at the 1978 Convention of the California Land Surveyors Association, April 1, 1978.*

A common problem in boundary retracement is the discovery that intermediate monuments, indicated to be in a straight line between angle points of the original survey, in fact vary from that line. This paper attempts to provide a guide for the practicing surveyor in determining the weight to be given such intermediate monuments; in addition, a general discussion of monument classification and potential future difficulty resulting from recent legislation is included.

The problem typically arises in two contexts. First, during the resurvey of public land or rancho boundaries where identifiable line trees or line monuments can be recovered. Second, during the resurvey of streets originally opened by subdivisions, where street line monuments rarely coincide from block to block. Although the two types of resurvey generally are performed under diverse conditions, the controlling principles are identical and will be discussed together.

The fundamental principle is that, when retracing a survey which created *property boundaries*, the primary duty of the retracing surveyor is to follow as closely as possible in the footsteps of the original surveyor. The monuments set by the original survey (1) are presumed to be better evidence of those footsteps than subsequent more accurate measurements. (2) Thus, the surveyor is obligated to follow original monuments even where his own measurements indicate the monuments would have been better set elsewhere. (An early, but unfortunately still applicable commentary on this situation is contained in the case of *Diehl v. Zanger*, a portion of which is reproduced in the appendix.) This principle is as applicable to line monuments set by the original survey as to any other monuments. (3)

Two special problems suggest themselves. First, under present California law, many subdivision monuments are not set until some time after the map has filed. There have been no appellate decisions dealing with this area. In the absence of guidance from the courts, the surveyor faced with this problem while doing a retracement survey will have to assume the most

defensible position he can find. It is the author's opinion that the most defensible position available is to treat the showing of "to be set" monuments on a map by which parties convey property as the equivalent of an agreement between the parties that they will abide by the results of the future survey, absent fraud. If it can be shown that the monuments were in place prior to a conveyance by the subdivider, this interpretation is strengthened by statutory presumption. (4)

The statutory presumption does not apply to a city. However, if the deferred monuments are used to control the lots (as is very likely), and some other method to control street lines, the resulting situation would be intolerable. This intolerability alone is an excellent argument for using the "implied agreement" discussed above to control both streets and lots.

The second problem arises when no monumentation is shown on the original map. Monuments shown to be original can nevertheless control, since there is a presumption that the map reflects an actual survey (5) and the character of the original monuments set can often be implied or inferred. (6)

More complex problems are raised by monuments not shown to be original monuments. Such monuments can be categorized as perpetuated original monuments, evidence of occupation, wild monuments, and monuments placed pursuant to California Business and Professions Code, Section 8765(d) (hereinafter subsection (d) monuments).

Perpetuated original monuments are those which can be traced back to the original monument set for the corner in question by satisfactory evidence. Such evidence need not be of record, and may be parole, (7) or even circumstantial, (8) but must establish the monument as a perpetuation of the original, as opposed to mere evidence of occupation. Once established as a perpetuated original monument, the monument assumes all the characteristics of the original, and becomes uncontrovertible evidence of the position of the original surveyed line.

Next in authority are monuments which constitute evidence of the property occupied, but cannot be shown to be originals. Such monuments may well be acceptable evidence of ownership lines, particularly if shown to closely match record dimensions, but cannot prevail over original or perpetuated original monuments, and, most

importantly, cannot be used for proportioning. (9) The distinction between these monuments and perpetuated original monuments may be very difficult to draw in some cases, as often the evidence of occupation also allows the inference that the monument is a perpetuated original monument. (10) One principle, however, is clear: a monument which is shown to be not a perpetuation of an original monument is not effectual to vary otherwise established lines of survey, although it may well constitute important evidence of lines of title. Such monuments should be used for control of the lines which they purport to monument only, and should yield to original or perpetuated original monumentation wherever there is a conflict.

Further down the scale of authority are wild monuments which purport to be a corner, but which can be clearly shown to be otherwise. Evidence showing otherwise might be the extant original monument, or field notes or maps showing that the original monument was disregarded, as where a City Engineer "straightens out" a street centerline and shows fallings to the intermediate "wrong" found original monuments.

In such a case, although there is a presumption that an official duty has been regularly performed, (11) the presumption is rebuttable and affects only the burden of proof. (12) Thus, the presumption yields whenever irregularity in the performance of the official duty is clearly shown. (13) It is perhaps most important for the surveyor in private practice to recognize that there is nothing magic about a public resurvey; if it shows errors on its face, the surveyor will have the same liability as if he had used an erroneous private survey as a basis for his work.

It is therefore concluded that wild monuments ought not to be used for reestablishment, although it must be recognized that with the passage of time they may become evidence of occupation if the location of the original monuments is not perpetuated.

The three classifications of monuments just discussed constitute the traditional categories. On January 1, 1978 however, California Business and Professions Code, Section 8765(d) became effective:

A record of survey is not required of any survey: . . . (d) When the survey is a retracement of lines shown on a subdivision map or

*(Continued on Page 20)*



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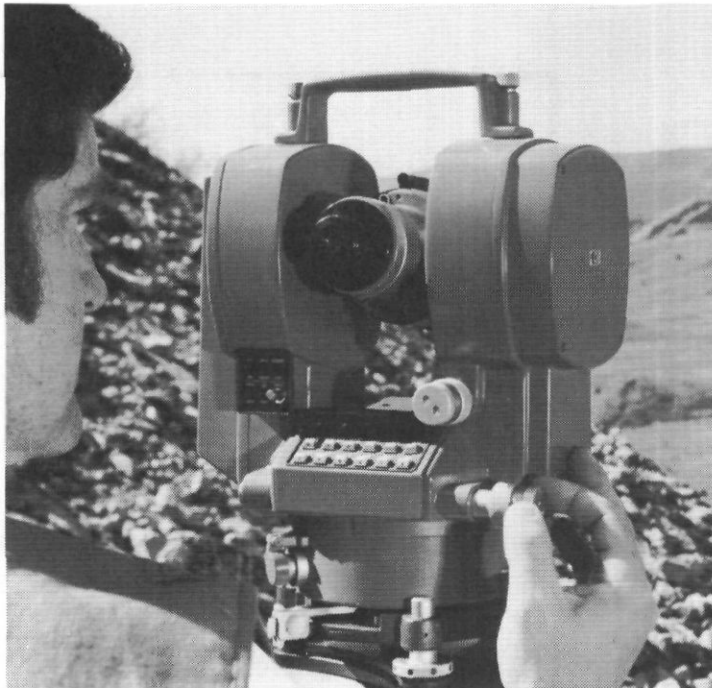


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## WATER BOUNDARY

(Continued from Page 10)

The Special Master's report comprised the most extensive study of the problems of inland waters to date, but the passage of the Submerged Lands Act essentially took the question of settling this boundary out of the Court's hands.

The question as to the maximum length of the base line was not substantially answered, but the understood present length is ten miles as substantiated by the letter of November 13, 1951 from James E. Webb, Acting Secretary of State, dated February 12, 1952. (8)

The Federal Government's stand on the ten mile limit could be challenged and possibly changed by Court action or Congressional decree to the twenty-four miles which they agreed to in signing the conventions on the Law of the Sea adopted by the United National Conference at Geneva in 1958.

This leaves only the question of the limit seaward that the marginal sea ex-

tends. The Submerged Lands Act specifies three geographical miles from the coast. The Congress also approved Article Six of the *Convention on Law of the Sea* (9) which prescribes the method for measurement as follows: "The outer limit of the territorial sea is the line every point of which is at a distance from the nearest point of the baseline equal to the breadth of the territorial sea."

The method is substantially the same as the Envelope Line method as shown on Page 171, Volume One, *Shore and Sea Boundaries*, in which a circle of radius three geographic miles is rolled along the coast, its radius point inscribing the exterior boundary of the territorial sea.

By Articles Ten and Eleven of the *Convention on the Law of the Sea*, (10) and letters from the Department of State to the Department of Justice, (11) islands, rocks awash, and low tide elevations will play a role in setting the outer limit of the territorial sea. The United States' position (12) is in agreement with Article Eleven, which reads:

- 1) . . . where a low-tide elevation is situated wholly or partly at a distance not exceeding the breadth of the territorial sea from the mainland or an island, the low water line on that elevation may be used as the baseline for measuring the breadth of the territorial sea.
- 2) Where a low-tide elevation is wholly situated at a distance exceeding the breadth of the territorial sea from the mainland or an island, it has no territorial sea of its own. (13)

The territorial sea extends three nautical miles seaward of the mean low tide line along the immediate coast of California. If islands or areas that are uncovered by low tide fall *within this area, they will generate their own territorial waters*. It is also stipulated that if low areas fall within territorial waters of an island only then will they also generate a territorial sea of three geographic miles.

(Continued on Page 16)

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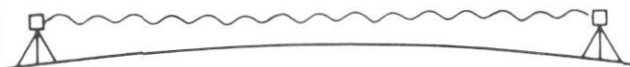
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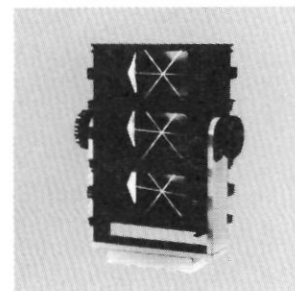
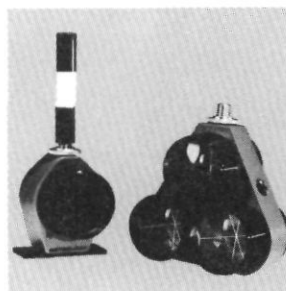
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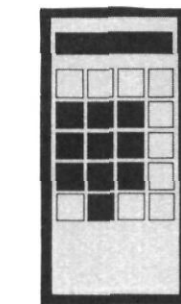
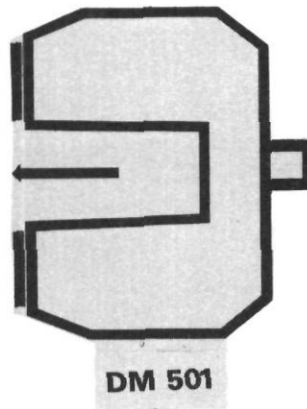
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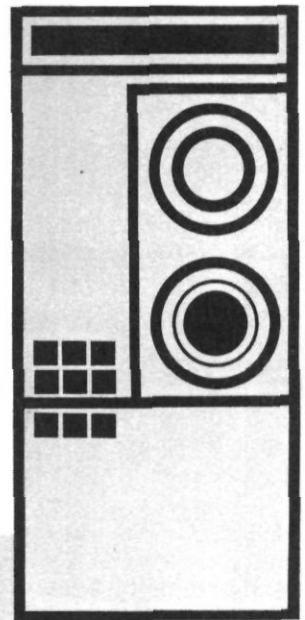
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## WATER BOUNDARY

(Continued from Page 14)

### State vs. Private Property Bordering Water

The first question to ask in separating State submerged lands is whether a property owner is a riparian or littoral property owner.

With *littoral* property you are dealing with property that borders on *tidal* lands and the boundary is based upon the determination of mean high tide at date of purchase, patent date or date of issue of land grant. Problems concerning tidal property will be covered in a later section.

If the property is considered *riparian* in the strict sense, you must determine if the property borders on a navigable or non-navigable river, and whether the river is tidal or non-tidal.

The definition of navigable under the American Doctrine of Navigability is as follows:

Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade or travel on water. (14)

The above definition also will include the navigable lakes. For information regarding rivers and their extent of navigability in California, refer to Sections 90 and 100-106, California Codes, titled Navigable Waters.

Under the American doctrine, the owner of land that is bounded by a navigable body of water has certain rights by virtue of his ownership including access to the navigable waters and the right to build piers, wharves, docks, and other improvements to the line of navigation as long as they do not interfere with navigation and are permissible by State and Federal regulatory agencies. Note that in *City of Oakland vs. El Dorado Terminal Company* it was stated "The right of a riparian owner of land abutting on navigable water does not include the title and possession of submerged lands nor wharfing privileges thereover." (15) These rights apply to non-navigable rivers in some cases. Riparian rights include the rights to reclaim land, claim *accretions* to land, and appropriation of water for beneficial use. For a fuller understanding of

the rights of appropriation see "A Summary—Digest of State Water Laws" by the National Water Commission (1973).

*Accretion* "is defined as the process of gradual and imperceptible addition to riparian land made by the water to which the land is contiguous." (16) In California accretions that are attached to property are acquired by the upland owner of both tidal and non-tidal lands. Accretions caused by man-built barriers such as wharves and jetties belong to the State.

In California, a person owning riparian land may lose land by erosion. Erosion must also be gradual and imperceptible. When this occurs title is lost to the State if the waters are navigable, or the boundary line is shifted to the new center of stream or thread line of stream as evident in the past boundary description.

If a person's land is detached by the process of *avulsion* (sudden removal) he has one year in which to reclaim his land as enumerated in California Code Section 1015:

If a river or stream, navigable or not navigable, carries away, by sudden violence, a considerable and distinguishable part of a bank, and bears it to the opposite bank, or to another part of the same bank, the owner of the part carried away may reclaim it within a year after the owner of the land to which it has been united takes possession thereof. (Enacted 1872)

Note that accretions built up by additions to the bed of a navigable waterway or existing island are property of the State of California (*Bouchard vs. Abrahamsen* (1911) 118 P. 233, 160 C. 792; *Glassell vs. Hansen* (1902) 67 P. 964, 135 C. 547; Civil Code Section 1016).

The right of ownership of islands in non-navigable streams where the riparian owner has title to center of stream unless grant shows different intent is clarified by Civil Code Section 1017:

An island, or an accumulation of land, formed in a stream which is not navigable belongs to the owner of the shore on that side where the island or accumulation is formed; or, if not formed on one side only, to the owners of the shore on the two sides, divided by an imaginary line drawn through the middle of the river. (Enacted 1872)

Note that if a grant calls to the thread line of a stream, the boundary

could fall on either side of the island.

According to California Jurisprudence 2d, Section 13 under Boundaries, and American Jurisprudence, Section 28 under Boundaries, "thread of stream" is defined as:

If by the process of erosion or changing of the channel of a navigable or non-navigable stream an island is formed, the riparian property owner loses title to the property washed away but retains ownership of the island. California Civil Code Section 1018:

In very nature of things, thread or center of stream must be line which would give owner on either side access to water, whatever its stage might be, and particularly at its lowest flow. Thread of non-navigable river is therefore line of water at its lowest stage. *Bishel vs. Faria* (1959) 53 C2d 254, 347 P.2d 289.

If a stream, navigable or not navigable, in forming itself a new arm, divides itself and surrounds land belonging to the owner of the shore, and thereby forms an island, the island belongs to such owner. (Enacted 1872)

"Reliction" is the gradual receding of the water, thereby exposing land. Section 1014 of California Civil Code and Section 7601 of California Resources Code states that this exposed land belongs to the owner of the bank. A like statement is contained in Section 68 of Wilkins', Summary of California Law, 8th edition, under the title Real Property. In either case, the cause of reliction or accretion must be natural. If not, the State retains title to the land that was exposed.

If the above conditions have been met and the land is not likely to be recovered by dereliction then:

Under Civil Code Section 830, defining the boundaries of land bordering on tidewater or other navigable water, or on any other water, lands within the limits of a non-navigable lake or pond which may be uncovered by the recession thereof belong to the owners of the abutting upland granted by the Federal Government. (*Foss vs. Johnstone*, 110 P. 294, 158 C. 119)

*Editor's Note: To present this article in the available space it was necessary to edit it to approximately 2/3 of its original length. The concluding portion of the article will appear in the Winter '78 issue.*



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## CHAPTER NOTES

(Continued from Page 8)

The Chapter Picnic is scheduled for Sunday, August 20, at Boucher's Liberty Lake Resort in Cloverdale.

### San Mateo-Santa Clara County Chapter

Mr. Fritz Kuffer gave an excellent presentation on easements, and brought to light some of the new dealings of the State Lands Commission at the Chapter's May Meeting.

Guest speakers Laurie Watts and Carol Walters gave a presentation on their 4500 computing systems as adapted to the H. P. 97 calculating systems at the June meeting.

At the request of the younger chapter members a round table discus-

sion was held at the July meeting with panelists Bill Wright, Howard Curry, Steve Fischer, and Joe Bennie.

### East Bay Chapter

Richard Blanchard, Vice President of Western Title Insurance Co. gave an authoritative talk on land title at the Chapter's April meeting. He stressed the need for thorough research before determining boundaries and how a good title insurance company can be a great asset in assisting a land surveyor.

After much discussion concerning the proposed bill eliminating civil engineers from the Land Surveyors' Act, a motion was passed to *disapprove* this considered legislation. It was felt that the more conservative stand was more within our realm of power at this time.

Instead, a motion passed to *support* the resolution stand.

At the May meeting Steve Carlon presented an interesting display of Servco's metric products. He stated that consumers, as well as manufacturers, were dragging their feet in switching to metric.

The annual chapter picnic was held in Tilden Park on June 10.

The August meeting saw a panel discussion with map-checkers from several bay area counties. ▲

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- 9:00 a.m. Roy Minnick, LS (State Lands Commission).  
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a Property Boundary Problem
- 10:00 a.m. Exhibitor Demonstration & Coffee Break
- 10:30 a.m. Dan Curtan, R.C.E., Attorney—Subdivision Map Act
- 11:30 a.m. Buffet Lunch—Exhibitor Demonstrations
- 1:00 p.m. Mike Welch, President C.L.S.A. Jim Prendergast—Legislation
- 1:30 p.m. Glenn Bergey, U.S.F.S.—  
"Forest Service Expansion of Cadastral Surveys"
- 2:30 p.m. Exhibitors & Coffee Break
- 3:00 p.m. Board of Registration—  
"Policies of the Profession"
- 4:00 p.m. Jim Dowden — State Lands Commission
- 5:30 p.m. No Host Cocktail Hour
- 6:30 p.m. Dinner & Speaker

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## WHAT'S IN A MEASUREMENT

<b>Cubit</b>	First known measurement. About 20 inches, the length of forearm from point of elbow to end of middle finger. The Egyptians had standbars or a standard for the cubit with death for those who failed to bring their bar in every full moon for measurement against the master bar.	<b>The Inch</b>	Saxon measure was the fathom, the length across two arms outstretched to equal four cubits or six feet.  Three barleycorns taken from the center of the ear, placed end to end, equal one inch as decreed by King Edward II, in the year 1324.	<b>Little Span</b>	The spread between forefinger and thumb.
<b>Yard</b>	King Henry I, of England, decreed the distance from the point of his nose to the end of his thumb as the lawful yard.	<b>Rod</b>	(pole & perch) Sixteenth Century. The lawful rod was the length of the left feet of sixteen men lined up as they left church on Sunday morning.	<b>Palm</b>	Equal to three inches.
<b>The Foot</b>	The Roman foot was two-thirds of the Olympic Cubit of 12.16 inches. It was divided into twelve thumbnail breadths called "uncrae" by the Romans and inches by the Britons.	<b>Digit</b>	The width of a single finger, usually the index finger.	<b>Hand</b>	Equal to four inches. This measurement is used when giving the height of horses, and other animals, from the ground to the shoulder or withers.
<b>Fathom</b>	In England, the Anglo-	<b>Great Span</b>	The spread between thumb and little finger tips when the hand is spread.	<b>Pace</b>	Equal to two-and-a-half feet and usually the average masculine walking stride.
				<b>Roods</b>	Equal to one-quarter of an acre.
				<b>Vara</b>	A Spanish unit of measurement, equaling 2.75 feet and used in California, Texas, and other places in the United States having Spanish origins.



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## PUBLIC CALAMITY

(Continued from Page 12)

parcel map of record, where no material discrepancies with such records are found and sufficient monumentation is found to establish the precise location of property corners thereon, provided a corner record is filed for any property corners which are reset on such survey. (14)

Although the statute is too recent for any authoritative interpretation, it is the opinion of the author that monumentation placed pursuant to this subsection is a likely source of future difficulty, particularly as regards monuments set from maps compiled from record information.

As to monuments set under this subsection from surveyed maps, the fact of prior survey, coupled with the necessity of filing a corner record on the replacement monuments, should make the non-original status of the monument plain and further problems can be averted, albeit at the cost of some additional research by the retracing surveyor.

(Continued on Page 21)

## NEW ELECTRONIC DISTANCE METER FROM H-P

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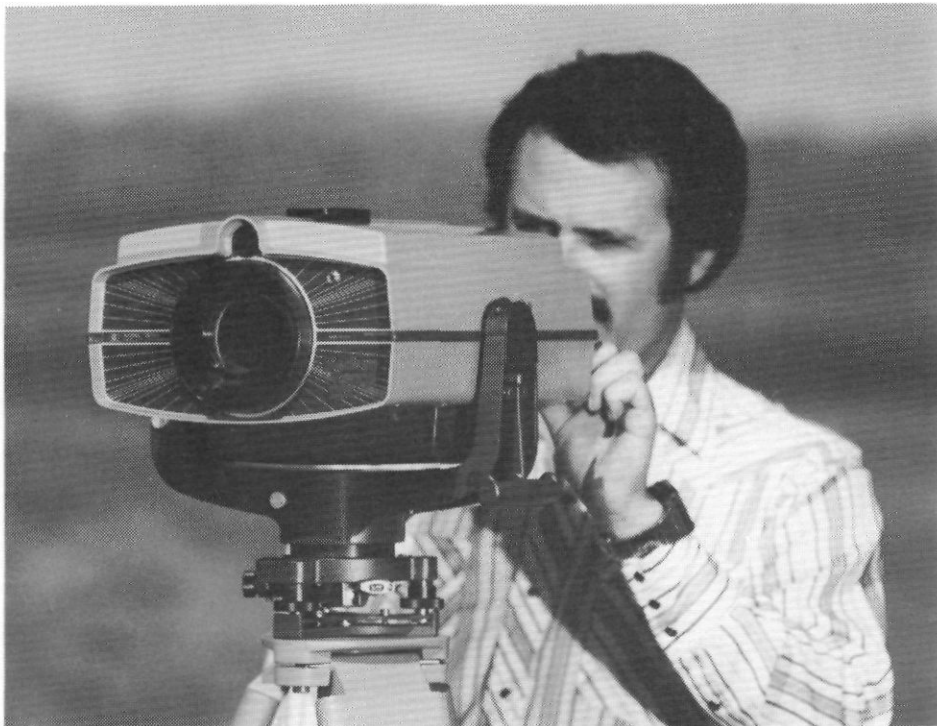
moving prism target out to a pre-determined distance.

The price of the 3808A is \$9,450, with the optional horizontal angle base available for an additional \$1,600.00 ▲

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## PUBLIC CALAMITY

(Continued from Page 20)

However, the language of the subsection would also appear to allow its use to place monumentation for parcel maps compiled from record (although the interpretation could vary, see discussion infra). This could be done by placing the monuments by record angle and distance from the two found monuments shown on the parcel map, without going outside the parcel map to discover other potential evidence, thus achieving technical compliance with the letter of the statute. In the event such monumentation was placed prior to the initial sale, it should probably be considered to be original monumentation; (15) however, monuments placed after the initial sale should be regarded as potential evidence of occupation only. Obviously, if in either event the dimensions of the compiled map are subsequently found to be at variance with conditions in the field, only a case by case factual analysis is likely to result in an adequate survey.

It should be noted that the subsection does refer only to corners "reset." However, Business and Professions Code, Section 8773, amended simultaneously with Section 8765, (16) refers as well to corners "set," and the subsection clearly has application to instances where interior lot corners were never set on maps based on survey; therefore, it does appear that the use of a corner record to set an original monument was contemplated. Sufficient ambiguity probably exists to justify a clarification by the Board of Registration; it is to be hoped that the Board would interpret the word "retracement" in subsection (d) to prohibit the use of corner records to monument parcel maps not based on a field survey. Meanwhile, careful attention to relative dates of monumentation and initial conveyance (not necessarily subsequent to the date of filing the parcel map where the map was filed to validate an illegal split) will be required in order to place subsection (d) monuments in one of the traditional categories. Once the categorization is made, traditional analysis can be applied to determine the effect of the monument.

In summary, the weight to be given found monuments intermediate between angle points of record is dependent on traditional classification and analysis, and no special rules apply. The surveyor who adopts or establishes a line which fails to give adequate

weight to found original or perpetuated original line monuments errs, even if the surveyor is merely adopting the analysis of a public agency, and liability is likely if the surveyor's failure to discover the deviation is negligent.

### Footnotes

1. Under some circumstances, a survey may be controlled by monuments not physically set by the survey at all, but adopted by the survey. This situation is common along Rancho boundaries in California because deputies performing patent surveys were instructed to follow lines of the public land surveys where possible. "General Instructions from The U.S. Surveyor General For California to the Deputy Surveyors Engaged in Surveying The Finally Confirmed Land Claims in the State," (1858), reproduced in Uzes, *Chaining the Land*, p. 212 (1977); also see *Chandler v. Hibberd*, 165 Cal. App. 2d 39, 332 P. 2d 133 (1958).

2. Calif. Civil Code § 2077 (Deering 1977); *Perry v. Richards*, 52 Cal. 496 (1877); *DeEscobar v. Isom*, 112 Cal. App. 2d 172, 245 P. 2d 1105 (1952).

3. 1973 *Manual of Surveying Instructions* § 5.18.

4. Calif. Civil Code § 2077 (Deering 1977).

5. *Burke v. McCowen*, 115 Cal. 481, 47 P. 367 (1896); *Arnold v. Hanson*, 91 Cal. App. 2d 15, 204 P. 2d 97 (1949).

6. See, e.g., the comments of the court in *Verdi Development Co. v. Dono-Han Mining Co.* 141 Cal. App. 2d 149, 296 P. 2d 429 (1956), where the issue was whether a certain found stake was an original monument and the court found that expert testimony of surveyors experienced in retracing similar surveys in the area was improperly excluded.

7. See Calif. Bus. & Prof. Code § 8760 (a) (West 1975).

8. *Bullard v. Kempff*, 119 Cal. 9, 50 P. 780 (1897).

9. *Pauly v. Broadmax*, 157 Cal. 386, 108 P. 271 (1910); *Chandler v. Hibberd*, 165 Cal. App. 2d 39, 332 P. 2d 133 (1958).

10. *Bullard v. Kempff*, 119 Cal. 9, 50 P. 780 (1897).

11. Calif. Evidence Code § 664 (Added Stats. 1965, c. 299) (West 1966).

12. Calif. Evidence Code § 660 (West 1966).

(Continued on Page 22)

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## PUBLIC CALAMITY

(Continued from Page 21)

13. *People v. Rodriguez*, 213 Cal. App. 2d 555, 560, 29 Cal. Rptr. 83 (1963), interpreting the predecessor of Evidence Code § 664, Code of Civil Proc. § 1963 (Repealed Stats. 1965, c. 299).

14. Calif. Bus. & Prof. Code § 8765 (West Supp. 1978).

15. Note that the monuments need not be set by the surveyor filing the map to be classified as original monuments in this situation, provided the other factual elements are satisfied.

16. Stats. 1977, c. 576, §§ 1 and 3.

### Appendix:

"This litigation grows out of a new survey recently made by the city surveyor. This officer after searching for the original stakes and finding none, has proceeded to take measurements according to the original plat, and to drive stakes of his own. According to this survey the practical location of the whole plat is wrong, and all the lines should be moved between four and five feet to the east. The surveyor testifies with positiveness and apparently without the least hesitation that the fences and buildings on all the lots are not correctly located and there is of course an opportunity for forty-eight suits at law and probably many more than that.

"When an officer proposes thus dogmatically to unsettle the landmarks of a whole community, it becomes of the highest importance to know what has been the basis of his opinion. The record in this case fails to give any explanation, but the reasonable inference is that the surveyor has reached his conclusion by first satisfying himself what was the initial point of Mr. Campau's survey, and then proceeding to survey out the plat anew with that as his starting point. Of course by this method if no mistake is made, there is no difficulty in ascertaining with positive certainty where, according to Mr. Campau's plat, the original street and lot lines ought to have been located; and apparently the surveyor has assumed that that was all he had to do.

"Nothing is better understood than that few of our early plats will stand the test of a careful and accurate survey without disclosing errors. This is as true of the government surveys as of any others, and if all the lines were now subject to correction on new surveys, the confusion of lines and

titles that would follow would cause consternation in many communities. Indeed the mischiefs that must follow would be simply incalculable, and the visitation of the surveyor might well be set down as a great public calamity.

"But no law can sanction this course. The surveyor has mistaken

entirely the point to which his attention should have been directed. The question is not how an entirely accurate survey would locate these lots, but how the original stakes located them."

Extracted from *Diehl v. Zanger*, 39 Mich. 601, 604-605 (1878). ▲

## BOOK NOOK

1. *Shore and Sea Boundaries* (1962) Reprint 1975—Aaron L. Shalowitz, U.S. Department of Commerce Publication No. 10-1  
*Vol. I—Boundary Problems Associated With The Submerged Lands Cases \* And The Submerged Lands Acts (Including Recent Developments In The International Law Of The Sea)* . . . . . \$ 9.45 ea.  
*Vol. II—The Interpretation and Use of U.S. Coast and Geodetic Survey Data* . . . . . \$11.95 ea.
  2. *Tide and Current Glossary*—U.S. Department of Commerce, N.O.A.A.—National Ocean Survey (1949) Revised 1975. Special Publication No. 228. . \$ 0.75 ea.
  3. *Proceedings; Water and Water Related Boundaries Workshop II, May 20 & 21, 1977, Irvine, CA* (262 pages)  
CLSA Members. . . \$15.00 ea.  
Non-Members. . . \$20.00 ea.
  4. *Coastal Zone Map #TP-00189—Florida, Palm Beach County, Lantana to Boynton Beach—1,10,000 (1970)*  
An extremely interesting map format which contains detailed printed instructions to Surveyors on How to Locate a Mean High Water Line According to Law, adopted by the Florida State Legislature. A real collector's item . . . . . \$ 2.50 ea.
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- a. *The Pornography of Water and Water Related Boundaries*

- (*Terms and Terminology*)—James N. Dowden, L.S., Boundary Determination Officer, State Lands Commission.
- b. *Tides, Time and Shoreline Processes*—Dr. Warren C. Thompson, Professor of Physical Oceanography, U.S. Naval Post Graduate School, Monterey.
  - c. *California Law Looks at the Water Boundary*—Peter H. F. Graber, Esq., Deputy Attorney General, Land Law Section, Department of Justice.
  - d. *The Ordinary High Water Mark — How Determined!*—Ned Washburn, Esq., Attorney at Law, Landes, Ripley & Diamond, San Francisco CA
  - e. *To Insure or Not to Insure—That is the Exception!*—James R. Dorsey, L.S., Executive Vice President, Winter, Durnford, Dorsey and Associates, Land Consultants.
  - f. *More Muddles in the Puddle—The Jurisdictional Aspects and Boundaries of the California Coastal Zone Commission and San Francisco Bay Conservation and Development Commission*—Raymond B. Thinggaard, L.S., Assistant Manager Real Property, Leslie Salt Co.
  - g. *Internal Conflicts—State V. Federal Rules, Sovereign Lands and Rights*—Ed Griffin, L.S., Chief, Branch of Cadastral Surveys, California State Office of U.S. Bureau of Land Management.
  - h. *The Restless Tides and the Marine Boundary Program of the National Ocean Survey*—Carrol I. Thurlow, Deputy Chief, Oceanographic Division, Office of Marine Surveys and Maps, N.O.S.

Continued on Page 23)

**BOOK NOOK**

(Continued from Page 22)

- i. *Slope and Undulations of Tidal Datum Planes and Quantification of Accuracy of Various Methods*—Cdr. A. Nicholas Bodnar, R.C.E. (California) Principal Engineer, Requirements and Facilities Section, Tides and Water Levels Branch, Oceanographic Divisions, Office of Marine Surveys and Maps, N.O.S.
- j. *Survey Procedures For Determination of Mean High Water*—Jack E. Guth, Capt. N.O.S. (Ret.), President of Coast Survey Limited, Herndon, VA.
- 6. *Restoration of Lost or Obliterated Coorners & Subdivisions of Sections*—a guide for surveyors—United State Department of the Interior, Bureau of Land Management—1974 Edition. . .75 ea.
- 7. *Metric Practice Guide for Surveying and Mapping*—American Congress on Surveying and Mapping. This Metric Practice Guide has been prepared to aid those engaged in surveying and Mapping in the use of the International System of Units (SI) in accordance with recommendations contained in the Metric Conversion Act of 1975, Public Law 94-168 . . . . . 1.50 ea.

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**CHANGES IN THE CALIFORNIA SURVEYOR**

The *California Surveyor* is currently implementing a number of changes designed to improve the publication.

Beginning with this issue, most editorial matter will appear in a three-column format for easier readability.

Additionally, efforts are under way to increase both the quality and quantity of editorial material, improve general appearance, increase circulation, and attract new advertisers.

As a result, future issues of *The California Surveyor* will likely contain a greater number of pages, providing readers with the best possible coverage of legislative activities, news of the C.L.S.A., technical articles and reports, new products and services, and other items of interest to all those involved in the surveying profession.

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