

# The California Surveyor

No. 61

The Voice of the Land Surveyors of California

Summer 1980



# Table of Contents

Letters .....	Page 9
CLSA Officers .....	Page 9
President's Message .....	Page 10
Calendar .....	Page 10
<b>New From The Board Of Registration</b>	
Disciplinary Guidelines .....	Page 11
<b>Cover Story</b> .....	Page 12
<b>Mineral Survey Examination</b> .....	Page 12
<b>Fresno Conference</b> .....	Page 13
<b>Surveyors Historical Society</b> .....	Page 14
<b>Speakers Bureau</b> .....	Page 14
<b>News Digest</b> .....	Page 15
<b>Perspectives</b>	
Perambulating the Bounds .....	Page 21
<b>Boon Nook</b> .....	Page 25
<b>Advertisers Index</b> .....	Page 28
<b>Classified</b> .....	Page 29
<b>Sustaining Members</b> .....	Page 31

Cover: Benjamin Banneker commemorative stamp. See story on Page 12.

## 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."

### Personnel

Owner: California Land Surveyors Association  
Editor: R.E. Baldwin, L.S.  
National Sales Manager: Fred Rose — John Geier  
Production: Fred Rose — John Geier

### Advertising

Commercial advertising is accepted by *The California Surveyor*. Advertising rates and information can be obtained by contacting Almac Technical Graphics, 3530 West Bayshore Rd., Palo Alto, CA 94303. Phone (415) 856-6688

Copyright © 1980 California Land Surveyors Association

### 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*.

Unless indicated, all articles in this publication are prepared by the editor

EDITOR: **R. E. Baldwin, L.S.**  
1345 California St.  
Berkeley, CA 94703

### DEADLINE DATES FOR THE CALIFORNIA SURVEYOR

FALL ..... AUGUST 11, 1980

WINTER/CONVENTION ..... NOVEMBER 1, 1980

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

Editor

California Land  
Surveyors Association  
Central Office:

P.O. Box 7400  
Santa Rosa, CA 95401  
Telephone: 707-539-3633

# SURVEY 31

Computer System

- POWERFUL
- EASY TO USE
- EXPANDABLE



## POWERFUL

**10,000 program steps and 1,000 data storage registers!** Equivalent to 64K "bytes" of computer memory. Twice as powerful as those in its price range, equally powerful as others costing twice as much!

Yet, while power is certainly important, more important is that SURVEY 31 is very ...

## EASY TO USE

**45 definable function keys** make it easy to select the right program to solve a problem. All you do is touch an appropriately labeled key. *SURVEY 31 has from twice as many, to 10 times as many definable function keys as any other computer – regardless of price!*

**Printed alphabetic prompting messages** make it easy for you to know what is needed to solve a problem. Simply enter the requested information, then read the results. Getting an answer from SURVEY 31 is literally that easy!

And when you're finished, you have a printed record of your entries as well as the answers. It's like having a good set of field notes. They not only tell you where you are but how you got there as well.

**SURVEY 31 lets you concentrate on surveying problems, not computer operating problems.** You don't have to be a computer expert when you have a SURVEY 31. It's easy to use. *And, being easy to use lets you get more done in less time!*

## EXPANDABLE

**SURVEY 31 protects your investment by being fully expandable.** Unlike some computers, there's no built-in obsolescence. (In other words, there's no SURVEY 31-B waiting around the corner)

There are hundreds of SURVEY 31's very satisfactorily owned by surveyors throughout North America. Their program libraries are continually being expanded *free of charge*, as new or improved programs become available. And besides expanding their program library, they can also expand into an even more powerful system with ...

**Increased memory size.** SURVEY 31's with 300 coordinate point memory can be expanded to 450 points for only the \$475 original difference in cost. (Compare this to another company that charges its customers over \$1,000 for an increase in memory from 50 points to just 100 points!)

**Model 3134 Page-printer/plotter.** A high speed page-printer, with keyboard, that prints *and plots* data.

**Model 3120 Dual-disk memory.** Provides SURVEY 31 with a virtually unlimited memory capacity. Allows immediate access to 295,680 program steps, 16,000 coordinate points and 5,000 data storage registers! SURVEY 31 can handle most any computer task required of it with such power available.

**Model 3161 Flat-bed plotter.** 10" x 15" plotting surface on 11" x 17" sheets. Scales, plots and numbers points, draws lines and curves at speeds up to 22" per second with an accuracy of .005".

**Model 3163 Flat-bed plotter/digitizer.** 18.33" x 23.5" plotting surface on 21" x 36" sheets. Scales, plots and numbers points, draws *and letters* lines and curves at speeds up to 22" per second with an accuracy of .005". Also digitizes data for use in area and volume computations.

**Model 3132 Dual-port RS232-C interface.** A universal interface that permits electronic communication between SURVEY 31 and various peripherals including some of the newly developed "Total-Stations".

**AND, PROGRAMS ARE SUPPLIED ALONG WITH THE EQUIPMENT – FREE OF CHARGE!**

For more details including price and lease/purchase information, contact:

**ENGINEERING SERVICES CO., INC.**

P.O. Box 2488 Renton, Washington 98055 (206) 226-7950

TO: <b>ENGINEERING SERVICES CO., INC.</b>
( ) We would like to know more about SURVEY 31.
Name _____
Company _____
Address _____
City _____
State _____ Zip _____
Phone _____

# Five new instruments from AGA Geodimeter

Geodimeter 120



Geodimeter 112



Geodimeter 110



Geodimeter 116



Geodimeter 14A



Geodat 120



## GEODIMETER 120

AGA's economical answer to conventional "Total Stations". Mounted on your own theodolite and equipped with AGA Geodat 120, automatic data recording unit. Geodimeter 120's very fast measure cycle provides the performance of a total station for a much lower capital investment.

Geodimeter 120 houses a vertical angle sensor and its own in-built calculator which automatically computes horizontal distance and difference in height. The fast tracking in horizontal mode combined with a wider than average beamwidth makes the instrument ideal for setting out, collecting detail or inshore hydrographic measurements. Other features include automatic calculation of arithmetic mean on repeat measure function and direct registration of slope distance and vertical angle when using Geodat 120.

Range with 1 prism - 1.2 km (3 900 ft). Maximum range 5 km (3.1 miles).

## GEODIMETER 112

An all-round instrument for traversing, detailing and setting out with a better than average range to prism ratio. Measuring features include high speed tracking and automatic calculation of mean value on repeat measure function for higher accuracy. Geodimeter 112 can be interfaced to Geodat 120 data recorder.

Range with 1 prism - 1.6 km (1 mile). Maximum range 6 km (3.7 miles).

## GEODAT 120

A pocket sized data recording unit, which can be directly connected to Geodimeter 120 and 112. Data from other instruments can be keyed in manually. Geodat 120 has a memory capacity of 32 K (1000 measured points). By transferring data from Geodat 120 to a tape cassette an unlimited number of points can be recorded. Data from Geodat can be fed directly into a desk top calculator or computer for further processing.

## GEODIMETER 110

The low cost "no frills" member of this family of instruments. Geodimeter quality for routine survey traversing. This instrument also includes a repeat measure function which gives a distance every two seconds.

Range with 1 prism - 1 km (3 200 ft). Maximum range 3 km (1.9 miles).

## GEODIMETER 116

The rolling out instrument - when the setting out function is selected, Geodimeter 116 will track a moving target with continuous measurement of the horizontal distance every 0.4 seconds. This very fast read-out combined with a wider than average beamwidth makes Geodimeter 116 ideal for setting out. Unlike Geodimeter 120, Geodimeter 116 has no data transfer facility.

In addition to automatic measurement of horizontal distance, Geodimeter 116 measures difference in height, slope distance and vertical angle.

Range with 1 prism - 0.7 km (2 300 ft). Maximum range 2.2 km (1.4 miles).

## GEODIMETER 14A

Long range and high accuracy in a small package (weight only 2.5 kg and maximum range 15 km). This instrument is perfect for traversing and tying in to local networks. For normal work the surplus range can be a boon in poor visibility conditions. Geodimeter 14A can be theodolite mounted or used on a yoke.

Range with 1 prism - 6 km (3.7 miles). Maximum range 15 km (9 miles).

 **Geodimeter**

AGA Geodimeter, Inc. 800-227-2252

385F Bel Marin Keys Blvd., Novato, CA 94947

### A show of strength

Please send me complete information on:

- Geodimeter 120     Geodimeter 112     Geodimeter 110  
 Geodimeter 116     Geodimeter 14A     Geodat 120

Name .....

Company .....

Address .....

City/State/Zip .....

AGA Geodimeter, Inc., 385F Bel Marin Keys Blvd.,  
Novato, CA 94947

# GET THE FACTS BEFORE YOU GET SUCKED IN.

## How hard is an easy answer?

The wrong computer system for civil engineering design can cost you plenty if it's not the right system for your needs. CONCAP avoids that problem even before it begins. With an intensive research program, called FOCUS, our sales engineers eliminate the easy answers and identify your *real needs* before they ever reach the bottom line. Maybe this sort of thinking would put your company on top?

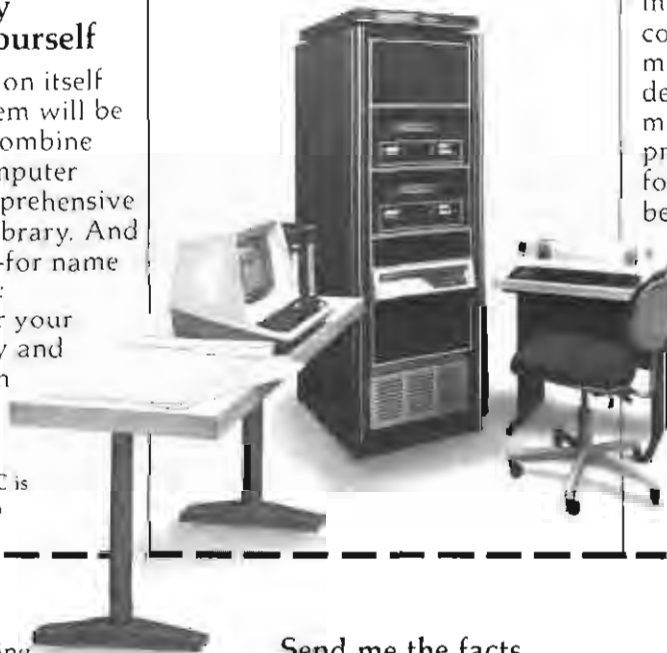
## It's not easy being tough on yourself

CONCAP is tough on itself so your computer system will be easy to live with. We combine the most advanced computer technology with a comprehensive engineering software library. And we use the most asked-for name in computer hardware: DEC.\* You get more for your money, more flexibility and increased capacity with a CONCAP system.

\*Datamation, 1979 Survey/DEC is Digital Equipment Corporation

## 23 usable benefits instead of promises

CONCAP offers you 23 software programs that deliver usable benefits instead of promises. Programs designed specifically for subdividers, highway engineers, plus City and County public works engineers. A CONCAP computer system is configured to meet your individual needs instead of your pocketbook. If you're involved in job costing, structural and hydrology problems, route design, earthwork, surveying, mapping or plotting . . .



CONCAP can deliver a system that will afford you better control, faster turnaround and save you money. When it's delivered your system has already been debugged and will be working within hours! With its convenient size, the central computer can be located anywhere within your offices with convenient desk-top terminals that permit simultaneous access to all programs by multiple users.

## Don't rush into a slow headache

Before you rush headlong into a slow headache, return the coupon attached to this ad. You may want a civil engineering design system right now, you may have the system picked out, priced and ready to order. And for all the right reasons you may be asking for the wrong system.

Get the facts from CONCAP before you get sucked in.

Concap Computing Systems, 7700 Edgewater Drive, Oakland, CA 94621 (415) 635-5750

# CONCAP

- Surveying and Mapping
- Civil Engineering
- Structural Engineering
- Plotting Applications
- Job Costing and Accounting

I am mainly interested in:

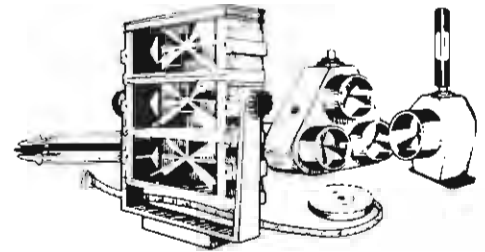
- Having our own minicomputer system
- Having our own on-line plotting system
- Using your dial-in timesharing service

Send me the facts.

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_ Ext. \_\_\_\_\_

Concap Computing Systems  
7700 Edgewater Drive  
Oakland, CA 94621

# Rent from us and save money!



- Overnight delivery anywhere!
- No minimum!
- Charges stop on day shipped for return!
- Purchase options available!
- Call toll-free!
- Used equipment cash sales!

## Electronic Distance Measuring Equipment:

	1st 10 Days per day	After 10 Days per day (or 30 Day Minimum)	After 90 Days per day
†Hewlett-Packard 3800 A (10,000 ft)	20 00	12.00	8.00
†Precision International "Beelle"	25 00	15.00	10.00
†Cubic DM-60 Cubitape Distance Meter (6,000 ft)	25 00	15.00	10.00
†Hewlett-Packard 3805 Distance Meter (5,280 ft)	30.00	18.00	12.00
†Hewlett-Packard 3808 Distance Meter (32,800 ft)	50 00	30.00	20.00
†Hewlett-Packard 3810 Total Station (5,280 ft)	70.00	42.00	28.00
†Hewlett-Packard 3820 Total Station (15,400 ft)	150.00	90.00	60.00
†K & E Autoranger with Azimuth Base or mount for Theodolite	30 00	18.00	12.00
K & E Ranger III	40 00	24.00	16.00
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

## Optical Surveying Equipment:

• Lietz TM-1A 1" or Wild T2 Theodolite (Direct reading Horizontal and Vertical to 1", Self Indexing Vertical Circle)	27.50	16.50	11.00
• Lietz TM-6 or TM-10C 10" Theodolite (Horizontal and vertical Estimation to 1", Self Indexing Vertical Circle)	20 00	12.00	8.00
• Lietz TM-20C 20" Theodolite (Horizontal and Vertical Estimation to 3", Self Indexing Vertical Circle)	17.50	10.50	7.00
• Lietz T-60D 60" Theodolite (Horizontal and Vertical Estimation to 6", Self Indexing Vertical Circle)	16.50	9.90	6.60
• Lietz TS-20 60" Theodolite (Estimation to 20" Horizontal, 1" Vertical)	12.50	7.50	5.00
• Leitz BT-20A 20" or Geotec T-24 Optical Plummel Transit	9.50	5.70	3.80
• Eagle 6 1/2" (20" Surveyors Transit)	6.00	3.60	2.40
• Eagle 4" (1" Construction Transit)	4.50	2.70	1.80
• Leitz B-1 Engineers Precision Automatic Level	7.50	4.50	3.00
• Lietz B2-A Engineers Automatic Level	5.50	3.30	2.20
• Lietz C3-A Engineers Automatic Level	4.50	2.70	1.80
• Lietz B-4 Contractors Automatic Level	3.00	1.80	1.20

## Miscellaneous:

• Lietz #7312-45 Traverse Set	6 00	3.60	2.40
• Magnetic Locator, Schonstedt	4 00	2.40	1.60
• Spectra-Physics LT-3 Laser Transite with Fan Beam attachment	20 00	12.00	8.00
• Spectra-Physics 6" Laser on 20" Transit	15 00	9.00	6.00
• American Paulin Model M2 Surveying Altimeter—0 to 10,000 feet, 2 foot graduation	4 00	2.40	1.60
• Kern #173 W Tripod with 3/4" x 11 Adaptor	2 00	1.20	.80
• Lietz #7512-52 or Equal Wide Frame 3/4" x 11 Tripod	1.00	.60	.40
• Lietz #7311-35 or Wild GDF-6 Tribrach with Optical Plummel	2 00	1.20	.80
• 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 50	.90	.60
• Retro-Ray Tilting Single Prism Assembly (lateral)	1 50	.90	.60
• Retro-Ray Tilting Triple Prism Assembly (lateral)	3 50	2.10	1.40

NOTE: For 30-day minimum contract rate, disregard "1st 10 days" column above.

\*New and used equipment available for purchase. Option to purchase information in rental agreement. Additional equipment available

for rent or purchase—information or request Authorized Lietz, Lufkin, Geotec, David White, Retro-Ray distributors

†All short-range E.M.M. units are supplied with power supply, altimeter, thermometer and one single prism assembly

We purchase used surveying equipment. Call us for a quote.

Lessee pays all round trip shipping charges on rented equipment. Rental charges commence on the day the equipment leaves Lewis &

Lewis and terminates on the day the equipment is returned or shipped for return to same Lewis & Lewis office from Lessee's location.

Rates for longer periods available on request. Rates subject to change without notice.



## Lewis & Lewis

surveying equipment

1600 Callens Rd., P.O. Box 820, Ventura, CA 93001 • (805) 644-7405 Anytime

CALL TOLL-FREE: (800) 235-3377 (except California, Alaska, Hawaii) • TELEX 659254 (ANS BK: NAV SVC VNTR)

# Topcon's DM-C2: A New Measure of EDM Value

**SUMMER SPECIAL**  
Suggested List Price  
**\$4990**



The new Topcon DM-C2 electronic distance meter. It offers you a combination of features, accuracy and dependability that add up to the best EDM value on the market today.

## It's Your Best Choice By Far.

Don't be misled by the C2's light weight and compact exterior. This is one EDM built with the rugged durability you need for demanding field work. And to give you precise measurements at distances of more than 2000 meters, we've built in a state-of-the-art microprocessor that provides continuous automatic self calibration.

For easy reading in both direct sun and low light conditions, there's a bright, eight-digit LED display to three decimal places. And for added

accuracy, your Topcon EDM lets you select continuous two-second tracking or a standard five-second mode, both displayed in either meters or feet.

## Topcon Control Helps Your Control.

We've been designing and building precision surveying instruments for nearly half a century. And we rigidly control quality every step of the way. In fact, we're the only makers of reasonably-priced EDMs with electronic and optical design and manufacturing facilities all under one roof.

For full details on the DM-C2—and other Topcon surveying instruments—plus the name and address of your nearest Topcon dealer, write to Dept. C2.

# TOPCON

A NEW WORLD OF PRECISION OPTICS

TOPCON INSTRUMENT CORP. OF AMERICA

9 KEYSTONE PLACE, PARAMUS, NJ 07652

TEL.: (201) 261-9450



**"FIFTY YEARS OF SERVICE"**

**SALES ■ RENTALS ■ REPAIRS**

Brunson builds the finest, Brunson repairs them all. Call us today at either San Jose or Los Angeles, California locations.



## **WHEN YOU NEED:**

- Dependable Maintenance or Repair Service***
- Supplies***
- Rental Instruments***
- Prompt Reliable Service at Reasonable Prices***



When you just want to talk to people who like their work of taking expert care of the instruments that are important to your profession, who understand your instrument problems and the demands your work places upon them.

We will welcome your inspection of our facilities and an opportunity to add your name to a long and still growing list of Friends.



693 East Brokaw Road  
San Jose, California 95112  
(408) 295-7500

13115 South Broadway  
Los Angeles, California 90061  
(213) 327-2400



# Letters

## PROHIBITIVE COSTS

April 4, 1980

Editor  
The California Land Surveyor

For over ten years I have been a CLSA supporter, sustaining member, advertiser or exhibitor at conventions. Despite the long association, our company chose not to exhibit at the CLSA convention in Fresno this year for two reasons:

1. The unreasonably excessive cost involved

2. The limited amount of time allocated for exhibits

We felt that the exhibit fee of \$325 charged by CLSA for one 8' by 10' booth for a day and a half was excessive. The exhibitors prospectus stated that the fee was to "cover the cost of space". However, since there were 35 booths at \$325 each, that amounts to \$11,375! And unless different at the Hacienda Inn, most hotels do not even charge for convention floor space since they make up for it in other business such as rooms, food and drinks. We see no reason for so high an exhibit fee.

Further, the \$325 is just the beginning of the overall cost. Added to that would be transportation to Fresno, freight for equipment, lodg-

ing, meals, salaries, etc. By the time all costs were in, it would easily amount to more than \$1,000. Still, the expense could possibly have been justified had there been sufficient time allocated for demonstration of equipment, but this was not the case.

There was nothing specified in the exhibitors prospectus about exhibit times other than a ½ hour coffee break for two mornings and one afternoon. Somehow it just doesn't seem to make good business sense to spend \$1,000 for an exposure time of 1½ hours that also must be shared with 34 other exhibitors!

Because of the trend of increasing exhibit fees with less being given in return, a number of surveying equipment companies have expressed serious doubts about whether it is worth it to exhibit at conventions. I know of several that have already decided against it and predict there will be more in the future.

If such is the case, who will be the losers? All of us. One would be the companies who might have a chance to sell more equipment than otherwise. Another would be the many surveyors who have stated that one of the main reasons they go to conventions is to see all of the latest equipment in one place. And if they stopped going, the convention would also

be a loser.

What can be done? I would suggest a poll of members to see what their feelings are regarding the value of exhibits at conventions. Ask them if a coffee break allows them sufficient time to find out about a theodolite, EDM or computer, as well as to go to the mens' room. The other suggestion is to take a poll of exhibitors and get their opinions of what should be done.

Here is our opinion: First, allow at least a half a day during the convention for nothing but exhibits. This could possibly be at either the beginning or end of the convention so that those who were not interested would not have to be there. One stipulation would be that no exhibitor be allowed to set up or tear down at that time. Second, keep a reasonable limit on the exhibit fee charged. After all, those extra costs are like unwanted government programs - someone has to pay for them. And guess who that would be? You!

Sincerely,

Bill Watson

Engineering Services Company, Inc.  
President

## CLSA Officers

### 1979 OFFICERS

*President:* William O. Gentry  
*Vice President:* Raymond B. Thinggaard  
*Secretary:* Roger A. McIntosh  
*Treasurer:* Bradley L. Brier  
*Executive Director:*  
Mrs. Dorothy Calegari  
*Immediate Past President:*  
Paul W. Lamoreaux, Jr.  
**DIRECTORS AT LARGE**

Charles E. Moore  
Lloyd C. Parker  
Richard P. Siegmund  
Merle Welj  
Gerald W. White

### CHAPTER PRESIDENTS

*Bakersfield:* Michael S. Barry  
*Central Coast:* Kenny L. Fargen

*Central Valley:* Edward Cardoza  
*East Bay:* Brent A. Roberson  
*Feather River/Northern Counties:*  
Gary B. Anton  
*Humboldt:* Ronald D. Hunt  
*Lake/Mendocino:* Robert W. Hendricks  
*Marin County:* John J. FitzGerald, III  
*Monterey Bay:* Larry Palm  
*Mother Lode:* Roland Williams  
*Orange County:* David H. Williams  
*Riverside/San Bernardino:*  
Fred L. Cole  
*Sacramento:* William F. McKinney  
*San Diego:* John Blake  
*San Joaquin Valley:* William O. Gentry  
*Santa Clara/San Mateo:*  
Joseph R. Bennie  
*Sonoma County:* Fred M. Phelps

### NOTICE

This edition of *the California Surveyor* contains the full text of the Disciplinary Guidelines for Land Surveyors adopted by the Board of Registration for Professional Engineers. The Board is utilizing *the California Surveyor* to officially notify all Licensed Land Surveyors of these guidelines by providing CLSA with their names and addresses so a copy of this edition can be mailed to them.

With receipt of this edition, you have been OFFICIALLY NOTIFIED of these guidelines - please read them carefully.

# President's Message



My first four months as President of the California Land Surveyors Association have been an interesting and rewarding experience. During this time I have had the opportunity to talk with a number of members and non-members about our numerous activities.

One statement that I have repeatedly made during these talks has been that growth is coming to CLSA and we must prepare ourselves in a variety of ways to best utilize this growth. We must manage this growth so that our association better serves the members, as well as presenting to the general public the best possible image.

The growth in membership will come from newly-licensed persons and hopefully from an increase in the Civil Engineers practicing land surveying, if these latter are admitted as Corporate members through an approved by-law change by you, the

membership. In addition, we should all endeavor to add existing licensed Land Surveyors, not yet members, to our ranks by a concentrated membership drive. In the near future, (after January 1, 1982), the exemption from the Land Surveyor's Act for newly registered civil engineers will be no more. Our association is the only state organization which primarily represents all land surveyors, both public and private.

It should come as no surprise to you that the Western part of the United States will change more rapidly over the next decade as compared to the rest of the United States. According to the Chamber of Commerce, the Census Bureau predicts that, during the years 1970 to 1990, the West will experience a 22.1 percent population growth, whereas the remainder of the United States will experience a 12.4 percent population growth. It is also predicted that California will add more than 3 million jobs by 1990. All those jobs mean more people and more demand for the goods and services they require.

It is predicted that during the 1980s there will be a decline in the number of people between the ages of 5 and 24, resulting from the sharp drop in the birthrate which began in the mid 1960s. Declining school enrollment is one of the most obvious effects of this change in the birthrate.

At the other end of the spectrum however, the number of adults over 65 years of age will grow rapidly as improved medical care increases longevity. Certain sociological changes that have taken place in recent years have had a substantial effect on household formations. These changes will, in turn, create even more demand for good planning, including a wide spectrum of services.

We have the opportunity to make this work for us. Even though it is important to elect legislators who have the intellectual capacity to deal with these opportunities in an unbiased manner, it is incumbent upon our association to provide an active membership, active committee, and direction and leadership that can speak to the issues. With private sector and government working hand-in-hand good things can be made to happen.

Since the time to act is now, a forthcoming meeting of the Council of Past Presidents will be meeting prior to the July 26 Board Directors meeting to formulate some short range and long range plans.

Take an active part in your local chapter's activities. Let our state board of directors know your needs and wishes. Contact me for anything that I personally can help you with.

William O. Gentry, L.S.

## Calendar

June	22-26	10th SURVEYING TEACHERS CONFERENCE Sponsored by ASEE, Colorado State University. For further information contact: Al Barnes, Conf. Director, Co. St. University. 303/491-6767
July	26	CALIFORNIA LAND SURVEYORS ASSOCIATION quarterly Board of Directors meeting to be held at the Grosvenor Airport Inn, 380 South Airport Blvd., So. San Francisco, CA 94080.
August	10-13	NATIONAL COUNCIL OF ENGINEERING EXAMINERS (NCEE) Annual Conference to be held at the Hyatt Lake Tahoe, Incline Village, Nevada.
August	11	Deadline, Fall issue of THE CALIFORNIA SURVEYOR. Send information to: R.E. Baldwin, Editor, 1345 California St., Berkeley, CA 94703.
October	7-10	ACSM/ASP Convention, Sponsored by ACSM/ASP, to be held in Niagara Falls. For further information contact: Charles E. Hartnett, RD 1, Box 142, Melrose, N.Y. 518/235-2313.
October	18	CALIFORNIA LAND SURVEYORS ASSOCIATION quarterly Board of Directors meeting to be held at the Grosvenor Airport Inn, 380 South Airport Blvd., So. San Francisco, CA 94080.

# News from the Board of Registration

## DISCIPLINARY GUIDELINES FOR LAND SURVEYORS ADOPTED FEBRUARY 13, 1980

To facilitate uniformity of penalties and to ensure that its disciplinary policies are known, the Board of Registration for Professional Engineers establishes these disciplinary guidelines. While recognizing the concept that administrative law judges must be free to exercise their discretion in such cases, the Board desires that these guidelines be followed to the extent possible and that any departures therefrom be noted and explained in the proposed decision.

The Board desires that matters in extenuation and mitigation, as well as those in aggravation, be fully considered and noted in the proposed decision. Of primary importance is the effect the licensee's conduct had or can have on the public as consumers.

Disciplinary ranges for violations of the Land Surveyors Act are as follows:

### 1. Section 8780(d): Conviction of a felony arising from or in connection with the practice of land surveying.

Maximum: Revocation AND public reproof.

Minimum: Revocation stayed for five years on the following conditions AND public reproof.

a. Actual suspension for two years.

b. The respondent shall obey all laws and regulations related to the practice of land surveying.

c. The respondent shall submit such special reports as the Board may require and shall furnish the Board with a complete list of all clients and employers with whom the licensee has a current or continuing contractual or employment relationship, not later than 30 days after the decision becomes effective.

### 2. Section 8780(a): Deceit in the practice of land surveying.

Maximum: Revocation AND public reproof.

Minimum: 90 days suspension stayed for three years on the following conditions AND public reproof.

a. 45 days actual suspension.

b. The respondent shall obey all

laws and regulations related to the practice of land surveying.

c. The respondent shall submit such special reports as the Board may require and shall furnish the Board with a complete list of all clients and employers with whom the licensee has a current or continuing contractual or employment relationship, not later than 30 days after the decision becomes effective.

### 3. Section 8780(f): Breach of contract.

Maximum: Revocation.

Minimum: 60 days suspension stayed for one year on the following conditions:

a. 15 days actual suspension.

b. Respondent make restitution to any person damaged as a result of the respondent's breach of a contract to which that person is a party, such restitution to be made prior to the restoration of respondent's registration.

c. The respondent shall obey all laws and regulations related to the practice of land surveying.

d. The respondent shall submit such special reports as the Board may require.

### 4. Section 8780(a): Fraud.

Maximum: Revocation AND public reproof.

Minimum: Six months suspension stayed for three years on the following conditions AND public reproof:

a. 90 days actual suspension.

b. The respondent shall obey all laws and regulations related to the practice of land surveying.

c. The respondent shall submit such special reports as the Board may require and shall furnish the Board with a complete list of all clients and employers with whom the licensee has a current or continuing contractual or employment relationship, not later than 30 days after the decision becomes effective.

### 5. Section 8780(a): Negligence.

Maximum: Revocation AND public reproof.

Minimum: 90 days suspension stayed for two years on the following conditions AND public reproof:

a. 30 days actual suspension.

b. The respondent shall obey all laws and regulations related to the practice of land surveying.

c. The respondent shall submit

such special reports as the Board may require.

### 6. Section 8780(a): Incompetency.

Maximum: Revocation AND public reproof.

Minimum: Revocation stayed for five years on the following conditions AND public reproof.

a. Within 2 years of the effective date of the Board's decision, the respondent shall successfully complete a training course, approved in advance by the Board, specifically related to the area of incompetency, before being permitted to resume practice; and/or

b. Within 2 years from the effective date of the Board's decision, take and pass the second division examination before being permitted to resume practice.

c. After being permitted to resume practice, the respondent may practice only under the supervision of a registered design professional approved by the Board.

d. The respondent shall obey all laws and regulations related to the practice of land surveying.

e. The respondent shall submit such special reports as the Board may require and shall furnish the board with a complete list of all clients and employers with whom the licensee has a current or continuing contractual or employment relationship, not later than 30 days after the decision becomes effective.

### 7. Section 8780(b): Fraud or deceit in obtaining the license.

Recommended action: Revocation.

### 8. Section 8780(e): Aiding or abetting any person in the violation of any provision of this chapter.

Maximum: Revocation.

Minimum: 60 days suspension stayed for one year on the following conditions:

a. 15 days actual suspension.

b. The respondent shall obey all laws and regulations related to the practice of land surveying.

c. The respondent shall submit such special reports as the Board may require.

*(Continued on Page 28)*

# Cover Story

The 15¢ commemorative stamp shown on this edition's cover honors Benjamin Banneker, surveyor and 18th century *renaissance man*. Banneker was born on a tobacco farm near what is now Ellicot City, Maryland, in 1731. The son of a freed slave, Benjamin was taught to read and write by his grandmother who was an indentured servant.

Because he was needed to work the farm, his formal education consisted of only a few winters of school. Young Benjamin's passion for things scientific prompted him to continue his studies at home where he taught himself mathematics and astronomy.

He worked ceaselessly on a variety of projects, one of which was to calculate the cycle of the locust plagues which periodically devastated the farms. In 1789, using bor-

rowed instruments and mathematical texts, he charted the stars, calculated tide tables and accurately predicted the time of the solar eclipse of April 4, in that year - contradicting the predictions of prominent mathematicians and astronomers.

In 1790 he published an almanac and sent a copy to Thomas Jefferson, who was so impressed that he recommended Banneker to President Washington for appointment to the District of Columbia Survey Commission, which was to survey the site of the nation's new capitol in 1791. Banneker was appointed to the Commission, and with Major Ellicot, performed the original survey of Washington, D.C.. Later he would, in only several days time, reproduce from memory a year of surveying to make the plans of Washington,

D.C..

He continued to publish his almanac for six years, always advocating the cause of Blacks in America. Although he was a shy individual, preferring the quiet farm life to one of notoriety, he became one of the nation's leading intellectuals. Like his contemporary, Benjamin Franklin, he was a man of science and a prolific inventor. He was also a respected philosopher, like his contemporary Thomas Jefferson, whom he confronted for preaching the doctrine of equality and freedom while holding slaves.

For further information on this eminent Black American, refer to *The Life of Benjamin Banneker*, by Silvo A. Bedini.

## Mineral Survey Examination

by Reily H. Smith

Most of you have read Chapter 10 in the *Manual of Instructions* . . . entitled "Mineral Surveys" and probably thought it would be interesting to do a mineral survey someday. If you went further and tried to find some additional information from the Bureau of Land Management, you were most likely frustrated in your attempt to find anyone who knew anything about it.

There are about 35 Mineral Surveyors on the current California lists maintained by the B.L.M. in Sacramento. Of these, many are not active. The B.L.M. plans to begin purging names of those Mineral Surveyors who do not perform at least one mineral survey every two years or those who cannot justify to the B.L.M.'s satisfaction why their names should not be removed. The names of the Mineral Surveyors on this list are given to an applicant for a patent on a lode mineral claim or a placer claim where a boundary conflict exists. The claimant makes his own arrangements for payment with the Mineral Surveyor he chooses. On the date of the examination, the

Sacramento Office of the B.L.M. had 17 pending applications for Mineral Surveys, so it appears there is some of this work out there.

The B.L.M. gave a two day examination in Sacramento last February and, surprisingly, only 10 surveyors from California took it. Perhaps the reason for the poor turnout was that the only advertisement was in the "Federal Register." The exam consisted of:

1. 37 multiple choice questions, worth one point each.
2. A practical problem, worth 20 points.
3. Writing a set of field notes and making a preliminary plat, worth 23 points.
4. Taking and computing a solar observation for azimuth, worth 20 points.

All types of calculators, theodolites and typewriters were allowed in the examination. The entire exam was open book with essentially all of the material covered in Chapter 10 of the "Manual" and Title 43 of the Code of Federal Regulations. The writing of the field notes and preliminary plat, though worth only 23 points, took most examinees 40 to

50 percent of their allowed time. The second day was supposed to be devoted to the solar shot, but upon completion the examinees were permitted work on the first day's problems. The examination was tedious, but not, in my opinion, as difficult as the California L.S. exam.

Those of you who may be interested in taking the exam someday should be aware that the B.L.M. considers having a cadastral survey contract with them to be a conflict of interest if you are also a Mineral Surveyor.

The February exam was the first one given in California in 10 years. However, the exam proctor said they were planning on giving the exam every two years from now on. The B.L.M. does not appear to have firm experience or education requirements to qualify to take the exam.

For those of you who are interested in receiving additional information, the place to write is:

Director,  
Bureau of Land Management (720)  
Division of Cadastral Survey  
18th and "C" Streets N.W.  
Washington, D.C. 20240

# Fresno Conference

This year's C.L.S.A. Conference in Fresno was an unqualified success, with some 295 registrants attending the technical sessions and a record 29 exhibitors showing the latest in surveying equipment.

Technical sessions included such subjects as early California Surveyors, the extent of Fraudulent Survey areas in California, Title problems, Title by Acquiescence, the Surveyor's Right of Trespass, Prescriptive Easements, and Ways of Avoiding Liability, among other topics. Also presented was a timely discussion of real estate "Boom and Bust" cycles. On Saturday a tour of California State University at Fresno, the only nationally accredited school west of the Mississippi offering a B.S. degree in Surveying and Photogrammetry, was given.

Ladies activities included a tour of the Duncan Ceramics plant, a cosmetics demonstration, a tour of the Sun Maid growers facility, and a wine tasting tour.

Sports events like the Golf and Tennis Tournaments, and the 10 km. "Fun Run" provided enjoyment for many.

Social Events included an exhibitor-sponsored cocktail party, a dinner show at Roger Rocka's Good Company Music Hall where "Fiddler on the Roof" was a big success, and an evening of Armenian food and dance.

Thanks to the Conference Committee, Exhibitors, and all the others who worked behind the scenes to make the 1980 C.L.S.A. Conference a memorable and enjoyable one. See you all next year at the MGM Grand in Reno!



Student assisting at the conference were (front row) Birdie Ross, Peggy McMicken, Don Britton, Daryl Whitcher, Dennis Doi, Lucy Young, Bob Masvoka, (back row) Frank Helm, Dave Grainier, Tom Phelps, Mike Miller (Coordinator), Jerald Miller, Frank Robles and Jeffrey Sand. Also assisting, but not shown, were Jas Arnold, Kathy Cline, Dave Edson, John Korovan, Dan Martinez, Mike Miller, Chuck Moore, Lynn Nichols, Martin Paquette, Mario Quiros, Nathan Willess, and Alan Yan.



The lucky number is . . .

Departing President Paul Lamoreaux (L) greets new CLSA President Bill Gentry (R).



# Surveyors Historical Society

The Spring 1980 meeting of the newly formed Surveyors Historical Society was held on March 29, 1980 in Fresno as part of the CLSA convention.

Chairman F.D. "Bud" Uzes presides over an informative and productive meeting which was well-attended by many active participants. The members are striving towards incorporation and hope to build up their collection of artifacts and archives for display purposes. Last year the Society had a display at the Placer County Museum in Auburn and this year at both the current CLSA and upcoming ACSM California Conference. The planning

and set-up of these displays made it clear that some form of official and permanent records be initiated.

To get an up-to-date inventory of the Society's collection and to have it properly recorded and cataloged, we have obtained the services of Tanya Clark, a professional librarian and active member in local historical societies. She will set-up acquisition and cataloging procedures for artifacts, prepare forms for the processing and filing of Society archives, set-up loaning policies for displays, and generally oversee the operation. Miss Clark's interest in several historical subjects and experience as a professional reference librarian

and cataloger, as well as a museum docent and lecturer, qualify her for these tasks.

The Fall 1980 meeting of the Surveyors Historical Society will be held in Sacramento on October 25th as part of the ACSM California Conference.

For additional information, contact Chairman F.D. Uzes, 10324 Newton Way, Rancho Cordova, CA. 95670.

Myron A. Lewis  
Secretary

## Speakers Bureau

CLSA is undertaking the creation of a Speakers Bureau to assist our Committee Chairman in furnishing guest lecturers to Student Chapter meetings, workshops and annual conferences.

Persons interested in speaking before student groups, workshops and/or annual conferences are invited to sign up for occasional participation by contacting Dorothy Calegari at CLSA Central Office, P.O. Box 7400, Santa Rosa, CA 95401 or telephone (707) 539-3633. Send a note specifying your name, title, company affiliation, address and phone number plus information about your field(s) of expertise, areas of experience and public speaking and/or teaching skills.

### SPEAKERS BUREAU

Please complete the information below and return to CLSA Central Office. Thank you for your help.

CALIFORNIA LAND SURVEYORS ASSOCIATION  
Central Office  
P.O. Box 7400, Santa Rosa, CA 95401

Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Telephone No. \_\_\_\_\_

Company Affiliation \_\_\_\_\_

Field(s) of Expertise \_\_\_\_\_

Public Speaking and/or Teaching Skills \_\_\_\_\_

Availability (day of week) \_\_\_\_\_

# News Digest

This section of the California Surveyor is designed to provide access to information by printing short news items, reviewing articles from other publications, and reviewing new products. Its success depends upon readers responding with information to be included herein.

## DON BENDER ADMITTED TO CALIFORNIA LAW PRACTICE

Donald E. Bender, past director-at-large of CLSA, has successfully completed the California State Bar Examination and was formally admitted to the practice of law May 30, 1980.

Bender, who has also served with CLSA in positions as secretary and treasurer, continues to be active in both the state association and in ACSM, currently serving as Director, Area 7, for the latter organization's Land Surveys Division.

Employed as survey supervisor for the City of Los Angeles, he was also recently admitted to the National Association of Realtors and has begun his own business as a land use consultant. Incorporating surveying, real estate and real property law, the business is directed primarily toward serving prospective investors in commercial and industrial developments.

## L.S. QUESTION WRITERS NEEDED

The National Council of Engineering Examiners is seeking well qualified question writers for material to be used in its examinations in Land Surveying. Writers must be Registered Land Surveyors with sufficient practical experience. Questions must be written according to detailed specifications and with great attention to clarity, proper terminology, and relevance to the purpose of the exams. An honorarium is paid for acceptable material. Anyone wishing to participate should send a brief resume to:

Porter W. McDonnell, PE/LS  
Land Surveying Coordinator  
National Council of Engineering Examiners  
P.O. Box 1099  
Seneca, South Carolina 29678  
An instruction booklet and special

forms for submitting questions will be provided.

## FREE PHOTOGRAMMETRY CLASS

The Engineering Department of the City College of San Francisco will offer a course in Photogrammetry (E.T. 193, 3 college credit units) in the Fall semester 1980, on Tuesdays and Thursdays from 6:00 PM to 9:00 PM, with six hours lecture-laboratory work. The Fall semester will start in the second week of September 1980 and end in the middle of January 1981.

The laboratory work will cover the following topics: the test of stereoscopic vision, computation of calibrated focal length of an aerial camera, measurement of photocoordinates and computation of flying height, planning for an aerial photographic mission, use of parallax bar, use of a parallel guide to plot contours, identification and survey of photocontrol points, radial line plot, use of sketchmaster, determination of tilt in an aerial photograph, operation of Kelsh and Ballplex plotters, relative and absolute orientation and map compilation.

The college has three Ballplex, one Kelsh and one Multiplex plotters, four stereoisimage alternators and other laboratory equipment for about 15 students. The tuition is free. This course is essential for L.S. examination. For persons engaged in surveying practice, no prerequisites are required.

The necessary forms for enrollment can be obtained from the Registrars Office, San Francisco City College, 50 Phelan Avenue, San Francisco, CA, 94112. Further information can be obtained from Dr. -Engr. D.E. Slavoj, Coordinator Civil Engineering Technology Tel. (415) 239-3159.

## ULTIMATE TITLE SEARCH

*"Title Searching for HUD," Editorial Page, Woodland Dailey Democrat, Dec. 28, 1979 contributed by Keith R. Leslie, L.S.*

A real estate man has passed on to us a story credited to Utah Sen. Orrin Hatch about a developer in Louisiana who, after securing approval of

his project from 23 various agencies received this note from the U.S. Department of Housing and Urban Development:

"We received, today, your letter enclosing application for your client and supported by abstract of title. We have observed, however, that you have not traced the title previous to 1803. Before final approval can be granted, you must trace the title previous to that year."

He responded:

"Gentlemen: Your letter regarding title received. I noted that you wish title to be traced further back than I have done it.

"I was unaware that any educated man failed to know that Louisiana was purchased from France in 1803. The title of that land was acquired by France by right of conquest from Spain.

"The land came into possession of Spain in 1492 by right of discovery by an Italian sailor named Christopher Columbus. The good Queen Isabella took the precaution of securing the blessing of the Pope of Rome upon Columbus's voyage before she sold her jewels to help him.

"The Pope is the emissary of Jesus Christ who is the Son of God. God made the world. I believe it is safe to assume that He also made that part of the world known as the United States; and that part of the United States called Louisiana. I hope to hell you're satisfied."

## DRE STREAMLINES SUBDIVISION APPROVAL PROCESS

*Submitted by Don Bender*

Effective March 31, the State Department of Real Estate reduced the number of documents for a Preliminary Public Report from 27 to 9, and reduced the application form from 30 to 7 pages.

In response to pressure from builders and developers, the DRE is also expediting processing of complete initial subdivision filings and has added 76 positions to its subdivision section.

*(Continued on Page 27)*

VECTRON  
Surveying  
Instrument



AUTORANGER EDM



VECTRON Field Computer

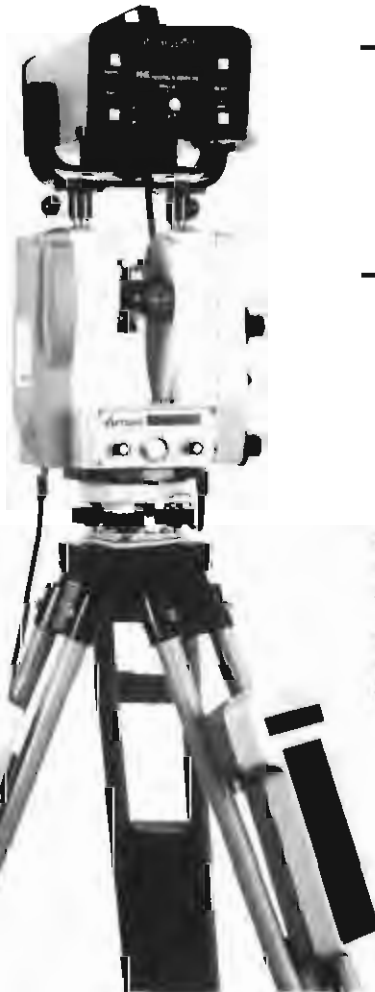
# The VECTRON Electronic Surveying System

More flexible and economical than any other.

The VECTRON System's modular format is a unique approach to a totally new surveying technology.

The most advanced system for field measurements and data collection, it is electronic in operation, and the only instrument of its kind that is modular in application. Each of the three separate electronic components is a fully independent unit that can be purchased separately, and operated independently, as well as in various combinations, offering a relatively low initial investment. But all three units are programmed to interconnect in a system of unparalleled surveying efficiency—and cost considerably less than other systems.

Here are some of the many things the VECTRON System performs automatically: measures, displays and records slope range, horizontal angle, and vertical angle; computes, displays and records horizontal distance, departure and latitude; accumulates and averages readings for slope range, for horizontal and vertical angles.



---

**VECTRON Surveying Instrument**  
for angle measurement  
and calculation of  
surveying coordinates

**AUTORANGER® EDM Instrument**  
for range measurement up to 3.6km.

**VECTRON Field Computer**  
for data storage and calculation.

---

Also, via the VECTRON Field Computer, it stores measured data and calculated results, which are identified alphanumerically. And retrieves data from storage, for display on command, transfers data to office computer or other peripheral devices.

Only the VECTRON System gives you the option to start with one unit and to add later on. However you start, by the unit or system, the savings over other systems are considerable.

For more details about the VECTRON System and its individual components, write Keuffel & Esser Co., 20 Whippary Road, Morristown, N.J. 07960.



KEUFFEL & ESSER COMPANY

Keuffel & Esser Co.  
1327 South Olive St.  
Los Angeles, CA 90015  
Phone: 213 747-7601

Keuffel & Esser Co.  
223 Lawrence Ave.  
South San Francisco, CA 94080  
Phone: 415 873-8850





# WESSCO'S EDM PACKAGE: Rugged Enough for the Rockies and Now Specially Priced at \$9890.



We examined every distance meter on the market and selected Topcon's proven DM-C2 as the best EDM for the money and value. We combined it with a Wild theodolite because Wild's quality is incomparable. Together these instruments comprise an ideal package.

With them you'll have a system which is highly reliable. In the Rockies surveyors depend on it for isolated field work in Gillette, Wyoming or Meeker, Colorado. Our package even excels in extreme temperatures such as the deserts around Phoenix or the mountains surrounding Vail.

And it's almost fool-proof. The DM-C2 is one of the simplest EDM devices to use. Just point the distance meter and theodolite at your target; adjust the light attenuator and automatically you'll obtain readings in less than 10 seconds. In good atmospheric conditions you can measure over 10,000 ft.

Our complete EDM package includes a Topcon DM-C2, Wild T-1 or T-16D Theodolite, battery and charger, tool kit, triple prism and single prism with carrying bags, tribrach, prism adaptor, pointing target, stake-out range pole, two tripods, barometer, thermometer, EDM mounts and installation.

We've sold over 200 such systems. We're so convinced of this package's value that we offer the best EDM service in the country. Should a breakdown occur during the warranty period, we'll provide you with a free loaner if we can't repair it within 24 hours, freight included.

This package's list price is \$12,851. *Wessco's price is \$9890.* With a Wild T-2 add \$2,000. Our offer is good until July 31, 1980 but is subject to change without notice should manufacturers increase their prices.

To take advantage of our low price or for further information call Wessco toll free at 800-525-0266; or if in Colorado phone 800-332-1364. Terms and conditions at this low package price are payment in advance or upon delivery of the equipment.

## WESSCO

WESTERN ENGINEERING & SURVEYING SYSTEMS CO.  
4895 IOLLET STREET • DENVER, COLORADO 80239

# If You Survey Land Take The Berntsen "Best Test"

If you haven't quite decided which survey monuments to use on your next project, take just a minute with the Berntsen "Best Test". We feel sure that once you

compare Berntsen to the rest, you won't settle for less than the best . . . Berntsen value.

## IMPORTANT MONEY SAVING BENEFITS SHOW WHY BERNTSEN MAY BE BEST FOR YOU

Part # 1. COMPARE MONEY SAVING BENEFITS	BERNTSEN		"OTHERS"		YOURS	
	YES	NO	YES	NO	YES	NO
NO CHARGE for delivery in U.S.A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NO CHARGE for personalized custom logo on orders of 100 or more survey monuments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NO CHARGE for the easy to locate permanent ceramic magnet in every monument	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NO CHARGE for "Handling" or "Packing"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NO CHARGE for "stamping" or "per letter" on your next order with the same pattern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## IMPORTANT PRICE COMPARISONS SHOW WHY BERNTSEN MAY BE BEST FOR YOU

Part # 2. COMPARE VALUE	BERNTSEN 100-499	"OTHERS" 100-499	"YOURS" 100-499
3 1/4" Cap, 5/8" diameter x 24" aluminum rod	\$4.73 each	\$6.47 each	
3 1/4" Cap, 5/8" diameter x 36" aluminum rod	5.23 each	6.86 each	
3 1/4" Cap, 5/8" diameter x 48" aluminum rod	5.73 each	7.85 each	
	F.O.B. Destination U.S.A.	F.O.B. Factory	F.O.B. ?

This comparison is based on "OTHERS" price list dated May 1979 for a comparable item. "OTHERS" price does not include stamping or per letter charges, shipping handling, packing, or the permanent magnet. Complete pricing information available on request. Prices subject to change without notice.

We at Berntsen are sure that if you compare **total** value for comparable items, you won't find a more down to earth value than Berntsen Aluminum Magnetic Survey Monuments. We want to be your supplier for nearly TWO DOZEN DIFFERENT STYLES of survey monuments including Break-off Highway Monuments, Access Covers, Pipe Monuments, and our famous patented rotating Rod Monument in two sizes . . . a style and size for almost any survey job. Can you think of another

survey monument company that can make that statement? For an impartial analysis of your survey monument needs, call us today. We'll even give you our new toll free number.

## Call 1-800-356-7388

In Alaska, Hawaii, or In Wisconsin, call COLLECT (608) 249-8549

The best value is still Berntsen.

# Berntsen

**Marking the boundaries of the nations**

Berntsen Cast Products, Inc., P.O. Box 3025, Madison, Wisconsin 53704

# California Legislature

# Resolution

By the Honorable Rose Ann Vuich, 15th Senatorial District; the Honorable Ken Maddy, 14th Senatorial District; the Honorable Jim Costa, 30th Assembly District; and the Honorable Richard Lehman, 31st Assembly District

## RELATIVE TO PROCLAIMING THE WEEK OF MARCH THIRTIETH THROUGH APRIL FIFTH AS "LAND SURVEYORS' WEEK" IN CALIFORNIA

WHEREAS, Since the dawn of recorded history, the profession of land surveying has been a vital part of the civilized world; and

WHEREAS, The land surveyors of California have made a significant contribution to the orderly growth of the State of California by creating, preserving, and marketing the land holdings of its citizens; and

WHEREAS, Property rights of the citizens of this state have been made meaningful and certain by the products and services of land surveyors who locate, landmark, describe, and map these rights; and

WHEREAS, The professional land surveyors of this state subscribe to a strict code of ethics and practices, which emphasizes service before profit and public interest above their own interests; and

WHEREAS, The land surveying profession of this state is vigorously and continually striving to improve its products and services in the public interest by adapting technological advances to age-old practices and concepts; and

WHEREAS, In view of the importance of the practice of land surveying to this state and the nation, it is fitting and proper that this profession be given official recognition; now, therefore, be it

RESOLVED BY THE JOINT RULES COMMITTEE OF THE SENATE AND THE ASSEMBLY, That the Members proclaim the week of March 30th through April 5th, 1980, as "Land Surveyors' Week" in California; and be it further

RESOLVED, That suitably prepared copies of this resolution be transmitted to the California Land Surveyors Association, to William O. Gentry, its President, and to Paul W. Lamoreaux, its Past President.

Resolution No. 120  
Approved by the Joint Rules Committee  
Subscribed this 24th day of March, 1980

James R. Mills, Chairman  
Senate Rules Committee

Louis J. Papan, Chairman  
Assembly Rules Committee

Mike Curb  
President of the Senate

Leo T. McCarthy  
Speaker of the Assembly



Alvar Yevington, CLSA's legislative advocate presents Land Surveyors' Week resolution to Paul Lamoreaux (L) and Bill Gentry (R).

# Perspectives

*In support of my belief that many persons besides Land Surveyors and Engineers "survey" property and boundary lines, the following article is but one of many stories to be told.*

William O. Gentry

## PERAMBULATING THE BOUNDS

by Ronald Jager

*BEAT 41. To beat the bounds: to trace out the boundaries of a parish, striking certain points with rods, etc., by way of a sensible sign patent to witnesses.*

Oxford English Dictionary

As small boys in Michigan my brothers and I would now and then take it into our heads to walk completely around my father's farm. Following the woven-wire fence row, where the fieldstones grew, we tramped from corner to corner—a half mile, a quarter mile, a half mile, a quarter mile, exactly eighty acres—and made sure that we touched each corner post and most of the line posts as well. We gave ourselves no particular reason for making this circuit. We celebrated these excursions simply by checking out the gooseberries that thrived among the fieldstones and by recommending cake and milk for ourselves when we returned and made our mission-accomplished report.

There were other farms in the neighborhood with which we were familiar, having worked or played on them, but we never had the slightest impulse to walk their bounds—though that would have been an adventure with more novelty. Apparently it was not the discovery of new things that impelled us. Some inef-fable tie between ourselves and our family's piece of land was being reaffirmed for us by our little ritual—a game we supposed had been invented right there and by us.

I had nearly forgotten this bit of juvenilia until it came abruptly to mind—almost forty years later—as I recently contemplated an old stone wall in New Hampshire. I have formed the practice, for no reason that I can recognize, of occasionally walking the bounds of my small piece of New Hampshire, something more than a hundred acres of forestland

and overgrown pasture. On my recent excursion I had a sudden sense of déjà vu, a flash of recognition, of having been in precisely this circumstance at some indefinite past time. Shortly I traced this feeling back to my walking the bounds ("lines" they are called in Michigan, being straight) of my father's farm, and so restored to memory a valuable experience I had nearly lost.

However, but for what I had caught in that momentary flash, there is not much similarity between that tame Michigan land and these robust New Hampshire slopes. Most of my bounds are stone walls, lichen gray and sometimes mossy green; they lie not by open fields but in spruce thickets, in maple thinnets and pine groves, across brooks and hillsides. For a century everything visible about them has intimated that they are part of the landscape, natural facts and not boundaries at all.

If my meditative ramble along these walls accomplishes anything, it may be some kind of inward validation of my relation—only the most recent in a series of human relations—to this particular tract of land. In some unspecifiable sense it is satisfying to know that the bounds are emphatically there, practically immovable, participating in the very substance of the land, yet giving a visible sense of order and definition to the arrangements of my imagination and to my obscure affections for inanimate things. The trees, rocks, and stumps on this side of the wall I may call mine; I have entered their history, and they mine. Those yonder side of the wall are aliens—though they all look the same. These bounds, like those of the family homestead, have more meaning to me than I can say, or know. But what I do know is that my experience, then and now, was and is not unique. Indeed, those boundary lines branch out into politics, history, religion, and mythology.

According to long-standing New Hampshire law (and similar laws in some other New England states) the selectmen of each town are obliged to "perambulate the bounds" of the town at seven-year intervals, to mark

again the bounds and enter an account of this into the town's records, noting the trees they have blazed, the lines they have measured, and the granite they have chiseled. There is but slight enforcement of this law, and in some towns it is done less according to the schedule than according to the impulses of selectmen. One reason the itch may not come every seven years is the sheer physical difficulty of the task. Many New England towns were laid out hundreds of years ago in the office of a developer, the lines being subsequently transferred to the terrain, which the map makers had never seen. Hence town lines go up cliffs, across bogs, at right angles across ledges, over mountains and ponds, and through streams. The map of the unseen town was the first rude assault of the settler on the wilderness. When the measurements were applied to the contours of the countryside, they seldom fit exactly, and that was only one reason why many towns have had boundary disputes. Roads and settlements that evolved later followed more closely the imperatives of nature, with the result that town lines now frequently run through very unfamiliar regions.

Town bounds may be obscure in the field, but in the minds of the residents the *idea* of them and therefore of the town that they enclose is very sharp and clear. In this respect the town in New England differs notably from the typical township in the Michigan that I am familiar with—where the lines, more often than not, are marked by straight blacktop roads. Such midwestern townships have explicit geographical boundaries, and no emotional boundaries at all. There the idea of the township line is an idea without resonance: it has a certain meager bureaucratic meaning, but no content of feeling or emotion, no possessiveness and no affection attends it. The township and its boundaries compose an idea more useful than alive, yet even so there would be no use at all for the idea of perambulating the lines of such a township. But in New England's countryside, it is an idea, a practice, and a law that is likely to survive despite the physical difficulty of it for as long as we can

imagine. The practice of walking the bounds, like the annual town meeting, is one that has shaped and been in turn shaped by the idea of the town itself as a political and social unit. In New Hampshire it requires an act of the legislature and two-thirds vote of the residents of both affected towns to change a town boundary. In New England generally the town is ever the most explicit unit of political and social self-consciousness, and until well into the nineteenth century it was the locus of the community's religious self-consciousness as well. Walking the bounds of something, whether it is a rectangular half of a quarter section in the Middle West or a misshapen piece of bristly and jagged townscape in New England, is an intimate gesture of linking oneself to the life of whatever is exemplified within those bounds.

Perambulating the bounds of a town is rooted in the ecclesiastical practice of "beating the bounds" of a parish. Trace this out and you find that—just as with so much else that still gives coherence to the social and political mind of New England—perambulating the bounds was apparently transferred to the politics of New England from the parishes of old England. "In former times when maps were rare it was usual to make a formal perambulation of the parish boundaries on Ascension day or during Rogation week," says my eleventh edition (1911) of the *Encyclopaedia Britannica*. And it goes on to tell how they did it:

The priest of the parish with the churchwardens and the parochial officials headed a crowd of boys who, armed with green boughs, beat with them the parish border-stones. Sometimes the boys were themselves whipped or even violently bumped on the boundary-stones to make them remember. The object of taking boys was obviously to ensure that witnesses to the boundaries should survive as long as possible. In England the custom is as old as Anglo-Saxon days, as it is mentioned in laws of Alfred and Aethelstan. It is thought that it may have been derived from the Roman Terminalia, a festival celebrated on the 22nd of February in honour of Terminus,

the god of landmarks, to whom cakes and wine were offered, sports and dancing taking place at the boundaries.

Evidently my brothers and I were participating, all unaware, in a far more venerable ritual than I could have imagined when we walked the lines of the family farm and touched the corner posts. Not only were we really perambulating, when I thought we were just walking, but we were actually performing real history, and we didn't even know it! For now I learn that Terminus, god of landmarks in ancient Rome, is probably behind a whole series of habits and traditions. Checking out my bounds ties me into the Roman Empire! There will henceforth be a new spring in my step: proudly I shall "walk" with the Anglo-Saxons and "perambulate" with the Latins.

Such discoveries are enough to set a mind awhirl; perhaps the Romans and the Anglicans have something more to teach us. So far as I can determine, the selectmen of my town have not typically thrown a party when they have perambulated the bounds. The sheer difficulty of the ambulating would seem to justify such a celebration even if tradition did not. In our town at least thirty-five miles of extremely difficult scrambling is involved, and not every board of selectmen relishes this undertaking. Moreover, the law requires that there be a representative from each of the two adjoining towns when the bounds are walked, and I learn that the impulse to take this stroll does not often strike three sets of selectmen simultaneously; it is not especially difficult to find plausible excuse to put the matter off until next year. The law itself thoughtfully provides that the older of the two adjoining towns must take the initiative in setting a date. Might it not be natural, then, to schedule the completion of perambulating the bounds so that it just preceded the town picnic, Old Home Day, or whatever local celebration, party, picnic, ball, fair, or feast was already on the agenda? This plan would be a way to adapt and improve a fine custom that goes back to the parishes of old England but was evidently too good

to last. Says *Britannica*:

In England a parish-ale or feast was always held after the perambulation, which assured its popularity, and in Henry VIII's reign the occasion had become an excuse for so much revelry that it attracted the condemnation of a preacher who declared "these solemn and accustomed processions and supplications be nowe grown into a right foule and detestable abuse."

It is enough to know that I was enacting one of the parables of human history. There is no doubt that this ritual has staying power, cutting across the centuries through religions and politics. Here and there it is alive still in English parishes. I learn that in Newbiggin by the Sea (Northumberland), for example, it has been practiced since 1235 and now takes place annually in May. The Tower parish bounds in London are beaten every third year, the choirboys striking each of the thirty-one boundary marks with willow wands. One of the bounds of St. Clement Danes's parish is in the river Thames and is reached by boat for its beating; another of the bounds of this parish is in an awkward place in Temple Gardens, and one of the choirboys is lowered by his heels to beat this one. In Richmond (Yorkshire) the procession to beat the bounds used to include a wade in the river Swale—a task now performed by the official parish Water Wader. In Crompton (Lancashire) the bounds are perambulated and beaten every seventh year, and this involves swimming across Besom Hill reservoir and climbing over the King's Arms Hotel. I'm sure that further research could turn up more examples of such old English boundary heroics, or pluck; but these instances should fortify any of our perambulating Yankee selectmen as they wade boggy brook and shamble through the brush up the face of Old Baldy. If Yankee shrewdness fails, they have Western civilization on their side.

Terminus was no trivial deity, I learn from *The Oxford Classical Dictionary*. When an important boundary was set in ancient Rome, an

(Continued on Page 24)

# RENO 81

# RENO 81

# RENO 81



BACKSIGHT ON INDIVIDUALISM



FORESIGHT ON UNITY



February 17-20, 1981

MGM Grand Hotel  
Reno, Nevada

Sponsored by:  
The Western Federation  
of Professional Land Surveyors

P.O. Box 7400  
Santa Rosa, CA 95401  
Phone (707) 526-2572

**PERSPECTIVES**

(Continued from Page 22)

animal together with fruits and wines was sacrificed and burned on the lines, after which the boundary stone was anointed, crowned with garlands, and then solemnly set in the hot ashes. Anyone who moved the boundary stone was subject to the death penalty. Long before that the Hebrews, as the Old Testament shows, placed a comparable emphasis on the permanence and immovability of boundaries. The Bible does not record the penalty for violating such landmarks, but the prohibition is explicit, for example, in Deuteronomy 19:14 "Thou shalt not remove thy neighbor's landmark, which they of old time have set in thine inheritance, . . ." Undoubtedly this passage refers to landmarks that were also set with sacrifice and ceremony.

I imagine that the only sacrifice involved in setting the corner posts of my father's farm was the labor involved, and I am glad now that as boy I added some ceremony to the observance of those landmarks. Being wood, they won't last much longer. But I'll remember where they were. The stones that mark the bounds of my own land in New Hampshire were set with permanence more in mind, and with a larger expenditure of labor and ceremony. However it was done, it was no casual task; they were anointed with plenty of perspiration and for a long time now they have been garlanded with lichen and moss, emblems of stability, endurance. So, besides the bounds of our own properties, which we may walk in privacy, perambulating to the beat of our own drummer, what remains as exemplary are the bounds of towns, fitting symbols of the relation of a community to its own place. There is reassurance in the knowledge that the statutes require that these "shall be perambulated, and the marks and bounds renewed, once in every seven years forever."

*"Reprinted by permission from Blair & Ketchum's Country Journal. Copyright ©1980 Country Journal Publishing Company, Inc."*

WILD ☆ TOPCON ☆ GURLEY ☆ KEUFFEL & ESSER ☆  
 PATH ☆ DAVID WHITE ☆ JWJ ☆ LIETZ ☆  
 CHICAGO STEEL TAPE ☆ SCHONSTEDT ☆  
 THOMMENS ☆ DIXON ☆ AERVOE ☆ FILSON ☆  
 RABONE-CHESTERMAN ☆ LUFKIN ☆ SANDVIK ☆  
 SILVA ☆ HASTINGS ☆ BRUNTON ☆ LENKER ☆  
 SUUNTO ☆ KESON ☆ DASCO ☆ KUKER-RANKEN ☆  
 CUTTER ☆ TAYLOR ☆ CHARVOZ—CARSEN ☆  
 COLLINS ☆ J. L. DARLING ☆ HULTAFORS ☆  
 ROLATAPE ☆ TELEDYNE—NATIONAL ☆ WILD ☆  
 AMERICAN PAULIN ☆ BAUSCH & LOMB ☆  
 BETHLEHEM STEEL ☆ BLAISDELL ☆ CONE-SITE ☆  
 COUNCIL ☆ DIAMOND ☆ GAMMON ☆  
 GLENDALE OPTICAL ☆ HASSALL ☆ MOUND CITY ☆  
 WILD ☆ TOPCON ☆ GURLEY ☆ KEUFFEL & ESSER ☆  
 PATH ☆ DAVID WHITE ☆ JWJ ☆ LIETZ ☆  
 CHICAGO STEEL TAPE ☆ SCHONSTEDT ☆  
 THOMMENS ☆ DIXON ☆ AERVOE ☆ FILSON ☆  
 RABONE-CHESTERMAN ☆ LUFKIN ☆ SANDVIK ☆  
 SILVA ☆ HASTINGS ☆ BRUNTON ☆ LENKER ☆  
 SUUNTO ☆ KESON ☆ DASCO ☆ KUKER-RANKEN ☆  
 CUTTER ☆ TAYLOR ☆ CHARVOZ—CARSEN ☆  
 COLLINS ☆ J. L. DARLING ☆ HULTAFORS ☆  
 ROLATAPE ☆ TELEDYNE—NATIONAL ☆ WILD ☆  
 AMERICAN PAULIN ☆ BAUSCH & LOMB ☆  
 BETHLEHEM STEEL ☆ BLAISDELL ☆ CONE-SITE ☆  
 COUNCIL ☆ DIAMOND ☆ GAMMON ☆  
 GLENDALE OPTICAL ☆ HASSALL ☆ MOUND CITY ☆



**SERVCO HAS IT ALL**

**SURVEYORS SERVICE COMPANY**  
 2942 Century Place  
 Costa Mesa, CA 92626  
 714-546-0606



# Book Nook

1. *Shore and Sea Boundaries* (1962) Reprint 1975—Aaron L. Shalowitz, U.S. Department of Commerce Publication No. 10-1  
*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.
5. *Restoration of Lost or Obliterated Corners & Subdivision of Sections*—a guide for surveyors—United State Department of the Interior, Bureau of Land Management—1974 Edition. . .75 ea.
6. *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.
7. *Cassette Tape Recordings of the CLSA Water & Water Related Boundaries Workshop II at Irvine, CA—May 25–26, 1977.*  
 Costs have been established as follows:  
 Complete 10 cassette set, including "Proceedings" (Item 3 above) (Over 8 hours of lecture and discussion)  
 CLSA Members . . . . \$50.00  
 Non-Members . . . . \$60.00
  - 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.
- 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 Division, 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.

ORDERS AND PAYMENTS SHOULD BE DIRECTED TO:  
 CALIFORNIA LAND SURVEYORS ASSOCIATION, INC.  
 P.O. Box 7400, Santa Rosa, CA 95401

ITEM NO.	DESCRIPTION	PRICE EA.	TOTAL
----------	-------------	-----------	-------

--	--	--	--

TOTAL: \$ \_\_\_\_\_

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

MASTER CHARGE OR VISA ACCT. NO. \_\_\_\_\_  
 Expiration Date \_\_\_\_\_

ZEISS LIETZ WILD K & E  
BEETLE TOPCON PATH DIETZGEN

OGDEN SURVEYING  
EQUIPMENT COMPANY  
5520 ELVAS AVE., SACRAMENTO 95819

**(916) 451-7253**

Your complete inventory store

**RENTALS  
SALES  
REPAIRS**

CLEARPRINT DIAZIT KOHI NOR MARS  
VEMCO MAYLINE HAMILTON STACOR

\*\*\*\*\*

# Cheap help for Surveyors & Civil Engineers

TRS-80 microcomputers  
& SURVEY SOFTWARE

FiNDeR-1 — Field Note  
Data Reduction program


CoGo-1 — Coordinate  
Geometry program

Both for only \$500.

Computer only \$3,402.95  
including line printer

Also available: Stadia Reduction, Retaining Wall Design, Foundation Design, Energy programs, and much more. Call or write for free information today.

Rising costs demand that you make every dollar count. DISCO-TECH's high-quality surveying and civil engineering programs cut your costs drastically by cutting computation time to a fraction, improve your accuracy, print out easy-to-use data. Top-notch instruction manuals.



**disco**  
**tech**  
T.M.

microcomputer products

Utilities,  
Engineering,  
Architecture,  
Surveying,  
Business programs

a division of Morton Technologies, Inc.  
1150 Coddington Center  
P.O. Box 11129, Santa Rosa, CA 95406  
707/523-1600

\*\*\*\*\*

# CALIFORNIA LAND TITLE COMPANY



## THE VERY BEST IN TITLE SERVICES

with offices located in:

LOS ANGELES ORANGE RIVERSIDE  
SAN BERNARDINO SAN DIEGO SANTA CLARA  
SOLANO and VENTURA counties

The DRE is also printing its revised *Real Estate Law Book* which should be available at any DRE office for \$3.00 plus tax.

### ACSM EXECUTIVE DIRECTOR TO SPEAK IN LONDON

W.A. Radlinski, Executive Director, American Congress on Surveying and Mapping (ACSM), has accepted an invitation from the Royal Institution of Chartered Surveyors (RICS) to deliver an address during the Centenary Celebration of RICS in London, August 25-27, 1981.

The Institution was incorporated by Royal Charter on August 26, 1881, thirteen years after its foundation in 1868. To mark the centenary, there will be a program of six addresses dealing with major aspects of the surveyor's work. One, dealing with

"the Surveyor in Society", will be incorporated in a service of thanksgiving at Westminster Abbey, and is expected to be given by the Dean of Westminster. Radlinski will give the address on "the Surveyor in Outer Space".

The other addresses are "the Surveyor and the Environment"; "the Surveyor and the Land"; "the Surveyor and the Seas"; and "the Surveyor in the Microelectronic Age". They are intended to focus attention on topics which will be of interest not only to the profession, but also to a wider public audience.

### EDUCATIONAL DIRECTOR

Dr. Marshall W. Davies has been appointed as the first Education Director for the American Congress on Surveying and Mapping. He will report on April 7, 1980, to the National Office in Falls Church, Vir-

ginia to begin his full-time direction of the educational activities of ACSM.

Under the general supervision of the ACSM Executive Director, he will be responsible for developing, organizing, and managing a coordinated continuing education program of short courses, workshops, and correspondence courses to meet the needs of members of ACSM and its Affiliates and Sections.

Among his other responsibilities, Dr. Davies will be establishing and maintaining a procedure for recording educational credit units of members. He will be encouraging Affiliates to establish professional development programs to meet special regional and statewide requirements. And he will be the manager of any certification programs that ACSM may establish. ▲



## ELECTRO-DIST. & ASSOC.

### ELECTRONIC DISTANCE MEASURING EQUIPMENT RENTALS

HEWLETT-PACKARD

3805 Distance Meter 3808 Distance Meter

3810A Total Station

3820A Electronic Total Station

KERN

Theodolites and Levels

Also available—qualified technical assistance and overnight delivery to most areas. Call or write today.

5383 E. FIG, MANTECA, CALIF. 95336  
(209) 239-3121

24 HOUR ANSWERING SERVICE



## Sure the price is great, but are they any good?

We can **prove** they are with our exclusive "hands-off" trial! That's right: just buy one of our Retro-Ray reflectors and try it for a month. If you don't think it's as good or better than any E.D.M. prism on the market, send it back and we'll send back your money—all of it, no questions asked. Call us toll-free or check with your local dealer. You'll like Retro-Ray, and you'll love the price—we guarantee it!

### Retro-Ray reflectors:

No. 110L; Round, single prism	\$160.00
No. 109L; Round, triple prism	435.00
No. 105C; Lateral, triple prism, tilting	750.00

Padded storage bags available for above models.

See your local dealer or send for complete price list and details on all our reflectors.

**Lewis & Lewis** surveying  
equipment

1600 Callens Road • P.O. Box 820  
Ventura, California 93001 • (805)644-7405

CALL TOLL-FREE (except California, Alaska & Hawaii):  
(800)235-3377 TELEX 659254 (ANS BK: NAVSVCNTR)



**BOARD NEWS**

(Continued from Page 11)

**9. Section 8780(c): Violation of any other provision.**

Maximum: Revocation.

Minimum: 60 days suspension stayed for one year on the following conditions:

- a. 15 days actual suspension.
- b. The respondent shall obey all laws and regulations related to the practice of land surveying.
- c. The respondent shall submit such special reports as the Board may require.

**10. Public Reprovals.** Whenever the administrative law judge orders that a public reproof be made, the proposed decision should contain the following or similar language:

"The respondent shall be publicly reproofed."

**N.B.** Conditions of probation shall apply to all penalties other than the maximum penalty of revocation. ▲

**Advertisers Index**

	Page No.
Allied Surveyor Supplies	31
AGA	4
Bernsten Cast Products, Inc.	19
Brunson Instrument Co.	8
California Land Title	26
C&R Manufacturing	31
Concap	5
Disco-Tech	26
Electro-Dist. & Assoc.	27
Electronic Survey Rentals	30
Engineering Services Co.	3
Hadco Instruments	31
Haselbach Surveying Instruments	28
Industrial Pipe & Steel Co.	30
Keuffel & Esser	16 & 17
Kern Instruments, Inc.	29
Lewis & Lewis	6 & 27
Ogden Surveying Equipment Co.	26
Sierra Cybernetics	28
Surveyors Service Co.	24
Swiss Precision Instruments	29
Topcon Instrument Corp. of America	7
Warren-Knight Co.	30
Western Engineering & Surveying Systems Co.	18



FIRST QUALITY SERVICE WITH OVER 40 YEARS EXPERIENCE

**HASELBACH**  
**SURVEYING INSTRUMENTS**

SALES & SERVICE  
WILD, TOPCON, LIETZ, PATH, K & E, ZEISS  
EDM'S & SUPPLIES

1447 ROLLINS RD.  
BURLINGAME, CALIF. 94010  
(415) 348-7247

**Introducing the PIONEER I Computer**

A full-scale computer for less money than a HP-9815S or Survey 31 with printer! Now you can do your survey computations *plus* your books, billings, payroll, letter writing, standard printouts, and much, much more. The survey programs, patterned after HP's 9815 series, were refined by a practicing California land surveyor for your type of problems.

**Don't be misled** by limited-feature imitations; this is *absolutely* the *most* complete computer on the market today for the money. Prices start as low as \$6000, complete with survey programs and conversion of your IBM typewriter to a printer!

**Call or write today for literature or an in-house demonstration in Northern California.**

105 Willow Valley Rd., Nevada City, CA 95959 • 916-265-6439



Terence Petersen  
LS4315

# Classified

## FOR SALE

Cubic DM-40 Autotape range-range positioning system. \$10,000. Modified Autotape system, \$20,000. Autotape printer also available. Call or write Ocean Technology Ltd.,

P.O. Box 661  
Cedar City, Utah 84720  
(801) 586-2001

## STOLEN

Distance Meter, Topcon DM-C2, Serial No. 910083. Contact B.B. DeWitt, 900 Fifth St., Oceanside, CA 92054, (714) 722-4754.

## FOR SALE

K&E Microranger in good condition. \$1300 or offer. Phone Dirk Slooten, Ferguson and Wollman (415) 685-1500

## CAREER POSITION AVAILABLE

Licensed land surveyor preferred. For office management position in surveying division of long-established civil engineering/land surveying firm in San Diego. Contact W.A. Steen, Lawrence, Fogg, Smith & Associates. (714) 460-9000.

# UNSURPASSED



Kern DKM2A:  
The one second  
Theodolite, first  
in quality and  
dependability. For  
detailed information  
call or write: Kern  
Instruments, Inc.  
Geneva Road,  
Brewster, New  
York, NY 10509.  
914-279-5095.  
Kern Instruments of  
Canada Ltd., Ottawa,  
Ontario, 613-235-4908.



## THE SERVICE SPECIALISTS

featuring:



### The "Factory Trained Technician"

Know your Factory Trained Technician. Trained and educated at the Factory in Switzerland. Our Factory Trained Technician has 15 years of experience, specializing in repair and modification of professional surveying equipment.

For factory authorized repairs, bring your instruments to Swiss Precision Instruments.

You can't find a better repair service.

SALES • REPAIRS • RENTALS



- THE SERVICE SPECIALISTS -  
154-A HAMILTON DR. • NOVATO CA 94947  
415 883-7866

# W-K PRECISION

Dealers needed



WK  
Engineers  
Dumpy  
Level



WK 20"  
Transit  
10-2220

"Since  
1908"



Theodolites  
1' to 1"



Compasses

Reliable  
Warren-Knight  
Products



Made In USA

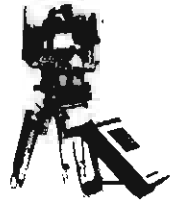
See your  
Local Dealer  
and specify  
W-K!

## Warren-Knight Co.

Manufacturer and Distributor of  
Surveying Engineers Instruments  
2045 Bennett Road  
Philadelphia, Pa. 19116  
215-464-9300 or 800-523-3844

Free  
Catalogue

# IT PAYS TO RENT and We have what you need!



Discounts: 10% after 30 days, 20% after 60, etc. up to 50%  
Call us Collect

Our large inventory of complete systems is available for long or short term contract and can be delivered in hours—anywhere in the world.

Electronic Distance Measuring Equipment:	DAY	MONTH
Hewlett Packard 3820 Total Station	\$100.00	\$2,000.00
Hewlett Packard 3810 Total Station	60.00	1,200.00
Hewlett Packard 3808 Distance Meter	50.00	1,000.00
Tellurometer CA1000	35.00	700.00
Cubic DM-60 Cubitape	25.00	450.00
Cubic DM-20 Electrotape*	40.00	700.00
Wild DI-10 Distomat Mountable with T-2	20.00	300.00

Positioning Equipment:	DAY	MONTH
Motorola Mini-Ranger with two Coded Transponders* **	250.00	3,000.00
Each additional Mini-Ranger Transponder	50.00	500.00
Cubic DM-40 Autotape	200.00	3,000.00
Cubic DM-40 Autotape, Modified	300.00	4,500.00
Printer for Autotape	15.00	150.00
HP 5150 Thermal printer for Mini-ranger or 3 range Autotape	50.00	500.00
Decca Hi-Fix (over-horizon, range-range)*	**250.00	2,500.00
(hyperbolic chain)* **	350.00	3,500.00

Optical Surveying Equipment:	DAY	MONTH
Lietz BT-20 Transit, Optical plummet, 20" horizontal, l'vertical	6.00	120.00
K & E Transit (20" & 1')	5.00	100.00
Askania A-2a 1" Directional Theodolite	15.00	300.00
Wild T-2 Theodolite (1" direct reading)	20.00	400.00
Wild T-3 Theodolite (.2" direct reading)	35.00	600.00
Lietz B-1 Engineers Automatic Level	6.00	100.00
Wild NA2 Automatic Level	15.00	150.00
Zeiss NI2 Level	15.00	150.00

Marine Surveying Equipment:	DAY	MONTH
Raytheon DE-119 Recording Fathometer*	20.00	400.00
Raytheon DE-719 Recording Fathometer*	25.00	500.00
Raytheon 723 Precision Survey Fathometer* accuracy .25 pct. to 250 fathoms	50.00	600.00
Raytheon DSF-600 Deepwater Fathometer	200.00	2,000.00
EG&G Mark 1-B Side Scan Sonar* **	500.00	4,000.00
EG&G Uniboom Sismic Profile* **	400.00	3,000.00
EG&G Sparker (1000 joule)* **	400.00	3,000.00
Bralcon-Histogram Recording Current Meter	50.00	500.00
Teledyne-Gurley Current Meter	25.00	250.00
Honeywell Sea Scanner	50.00	500.00
Shipek Sediment Sampler	50.00	300.00

Miscellaneous:	DAY	MONTH
American Paulin Altimeter M-1	4.00	75.00
American Paulin Recording Barograph	15.00	150.00
Triple Prism reflector assembly	3.00	65.00
HP 9815 Surveying Calculator with Software	30.00	300.00
Super Cobra (portable drill)	20.00	300.00
GE Radios (Porta-mobil and Master)	10.00	100.00
Power Plants (110 & 12 V)	15.00	150.00
Telian Thermal-Electric Generator, 30 day endurance unattended with 100 lb. propane bottle	25.00	250.00

\*Power source not included  
\*\*Plus technicians (if required)  
†Antennas supplied are omnidirectional.  
100 mile range also available.

Prices commence on departure and end upon shipment for return to leasing office and do not include transportation. Rates on long term leases, operator-technicians, and aircraft, available on request. Rates subject to change without notice. Authorized Lietz Tellurometer dealer, Tripods included with equipment.

New and used equipment available for lease-purchase. Option included in agreement.

**ES** ELECTRONIC  
SURVEY  
RENTALS, INC.  
Land, Aerial, & Hydrographic Systems  
1305 North Airport Road, Cedar City, Utah 84720  
(801) 586-2001

# SURVEYING STAKES

SAVE UPWARDS OF 50%  
ON THE FINEST  
STEEL PIPE  
BOUNDARY STAKES



## IMMEDIATE DELIVERY

PLEASE FEEL FREE TO CALL FOR  
PRICES ON ANY SIZE  
NOT LISTED ABOVE, WE CUT  
ANY SIZE AND LENGTH  
(Ask for TOM)

YES!  
GALVANIZED PIPES  
AVAILABLE - CALL  
FOR QUOTES

PRICES FOR MOST POPULAR SIZES	
3/4" I.D. x 12"	.37 each
1" I.D. x 12"	.51 each
1 1/2" I.D. x 12"	.75 each
2" I.D. x 12"	.96 each
3/4" I.D. x 18"	.48 each
1" I.D. x 18"	.67 each
1 1/2" I.D. x 18"	1.00 each
2" I.D. x 18"	1.29 each
3/4" I.D. x 24"	.59 each
1" I.D. x 24"	.82 each
1 1/2" I.D. x 24"	1.25 each
2" I.D. x 24"	1.62 each
3/4" I.D. x 30"	.70 each
1" I.D. x 30"	.98 each
1 1/2" I.D. x 30"	1.50 each
2" I.D. x 30"	1.95 each



TOOLS and MACHINERY  
DIVISION OF INDUSTRIAL PIPE & STEEL CO.  
9936 RUSH STREET / SOUTH EL MONTE, CA 91733

PHONE (213) **443-9467**

# ULTRA-SITE ADJUSTABLE TRIPOD

5 1/2ft to 10ft high  
FLUORESCENT SURVEY EQUIPMENT

write or phone for details  
(714 630-5060)

C&R MANUFACTURING  
1189 N. KRAEMER BLVD.  
ANAHEIM, CALIF. 92806

OWNED AND OPERATED BY HADCO INSTRUMENTS

# HADCO INSTRUMENTS

SURVEY INSTRUMENTS  
SALES & SERVICE

LIETZ DAVID WHITE WILD  
K&E ZEISS/EDM EQUIPMENT  
FINEST REPAIRS AVAILABLE  
RENTALS - FIELD SUPPLIES

714 630-5050

1189 N. KRAEMER BLVD.  
ANAHEIM, CALIFORNIA 92806



**Surv KAP**  
SK 101

ALLIED SURVEYOR SUPPLIES MFG. CO.  
DIVISION OF ALLIED MANUFACTURING CO., INC.  
P.O. BOX 27367, TUCSON, AZ 85726 (602) 622-6011

## PERMANENT SURVEY MARKERS

Cold Formed For Strength & Durability

SOMETHING FOR ALL YOUR PERMANENT MARKER NEEDS

KAP AND ROD ASSEMBLIES  
MAGNETIC MONUMENTS  
CONCRETE MARKERS  
KAPS TO FIT PIPE  
CUSTOM MARKERS  
REBAR KAPS

FREE SAMPLES  
AVAILABLE

WRITE FOR FREE  
LITERATURE

EASY TO INSTALL  
LIGHT TO TRANSPORT

GUARANTEED NOT TO CRACK, CHIP OR BREAK  
PREMARKED AT FACTORY OR MARK EASILY IN THE FIELD  
AVAILABLE IN VARIOUS TOP SIZES FOR DIFFERENT DIAMETER REBAR & PIPE

## Sustaining Members

HEWLETT  PACKARD

Electronic Distance Meters  
Total Station  
Programmable Calculators

MARK of EXCELLENCE



SINCE 1819



**SURVEYORS SERVICE CO.**

P.O. Box 1500 COSTA MESA, CA. 92626



9936 EAST RUSH STREET  
SOUTH EL MONTE, CALIFORNIA



CALIFORNIA LAND TITLE COMPANY

1010 North Main St.  
Santa Ana, California 92701

**LEWIS & LEWIS**

surveying equipment

Ventura, California

**disco**tech  
T.M.

115 Coddington Center  
Santa Rosa, CA 95406  
Post Office Box 11129 (707)527-8500

**SECO** SURVEYING EQUIPMENT, INC.

2610 Churncreek Road  
Redding, California 96001  
Phone: (916) 241-1121

924 South Central  
Medford, Oregon 97501  
Phone: (503) 773-1236



**TRIOPTICS**

1524 Highland Avenue  
Duarte, CA 91010 (213)357-3243

**SUSTAINING MEMBERS (Continued)**

<p><b>ENGINEERING SERVICES COMPANY</b></p> <p>14604 205th S.E. Renton, Washington 98055</p>	 <p><b>LIETZ</b> Since 1882 Surveying Instruments Engineering Supplies</p>	<p><b>I ENGINEERING III COMPUTER VIII SERVICES</b></p> <p>2200 'F' St. Bakersfield, Calif. 93301 Phone (805) 325-7012</p>
 <p><b>KEUFFEL &amp; ESSER CO.</b></p>	<p><b>SAGE MICRO SYSTEMS</b></p>  <p><b>SUBDIVISION COMPUTATION &amp; PLOTTING MICRO COMPUTER SYSTEMS</b></p> <p>5333 James Ave. Oakland, Ca. 94618 (415) 658-1926</p>	<p><b>AGA</b></p> <p>The EDM Pioneers</p> <p>385 Bel Marin Keys Blvd., Suite F Novato, California 94947, (415) 883-2367</p>
<p><b>ZEISS</b></p> <p>TECHNICAL ASSISTANCE AND INSTRUMENT REPAIR</p> <p>14764 Wicks Blvd. San Leandro, Ca. 94577</p>		<p>"FIFTY YEARS OF SERVICE"</p>  <p>SALES - RENTALS - REPAIRS</p> <p>693 E. Brokaw Rd. 13115 S. Broadway San Jose, CA 95112 Los Angeles, CA 90061</p>
 <p><b>SWISS</b> PRECISION INSTRUMENTS</p> <p>- THE SERVICE SPECIALISTS</p>		 <p>829 Cowan Road Burlingame, CA 94010 (415) 697-6365</p>
 <p><b>HASELBACH SURVEYING INSTRUMENTS</b></p> <p>SALES • SERVICE • SUPPLIES • RENTALS</p> <p>(415) 348-7247 1447 Rollins Road Burlingame, CA 94010</p>	 <p>Consulting Photogrammetric Engineers</p> <p><b>CARTWRIGHT</b> Aerial Surveys Inc. Executive Offices Sacramento Calif. 1969-1971-1985</p> <p>Serving Industry &amp; Government Since 1946</p>	 <p><b>ELECTRONIC SURVEY RENTALS, INC.</b></p> <p>Land, Aerial, &amp; Hydrographic Systems</p> <p>1305 North Airport Road, Cedar City, Utah 84720 (801) 586-2001 or (801) 586-9964</p>

**The California Surveyor**

Published Quarterly by the  
**CALIFORNIA LAND SURVEYORS ASSOCIATION**  
POST OFFICE BOX 7400  
SANTA ROSA, CALIF. 95401

BULK-RATE  
U.S. POSTAGE  
PAID  
PERMIT NO. 302  
Santa Rosa, Calif.

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

ADDRESS CORRECTION REQUESTED