

# PAARA

PAARA  
PALO ALTO AMATEUR RADIO ASSOCIATION, INC.

Vol. XVII  
1973

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Menlo Park, Calif.  
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MENLO PARK, CALIF. 94025  
A.R.S. W60TX U.S.A.

STATION W60TX

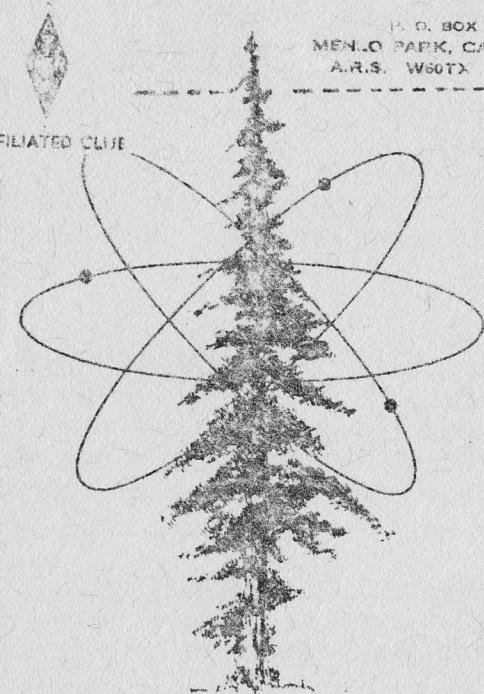
AFFILIATE CLUB

MENLO PARK  
CIVIL DEFENSE  
RADIO CLUB



K6YQT

AFFILIATE CLUB



May 73

U. S. Postage Paid  
Permit No. 320  
Menlo Park Cal.

## OFFICERS

## PALO ALTO AMATEUR RADIO ASSOCIATION, INC.

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Secretary: Gene Reynolds K6QOM	Member : Hal Moore, W6DEF
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	Member : Andy Korsak VE3FZK
	Member : Paul Thekan (NC)
	Member : Tom Ohlsson WB6KQZ

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## OFFICERS

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Vice Pres: Eric Reese, WB6KQX
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Asst RACES Rdo Off.: Vance Wardlow, W6FLE

## PAARAGRAPHS

## Staff

Managing Editor: Lee Zalaznik, WB6BJB  
 Ass't Editors : Andy Korsak, VE3FZK; Gene Reynolds K6QOM  
 Eric Reeze, WB6KQX; Tom Ohlsson, WB6KQZ; Gene Sussli,  
 WA6NVU (San Carlos Bugle).

## POLICY

1. Membership includes subscription to PAARAGRAPHS;
2. Annual dues \$4.00 per year;
3. Members will be dropped upon non-payment of dues;
4. Subscription to PAARAGRAPHS \$1.00 per year; non-subscribers will be dropped from mailing list as new names are added.

## APPLICATIONS FOR MEMBERSHIP

Send \$4.00 dues to PAARA, P.O. Box 911, Menlo Park, Ca. 94025  
 For info call 854 0803

JOIN THE CLUB

BECOME A PARTICIPATOR

GET INVOLVED

Page 3

May 1973

### COMMING EVENTS

#### Meeting Notice:

Friday May 4th, 1973 Time: 7:30Pm PLACE: Space Science Center at the FOOTHILL COLLEGE AT 12345 EL MONTE AND HIGHWAY 260. Note this is a change in the meeting place. PROGRAM: A tour of the Electronic Museum, San Carlos is the Host for this, event. So come and join in the fun.

#### Board of Directors meeting

Wednesday, May 9th, 1973 TIME: 7:30 pm PLACE: The PAARA trailer at SRI in Menlo Park, CA. All members and vistors are invitied to come.

#### AMATEUR RADIO WEEK

This year's Amateur Radio Week will be June 17-23, concluding with Field Day, June 23-24. This is a great opprtunity to make some points for the PR dept. Get your Club to plan now for some displays in the Bank lobbies, store windows, libraries and . . . or maybe where you work. This sound like great ideas you guys, do we have any volunteers.

Regular Meeting 6 April 1973:

Assembled at the Menlo Park Recreation Center for the meeting devoted to testing the efficiency of our members in passing the FCC examination for a Ham license. Gene Sussli and Andy Korsak had prepared a series of tests and set up a code speed test table for all hands.

The meeting opened with announcements of old business. This included announcement by Fred Canham of the meeting of the new Electronic Museum Amateur Radio Club at the Foothills College. Fred outlined the purpose and aims of the new Club and invited all to attend and become members.

Ed Fairbanks noted that Milt Donovan had undergone a serious operation on his hip, having a new plastic and steel socket installed. Milt is doing real well and will soon be able to attend meetings.

Fred announced a "Ham Club" picnic to be held at Mt. Diablo an sunday 20 May. All Clubs are invited to attend.

He announced that the Grade School Exploration group would appreciate an Amateur Radio Display at their annual fair to be held from 9:30 AM to 3 PM on Fridays June 1st and 18th of May. Volunteers are requested - call Fred.

Announcement was made of the Hayward ARC Auction to be held 16 April 1973

The Field Day location was announced as being on the hill of La Loma Street Menlo Park. All arrangements have been completed.

Gene Sussli recommended that the San Mateo Radio Club be invited to participate in the contest for the Tri-City Plaque on Field Day. The members present voted negative. Gene also announced that the San Carlos Club will set up a QSL forwarding service. They will assure that all QSL's received by them will be forwarded to the proper destination. More information will be forthcoming.

Jerry Holter, a visitor from the Foothills Club, announced a "Homebrew Contest" for their 27 April meeting. All are invited to attend and participate.

Bill Jackson will go to Alpine Co. on 12-13 April for the "Zip Code" contest. Alpine is a rare contact county.

FIELD DAY 1973

Teams of PAARA's Field Day have started to organize under the direction of the team captains. Present plans call for a SSB station on 80 and 20 meters, one other on 40 and 15 meters. We have found enough operators to man a single CW station; however, we are still looking! There will be a second CW group working the Novice station and we expect them to surpass San Carlos in this class. The VHF team will operate a station on 50/145/220 MHz.

Presently the teams are composed as follows:

80/20 SSB

Eric Reese WE6KQX  
Andy Korsak VE3FZK  
Jerry Starkey WA6LIJ  
Terry Conboy

40/15 SSB

Lee Matacznik WB6BJB  
Ed Fairbanks W6ATN  
Gene Reynolds K6QOM  
Rick Ferranti WB6NCX

60/40/20/15 CW

Fred Canham K6YT  
Les Vickery W6AKR  
Hal Moore W6DEF  
Paul Thekan with ticket in hand by then.)

Novice

Bruce Wilbur WN6SSR  
Rob Walker  
Andy Allen Barry

VHF 50/145/220 MHz

Tom Ohlsson WB6KQX  
Mike

And just so San Carlos won't have our complete "game plan", a mystery man "X" will accumulate contacts to push Palo Alto way ahead in the local contest. Anyone wishing to join us for Field Day, June 23rd and 24th is urged to get in touch with any member listed or phone Fred Canham K6YT (415) 348-9238 evenings.

JOIN IN THE FUN BE A MEMBER OF PAARA AND HELP WITH FD

(EDITORS NOTE: A LETTER

May I first express my appreciation for your efforts in taking over the management of PARAGRAPHS and continuing it as a very fine publication. I am too old to take an active part in the Club, but I always enjoy keeping in touch with local developments through the monthly issues.

In the February issue the last paragraph on page 14 expressed a desire for information on a dummy antenna. The design of such a Dummy Load will of course depend on the power to be handled.

There is an article from the August 1965 issue of the VHFer, entitled 'a Homemade RF Wattmeter'. For low power this unit has proved very useful to me in low power work, both as a dummy load and as a wattmeter. The principle of construction can be applied to make up a unit of considerably greater wattage by using the same concentric construction with more resistors of proper resistance. I built the unit described, and also one for a 75-ohm load. They have proved indispensable in my work. I believe my wattage readings to be somewhat on the low side. Perhaps someone familiar with present-day diodes could suggest some improvements.

I can appreciate the writers desire for information on dummy loads. Perhaps this will be helpful.

For dummy loads of greater wattage I frequently use lamps chose to approximate the required resistance. These are of course a makeshift device, but they have been of great help to me.

Thanks again for a lot of good reading on local developments. best wishes to all in PARRA.

73s Ken Wilder K6RB  
58 Catalpa Drive  
Atherton, CA. 94025

FROM THE EMARC PENMARK

By Jerry Starkey WA6LIJ

The Electronics Museum Amateur Radio Club (EMARC) held its third meeting 16 April 1973 at the Electronics Museum, Foothill College. The Program featured a very interesting presentation Doc Gmelin W6ZRJ Pacific Division Director of the ARRL and Vic-Director Al Gaetano W6VZT. This was followed by a movie "Hams Wide World" starring Arthur Godfrey K4LIB and Barry Goldwater K7UGA. A grabbag donated by Walt Read W6ASH was raffled to help the club coffers. After Walt checked in 21 stations of the SPECS Net while operating from his car in the Museum parking lot he briefed us on the coming fly by of the OSCAR 7 breadboard. (Rye or White).

The club station located on the museum floor includes wall to wall Heathkit: SB-401 Xmtr, SB-303 Rcvr, SB-220 Linear Amplifier, Digital Readout Freq. meter, Phone Patch and External RF Power Meter. The Antenna is a 2 element, 3 band Hy-Gain Quad . up a 54 foot self supporting crank up tower. SO ELECTRONS MOVE ON, LOOK OUT IONS HFRE COMES EMARC FOR DDDX. The next meeting will be held 7:30 PM Monday 21 May 1973 at the Museum. The program will be "How to Work DX" by Ross Forbes WB6GFJ. The club meets the third Monday of each month so come Join the FUN.

ADDITIONAL INFORMATION ON THE SIGHT SEEING MERRYCADE TO MT. DIABLO

On Page 10 I did not designate the place we will gather.

The place is now the Boundary picnic ground for lunch. It is located near the park headquarters just past the junction of the north and south park entrance roads. If you have a bicycle or kite bring it along. What better way to work off a big meal !!!!!.... (Editor)

YAESU .....

Now we understand that Spectronics is out of business. Yaesu has set up a headquarters at Paramount to handle their non-amateur, and Henry Radio has taken over sales and service of the Yaesu amateur Equipment. (from the ACTIVES KEYS)

Rj

"Red" Johnson

8

440 PEPPER

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ELECTRONICS

326-6085

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Capacitor  
Specials ↴

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47 MFD. - 6 VDC - 25¢

68 MFD. - 20 VDC - 85¢

Impulse  
Counter

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110 VDC.

\$2<sup>00</sup>



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Root

HAYDON  
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 $1\frac{1}{2}$ - $2\frac{1}{2}$  Min. (Adj.)

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LOOK AROUND

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Sat.: 8AM-6PM.  
Sun.: 10AM-2PM.

Adjustable  
Delay Line

$Z = 1000 \Omega$

$T_d = 0$  to  $0.4 \mu\text{sec}$

\$5<sup>00</sup>

FOR SALE.....

Transmitter, Heath DX-100 160 thru 10 meters, 180 watts, CW & AM, Grid block keying, with built in VFO, with manual, excellent for novice operation, \$60.00

Converter, Ameco CN 144 2 meter with Power Supply Ameco PS-1 and instructions, \$25.00

Crystals, Mars & WW frequencies, for Drakd Tranmitters, receivers or transcievers. More information on Any of the above call: Ray Allustiarti, W6JOV, 1812 El Verano Way, Belmont, CA, 94002.

FOR SALE.....

National HRO-7 in mint condition. Hallicrafter SX-43 needs work, \$15.00. Will trade for early radios of the twenties call: Jim, 967-7672

WELL COME BACK TO THE FOLD!!!!

John Troster W6ISQ suddenly realized he had not paid his dues for more than a year! Wrote out a check & is now a fully reinstated member. We hope John will bring his expertance to Field Day and help build up cur score. Give it a thought John.

TRAFFIC HANDLING

Lets kee<sup>1</sup>/<sub>2</sub> it going--so when our value emergency communicaton is on the line-we will step up confidently and take charge of whatever communication assignement comes our way. (from March '73 QST, pg71)

ARMED FORCES DAY

(from CCRC Circle)

1973 Armed Forces Day, when Navy Radio NPG will be operating cross-band between HARS and the ham bands, will be on Saturday, May 19th this year. Be sure you RTTY gear is ready for that test message.

WHAT: Ham Sight Seeing Motorcade to Mt. Diablo.

WHEN: Sunday 20 May 1973

WHO: Member and guests of:

Foothills Amateur Radio Society

Electronics Museum Amateur Radio Club

San Carlos Civil Defense Radio Club

Palo Alto Amateur Radio Association

HOW: On your own or in Caravan

Come join the fun. See beautiful Mt. Diablo State Park with fellow hams. It is a 2966 acre mountain park 26 miles east of Oakland. All-year paved road leads to summit (3,849 feet) from which it is said 600 miles of the Sierra Nevada are visible on clear days. Picnicing and camping are available. At the summit is the survey control point for most of northern California (and your Shack too). The Surveyor General of the United States years ago surveyed the entire country and fixed imaginary lines running east and west and north and south across the nation. These are known as Base and Meridian lines. Although they are national lines they may be given local names. California has three such reference points. They are the San Bernardino, Mt. Diablo and Humbolt County Base and Meridian Lines.

For those who wish to travel in caravan we will depart at 1032 from 2 points:

1. The Foothills College Electronics Museum Parking Lot.
2. Stanford Research Institute, Menlo Park.

We plan to meet at a picnic area yet to be designated for lunch at 1:03 (1303 PST for DX Hounds). This event is meant to be a sightseeing outing and hence everyone should bring his or her food and drink. No formal picnic program is planned. Ragchewing, hiking, resting and gemutlichkeit are encouraged. Other suggested items to bring are name tags, binoculars, camera, lawn chairs, jacket in case it becomes windy, sun glasses and cushions for those who lack natural padding.

(con't to page 11)

(con't from page 10)

For those who have mobile rigs we will operate at 7.23 MHz (Plus or minus QRM-7.225 is the edge of band for Generals), 146.0 MHz, 145.24 MHz, and 145.49 MHz.

No reservations required. No charge except nominal charge by State Park; however, would appreciate word from mobiles, particularly those who can accompany the caravans.

#### News from around the Bayarea

Big Antenna Tower..."Curiouser and curiosester," to quote Alice in Wonderland. Yes, all those shiny guy wires at the top of the big tower are a permanent part of the installation. They're not ~~wire~~, however, they're fiberglass so's they won't gongle up the antenna pattern. Sometimes the expression "Joe McGee" comes to mind when describing this tower project.

The new in-service date is now June 1. That's for Channels 2, 4, 5, and 7, and for KRON-FM, KCBS-FM, KFGG AND KSFX. Channels 9 and 44 will move later. They'll move on an out-of-service basis, and reinstall their old transmitters at Mt. Sutro.

The "skin" or shrouding, which will cover the legs and cross-members of the tower, will be added this summer. The Metal plates of the skin will be shipped with the orange and white baked enamel already on them. Thus the outer surface will remain shiny as the structural stell rusts auay underneath.

Those big single "batwings" stuck on the lowest cross-members are the emergency antennas for the TV stations- they've already been on-the-air. Meanwhile, the cable TV people seem to have saturated most of the area to served by the big tower. Where some of us live, we'll hve to "go cable" to keep the received signals Under 1 Volt/Meter.

" (from the ACTIVE KEYS)

ARRL OFFICIAL BULLETINS

#414 February 22

Attention DXers. Upon recommendation of the ARRL DX Advisory Committee, effective September 1, 1973 the DXCC Phone Award will be discontinued. Those holding Phone DXCC will continue to receive credits when submitting endorsements. However, these credits and those previously given will be considered as the General-Type DXCC only. November 1973 QST will be the last issue to show listings for the DXCC Phone, for credits made for the month of August 1973. The current listing of DX Advisory Committee members appears on Page 78 of January QST. Additional details page 115 of the March issue.

#415 March 1.

FCC announces a further postponement in deadlines for filing comment on its proposal to raise licensing fees in virtually all radio services, Docket 19658. New dates are March 14 for initial comments and March 28 for reply comments. Under the proposals, fees for new, renewal, modified and renewed or upgraded amateur licenses would be ten dollars for five years. Modifications would cost five dollars. Other fees and exemptions would remain unchanged. The league will be filing its opposition before the deadline. See page 10 February and page 78 March QST. for other information on the subject.

#416 March 8

The colorful new ARRL Satellite DX Achievement Award is proving to be a popular goal for many users of Oscar 6. To date, 38 Amateurs in 6 countries have met the requirements.. To qualify, 1000 points must be accumulated. Contacts count 10 points, each new country 50 points and each new continent 250 points. Contacts via the satellite must have taken place on or after December 15, 1972. Application form are available from ARRL, 225 Main Street, Newington, Connecticut 06111. Further details page 58 December QST.

# J & H OUTLET

## SURPLUS ELECTRONICS INTEGRATED CIRCUITS

TRANSISTORS — DIODES — TUBES — METERS — RESISTORS  
AND MANY OTHER ITEMS TOO NUMEROUS TO LIST HERE

AN UNUSUAL DISPLAY OF NEW  
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ALUMINUM, BRASS, COPPER, STAINLESS STEEL  
in sheet, bars, blocks, rods, tubes, shapes, etc.

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AND SURPLUS ITEMS

ALUMINUM, BRASS, COPPER, STAINLESS STEEL  
IN SHEETS, BARS, BLOCKS, RODS, TUBES, SHAPES, ETC.

STORE HOURS

MONDAY THROUGH SATURDAY 10 AM to 6 PM

J&H OUTLET

ARRL OFFICIAL BULLETINS

#417 March 15

With the coming of the travel season, amateurs will be taking advantage of reciprocal operating agreements. Amateurs traveling across the Canadian/U.S. border should apply for an operating permit 30 to 40 days in advance. W/K licensees apply to the Department of Communications, Ottawa, Ontario, Canada or its six regional offices. Canadians apply to the FCC, Washington, D.C. 20554. Travelers visiting elsewhere should allow at least two months for processing of requests. Write to ARRL headquarters for details on a particular country. League headquarters is open Monday through Friday for visitors, with exception for April 20, May 28, July 4 and September 3. Printed traveling instructions available upon request.

IT COULD HAPPEN TO YOU

When was the last time you tested yourself to see if you really can copy code at the speed you said you could when you renewed your license? When was the last time you studied the ARRL license Manual to see if you still know the technical material? Probably most of us would have to say "not recently". Several hams we know of have been called in by the FCC for re-examination, one of whom failed. It could happen to you, so why not brush up on code if you are not a CW fan, and study the technical material and keep current with all that is required so that a call for re-examination will not be a shock to you.

(from the CCRC Circle)

SCRRY ABOUT THAT!

Last month when we gave you Doug Murrays new Ham store fone number, we were a little wrong (like "alittle pregnant") It's really 763-6262.

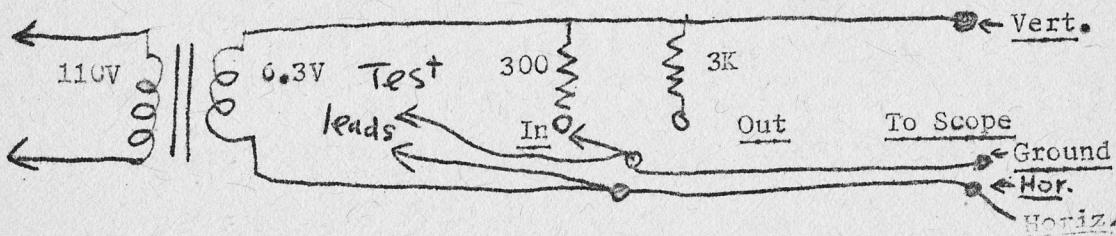
(from CCRC Circle)

Amateur TV

I recently moved to a new QTH up in the Redwood City hills and have been setting up the TV camera and other TV equipment donated to the club, along with some of my own TV equipment I bought recently. I brought all of the club's TV paraphernalia up to my house since all the PAARA board members have been bugging me to "get that junk out of the trailer". Anyway, I'll be able to reach all of you better from my qth than from SRI with Monday night ARRL bulletins on TV since I have line of sight to pretty well most of the Bay Area. Tried to get a picture through to Elmer WA6MPC and Paul (ex-WN6DQU) but had troubles with the ART-26 transmitter--funny how Murphy's law is always hanging in there for me -- no matter what project I start up something always goes wrong! Matter of fact I was so determined to get a TV signal on the air before this issue comes out that I spent this whole weekend setting up and I didn't get this article typed up on time for Lee. Of course he doesn't know it yet as he is probably heading over to Vance's house right now and is he going to be mad when he gets there and no stencils from Andy! Trouble is he can't run off the paper till i get over there be cause these halves of stencils have to be glued to his halves first. I'm just saying all this to fill up paper so I can get the heck over there already before he gets too mad, in case you guys are wondering whats all this got to do with the price of peanuts.

Since I don't have too much more, here follows part of a technical article submitted by Bob Baum W6BFH which he got out of some technical bulletin of some company (will credit to the right people next month).

THE CURVE TRACER --a simple device to check transistors  
 Get that 'scope off the bench, dust it off, plug it in and let's check semiconductors the easy way.  
 In order to provide a rapid and positive method of servicing transistor products, a "Curve Tracer" has been utilized to provide in-circuit as well as out of circuit rapid testing of transistors. See schematic below.



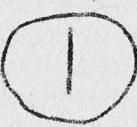
Basically, we sweep the junction of a transistor with 6.3 volts AC so that it may be observed while both conducting and not conducting during alternate plus and minus portions of the AC wave. This display is observed on a regular low-priced oscilloscope with no power applied to the unit under test. Before proceeding, adjust the 'scope thusly:

- o With no load across the test leads, adjust the 'scope horizontal amplification to scan 2.
- o With the test leads shorted, adjust the 'scope vertical amplification to scan 2.

We are not so much interested in the intricacies of the wave form obtained as we are in a "go" or "no-go" type of check. Samples of basic wave forms are shown below.



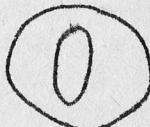
Open



Short

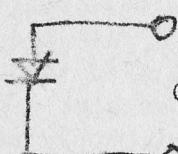


Resistance



Capacitance

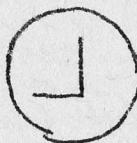
Below are samples of typical good semiconductor wave shapes. Notice the sharp bend--evidence of conduction.



Ground

Curve tracer conn.

Horiz.



Good diode



good selenium



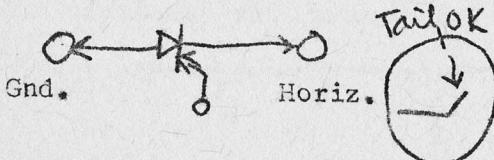
Zener



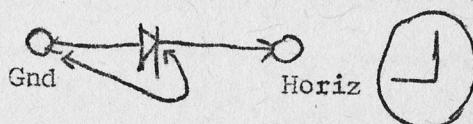
Tunnel



tunnel(expanded horiz.)



SCR(Gate Open)



SCR(Gate and Anode grounded)

In-Circuit Checks

In-circuit usage will produce a combination of two wave shapes. Capacitance and resistance may mask the response; however, the wave shape of a good transistor gives some evidence of a sharp junction or a current change. This is the key to identify a good transistor from a defective one.



*Not in  
original  
- just  
thought  
I'd add  
to the  
variety*

No-Go Condition

A defective transistor can show any of three basic patterns:



Short



Open



Leakage

To completely check the transistor with a two-lead checker, three checks will have to be made. Polarity of the leads is important so the check can be made very rapidly, checking from: 1) emitter to collector 2) base to collector, 3) base to emitter. Most of the breakdowns occur from emitter to collector; therefore, time can be saved by always making this test first. Most good tests of base to emitter or collect-  
or show a typical diode pattern.

This article will continue next month

\*\*\*\*\*

FOR SALE	FPR SALE	FOR SALE	FOR SALE
OSCILLOSCOPE	Dumont Type 336-A (DC to 20MHz)		\$100

ELECTRONIC SWITCH Dumont Type 330 \$25  
Combination price # \$110

Both complete with manuals Call Gene Spurlock 323-5358 or  
326-2200 ext 3588 at SRI

Will consider trade for quality mutual-conductance tube tester.

\*\*\*\*\*

CONGRATULATIONS to Steve Stuntz of SRI who just passed his Advanced license test after many years of inactivity as a ham  
Steve has been reading PARAGRAPHS I've been sending him and the bait finally took!

SAN CARLOS BUGLE

By Larry Daily W6KJ

Wow! If this fine weather keeps up, I know that the old spring fever weather is just around the corner. This, in turn means that summer and Field Day is practically upon us. The Field Day Committee has been doing some preliminary work and has quite a few items under control, we hope. More on Field Day at the next meeting. Anyone having any new suggestions or ideas you think will help, please contact committee men or club officers.

News items right now seem to be a bit scarce, but there was one item in the Operating News section of the April issue of QST. This notice should be read by all concerned but is not intended to strike fear into the hearts and minds of our Field Day competition. For those who did not see the item I am referring to I will give it a quick breakdown. It refers to the fact that our avid contest man, Ken Keeler W6PAA, took first place in the January CD Party, CW section that is. He not only won but did it with the second highest score ever produced in a January Party. According to the breakdown of scores in the CD Bulletin for April, Ken had 900 QSOs in an operating period of 20 hours, out of the 30 hours period. A little quick arithmetic shows that this means 45 QSOs per hour or approximately one QSO every 1.35 minutes! Makes you wonder what he did with all his spare time, doesn't it? I spent a couple of hours in the April CD Party last weekend and heard Ken going to town again so he will be in good shape for Field Day. Are you ready, PAARA? 73's.

STOLEN FROM MY AUTO ON MAR. 10, 1973 IN BERKELEY CA:

Regency HR-2  
SB-34

Ser No: 04-02879  
Ser No: 211828

Please notify: Frank Inami, W6GSR or Berkeley Police Dept.  
1168 Hillcrest Court  
Livermore, Ca. 94550

19

# HALTEK ELECTRONICS

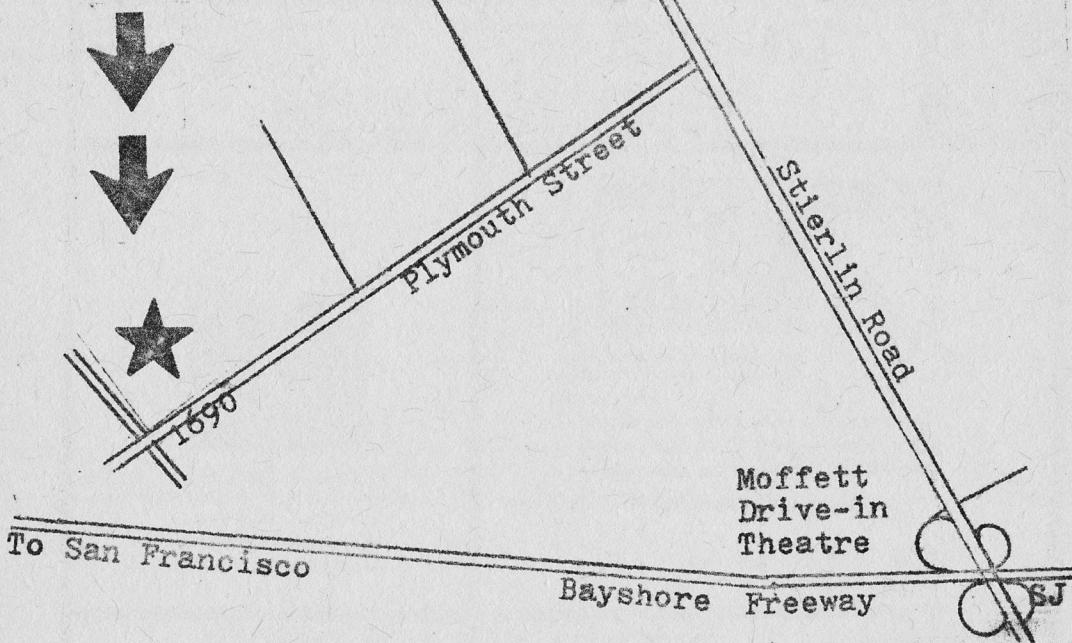
1690 PLYMOUTH AVE., P. O. BOX 970

MOUNTAIN VIEW, CALIFORNIA 94040

PHONE: AREA CODE (415) 969-0610

• Surplus Electronic Test Equipment & Components

*Haltek Electronics*



*Haltek Electronics* 1690 Plymouth Ave. Mountain View, California 94040

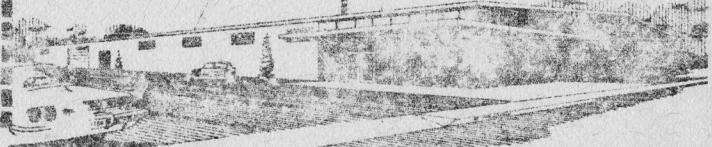
REMEMBERED 20 YEARS AGO

# - QUEMENTS -

## "WHERE YOUR FRIENDS AND NEIGHBORS TRADE"

OPEN THURSDAY NITES 'TIL 9

QUEMENT ELECTRONICS  
1000 SOUTH BASCOM AVE. SAN JOSE, CALIF.  
"CALIFORNIA'S MOST COMPLETE HAM STORE"



\*\*\*\*\*

*All roads lead to Quement Electronics*



## QUEMENT ELECTRONICS

40,000 SQ. FT. OF ELECTRONIC PARTS,  
COMPONENTS, TUBES, AND ACCESSORIES.  
- AMATEUR - MILITARY - COMMERCIAL  
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- CITIZEN'S RADIO - COMPLETE STEREO HI-FI DEPT  
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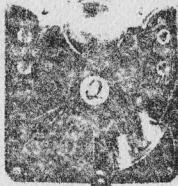


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