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PAARA

GRAPHIS



**palo Alto
AMATEUR
RADIO ASSN.**

MENLO PARK C.D. RADIO CLUB, K6YQT

PAARAgaphs is the official organ of

The Palo Alto Amateur Radio Association and the Menlo Park Civil Defense Radio Club

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Membership in PAARA is \$4.00 per calander year (payable in January) which membership includes a subscription to PAARAgaphs. Interested others may subscribe to PAARAgaphs for \$1.00. Make payment to:

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REGULAR MEETING

Friday September 7, 1979 7:30 p.m.

THE WORLD of OSCAR

by

Ed Johnson, WB6CEW

Ed has been riding OSCAR almost since the day of the first launch. He has been highly successful solving technical and equipment problems and will share with us the gloom of failure as well as the glow of success.

CIRCLE THE DATE

Friday September 7, 1979 7:30 p.m.

Menlo Park Recreation Center, Civic Center, Menlo Park.

FUTURE MEETINGS: October 5, PAARA Auction/Flea Market October 6,
PAARA Picnic October 21, November 2, December 7

PAST CORNER: Jim, K7UDG, accepted a \$50.00 from the President of Western

PAST CORNER: Jim, K7UDG, accepted a \$50.00 check from the President of Western Wheelers, Roy Jirsek, for Explorer Post's radio coordination of the June cyclethon.

Fred, K6YT, gave a report on the upcoming Auction/Flea Market, October 6, at the ANPEX Cafeteria. A list for volunteer sign-ups was collected.

Eric, W6DU, discussed one facet of Amateur Radio--DX chasing. Following his presentation he led a general discussion and answered both general and specific questions as they related to his experience.

Coffee and cookies prepared by Ed, W6AIN were enjoyed during the chin-fest session between the business meeting and Eric's presentation and the meeting ended with a phenomenal raffle.

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BOARD CORNER: All members of the Board were present at the August 8 meeting and Clay, K5OSQ, wended his way over the mountains and through the valleys to attend as a guest.

Organization of the October 6 Auction/Flea Market at ANPEX Cafeteria in Redwood City, starting at 10 a.m. (see more in other sections of this and next months PAARagraphs) was completed.

Gerry, W6HER, was selected to generate a surprise for the Schools for the use of their property during the month of June for the preparation for and execution of Field Day--1979.

Bob, K6SUM, broached the subject of a Club picnic and suggested Foothill Park as a site. The date has since been set for October 21.

The next Board Meeting will be in the Club trailer, now in pasture in the SRI parking area next to the steam plant, September 12. All are invited.

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PUBLIC RELATIONS CORNER: Guests at the August meeting included Bill McDermott, A6GVM, Wallace Porter, K6URO, Bob Taylor, Bill Burns, Dick Olsen, K7AVD/6 and

R. A. Nelson, all of Palo Alto. They have been put on an interim mailing list and we all hope to see them at the September 7 meeting. They know the way. Do the members know them? A one way introduction usually ends up a new acquaintance.
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EXPLORER CORNER: Amateur Radio Explorer Post No. 599 has a new member. His name is Mike Disibio. Mike resides at 667 Marsh Rd. Menlo Park (94025). His telephone number is 326 2905.

Another name which belongs in this article is Huntly Hornback. Huntly first became interested in Amateur Radio through our Post. This interest soon spread to his father, John. John became a novice before Huntly, with the call KA6PYX. Huntly soon followed with the call KA6UEB. Huntly said he looks forward to operating on 40 meters with equipment loaned through Swede, KA6BEU. Congratulations to both Huntley and John.

On behalf of the entire Explorer Post, I would like to thank Dusty, K6FEN, and Fred, K6YT, for the donation of electrical wire, duplex outlets, and circuit breakers. A work party will soon be formed among the explorers to rewire our "shack" and to sheet rock the walls.

Concerning our trip to Arizona: the post was unable to go because of transportation difficulties. A trip for sometime in September is currently being planned.

Another postponement is our MONOPOLY^(R) Tournament. It will be held sometime in late September or early October.

As a final note, one of our post members, Jerry, KA6FTV, recently established his first "DX" contact: a VP9 in Bermuda. The contact was made on the novice portion of the 15 meter band. Congratulations Jerry, and many more.

73, Jim O'Neil, Post 599.

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2-NUTTER NET CORNER: The PAARANet on 2 meters has been chugging right along. A number of new entries have been made during the past six months. No routine roster of post check-ins was available, but those present at the August 13 roll call included: W6AIN, W1ARR,

CUT AND PASTE CORNER: Please add the following to your April, 1979 Roster:

Huntley Hornback	KA6UEB	1474 Marlborough, Los Altos, CA 94022	961 1991
Allen Larson	WA6AZP	700 Arbor Rd., Apt. 3, Menlo Park, CA 94025	
Bob Taylor		925 Waverly St, Palo Alto, CA 94301	321 5089

A new roster in November. Get any changes to your editor or any board member.

W6ARA, K6EHS, K6FS, W6JFH, W6KJI, WA6LNV, K6FTH, W6HIR, WA6HYB, WA6OFN, K5CSQ, WB6RAF, N6RY, K7UDG, WA7ZKA, W6YFN, K6BLE, KA6GZG, WA6EUX, WA6GCH and WA6ATP. And ur scribe, W6BFI. Missing were KA6ATG, W6CFZ, WA6FSQ, W6BFT, WA6LJ, W6LH, W6CVP, WA6SOT, W6TFT, K6FHY, K6WD, W66YOY, K6YF, WA6YSY, KA6UDG, WA6ROH, W6CVP, WA6KUT, W6CFC. And that's the end of the line. 24 check-ins in the middle of August isn't bad. It should be added that K6SEN, net control, must have been there too. (in the chicken scratching one line was counted twice for a total of 29—the reason for this blurb, but it is quite impressive to have more than a third of our members on 2 meters.)

CORNER NET CORNER: The PAARA Amateur Radio Emergency Service has two high frequencies they consider for emergency communications in addition to 147.45MHz: 3935kHz and 28650kHz. Would anyone be interested in a HF net, possibly prior to the 2 meter net? All it takes is two fun people and a stated time. The 2 meter net started with only four years ago, probably to escape from the crowded 75 meter phone band. But it's not that bad now.

Such a net would give those who don't have 2 meter equipment a chance to chew the fat with other club members, and to have some of the fun those on 2 enjoy. Even a CW net in the Novice band is possible!

* * *

UNLICENSED CORNER: One new member, Bob Taylor, and two guests, Bill Burns and R. A. Nelson were at the last meeting. If there is anything anyone can do to help with your interest in radio, make yourselves known and what the members can do to help you.

NOVICE CORNER: No known new Novices this month. When you make it, shout loud enough so all can hear:

TECHNICIAN CORNER: Bill, WA6OFN, Dusty, K6MEN, and Dave, KA6GZG, have been chewing away on 40 and 15 meters, sometimes trying their darndest. Bill with a new antenna tuner he thought was soaking up all his RF, Dave too busy putting on a new roof to do much hamming, and Dusty with summer flu. Sreed, KA6BUU, keeps pounding away and one of these Wednesdays when the dogs don't bark Tuesday night, he'll go to the City to upgrade.

GENERAL CORNER: At ease, No new generals this month.

ADVANCED CORNER: I heard rumors of one, but didn't write it down and will give Trv a chance to announce it next month.

EXTRA CORNER: This corner seems to be on the outskirts of town.

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CCRC CORNER: A timely item from the July CCRC Circle: **LEARN THE CODE!** Starting Sept. 3, 1979, there will be a course for family members and friends who don't know a dot from a dash: Monday thru Friday, 0630 to 0700 local time, on 3730kHz., A2/A3/LSB. Presented by K6RAU. (For those who don't know A2/A3/LSB, probably any all-wave receiver that covers that frequency will be acceptable—no beat frequency oscillator is needed to receive it.) 0630 is before breakfast for some of us, but if you want to learn the code this is a good opportunity.

" " "

RECOGNITION CORNER: The Golden Gate Chapter of the American Red Cross has announced Steve, K6FS, and William Brooks are Community Representatives Liaison & Disaster Action Team Members for Communication for San Mateo County. Steve is PAARA's AREC Representative, has attended many meetings, supplied input to City and County Disaster Chairmen, and laid the groundwork for an amateur communication center in the Menlo Park Civic Center Command Post.

Steve will have work for the club during the October Simulated Emergency Test, SET.

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PICNIC CORNER: Save Sunday afternoon, October 21 for a Club picnic. Details will be announced in the October PAARAGraphs.

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SPECS CORNER: South Penninsula Emergency Communications System (SPECS) will hold their Simulated Emergency Test (SET) on October 20 from 9:00AM until noon. More details later.

. . .

FORTY METER DIRECTIONAL SYSTEM:—

Vertical antennas have proven to be effective performers for Field Day operation at our beautiful site at Ravenswood Point. This is due largely to the surrounding salt water and the lack of obstructions. In 1978, two verticals were used. The two quarter-wavelength Premax antennas were set up a quarter-wavelength apart and quarter-wavelength "Q-sections" of 75 ohm line were used to step the base impedance of the antennas up to about 100 ohms to permit directly feeding the two antennas in-phase or 90 degrees out of phase. By adding a quarter-wavelength of 50 ohm line to the feed system to one of the antennas a 90 degree phase lag is obtained and a heart-shaped pattern giving 3 dB gain in the direction of the lagging antenna is formed. With the two antennas fed through equal length feedlines, an egg-

shaped pattern is generated with about 1 dB gain broad-side (bidirectional).

This arrangement proved very usable, but somewhat inconvenient when it came time to change patterns, since it was done by manual patching at the antennas. It was also found that although the cardioid pattern gave very good front-to-back ratio, the front-to-side ratio was only 3dB. We all know how many stations there are in southern California that can QRM a contact with the Midwest. Since the line of the two verticals ran east-west, there was great rejection of KJ6 stations!

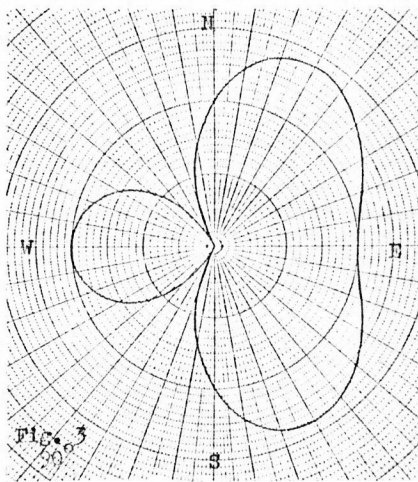
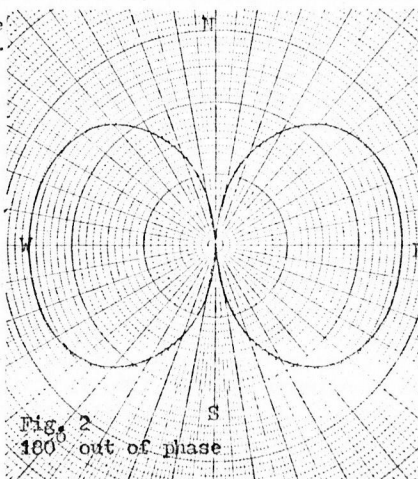
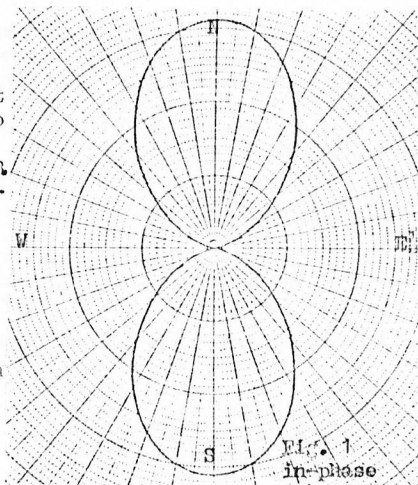
For 1979, we decided to change the spacing of the two verticals to a half-wavelength. The line of the array still ran east-to-west. By feeding the two antennas in-phase, about 3.8 dB of gain to the north and to the south could be had with the pattern of Figure 1. Notice the wide nulls to the east and west. Also, by feeding the two verticals 180 degrees out-of-phase, 2.3dB gain with Figure 2 can be had. Just for fun, a third phase angle was added. With a 90 degree phase difference between the two antennas, the pattern of Figure 3 was generated. The two lobes of the pattern give about 3 dB gain and the gain to the east or west is unity. By reversing the connection of the delay line, a mirror image of this pattern could also be created.

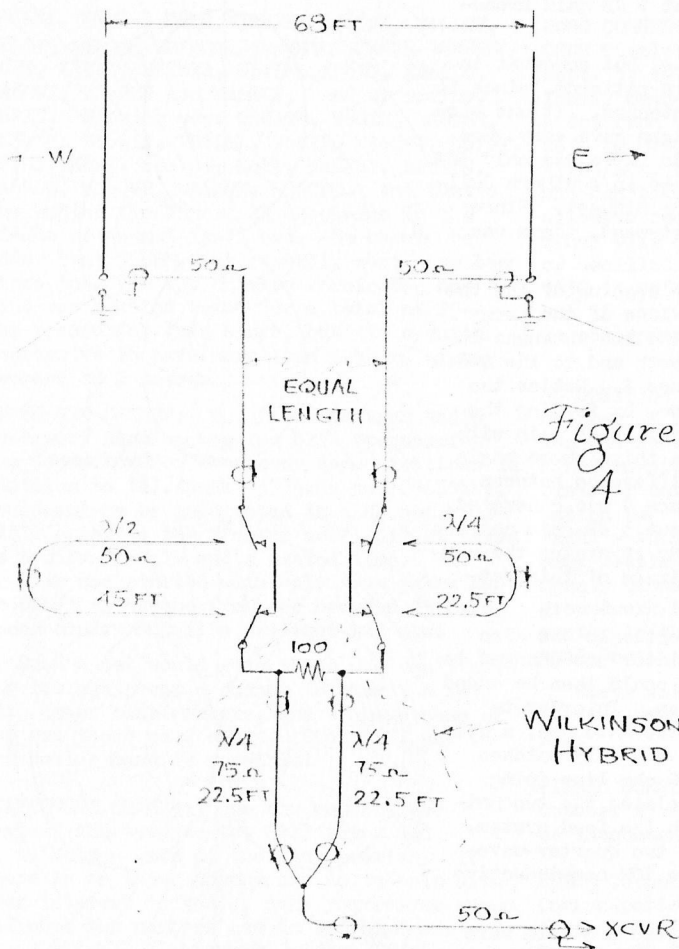
The feed arrangement of the two verticals was also modified. The line feeding each radiator was changed to 50 ohms. Delay lines, also 50 ohms, could then be added at the common point of the feed system. In order to match the parallel impedance of the two antennas, a Wilkinson hybrid was used. This hybrid not only matches the two 50 ohm feeders to a single 50 ohm line going back to the transceiver, but also isolates the two antennas so they do not interact through the feed system. The Wilkinson hybrid was made out of two quarter-wavelength pieces of 75 ohm coax and five 10W non-inductive 500 ohm resistors in parallel.

Small DC relays with mercury-wetted contacts were used to switch the phasing lines in and out. With both lines out, the verticals were in-phase. With the half-wavelength line in, the antennas were 180 degrees out-of-phase. With the quarter-wave line in the circuit, the eastern antenna lags the western antenna by 90 degrees. With both of the phasing lines switched in, the western antenna lags by 90 degrees. The details of the relay switching and the Wilkinson hybrid are shown in Figure 4.

Being modest, this simple arrangement worked fantastically! The best results were produced by calling CQ/QM on the pattern of Figure 3. This gave good coverage of the U.S. mainland and surprisingly, also tended to reject all of the foreign BC junk so prevalent on the 40 meter phone band. When a station called, a quick turn of the switch controlling the relays allowed you to null QM and/or peak up the station's signal while receiving. Because of the ease of pattern switching, you could even use a different pattern for transmitting and receiving under difficult situations.

I only wish there was room at my home to put up such an array on 80 meters. You get spoiled very quickly!





UNCLASSIFIED CORNER: PAARagraphs makes available space for advertising for items wanted or for sale by members, and for others as space permits.

PAARA AUCTION/FLEA MARKET, Saturday, October 6, AIMEK Cafeteria, Redwood City. Opens at 9:00 a.m. Selling, both flea market and auction starts at 10. Radio gear and test equipment from all ages for all ages. Raffle prizes, coffee, doughnuts, rag-chewing.

The easy Auction and Flea Market. Cooperation all around—even help moving your gear in and out if you need it.

Last year the many goodies at the flea market tables were snapped up almost as fast as they were presented. The auction had something for everyone: 75 items went for \$10 or less; 13 for \$10 to \$20; 9 each for \$20 to \$30 and \$30 to \$40; four for \$50 to \$60; four for \$70 to \$80 and four super items ranging upward to \$200. Sixty things went for \$5.00 or less; a number of select items for \$.25, and even some for free!

You CAN'T AFFORD TO MISS IT... Remember: Saturday, October 6, AIMEK Cafeteria, 10:00 a.m.

PAARA SWAPSHOP: By K7UEG; SELL: Heath HW 16 meter Realistic DX-160 meter IWC w/vwr supply Brown Brothers paddle

By W6VSI, SELL: 60' crank up tower
By K6GZC, SELL: 2.5 amp 12 volt pwr supply Kenwood KC-35S noise cancelling mike.

By K6PS, SELL: 1.5 kv antenna tuner.
By K6EHI, SELL: Prog 2mtr, 6mtr es 420mhz meters
By KB6IE, SELL: Gen-Quad 2 el tribander
By W6YEH, SELL: 220mhz mobile antenna.

WANTED:
By K6EHI: 15mtr coil for Hustler mobile antenna
40-60' twr w/rotator
By K6RY: TV monitor w/41"tube or greater
By ur editor: The end of the pg.

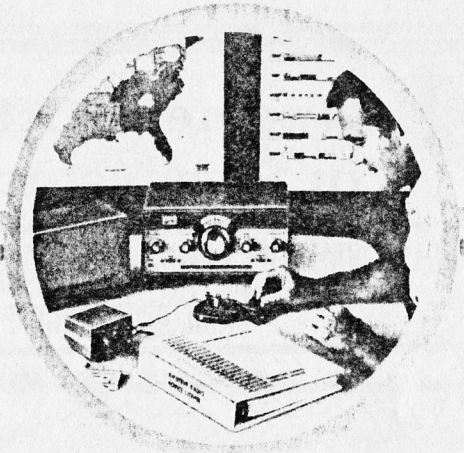
when using an electronically steerable directional antenna!

Fred, K6YE, our World Class Field Day Chairman, tells me there is a third vertical available. Hmmm.....

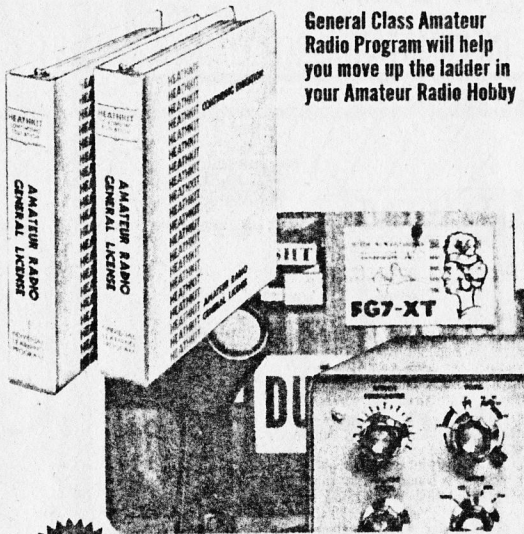
de Terry, K6TV.

PAARASET CORNER: Steve, K6PS, announced August 21 that the PAARA SET activity would take place Saturday, October 27. This alert gives all those intending to get on 2 meters a couple of months to do so. Listed earlier in PAARagraphs are over forty members active on two. That's quite-a-many, but more are always welcomed. More details in the October PAARagraphs. Meanwhile, develop your own self-contained 2 meter station, and think of the HF band if you can't get on 2.

FUTURE CORNER: Next month we have a feature article written by Hal, W6DEF, on the Northern California Net. This tone should be of interest to those interested in traffic handling. Using Hal's article as a guide, your editor found a great deal of pleasure making new acquaintances with the net members. Look for the article...join the net.



General Class Amateur Radio Program will help you move up the ladder in your Amateur Radio Hobby



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- Two vinyl binders
- FCC exam schedule

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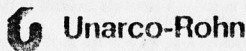
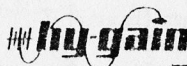
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