PAARA, P.O. Box 911, Menlo Park, California 94026

June 1994 Volume 39

PAARAgraphs Since 1937

Monthly Newsletter for the Palo Alto Radio Association

PRESIDENT'S MESSAGE

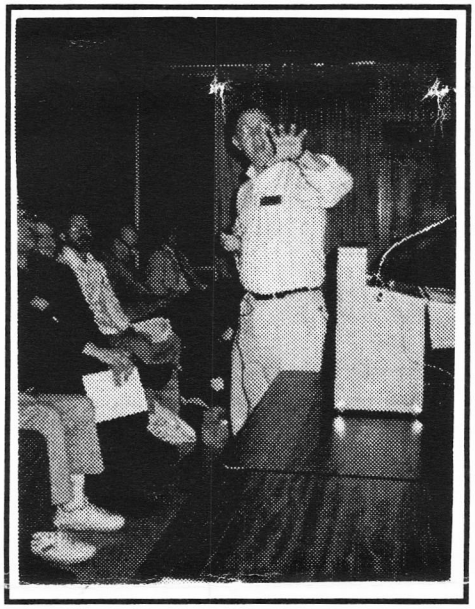
Kudos to our program chairperson, Andy VE3FZK, who brought us Professor Robert Twiggs and Rick Lu KE6FZO. It was a lively and interesting May meeting, and we're sorry Andy was ailing and unable to enjoy the fruits of his labor. (See article by Steve K6FS in this issue.)

June promises to be a special month for PAARA members, family and guests. On June 4th Helga and Ron W6VG again graciously host our annual PAARA picnic and barbecue from 11 am to 3 pm. Please bring something to share or partake of the club's beverages and cold cuts. There will be door prizes for hams and non-hams. Please feel free to bring guests and friends as this is a social afternoon, not a radio event. (See map and directions on page 11.)

June 25 and 26 is field day. On Friday, June 24 the antennas will go up. So if you've never seen Fred K6YT, and many other PAARA stars climb towers and other death defying feats, now is your chance to volunteer to help. Contact Gerry WA6LNV, our esteemed field day coordinator. There is a rumor that the Prez will do her traditional psychedelic barbecue on Saturday afternoon.

We are happy that John Gompert's WB7TEM is moving to Oregon to be close to his family. But we are sorry to loose John as club secretary.

(Continued on Page 5)



Professor Twiggs at the May PAARA Meeting

WAYNE BURDICK WILL GIVE TALK ON QRP

This month's talk is by, Wayne Burdick, N6KR, developer of the newly introduced SIERRA, an all band QRP rig for the NorCal QRP Club, and a principal "mover and shaker" in local as well as national QRP circles. The NorCal QRP Club boasts about 500 members, according to our PAARA QRP expert, Vick Black, AB6SO, who led us to N6KR and his activities. See you there on Friday, June 4th, at 7:30 PM at the Menlo Park Recreation Center. We will have dinner with our speaker before the meeting. This is open to all. It will be at 6:00 PM at Su Hong, El Camino, off Ravenswood in Menlo Park. Talk in at 145.23(-) PL100 and 147.45/simplex.

COMING EVENTS

PAARA Club Meeting. Friday, June 3, 1994. Menlo Park Recreation Center, 700 Alma Street, Menlo Park. 7:30 PM to 9:30 PM.

PAARA'S Spring Pot Luck Picnic. June 4, 11 AM to 3 PM in Ron, W6VG, and Helga Panton's Menlo Park Home Garden.

Livermore Swap Meet. June 5, 1994, 7 AM to 12 noon at Las Positas College in Livermore.

ARRL National Convention. Arlington, Texas, June 10-12, 1994. Contact John Fleet, WA5OHG, Box 25028, Dallas, TXC 75225.

Foothill Swap Meet. June 11, 1994 at Foothill College, Los Altos

PAARA Board Meeting. Wednesday June 18th at 7:30 PM.

ARRL Field Day. June 25-26, 1994.

PAARA Club Meeting. Friday, July 8, 1994. Menlo Park Recreation Center, 700 Alma Street, Menlo Park. 7:30 PM to 9:30 PM.

IN THIS ISSUE

FROM THE EDITOR'S DESK

by Peter A. Berger, KC6WCB

A few years ago, building electronic systems from scratch was a common undertaking for most electronics people. Whether the circuit was out of a magazine, a true home-brew creation, or a Heathkit mail-order special, the electronics buff was working at the components level. In those olden days, before the mid-1980s or so, home-brew was sometimes the only way to go. Completed systems were either too expensive or not available. So it made sense to build systems from the ground up.

Well, times have changed. Heathkit is no longer in the electronics kit business and few people bother to get out that old soldering iron anymore. What changed? Well, it just does not make sense anymore to spend hours building a system from scratch when one can buy such a system much cheaper, that is completed, tested, ready-to-go, and that probably has superior performance. Now, this fact has been universally recognized. But a factor that may be overlooked by some people in electronics, is that components are just not what they use to be either. Many components are now fairly complete electronic subsystems and entire systems are now built with as little as one or two ICs. In addition, logic, analog, and PC board design tools have matured. These factors and others have made it much easier to "roll-your-own" system. Or more likely, to expand an existing system. Let's take a look at an example:

Say you want to un-squelch your receiver with a DTMF signal sequence key and also be able to decode DTMF heard over the air. Well, completed systems are available, but it may not be the best way to go. An 18-pin microcontroller with a single DTMF transceiver chip and an off-the shelf LCD display will do the trick. Your home brew will do exactly what you want, will cost less, and is upgradable to meet future needs.

Lets look at the details. In general, you will not get very far if you call a DTMF system manufacturer and ask for a free sample of their latest product offering. But if you call the DTMF chip component manufacturer, they will be happy to send you two or three free samples along with their data book that describes their part. Those of you that are a little rusty with their design skills will be happy to look at the "cook book" style of design. The component is just like any other piece of equipment you have; you plug the power in here, the inputs go here, and the outputs there. If you run into a problem, you will probably get more help from the chip component supplier than from the system house.

The next part is the microcontroller. The good news is that they are cheap, they only have a few pins to worry about, and if you have a PC, then you have a microcontroller development system. The bad news is that you still have to program them; but this is not so bad anymore either. Lets first look at cost. The microcontroller area is a tough and competitive business. Therefore suppliers run promotions. For around $50, you can get a couple of microcontrollers, and a fancy development system to run on your PC which includes assembler, simulator, device programmer, and possibly a non-real-time emulator. For those of you unfamiliar with this terminology, it means that you can write a few lines of code and run it right away to see if it does what you want it to do. Most of the code will be load and store stuff anyway, and microcontrollers and assemblers are great for this; it is easier than BASIC.

The last part is the display. The industry standard LCD displays have 14 pins and hook up directly to the microcontroller. I was able to buy five of these 20 character, alphanumeric displays at the May Foothill flea market for $5.

The only real expense is the $50 for the processor system. This is a one-time expense. So a DTMF de-squelcher, decoder, and encoder costs is around $11 or $12. The microcontroller costs $5, the DTMF chip is free, the display is $1, add another $5 or $6 for the PC board, crystal, sockets, and miscellaneous. Of course there is time and work involved, but you are also learning and you are able to modify your design to meet current and future needs.

The point of all this is that it does make sense to build some things from components; and that maybe some of us have gone too far into the systems area. Many chip-level components are easy to work with and fairly inexpensive. Good applications of component level projects are simple add-on circuits for existing systems or small stand-alone systems that can not be easily acquired.

PAARA MEMBER BECOMES AN ASTRONAUT!

by Vic Black, AB6SO

It's not widely known, but one of our own club mates is an astronaut. I found out about it one afternoon. After I finished building my Handie Tracker radio direction finder I wanted to test it. I tuned in the NASA Ames Radio Club re-transmission of the shuttle astronauts because it presented a constant signal from a known direction. To avoid multipath in the house I decided to go out to the front yard for the test. Just as it looked as if everything was working, a seven year old neighbor, Steven, rode up on his bike. "Hey, Vic! Whatcha doin'?" "Oh, I'm just listening to the astronauts". I disconnected the Handie Tracker and put on a 2-meter whip. "Wow! You can hear ground control and everything. It's too bad you can't talk on that radio". "I can talk on it", I

said. I punched in the W6APZ repeater, 145.23, and gave my call. A voice from the radio said, "Hi , Vic. This is Mike, WB4HBJ". Steven's eyes got really big as I let him talk on the radio. "Wait here. I'll be right back". He threw his leg over the bike top tube and dashed off.

He was back in a flash with six other kids ranging in age up to eleven or twelve. They elbowed each other trying to get a chance to talk on the radio. I'd already finished talking with Mike so I brought up the Varian ARC repeater, 147.315, and found someone to talk to. The kids all lined up and asked strange questions ("Isn't it hard to cook there?"). I didn't give it a thought until the next day when I heard two of them talking. "Not only does Vic KNOW the astronauts, but they recognize his voice and call him by name when he talks on his radio".

All of a sudden there was lots of interest on our street in radio, electronics and model rockets. I was tempted to tell the boys that they hadn't really talked to an astronaut, but I decided to let sleeping dogs sleep.

As a result of the radio encounter, young Steven now has his own safety glasses and soldering iron. He has built several Ramsey kits and can read schematics with some help. He also draws his own crude schematics which he calls "electronic project recipes". Several of the neighbors regularly fly solid fuel model rockets. Another designed and built a model atomic bomb complete with timers, rocket engine igniters and ominous looking switches. He built a piston and cylinder to drive together his Styrofoam "critical mass" and powered it with four solid fuel model rocket engines. His video taped test firing was a highlight of a middle school science fair where he won "Best of Show". In his KGO-TV interview he said he was afraid he would be kidnapped by terrorists who wanted to find out how to build a bomb. Still another boy has a business building custom personal computers. His business is complete with checking account, resale permit, income taxes and his own account at Fry's Electronics distributors.

Each of us can look back to some time in the past when a germ of an idea was planted in our brains and that germ grew until we became ham operators. Who knows what will come of the germ planted the day that Mike Marston, WB4HBJ, became unknowingly "Astronaut For a Day"?

de Vic Black, AB6SO

FLEA MARKET TIPS

The May Foothill flea market was a hit; lots of vendors, plenty of customers, and excellent weather. I was surprised to see so much stuff for sale. Plus the merchandise was moving too. Unfortunately for me, I just could not track down the things that I was in the market for this month. It just does not make sense, but things that use to be readily available and on my shopping list, could not be found this time.

While I was not finding what I needed, I gave into the temptation to haggle for the things that I did not need. As you know, one becomes a tough negotiator when "one is really not in the market". I walked away from several tables after having my modest offers turned down. But not all was lost, and I was able to secure a few very good buys. This bargain hunting endeavor and a few discussions with vendors got me thinking that people could really use some tips for the flea market. Actually, it would be nice to have an "Electronics Flea Market Guide for Buyers and Sellers" . Maybe such a guide is already available. If you have your own tips, advice, or guidelines for electronic flea markets, please send them to PAARAgraphs. We'll include them in our newsletter.

Here are some possible flea market guidelines to start with:

TIPS FOR ELECTRONIC FLEA MARKET SELLERS:

1.) Arrive early and bring small bills and change. Also, bring appropriate tables and display boxes.

2.) Come prepared in terms of knowing your merchandise' pricing and its condition.

3.) Be honest and straightforward. Tell the prospective buyer what you know to be the facts about your merchandise, what you don't know about it, and what you think may be the case, but are not sure.

4.) Clearly state if you are selling "AS IS" or guaranteed to work.

5.) Try to sell for cash only. If you do take a check, get lots of ID. If you get a funny feeling about the person with a check, or if they are not willing to supply ID, then forget it.

6.) Your merchandise prices should be fair. In most cases this means a price that is low enough to offset the risks and efforts of the buyer. For those sellers still in the dark, let me try to shed some light by saying that: "There is a difference between the flea market and Fry's. Just because Fry's charges $50 does not mean that you can. Yes, I know you don't charge sales tax, but at Fry's you get a 30-day money back guarantee, they really stand behind they're products, they take credit cards, and their open until 9 PM most nights. As a buyer, I'll gladly pay a 25% or so premium in order to have a good retailer, distributor, or manufacturer that will stand behind the product. In addition, not everything that is sold at the flea market works for the buyer. The product may be "Dead on Arrival", lack the necessary documentation, or will not work for the intended purpose. The buyer needs good deals in order to average out the inevitable "Flea Bites".

7.) Super low prices are not good either. If a buyer is not interested, even the lowest price is not appealing. You have to wait for the "Interested Party". This is the person who can use your particular merchandise. If your prices are too low, it may scare this person off. Plus you will be leaving "Money on the Table" and no-one wants to do

that. So price your merchandise right. If you are unsure of prices, you can set pricing a little high at first in order to "Test the Market". During this phase, try to get potential buyers to give you feedback on your offerings. You can decrease prices easier than trying to get merchandise back that was priced too low.

8.) If possible, the seller should look around at the flea market. Ideally, the market should be thoroughly investigated before committing to a space to verify the suitability of the market with the goods that will be sold. In addition, comparable merchandise should be priced. Feel free to talk to other vendors to learn more about the particular flea market. Another look at other vendor's should be made at the day of the sale.

9.) If your merchandise is unorganized and you make customers dig through your piles to find the things that they need, then keep YOUR PRICES REALLY LOW. It aggravates people who have spent 15 minutes rummaging to find that special something is way overpriced.

10.) If you have the time, make your buyer feel good about his purchase by saying a few good words about the deal after you get paid.

TIPS FOR ELECTRONIC FLEA MARKET BUYERS:

1.) Arrive early and bring cash, some of which should be in small bills.

2.) Be prepared. Know what you want, how much it costs retail, and understand the key product issues, i.e., points to look for.

2.) Be flexible and open to interesting items that may not be on your shopping list. But in this case, be very cautious.

3.) If possible, quickly look at the entire flea market before starting to purchase. This gives you the most information in order to make the best purchasing decisions, but it may make you miss out on some great buys. Sometimes you have to "play it by ear".

4.) Test vendors. Before spending a lot of time with a particular vendor, ask for some sample pricing and get a feel for the level of flexibility of the vendor and the quality of the products offered.

5.) Some things are great to buy at the flea market and some things are not. The best things to buy are inexpensive items that you are very familiar with and that can be judged with just a quick look. The worst things to buy is expensive equipment that you know nothing about.

6.) Every vendor is different. Some are trying to make as much money as possible and don't mind lugging their merchandise to and from flea markets. Others are just trying to get rid of stuff that they don't need any more. Some vendors will quote a price, but are willing to go way down to make a deal, while others will not budge from their quotes; not even for volume buys. The only way to tell the difference is to "ALWAYS OFFER LESS THEN THE ASKING PRICE". This is the trial balloon method.

7.) A common method of negotiation is the "Good Guy / Bad Guy" method. You and a friend approach the vendor. The negotiable starts by having the "bad guy" cut down the particular product of interest, with the seller in ear-shot. While the "good guy" is saying that the item may not be that bad. The vendor is encouraged to give a quote, which is promptly ridiculed by the bad guy. The good guy takes a less negative position. Through this back and forth operation, the vendor's asking price takes a beating. This is but one of many tactics in the tool chest of a good negotiator. As you know, it is important to use the right tool for the job at hand.

8.) On major purchases, get plenty of information about the vendor and work out the terms. Are you buying "AS IS" or will the vendor stand behind the product? Get it in writing.

9.) LET THE BUYER BEWARE. If you are not sure, pass on the deal. The good deal that you might have made is sometimes a better memory than the bad deal that you did make and is now sitting in front of you.

LETTERS TO THE EDITOR

from Pete Wolford - N6IYU
(Editor of the QSA-5 Marin Amateur Radio Club.)

4 May 1994

Dear Fellow Editors:

I couldn't believe my eyes that I was reading the PAARA newsletter that arrived the other day! What a miracle has taken place, what a magnificent improvement. No mere simple metamorphosis this, instead, an entire new generation.

I'm just a couple of years younger than your Ron Panton, W6VG, whom I first met when he was an engineer at KCBS radio with studios above the Palace Hotel in the mid forties and before it turned into a news-only purveyor. I used to come in every week and service the studio pianos then spend a little time shooting the breeze with the personnel. We have been friends all these years but I mistakenly assumed that one had to be a proper radio mechanic to be a ham and my interest was nil until a dozen years ago when I decided to improve my memory and took drastic steps to keep my brain occupied and exercised. I didn't tell Ron what was happening so it was a huge surprise when I announced my call to him. He was my first on-the-air contact.

I like your layout and approve your lack of itsy-cutsey cartoons to fill in. I probably lean a little heavy on humor in my QSA-5 but it is probably better than white space. Well, consider yourselves properly lauded and congratulated and keep up the good work!

73 (and how about an 88 or two thrown in?)

Pete N6IYU -

CORRECTION with APOLOGY

from Steve K6FS

The distinguished speaker at our 1 April meeting was identified in May PAARAgraphs only by his first and last names - Sean Salter. Omitted were his rank and service; he is Lt. (j.g.) Sean D. Salter. U. S. Coast Guard. Apologies are in order, especially considering what Mr. Salter endured in order to achieve his present status: 17 weeks of Coast Guard Officer Candidate School, Yorktown, Pa.; 1 1/2 years of flight school, USN Air Station, Pensacola, Fl., topped off by 6 weeks of special search & rescue helicopter training at USCG Air Training Center, Mobile, Al. Just prior to addressing PAARA on 1 April he completed a 2-week course in Public Affairs administration at the Inter-service Training Center, Indianapolis, In. We regret omission of this significant information. No April Fool-ing intended.

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HISTORICAL RESEARCH

Where can we find the book Keys. Keys. Keys. by Dave Insram, K4TWJ?

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from Ron Panton W6VG

April 28, 1994

Hi you all:

Great job!! Am very impressed with the contents and layout of the new PAARA graphs. Have been very impressed with Chucks work, and very glad to see that the Bulletin will continue with good stuff!. Will be glad to keep you informed as to the activities of the PAARA VE members. We are alive and active the 3rd Saturday of each month at the Ampex cafeteria. It is an invigorating thing to be able to help out with this aspect of ham radio. I started this volunteer effort as part of a repay of my happy 64 years of ham radio.

Keep up the good work, and will attempt to assist with letters/articles or whatever. Hope to see many of you at our annual picnic in our large back yard. Goad chance to rag-chew with members you don't talk to during our meeting nights.

73, Ron Panton W6VG

Garry R. Shapiro
May 10, 1994

Dear Peter:

Congrats on becoming Editor. I observed the new format for PAARAgraphs: big improvement.

On page 3 of your May issue you have reprinted WA6AUD's Axioms from a DX Old Timer. I believe that the source was The DXer, the newsletter of the Northern California DX Club, of which I am Editor. Our masthead advises that you may reprint anything "provided the DXer and the article's author are credited." While you have credited Cass, you have not credited the newsletter. I would appreciate your doing so in the future, as I would with anything reprinted from PAARAgraphs.

73 de Garry

PRESIDENTS MESSAGE

(continued from page 1.)

He has served us in that position, and also as a board member and avid field day participant. Good luck John and be sure to keep your membership active.

At this writing, two of our most admired members, Bill McElhinney KA6LZI and Sy Stein WA6ROM, are in the hospital. By the time this issue is delivered both will be at home to recuperate, and we wish them speedy recoveries.

The next board meeting will be June 15. The club meeting will be June 3rd. And the deadline for contributing to the July issue is June 22. Remember that our July meeting is on the 8th, not the 1st, to accommodate July 4th vacations.

WELCOME NEW MEMBERS

from Ron Carmichael KD6RFI

I'd like to take this opportunity to welcome these five new members to the PAARA club:

Steve Ruble	**KC6VLN**
Bill Smith	**KE6CHQ**
Larry Carr	**KE6AGJ**
Thomas Bohnsack	**W6PEQ**
Herman "Kit" Kohlmoos Jr.	**W6ISO**

Be sure to welcome these new members, both on the air, and at our next club meeting.

73, Ron KD6RFI

THE LIGHTER SIDE

from VE7JLB, Sccara-Gram

WARNING

The Surgeon General advises that YOU SHOULD NOT WALK THROUGH SCREEN DOORS; you might strain yourself.

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from N7XZV, Sccara-Gram

Understanding Medical Terminology

Artery--The study of fine paintings
Barium--What to do when CPR fails
Dilate--To live for a long time
Fester--The opposite of slower
Hangnail--The usual coat hook
Medical Staff--A doctor's cane

Minor Operation--Coal digging
Morbid--A much higher offer
Nitrate--Usually lower than the day rate
Organic--Kind of music played in church
Outpatient--A person who has fainted
Post-operative--A letter carrier
Protein--Very tolerant of young people
Tablet--A small table
Tumor--A extra pair

ACHTENSHUN!

Das Machinen ist nodt for gefingerpoken und mittengrabben. Ist ezy for brekken das Springenwerks blowen fusen mit loudisch popen und spitzen-sparken. Ist nix gewerken by Dumkoffs! Das rubbernekken sightseeren und stupidisch Goofoffers jus relaxen: KIPP HANDS IN POKKETS UND VATCH DAS STOFFA KUMOUDT!

DAS MANICHMINDT.

PAARA MEETING MAY 6, 1994

by Steve Stuntz, K6FS

Again our tireless Program Chairman, Andy, VE3FZK, outdid himself: three speakers on one high-energy program. Principal presenter was Prof. Robert J. ("BOB") Twiggs, Director, Satellite systems Development Lab, Department of Aeronautics & Astronautics, Stanford University. He described in dynamic detail a program he inaugurated at Weber State University, Ogden, Utah, and is continuing at Stanford, in which engineering students design and construct compact, low-cost multi-purpose satellites. Using photos and viewgraph drawings, he outlined some of the problems he and his students encountered, and the ingenious solutions devised to solve them at impressively low cost, employing the "Beg'n'Borrow" principle of component development and procurement. First of a series of projects was successfully launched into low orbit from the space shuttle, and was used to measure high-altitude effectiveness of FAA air traffic control radar. Other student-built satellite projects were carried into higher orbit (500 km. aboard Space Lab III, and 800 km. aboard a French Ariane vehicle) in 1989 and 1990. The overall purpose of the program, now established at Stanford, which Bob joined about four months ago, is to give the upcoming generation of satellite engineers real-life hands-on experience designing and building practical, low-tech "birds", meanwhile keeping costs to a realistic minimum. Currently his team is working on a satellite capable of carrying a lightweight TV camera and storing images for on-command downloading to ground stations. Probable cost: less than $50K (are you listening. NASA?). Future projects will orbit out to 600 km. and may carry amateur-accessible TV and digitalker (stored voice) features. They will be designed for a working life of one year.

Second speaker was Rick Lu, one of Prof. Bob's grad students. He described a current project to culminate in a communication satellite operating in the 440 and 144-MHz ham bands, and carrying voice-mail addressed to schools around the world. It too will be amateur-accessible. Rick emphasized that it is being built on a "donate" (i.e.. *scrounge*) budget.

Third speaker was Prof. Borie Raulis, of the science faculty at the University of Umea, almost 100 miles above the Arctic Circle in Sweden. He is currently spending a one-year fellowship with Prof. Twiggs, preparing to set up a three-year B. Sc. satellite engineering program at his University, similar to Stanford's.

REMINDER

Saturday, June 4. ARRL Pacific Division Director Brad Wyatt, K6WR, convenes the first 1994 meeting of his Cabinet. Object: to receive and consider input from clubs and individual hams in the Division, about problems affecting amateur radio at local, regional and national levels. Brad will present results of the meeting at the July ARRL Board conference, HQ, Newington CT. PAARA contact is Assistant Director Steve Stuntz, K6FS; any issues, complaints, suggestions, compliments! call 322-4952, or on PAARA net, 2030 PDT (0330 UTC), Mondays, 147.45 simplex.

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THE FLOPPY "J" ANTENNA

by David Mitchell KG0DT, Carol Mitchell N0XIJ, and Christie Mitchell N0VRT. Reprinted from "Printed Circuit" Vol. II No. 4 The South West Iowa Amateur Radio Club

Sent in by Rich Swig ZQG

Christie needed a good 2-meter antenna for college. She wanted to work Packet from the campus computer lab, and FM voice from her dorm room. The rubber duck just didn't cut the mustard. Her new antenna had to be highly portable, vertically polarized, and easily set up. The "J" configuration immediately suggested itself. It requires no ground plane, and is vertically polarized. An obviously poor solution would be a slip-together plumber's delight, with "some assembly required". Then the ideal antenna configuration hit me. It could be a "roll-up" antenna.

Our favorite antenna seller lists a $20 roll-up antenna, but they were out of stock for a few weeks. So, our experimental natures took over, and the "Floppy-J" was born. A visit to the local electronics store revealed we could make these beauties for under $5 apiece! We splurged on the highest quality foam TV twin lead we could get, and a few female BNC chassis mount connectors. We were out of silicone glue, so we got a tube of black at the auto store. Our Packet setups

(BayCom) require that the antenna be at least ten feet away from the modem and computer, so we also bought Christie a 10' piece of coax with BNC connectors on each end.

I know this is not the first time someone made a J-pole out of twin lead! However none of my seven antenna books gave solid dimensions. One book said to feed the antenna directly with coax, without a short on the bottom. The antenna did get out nicely, but we had an SWR of 3:1. I've seen SWRs I could not measure, at 2 meters a 3:1 was not good enough.

The second antennas tried various ways to match the impedance. Nothing worked until we tried a quarter wave tail of wire drooping downward from the center connector. It gave a nice SWR when positioned "just so". But the coax radiated, and the antenna was very sensitive to nearby metal. Rich, WA0ZQG; Bob, KB0DJA; Bud K0GYG; Lorraine, AA0BS; Al, W0JJK; and many other good friends inspected the prototypes and gave us their wisdom. We wasted about 25' of twin lead before getting the dimensions just right, and want to save you all that trouble.

"J" antennas are reputed to have about 3 dB of gain over quarter wave verticals. That's probably because they have more copper in the air. They out perform a rubber duck by a wide margin in actual use. Here's how to make an excellent $5.00, 2M portable antenna, in a half hour:

Materials:

6' of TV Twin Lead.
1 female BNC chassis mount connector. Solder. Silicone glue, or hot glue is even better.

Tools:

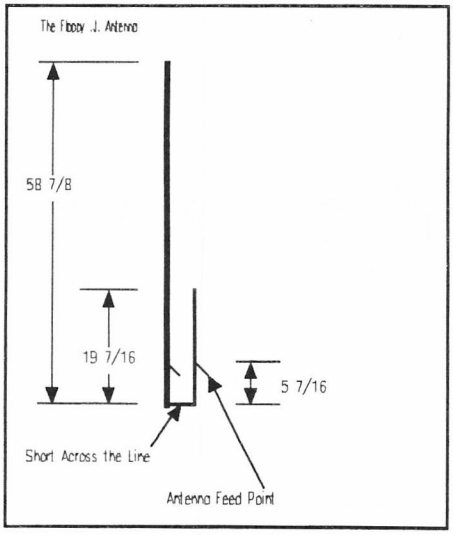
Soldering pencil or gun and sharp knife or heavy shears.

Directions:

First, sharpen your knife to a razor edge, or use heavy duty kitchen shears. Next, strip 3/8" of twin lead insulation from the end of the roll. Short the wires together and solder them. Note that all measurements will be made from this spot, avoiding cumulative errors.

Now, measure exactly 5-7/16" (14.2 cm) up from the short. Strip off just enough insulation there that you can later solder two wires there for the BNC connector. Conventional wisdom says that this point should be about 3 or 4 inches from the short. We got the best SWR readings at 5 7/16". You can play around some with that measurement, if you're so inclined.

For the next step, measure exactly 19-7/16" (49.3 cm) up from the same short, and make a cut barely through one wire of the twin lead there. Leave as much foam insulation intact as you can. You will end up stripping this cut wire out of the antenna. Then measure exactly 58-7/8" (149.8 cm) up from the short and cut off the twin lead from the roll at that pint. Remember the wire you cut through two steps ago? That wire gets stripped off the twin lead next. Using a very sharp knife, or industrial strength scissors, remove that wire, leaving most of the insulation intact. We did so by pulling the twin lead past the knife edge, removing the wire almost like an apple peel. Near the end that you cut off the roll, make a hole or a notch, to hold a piece of string. the antenna can dangle from that string.



Use some wire you recently removed from the twin lead for this next step. Twist and tin two 2" pieces of bare wire. Solder them to the BNC connector. Bend them so the connector can lie nearly flat against the twin lead, business end pointed toward the short circuit. Solder the wires to the twin lead where you removed insulation 5-7/16" up from the short. The center connector of the BNC connector goes to the long wire, and the ground goes to the shortened one. Cut off the excess bare wire.

Alternately, you can just solder coax to that point. The braid goes to the short wire on the twin lead. Lack of a connector might change the spot where the best match is found, so experiment a little. Strip the insulation over a 2-3" area. solder the coax somewhere, check the SWR, re-solder it a half inch away and check again. You'll find that there is a specific point that's best. You'll need to be with in 1/8" it. When you're happy with the connection point, transmit while running your hand along the coax. If the SWR reading changes, see if you can find another connection spot. You don't want the coax to be sensitive to nearby metal or people. Wrap some protective tape around the connector to keep glue out, and glue it to the twin lead. We found silicone glue adequate, but glue from a hot glue gun is even better. It sets up harder and sticks to the twin lead better. Careful! Don't get hot glue on your hands. It blisters.

We have suspended this antenna from a chandelier, dangled it from a ceiling fan, tacked it to a pole standing in the corner, and even glued it to a cinder block wall with that "tacky stuff" students use to attach posters to walls. Its performance is excellent. Curled up horizontal on our dining room table, it triggers two repeaters our rubber ducks cannot. Stretched out and vertical it hits tow more, and equals our outside colinear J-Pole, which is 20' higher, but which has lots of coax in between. Yet it can coil up and fit in a large pocket with ease. With a laptop computer, HT, and BayCom modem, it makes a very compact, yet capable Packet station.

CALL FOR COMMUNICATIONS SUPPORT

from the San Mateo Operational Area Office of Emergency Services

HALL OF JUSTICE AND RECORDS
Redwood City, CA 94O63
(415)363-4790 FAX(415)363-1868

May 5, 1994

Santa Clara County ARES/RACES has been asked by local public safety agencies to provide auxiliary communications support for the World Cup Soccer games and the Wildland-94 fire exercise which take place in late June and early July. To insure adequate staffing, RACES mutual aid requests have been sent to Alameda, San Mateo and Santa Cruz counties.

The Santa Clara County Sheriff's Office and Stanford Department of Public Safety have asked for twenty-five spotters for each of the six World Cup Soccer games.

These spotters will be in outlying positions on the Stanford campus and in the surrounding cities to report on changes in conditions. Spotters will serve an approximately six-hour shift to allow observation before and after the games which have a start time of 1230. Spotters will be "undercover" in their own vehicles and need to have at least two-meter handheld radios with CTCSS encode, running five watts from automotive power with outside antennas.

The games are on Monday, June 20th; Friday, June 24th; Sunday, June 26th; Tuesday, June 28th; Monday, July 4th; and Sunday, July 10th.

The Wildland-94 fire exercise is scheduled for Saturday and Sunday, June 25th and 26th, in south Santa Clara County. It will consist of a live burn on UTC Property and a second exercise yet to be determined. There are both VIP and RACES positions to be filled although the VIP positions are being recruited by the CDF Santa Clara Ranger Unit against a resource order from Santa Clara County OES. These positions will be all day shifts from about 0800 to 1700.

If you are interested in volunteering for either or both events, contact your home city ARES/RACES Emergency Coordinator/Radio Officer or Dick Collins, District Emergency Coordinator Chief Radio Officer (415.593.8952), who is coordinating San Mateo County's mutual aid response.

Rick Reed, N6SHY for: George Washburn, WA6YYM
District Emergency Coordinator g,
Chief Radio Officer, Santa Clara County.

PAARA SWAP SHOP

COLLINS 75A4 Receiver for sale. Excellent condition. Noise blanker and damp chaser installed. Panadapter also available. Doug W6HXL (415) 851-0727.

SANTEC HT 1200, 2 meter hand held with leather case, drop-in quick charger, 3 battery packs, PL, pad included but not installed. $175 Steve K6FS. (415) 322-4952.

WANTED: 10 meter beam or CB beam. Any boom length considered. Doug W6HXL (415) 851-0727.

FROM ESTATE OF W6DSV (Walt Carlson) SWAN 500 Transceiver, P.S. Plus RFE 100 Frequency Display, New phone patch, Mobile tuning unit, Henry Tempo S-2T 2MTR Handheld, All for $200. (This is not a typo) Telephone Mrs. Florence Carlson (415) 345-3248.

68 FOOT CRANKOVER TOWER. Rohn FK25G68. With all hardware and guys. Holds 115# antenna, 10 sq. ft. area. Worked 49 states and 10 countries on 6 meters. $995. Doug W6HXL (415) 851-0727.

222 MHz antenna 6EL., 8 ft. boom, 14 dB. $19 222 MHz receiving converter AMECO. NUVISTOR RF amp. w/prw sply $39. Doug W6HXL (415) 851-0727

LIBERTY DUMB TERMINALS FOR SALE. Good for Packet. Almost Free. Gerry WA6LNV (415) 326-4908

Send your classified ads to PAARAgraphs, P.O. Box 911, Menlo Park, CA 94026. Send packet via Dan Curry at WB6STW@N0ARY. This service is free of charge but it is limited to space available in the newsletter.

NOTICE

The Club Rooster List that was planned to be published this month, will instead be in next month's PAARAgraphs. We hope that this will not inconvenience any one.

P.S. FROM THE PRES.

Peter KC6WCB has generously given his time and expertise in order to get the new PAARAgraphs off the ground.

We are all grateful for a job well done, unfortunately, Peter will no longer be working for us in this capacity. Therefore please forward any material relative to the newsletter to my P. O. Box or my home.

De Lily N6P6M

PICNIC

Dorothy & Art NM6K

Lynne, Hank AJ6Q, Helga, Sally, Natalie KL7JGH

Helga & Ron W6VG

FIELD DAY

Paul
N6FEC

Brad K6WR, Tom K6JBR, Vic AB6SO

Fred
K6YT

*Photos by N6PGM

ARRL PACIFIC DIVISION UPDATE JUNE 1994

by Brad Wyatt, K6WR, Director,

Update on the effort to save the 13 cm. band.

By the deadline of May 11, the ARRL and several members filed Comments on the NTIA plan. Each cited current activity on the band plus plans and commitments made which would be destroyed if the plan were adopted. Thanks to each of you who helped by writing!

To recap, NTIA has made it very clear that their overwhelming concern was to free up 50 MHz of the Federal Government primary spectrum allocation immediately and to minimize the conversion costs involved for the Federal Government, regardless of costs or problems caused to non-Federal Government entities. All other problems are to be resolved by FCC. These problems include sharing agreements with all other services, interference caused by the proposed reallocation to all parties, costs already spent by non-Federal Government services, to name only a few of the problems.

On April 27, the FCC issued a Notice of Inquiry, Docket 94-32, with a Comment deadline date of June 15, 1994, concerning the NTIA proposal for the immediate release of frequencies. This docket asks questions dealing with proposed new usage, issues of compatibility with existing Amateur Radio Service, etc.

ARRL still needs more hard documentation of current activity by ATV and any other operations at 2.3 GHz. There are a list of questions as a guideline for documentation and a four page NTIA report available from me. Just ask! The Comments on the NTIA proposal can be obtained via the NTIA BBS at (202) 482-1199 or on Internet by telnet to ntiabbs.ntia.doc.gov. Look for the menu items under "200 MHz Report" which itself is under "Teleview -Testimony/Notices/ Comments" on the main menu. The FCC docket 94-32 can be obtained by request from the ARRL or from me, and is also available on the NTIA BBS in the "200 MHz Report" section. Call me or Vice Director Maxwell for further details (see page 8 of any QST).

Please send an original and four copies of your Comments on the FCC Docket to Secretary, FCC, Washington DC 20554 and another copy to Dave Sumner, K1ZZ, EVP, ARRL HQ, 225 Main St., Newington, CT 06111-1494. Remember, the deadline for Comments is June 15.

Be assured that ARRL has several actions underway to try to turn this situation around, but ALL depend on your documentation of current 2.3 GHz. activity and plans.

Vanity "Preferred" Callsigns - Latest News:

The ARRL filed its Comments on FCC Docket 93305 by the April 21 deadline. Below is the basic outline of the Comments: All hams should be eligible to obtain preferred calls within the call sign blocks based on current license class (there are some exceptions). For example, this provision allows Extra's to obtain 1X2 calls, but not Novices.

A phase-in plan starts with those who have lost calls through the years for whatever reason and regardless of license class.

Next would be Extra class licensees, then Advanced, and then open to all. Calls will be assigned based on availability within the current call areas.

A one time fee should be charged for the preferred callsign rather than the $7 per year enacted into law by Congress. There is an effort being made in Congress to change this provision to a one time charge.

Club call signs would also be issued. Remember, this is a brief summary (there are many details) of what the ARRL submitted in its Comments. Others submitted Comments, although in less detail, along similar lines. What the FCC will actually do remains to be seen.

Timing for implementation is unclear but according to some FCC sources say it could be as early as late 1994.

Congressional Legislative Report:

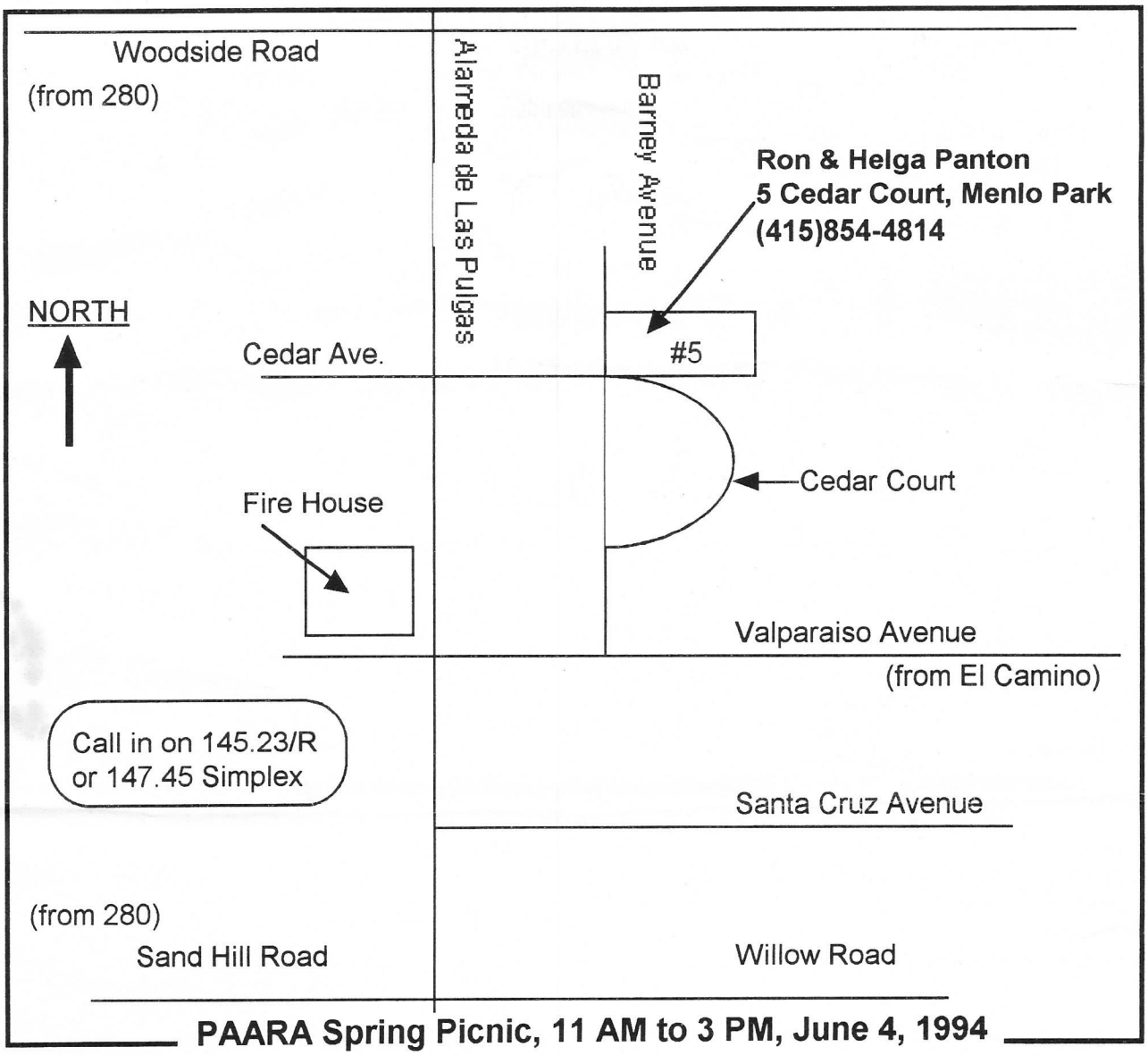
HJR 199 has 225 co-sponsors in the House for a majority of members. There are no new co-sponsors from the Pacific Division. With a majority we can now plan to bring up the resolution for consideration. The identical resolution in the Senate (SJR 90) now has 42 co-sponsors. We need 6 more for a majority in the Senate. In the Pacific Division, we still need to convince 11 California Congressmen, the two California Senators, and the two Nevada Senators to become co-sponsors.

New message-forwarding rules begin June 1

The FCC on April 13 released its Report and Order in PR Docket 93-85, regarding messages relayed by amateur high speed networks. The new rules, effective June 1, 1994, will establish what the FCC calls "a compliance policy for amateur stations participating in automatic message-forwarding systems." The new rules relieve most station operators in such networks of responsibility for the content of the messages relayed by their stations. Under current rules, all licensees in a chain of forwarding stations are responsible for message content.

Originators of messages continue to be responsible for their content, and the first forwarding stations are responsible either for the content of the message or for verifying the identity of the originator.

The new rules also will relieve repeater control operators of responsibility for inadvertent retransmission of communications that violate the rules. All operators remain responsible for discontinuing communications that violate the rules as soon as they become aware of their presence.



PAARA Palo Alto Amateur Radio Association, P.O. Box 911, Menlo Park, California 94026

Club Meetings are held on the first Friday of each month at the Menlo Park Recreation Center 700 Alma Street, Menlo Park
The Club holds a Radio NET every Monday Evening on 147.45 MHz at 8:30 PM
Membership in PAARA is $6.00 per calendar year which includes a subscription to PAARAgraphs.
Make payment to the Palo Alto Amateur Radio Association, P.O. Box 911, Menlo Park, CA 94026

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