

K6YQT

PAARA NEWSLETTER
VOLUME 49 NUMBER 9 September 2000

W6OTX



PAARAGraphs

Celebrating 63 years as an *active* ham radio club—*Since 1937*
Newsletter for the Palo Alto Amateur Radio Association, Inc.



CALENDAR



- Sept. 8, PAARA Meeting, 7:30,
Menlo Park Recreation Center
700 Alma Street, Menlo Park
- Sept. 13, PAARA Board Meeting, 7:30
Red Cross Bld., 400 Mitchell Ln., Palo Alto
- Oct. 6, PAARA Meeting, 7:30
- Oct. 11, PAARA Board Meeting, 7:30

2 m CODE PRACTICE, 2000 to 2030 PST Tues
N6NFI 145.23 repeater
Also try 7.100 for 24 hr code practice

PROGRAM

September 8, 2000
7:30 P.M.



Speaker:

Chris Verbil, N5CV

“network overlays”

(See page 85)

Join us for pre-meeting eyeball

6 pm— at Su Hong Restaurant, 1039 El Camino Real, Menlo Park

PAARA Radio NET every Monday evening at 8:30 P.M., local time—
on the 145.230 -600 MHz repeater, PL tone off

As we pass through this life sometimes we need to stop and reflect on certain rules. I found the following and hope they are more helpful to you than they were to me. Jay Melvin, WA6SBO

Real Rules to Live By

1. Do not walk behind me, for I may not lead. Do not walk ahead of me, for I may not follow. Do not walk beside me, either. Just leave me the ##### alone.
2. The journey of a thousand miles begins with a broken fan belt and a leaky tire.
3. It's always darkest before dawn. So if you're going to steal the neighbor's newspaper, that's the time to do it.
4. Sex is like air; it's not important unless you aren't getting any.
5. We are born naked, wet, and hungry. Then things get worse.
6. No one is listening until you make a mistake.
7. Always remember you're unique, just like everyone else.
8. Never test the depth of the water with both feet.
9. It may be that your sole purpose in life is simply to serve as a warning to others.
10. It is far more impressive when others discover your good qualities without your help.
11. If you think nobody cares if you're alive, try missing a couple of car payments.
12. If you tell the truth you don't have to remember anything.
13. If you lend someone \$20, and never see that person again; it was probably worth it.
14. Give a man a fish and he will eat for a day. Teach him how to fish, and he will sit in a boat and drink beer all day.
15. If you drink, don't park. Accidents cause people.
16. Some days you are the bug, some days you are the windshield.
17. Don't worry, it only seems kinky the first time.
18. If at first you don't succeed, skydiving is not for you.
19. Don't squat with your spurs on.
20. Good judgment comes from bad experience and a lot of that comes from bad judgment.
21. The quickest way to double your money is to fold it in half and put it back in your pocket.
22. Timing has an awful lot to do with the outcome of a rain dance.
23. A closed mouth gathers no foot
24. Duct tape is like the Force, it has a light side and a dark side and it holds the universe together.
25. Eagles may soar, but weasels don't get sucked into jet engines.
26. There are two theories to arguing with women. Neither one works.
27. Never miss a good chance to shut up.
28. Generally speaking, you aren't learning much when your mouth is moving.
29. Before you criticize someone, you should walk a mile in their shoes. That way, when you criticize them, you're a mile away and you have their shoes.
30. Experience is something you don't get until just after you need it.
31. Don't be irreplaceable; if you can't be replaced, you can't be promoted.
32. Never mess up an apology with an excuse.

® Jay Melvin, WA6SBO

Miscellaneous Dates

Flea Market at Foothill (info at: <http://joslin.com/FleaMarket>)
 June 10th, WVARA

PAARA Palo Alto Amateur Radio Association
 meets 1st Friday 7:30 each month, Net 145.230 each Monday 8:30,
 contact: Andreas Junge N6NU.....(650) 233 0843

EMARC Electronics Museum Amateur Radio Club
 meets 4th Friday 7:30 each month,
 contact: Sheldon Edelman 650-858-2176, Edelman@richochet.net

NCDXC Northern California DX Club
 meets 2nd Friday 7:30 each month, repeater for member info 147.360, Thur 8:00PM,
 contact: Bob Mammarella KB6FEC 408 729 1544.

NorCalQRP Northern California QRP Club
 meets 1st Sunday each month,
 contact: Jim Cates 3241 Eastwood Rd., Sacramento, CA 95821.

Perham Foundation,
 contact: Jerry Tucker WA6LNV 650-961-3266

SPECS Southern Peninsula Emergency Communication System
 meets each Monday 8:00PM on Net 145.27, 440.80 MHz, www.specsnet.org
 contact: Tom Cascone, KF6LWZ, 650-688-0441 specs@svpal.org

SCARES South County Amateur Radio Emergency Service
 meets 3rd Thursday 7:30 each month, San Carlos City Hall.
 Net is on 144.45 & 444.50 (PL-100) 7:30 Monday evenings.
 contact:

SCCARA Santa Clara County Amateur Radio Association
 Operates W6UU repeater 146.385+ Nets: 2m, W6UU, 7:30 Mon; 10m,
 28.385, 8:00 Thur. meets 2nd Mon each month.
 contact: Jack Ruckman AC6FU

SVECS Silicon Valley Emergency Communications
 Operates WB6ADZ repeater (146.115 MHz+)
 contact: Lou Stierer WA6QYS 408 241 7999

WVARA West Valley Amateur Radio Association
 operates W6PIY repeater 147.39+, 223.96, 441.875, 1286.2
 meets 3rd Wed every month.
 contact: Glen Lokke Jr. KE6NBO at 408 971 8626, or glokke@pacbell.net

Disaster Services

PALO ALTO CHAPTER, American Red Cross
 Meets 3rd Wed. each month 7:30PM,
 HF, packet, BBS, ATV, OSCAR Gateway, NASA satellite,
 contact: Alan Ball 650-688-0423.

SAN JOSE CHAPTER. American Red Cross
 contact: Scott Hensley KB6UOO, 408 249 7093, fsh@richochet.net

VE Exams, 3rd Saturday each month, 11AM, 145.23- PL=100Hz
 American Legion Hall, 651 El Camino Real, R.C.
 contact: Al Montoya at WB6IMX@worldnet.att.net

Contest Calendar

~Vic Black, AB6SO~

(for rules and exchanges, see www.contesting.com)

September, 2000

- 2-3 All Asian DX Contest, SSB 0000Z, Sep 2 - 2400Z, Sep 3
- 2-3 IARU Region 1 Field Day, SSB 1500Z, Sep 2 - 1500Z, Sep 3
- 3 Panama Anniversary Contest 0001Z - 2359Z, Sep 3
- 4-5 MI QRP Club Labor Day CW Sprint 2300Z, Sep 4 - 0300Z, Sep 5
- 9-10 WAE DX Contest, SSB 0000Z, Sep 9 - 2400Z, Sep 10
- 9-10 IRCC Bison Stampede (Indiana QP) 1800Z, Sep 9 - 0200Z, Sep 10
- 9-11 ARRL September VHF QSO Party 1800Z, Sep 9 - 0300Z, Sep 11
- 10 North American Sprint, CW 0000Z - 0400Z, Sep 10
- 10 Summer PSK-31 Sprint 2000 Z - 2400 Z, Sep 10
- 15-17 YLRL Howdy Days 1400Z, Sep 15 - 0200Z, Sep 17
- 16-17 Air Force Anniversary QSO Party 0001Z, Sep 16 - 2359Z, Sep 17
- 16,17 ARRL 10 GHz Cum. 0800-2000 locl, Sep 16 & 0800-2000 locl, Sep 17
- 16-17 Scandinavian Activity Contest, CW 1200Z, Sep 16 - 1200Z, Sep 17
- 16,17 Washington St Salmon Run 1600Z, Sep 16 - 0700Z, Sep 17, 1600Z 2400Z, Sep 17
- 16-17 QCWA QSO Party 1800Z, Sep 16 - 1800Z, Sep 17
- 17 North American Sprint, SSB 0000Z - 0400Z, Sep 17
- 23-24 CQ/RJ Worldwide DX Contest, RTTY 0000Z, Sep 23 - 2400Z, Sep 24
- 23-24 Scandinavian Activity Contest, SSB 1200Z, Sep 23 - 1200Z, Sep 24
- 23 Panama Radio Club Contest 1200Z - 2359Z, Sep 23
- 26 2000 6m Activity Contest 1800Z - 2200Z, Sep 26
- 30 Louisiana QSO Party 0000Z - 2400Z, Sep 30
- 30, 1 Texas QSO Party 1400Z, Sep 30-0500Z, Oct 1 & 1400Z - 2000Z, Oct 1

Palo Alto Amateur Radio Association, Inc.

PO Box 911

Menlo Park, CA 94026

President	Andreas Junge N6NU.....(650) 233 0843 n6nu@arrl.net
Vice President	Jon Zweig AD6FX(650) 324 8751 jzweig@pacbell.net
Secretary	Jay Melvin, WA6SBO(650) 747 0639 wa6sbo@arrl.net
Treasurer	Bob Korte, KD6KYT(650) 595 1842 RGK4U@aol.com
Membership	Vic Black, AB6SO(650) 366 0636 vic.black@adept.com ab6so@smm.com
W6OTX Station Trustee	Fred Canham, K6YT(650) 948 9238
K6YQT Station Trustee	Gerry Tucker, WA6LNV(650) 326 4908
Property	Gerry Tucker, WA6LNV(650) 326 4908
Badges	Don Trask, KF6JMQ(408) 251 6494
ARES Officer	Lily Anne Hillis, N6PGM(650) 325 5484
Club Historian	Steve Stuntz, K6FS(650) 322 4952
Advertising	Bob Korte, KD6KYT(650) 595 1842
Webmaster	Andreas Junge AD6FQ(650) 233 0843 n6nu@arrl.net

Board of Directors

Charles Grandjean, WD6FAF (408) 739 5185 '00 wd6fafwebtv.net
Doug Schliebus, K1DIT(650) 851 0727 '00 schliebus@aol.com
Don Trask, KF6JMQ(408) 251 6494 '01 trask@shell3.ba.best.com
Joel Wilhite, KA7TXV(650) 325 8239 '01 ka7txv@qsl.net
Gerry Tucker, WA6LNV(650) 326 4908 '01 (see "Calendar" for Board meeting times, visitors welcome)

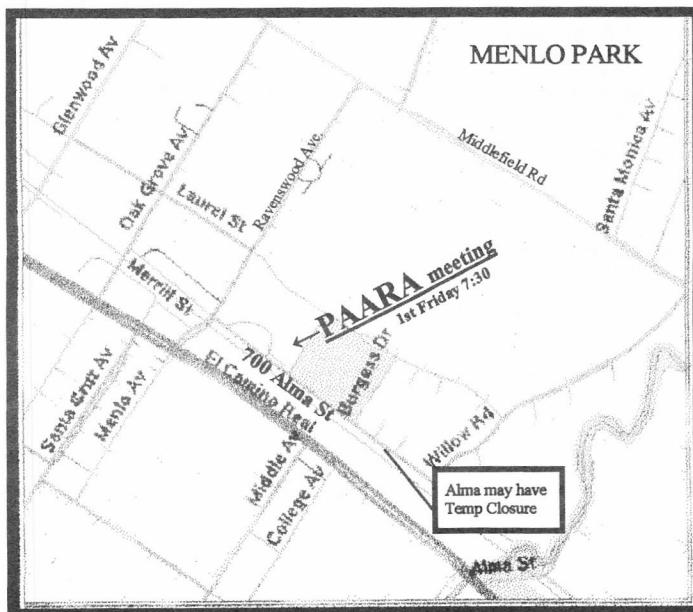
PAARAGraphs Staff

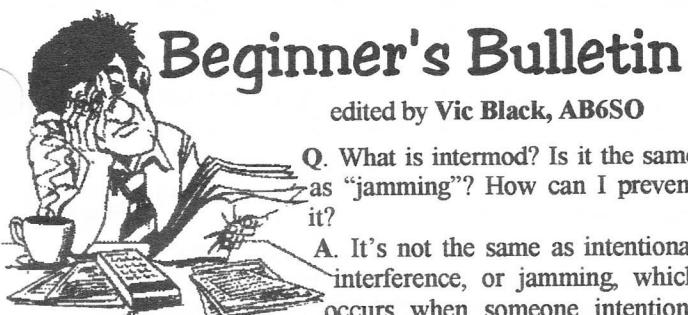
Editor	Wally Porter, K6EURO(650) 494 7038 k6euro@arrl.net
Database	Don Trask, KF6JMQ(408) 251 6494 trask@shell3.ba.best.com
Columns	Vic Black, AB6SO(650) 366 0636 vic.black@adept.com

PAARAGraphs e-mail address: k6euro@arrl.net

Submit material for PAARAGraphs by the 15th

PAARA Website <http://www.qsl.net/paara/>





Beginner's Bulletin

edited by Vic Black, AB6SO

Q. What is intermod? Is it the same as "jamming"? How can I prevent it?

A. It's not the same as intentional interference, or jamming, which occurs when someone intentionally keys up on your listening frequency. Intermod, or Inter-modulation Distortion (IMD), occurs when strong signals from near frequency transmitters such as police, taxis and pagers drive your receiver's RF amplifier non-linear. Two or more signals then mix in the RF amplifier to create the distorted signal (mixing product) on your listening frequency. One way to fix it if you live close to a paging site, for example, and you know the pager's frequency, is to place a notch filter in your antenna line. A notch filter will pass all signals except for the frequency it is tuned for (the pager's frequency). Before buying an expensive filter, though, the first thing to try is to turn off or turn down your receiver's RF amplifier control. If this helps, try placing an attenuator in the receiving line to see if you can still hear the station you want to hear, but without the distortion. The reason this works is that mixing products are so-called third order products and are reduced by the 3rd power of the reduction. When you attenuate all signals by 10 dB, then any intermod products will be reduced by 30 dB. At some point in the process, the signal you want to hear may become stronger than the intermod. This is the "poor man's digital signal processing". Another trick is to use a directional antenna with the offending signal in a null of the antenna pattern. Some antennas have very broad forward lobes so the signal you want to communicate with can be many degrees off to the side. However, those same antennas may have very deep nulls, which can eliminate interference.

Q. When several of us were operating portable, one of the operators said his radio was being desensed. Is that the same as intermod?

A. Desense, or receiver desensitization, occurs when a very strong, off-frequency signal overloads the receiver front end without mixing with another signal, as happens in intermod. The unwanted signal is so strong that the receiver's front-end amplifier or mixer biasing is changed. This reduces the receiver's sensitivity and prevents reception of weak signals. It's a common problem at Field Day sites. It can be cured by separating the two stations' antennas or by turning the antennas, if they are directional, so that they are in each other's null fields. Filters in the receiver antenna line may also help. Notice that this is not caused by an on-channel signal, nor is it a broadband type of interference or mixing product, such as intermod.

Q. Why are FM signals vertically polarized and SSB and CW signals horizontally polarized?

A. The VHF weak signal modes, SSB and CW, are generally horizontally polarized as a carry over from High Frequency (HF) work. This is because on HF the antennas are very large and it's easier to build an antenna up to several hundred feet long with a horizontal rather than a vertical orientation. FM

signals are usually used for mobile use on VHF and UHF. In a mobile installation, it's easier to build the antennas as omnidirectional verticals.

Q. What is multipath?

A. Since radio signals bounce off solid objects much like light rays do, it's possible to receive signals both directly from a source and from reflections. If a signal comes in from the transmitting antenna by two different routes, one direct and the other by a longer reflected route, it's possible for the two signals to arrive at the receiver either in phase or out of phase with respect to each other. When they are in phase, they will add together to increase the signal strength. This is called additive, or constructive, interference. Normally, you won't notice that. However, if they arrive out of phase, they will cancel and you'll notice a drop in received signal strength. This is called subtractive, or destructive, interference. This can even occur when listening to commercial broadcasts. You may be waiting in traffic and notice a drop in signal strength. By slowly moving forward just a few inches the signal will improve as the signals come back into phase.

Q. I thought repeaters always received on one frequency and transmitted on another frequency so how can you have a simplex repeater?

A. A simplex repeater records a short transmission and then repeats it back on the same frequency. They are sometimes called "parrots". This is a slow way to communicate, but it requires less spectrum and is easier to implement than a full offset repeater. Simplex repeaters are often used in balloon launches since they are simple, lightweight and inexpensive.



I FINALLY GOT OUR NEIGHBOR TO GET RID OF THAT OLD STYLE TV THAT I'VE BEEN BOthering ON 15 METERS!

Honorary Member 2000

(Speaker 8/4/00)

Dean Babcock W6OEL

PAARA PONDERINGS

de VIC BLACK, AB6SO



How well does PSK-31 work? Here's an excerpt of an e-mail from Brian Kassel K7RE concerning his first 20 meter PSK contact. "I just wanted to share a bit of the text of the first QSO that I made last night on my newly completed Small Wonder Labs PSK-20. I was running about 1.5 watts out. The excitement in the other station's voice can be easily read from his text: The other station's call is WA4KBD.

K7RE de WA4KBD. Your IMD is -26 -26 -26 db Brian... and you are about 10 db over S9...10 db over S9....I am receiving you on 50 Hz band width so you are the only signal in the pass band and you are 10 db over 9 !!!!!!!! BTU, Brian. K7RE de WA4KBD K".

The boost in signal to noise ratio from PSK-31 is becoming legendary as more and more people use it.

Most of us don't have too many occasions to communicate with animals, but I've always felt that animals would talk if they could. It turns out that one of the frustrations for animals is the fact that most land animals can't hold their breath; respiration is controlled by their pulse rate. Also, most animals don't have vocal cords that are tuned for speech and, at least for dogs and cats, their jaws can only move up and down. They can't move from side to side. Nevertheless, one of the biggest obstacles is that people feel foolish talking to animals. If we treated human infants that way, they wouldn't learn very fast, either, if at all.

I adopted my cat, Velcro, when he was quite young and I was unemployed so I spent a lot of time at home with him. I talked to him several hours per day and he soon began to understand simple spoken commands. He has a very strong dislike for the word "No" and growls like a dog when he hears it. He appears to understand concepts as well as merely reacting to commands. "Up" can mean to jump up, or if I'm grooming him "Up" means "Hold your chin up", for instance. Recently, he's done a pretty good job of trying to utter certain words. The word "tuna" comes through clearly and is spoken when I ask him what he wants to eat. Sometimes he asks for salmon instead, although he has a more difficult time with that word. When I jokingly called shrimp "worms" he quickly picked up on that and can say it with little effort and great anticipation of a special treat.

Dogs seem to learn verbal commands even better than cats do. A friend in Fresno trained his Black Lab Retrievers in Armenian so other duck hunters wouldn't confuse them with shouted or whistled commands. Dogs normally can't talk, although they definitely use body language effectively. I've also seen them smile. The first time a Doberman smiled at me I thought I was about to be attacked when I saw all of those teeth. The amazing thing is that several CW operators have reported that their dogs bark when the master's call sign is heard coming from the radio in CW.

So it comes as no surprise that the CW enthusiasts' magazine, **Morsum Magnificat**, reported that the New Zealand National

Geographic, for October-December, 1991 featured a farmer, Darcy Gilberd, who trained his dogs to obey Morse code signals from a whistle. Each sheep flock has at least one black sheep so the sheep can be spotted from afar when they are on snowfields. Dogs are often delivered to the flocks by helicopter to begin work with whistle signals coming from up to a mile away. Gerd Sapper DJ4KW, one of the founders of the High Speed CW Club, told me that he noticed on a trip to New Zealand that each dog is issued a "call sign" which precedes the commands. This ensures that each dog will respond only to its own commands and not to those intended for another dog.

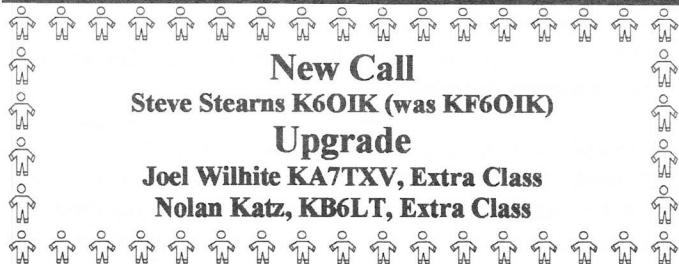
Darcy used T to get his dogs' attention, I to bark or "speak up", K for "steady." KK meant "sit", M meant "go away", and N meant "come in behind." CW operators would call these "prosigns", or procedural signals, since they are intended to be responded to instinctively rather than being interpreted as letters or words, per se.

In effect, this is the way humans use Morse code. We don't try to interpret each dit and dah, but instead react to overall sequences of sounds. Maybe we can learn more from the animals in this respect. At the risk of making you think I'm anthropomorphizing, or applying human-like qualities to animals too much, I can imagine Dr. Dog, anthropologist, asking, "Do humans really understand language, or are they merely reacting instinctively to memorized sounds?"

There's a new theory about why we have a lull in the middle of the 11-year solar cycle. It's so we have 4 or 5 years to reply to all the QSL card requests we get during the peak of the cycle. The ARRL Outgoing QSL Service reports that more than one million cards have been sent so far this year. QSL Service Assistant Tammy K1TLK, says the year-to-date total is ahead of last year same date by approximately 25,000 cards.

This is a good time to do some maintenance on your batteries in readiness for the upcoming storm season. Sealed lead acid batteries are very popular and are available at reasonable cost from local surplus shops and at the local swap meets. Attention to detail is important because even the best batteries can be destroyed by sloppy maintenance. The most common causes of lead acid battery failure are: corrosion; contamination from use of tap water instead of distilled water; electrolyte loss caused by heat, overcharging or charging too fast; sulfating from long storage without trickle charging; undercharging (with voltages less than 13.8 volts); old age; vibration and freezing. Improper charging destroys more batteries than all other causes combined. Make sure your charger goes into trickle charge mode after the battery reaches full charge. Continuing to charge after the battery reaches full charge is bad because the charging current has to go somewhere and results in the generation of gases and heat. Both of these can be fatal to a battery.

® Vic Black, AB6SO .





WEB WANDERINGS

de Vic Black, AB6SO



Twin City Ham Club, W5EA, in Monroe, LA is sponsoring the LA QSO Party 2000 on 30 September, the first LAQP in 20 years. For details, see the LAQP web site <http://www.tchams.org/users/contest/lajqp>. This is an opportunity for US County hunters to work all

Louisiana counties, called parishes, in one day. Six meter activity is planned along with HF.

From Steve Stearns K6OIK: "You can use this web site to set your watch or clocks. <http://www.time.gov>. It uses the atomic clocks from NIST and US Naval Observatory. Both clocks are within 30 ns of each other. USNO's clock is typically 30 ns ahead of NIST's clock as determined by comparing each clock to GPS time. Internet transmission introduces a delay on the order of a second. My atomic watch which synchronizes to WWVB's 60 kHz time signal at 1 am every morning runs slow by exactly three seconds."

Steve also sent along the address for an informative article about cell phone safety. "The IEEE just published an authoritative summary article on the status of research on cell phone safety and RF exposure. It's in the August issue of IEEE Spectrum. The text can be viewed on the web at <http://www.spectrum.ieee.org/publicfeature/aug00/prad.html>". Most cell phones run about one half watt as opposed to amateur HTs that can run 5 to 7 watts. There appears to be a positive correlation between cell phone use and higher death rates, but it has nothing to do with cancer induced by the cell phone use. Rather, the higher death rate is caused by a higher rate of automobile crashes while using the phones!!

Several PAARA members are near the top of the list for radio amateurs who have analyzed radio telescope data using the SETI@home screen saver computer program. Data received from the Arecibo, Puerto Rico radio telescope is downloaded from the Internet and amateur volunteers around the world do distributed computations looking for signs of intelligent life in space. What are the odds of finding intelligent life this way? Go to www.activemind.com/Mysterious/Topics/SETI/drake_equation.html for an interactive copy of the Drake Equation. As the site says, "The Drake Equation was developed by Frank Drake in 1961 as a way to focus on the factors which determine how many intelligent, communicating civilizations there are in our galaxy."

Using web site guidelines input your best guess for such things as the probable number of planets around each likely star, the probable number of likely stars, etc. At one time I was quite excited about the prospects of finding intelligent life outside Earth's realm of influence. During the early 1960's while I was at Hewlett-Packard, I was able to talk with Barney Oliver, one of the early SETI gurus. He had a very persuasive argument for the existence of extraterrestrial life and the possible benefits to humans in communicating with them. In a way we are trying to make space aliens in our own image. I'm more conservative now. I now think that searching for intelligent life

in space is based more on faith and pseudo science than on real science. Does that make me a heretic? Well, let's find out.

The possibilities are that, if we find intelligent life, it will fall into one of three categories. The first is that we will find something very similar to humans that we may or may not be able to communicate with. The second is that we will find something much different from ourselves that we can't communicate with, and the third is that we will find superior beings that have no interest in us at all (except maybe to eat us). Part of my skepticism is based on our frequent inability to communicate meaningfully with each other here on Earth.

For example, did you know that for 20 years a small group of scientists have observed beings that look remarkably human, who enjoy walking upright, who apparently use language, and who design, build and use stone tools? Their social structure is similar to human civilization although they have never been known to willingly kill members of their own species. They share 99% of our genetic heritage, they look more human than chimpanzees do and they share most, and maybe all, of our emotions. And yet we have a very difficult time communicating with them, even though some have gone out of their way to learn to understand spoken English. The worst thing is that we consider ourselves superior to them so we eat them. What are they? These little known creatures are our closest living relatives, the chimpanzee-like bonobos. Notice that these are not chimps, but are even more closely related to us than chimps are. They certainly get along together better than hams do in most DX pileups. Learn about them at <http://www.gsu.edu/~wwwbpf/bpf>. Oh, yes! While learning about our closest relatives, remember that I'm not totally opposed to the SETI@home project. An unexpected benefit is the fact that it has demonstrated the possibilities inherent in the distributed processing of data. More than 2 million host computers worldwide have successfully downloaded data and are processing it.

For a very nifty kit project that may be of interest, go to <http://www.frontiernet.net/~embres/eps.htm> for the Embedded Research DC-DC Emergency Power Supply. The people who designed the TiCK memory keyers bring us this inexpensive kit, which can be built in one evening. It's also available ready-made for a slight premium. The high efficiency DC - DC converter accepts 2 - 12 VDC input to provide 12 VDC output at one half Amp. There are several reasons why you may want to do this. You may not be able to get the exact number of batteries to power your HT in an emergency. If your battery drops below 12VDC, the EPS-1 Power Supply will boost the output back up. 4 "D" cells in series (6V) or 2 "D" cells in series (3V) can supply 12VDC. You can even use it to squeeze the remaining energy out of alkaline cells that your friends have thrown away. It can also be built into another home project as a voltage regulator and battery operated power supply.

TUCOWS distributes shareware and freeware via the Internet. I went to <http://www.tucows.com> and entered "amateur radio" for "all software" types. Eight amateur radio specific software titles came up, mostly for Palm Pilots and Macintosh (sorry, no ham specific software for Windows). There's a lot of other software available for many operating systems (DOS, Windows, NT, Linux, etc.) on the site, though, that can be

(Continued on page 83) Web wanderings



Technical Tip

Antenna Rules of Thumb

by James R. Duffey KK6MC/5

Every now and then somebody asks for antenna suggestions. Quite often the people asking are beginners who are afraid of making the wrong choice. In order to help choose antennas wisely, I have compiled a few "rules of thumb". As with any rules of thumb, these are general and there are some exceptions. A few may be somewhat controversial and I am sure alternate views will be expressed by those with opposing views. However, I intend these guidelines to point one in the right direction rather than to provide a detailed map of what to do.

1. Any antenna is better than no antenna. Rather than agonize over an antenna choice, just put one up and operate. After operating with it for awhile you will become aware of your operating habits and the shortcomings of the antenna you've erected. That will give you some hints as to which direction you should go with your next antenna. You can lose $\frac{1}{2}$ of your power in poor antenna system efficiency and be down only an S unit or so. I hear lots of S9 QRP stations. They would still make fine QSOs at S8. I'm not advocating antenna inefficiency, but you can live with it. It's better than no antenna at all.

2. Higher antennas generally outperform lower antennas. A vertical on the roof of a one-story house is probably a better choice than one on the ground in the backyard. A dipole whose end is tied to a 5 or 10 ft mast on top of the house will outperform one whose end is merely fastened to the eaves.

3. Most people will be happier with a low dipole than with a vertical.

Verticals require a bit more attention to work effectively and beginners can become frustrated in dealing with ground issues.

4. It pretty much doesn't matter what kind of copper wire you use in an antenna. Thick or thin, insulated or bare, stranded or solid will all perform fairly well. Any effects due to these characteristics will be "second order". The old formula for cutting a half wave dipole, $468/\text{frequency} (\text{in MHz})$, may be a bit different for various combinations, but this formula is only an approximation anyway.

5. Whatever antenna you choose, if it is fed with coaxial cable you should use a choke balun. This will prevent the feedline from becoming part of the antenna, which can cause all sorts of problems. There are many designs to choose from. My favorite is an air core balun wound from coax. These are described in the ARRL Handbook and in the ARRL Antenna Book. You don't have either? Then,

6. Purchase a Handbook or ARRL Antenna Book and study it. Antennas don't change much, so even an old copy of the Antenna Book will be very useful. These show up at hamfests occasionally. You can also special order ARRL publications from good bookstores.

7. Outdoor antennas perform better than indoor ones. If all you can erect is an indoor antenna, fine, but try to see if there is a way to get up an antenna outside. A thin wire supported an inch or more away from the building will be much better than one inside. If you can dangle a wire out a second story window, fed against a counterpoise, that will be a pretty good antenna.

8. Don't scrimp on feedline. Good, low-loss feedline doesn't cost much more than the antenna it's feeding.

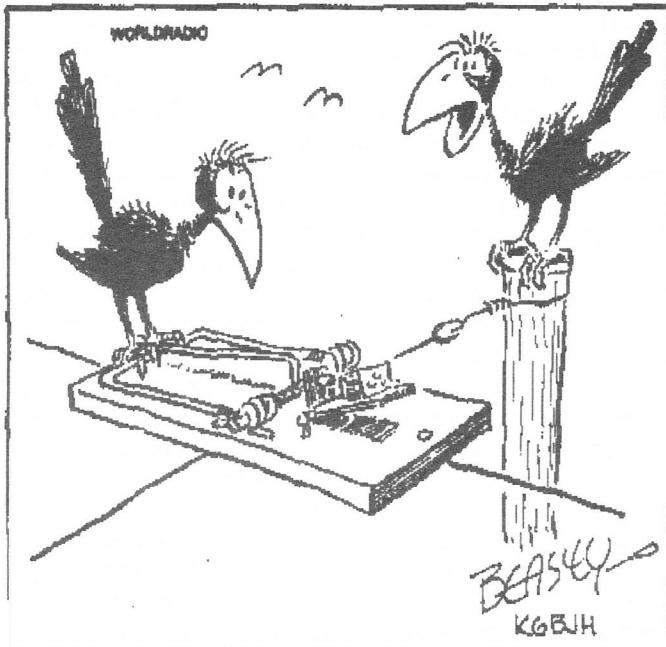
9. Most single band antennas can be made into multiband antennas by feeding them with a balanced feeder, like window line, and using a tuner. This applies to loops as well as dipoles. For an inexpensive low loss tuner, see W6RCA Cecil Moore's method of changing the feed line length to achieve a match: <http://www.geocities.com/CapeCanaveral/8476>.

10. If you have antenna restrictions, consider a temporary antenna. The SD-20 Blackwidow Crappie Fishing Pole can be erected with a wire of choice to make a vertical in a matter of seconds. With a few radials or a chain link fence as a ground, this can give a good account of itself. If somebody complains about it, take it down and next time erect it where they can't see it.

11. Consider your operating practices in choosing an antenna. If you can only operate in the evening, then even a high 10 M antenna will not provide you with much operating time. The band will usually be dead after sunset. On the other hand, a 40 M dipole will provide you with a number of contacts late into most evenings. It can also be used on 15 M for those occasions when you can operate during the day.

12. Avoid the temptation to "have it all". Multiband antennas are often attractive to newcomers. So are electrically "small" antennas. They are compromises, by necessity, and usually don't work as well as single band antennas. I suggest erecting a single band dipole and using it for awhile. As you get accustomed to operating, or have desires to try out other bands, you can erect another antenna or feed the one you have (if it is a dipole) with ladder line for multiband use. You can build and feed a lot of single band dipoles for the price of an R-7000!

13. Homemade antennas are better than commercial ones. Ask anyone who has built one!



BETTER WATCH THAT---I DON'T THINK THIS GUY UNDERSTANDS THE CONCEPT OF A TRAP ANTENNA!



Antenna Rules of Thumb

by James R. Duffey KK6MC/5

Every now and then somebody asks for antenna suggestions. Quite often the people asking are beginners who are afraid of making the wrong choice. In order to help choose antennas wisely, I have compiled a few "rules of thumb". As with any rules of thumb, these are general and there are some exceptions. A few may be somewhat controversial and I am sure alternate views will be expressed by those with opposing views. However, I intend these guidelines to point one in the right direction rather than to provide a detailed map of what to do.

1. Any antenna is better than no antenna. Rather than agonize over an antenna choice, just put one up and operate. After operating with it for awhile you will become aware of your operating habits and the shortcomings of the antenna you've erected. That will give you some hints as to which direction you should go with your next antenna. You can lose $\frac{1}{2}$ of your power in poor antenna system efficiency and be down only an S unit or so. I hear lots of S9 QRP stations. They would still make fine QSOs at S8. I'm not advocating antenna inefficiency, but you can live with it. It's better than no antenna at all.

2. Higher antennas generally outperform lower antennas. A vertical on the roof of a one-story house is probably a better choice than one on the ground in the backyard. A dipole whose end is tied to a 5 or 10 ft mast on top of the house will outperform one whose end is merely fastened to the eaves.

3. Most people will be happier with a low dipole than with a vertical.

Verticals require a bit more attention to work effectively and beginners can become frustrated in dealing with ground issues.

4. It pretty much doesn't matter what kind of copper wire you use in an antenna. Thick or thin, insulated or bare, stranded or solid will all perform fairly well. Any effects due to these characteristics will be "second order". The old formula for cutting a half wave dipole, $468/\text{frequency} (\text{in MHz})$, may be a bit different for various combinations, but this formula is only an approximation anyway.

5. Whatever antenna you choose, if it is fed with coaxial cable you should use a choke balun. This will prevent the feedline from becoming part of the antenna, which can cause all sorts of problems. There are many designs to choose from. My favorite is an air core balun wound from coax. These are described in the ARRL Handbook and in the ARRL Antenna Book. You don't have either? Then,

6. Purchase a Handbook or ARRL Antenna Book and study it. Antennas don't change much, so even an old copy of the Antenna Book will be very useful. These show up at hamfests occasionally. You can also special order ARRL publications from good bookstores.

7. Outdoor antennas perform better than indoor ones. If all

you can erect is an indoor antenna, fine, but try to see if there is a way to get up an antenna outside. A thin wire supported an inch or more away from the building will be much better than one inside. If you can dangle a wire out a second story window, fed against a counterpoise, that will be a pretty good antenna.

8. Don't scrimp on feedline. Good, low-loss feedline doesn't cost much more than the antenna it's feeding.

9. Most single band antennas can be made into multiband antennas by feeding them with a balanced feeder, like window line, and using a tuner. This applies to loops as well as dipoles. For an inexpensive low loss tuner, see W6RCA Cecil Moore's method of changing the feed line length to achieve a match: <http://www.geocities.com/CapeCanaveral/8476>.

10. If you have antenna restrictions, consider a temporary antenna. The SD-20 Blackwidow Crappie Fishing Pole can be erected with a wire of choice to make a vertical in a matter of seconds. With a few radials or a chain link fence as a ground, this can give a good account of itself. If somebody complains about it, take it down and next time erect it where they can't see it.

11. Consider your operating practices in choosing an antenna. If you can only operate in the evening, then even a high 10 M antenna will not provide you with much operating time. The band will usually be dead after sunset. On the other hand, a 40 M dipole will provide you with a number of contacts late into most evenings. It can also be used on 15 M for those occasions when you can operate during the day.

12. Avoid the temptation to "have it all". Multiband antennas are often attractive to newcomers. So are electrically "small" antennas. They are compromises, by necessity, and usually don't work as well as single band antennas. I suggest erecting a single band dipole and using it for awhile. As you get accustomed to operating, or have desires to try out other bands, you can erect another antenna or feed the one you have (if it is a dipole) with ladder line for multiband use. You can build and feed a lot of single band dipoles for the price of an R-7000!

13. Homemade antennas are better than commercial ones. Ask anyone who has built one!

PAARA Radio NET
every Monday evening
8:30 P.M., local time
on the 145.230 -600 MHz repeater, PL tone off

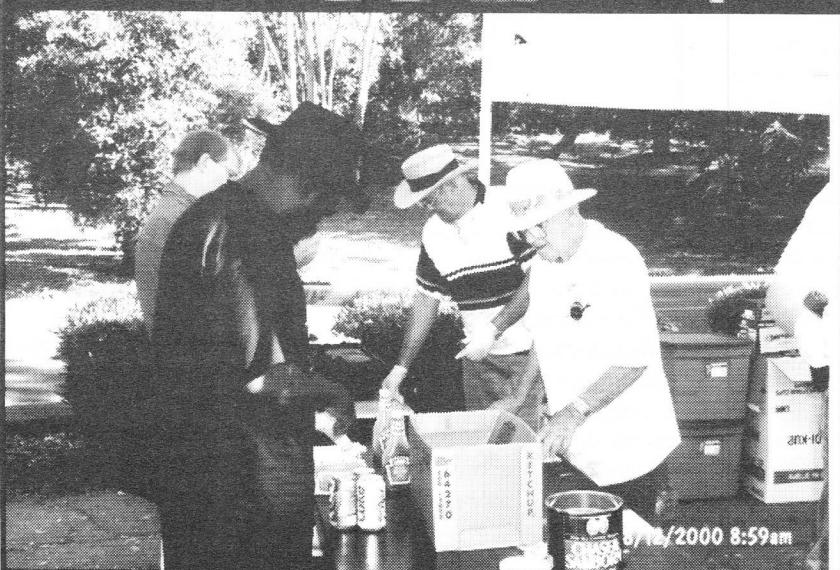
(Continued from page 81) Web wanderings
downloaded and used around the radio shack. Maybe you'll find something of interest here.

Worldradio Magazine has a web site called "The Online Magazine For Today's Amateur Radio Operators". It's located at <http://www.wr6wr.com/index.html>. The menu features Departments, Articles, News, Products and Services. Try it and you may want to bookmark it for future use as the articles and news are constantly updated.

® Vic Black, AB6SO

PAARA

FLEA MARKET 2000



Board of Directors Meeting

2000 August

The Board met as usual at the Red Cross building on the 9th. Andreas, N6NU, took attendance and handed out a four page check list.

The meeting exclusively coordinated the myriad tasks of our club's annual operation of the Flea Market at the Foothill College Parking Lot for Saturday the 12th.

Other Bay Area ham clubs operate the Flea Market other months of the year. Operating it is a full time exercise so the sharing of responsibility is necessary among the eight clubs. This month's meeting, preparing for the Flea Market, was more intense and busy than our usual Directors meetings.

The concession stand sales of soda pop (diet and regular) and donuts, buns and especially good hot dogs as well as coffee consumed most of the Board's planning.

Collecting fees for booths, policing for non payers, trash collection and trash disposition and the logistics to pull that off was discussed and tasks allocated.

One example was the calculation for change for admissions. From previous years experience Doug, K1DIT, predicted how many \$5 bills for change would be required for ATM generated \$20 dollar bills and how many \$50 and \$100 bills we might have to produce change for.

See elsewhere for a report on the Flea Market.

73, - Jay, WA6SBO, Secretary

Famous phrases

Don't unplug it, it will just take a moment to fix.

What happens if you touch these two wires tog...

Let's take the shortcut. He can't see us from there.

• Amador County ARC

Thanks to

Howard M. Krawetz (N6HM), for the PAARA Flea Market pictures.

We have not been pleased with picture quality lost in the printing process of PAARAGraphs. This is a try for improvement with Graphicstat, Palo Alto and PIP, our printer. The pictures were e-mailed to PAARAGraphs and given to Graphicstat on disk, thus avoiding the use of my limited home ink jet printer.

If you like these pictures, send us some as an attachment to a descriptive e-mail. We would like more pictures in PAARAGraphs.

(note PAARAGraphs is NOT copywrited)

-ed.

Send pictures and text to:

k6uro@arrl.net

September Speaker: Chris Verbil, N5CV
"network overlays"

The FCC has mandated that by October 2001, wireless carriers implement technology capable of locating cellular 9-1-1 callers to within 150 meters. Two different technologies are being touted as capable of meeting this requirement: "network overlays" and GPS.

Chris Verbil, N5CV, is an Applications Engineering Manager at SnapTrack in San Jose. He will discuss a server-assisted GPS solution for 9-1-1 which has direct applicability to other radio services as well. If you have a handheld GPS receiver, bring it with you to the meeting.

Coyote Creek Cycling Classic

This is Bill , N2RHV, Ham Radio Coordinator for the annual Coyote Creek Cycling Classic, Saturday, October 7th.

The Event Supports Boy Scout 'Living for Life ' (former Exploring). Programs and runs from Hellyer Park to Uvas Res. We are looking for APRS Ham radio support for this 12-25-50 mile cycling event held in Santa Clara County on October 7 from 7 am to 2 pm. We could also use Hams or others who can provide Sag Wagons for this >event. This would include both Vans and Pickups that can assist cyclists on the route. All Sag Wagons should include a full power mobile rig as HTs have been found limited in the Southern areas of the route.

Please pass this request along to other interested Hams. We have run a voice net and APRS / Packet last year with great interest.

- Milpitas ARES, <http://www.qsl.net/mares>
- William L. Dale, N2RHV - EC Milpitas
- mailto:william.dale.jr@lmco.com
- 408-743-6812 B/102
- 408-742-2639 B/154
- mailto:n2rvh@arrl.net
- 408-263-5325 h

Join us for pre-meeting eyeball

QSO Sept 8th
gab & gobble

6 pm— at Su Hong Restaurant
 1039 El Camino Real
 Menlo Park
—across from Kepler's Book Store—




AHHA! Solutions

MICHAEL J. ALLISON
 Principal Software Engineer

AHHA! Solutions
 4429 Guilford Place
 Livermore, CA 94550

510 447-5414
 kn6zt@amsat.org

HSC **Halted**
specialties co.

Electronics • Prototyping Supplies • Computers • Lasers

Debra Blanke
 Sales
 KG6UI

3500 RYDER STREET
 SANTA CLARA, CA 95051
 www.halted.com

PHONES: (408) 732-1573
 (650) 969-1448
 FAX: (408) 732-6428

WØQK

ELECTRONIC COMPONENT SUPPLY
 TEST EQUIPMENT • COMPUTERS

Alltronics

2300-D ZANKER ROAD
 SAN JOSE, CA 95131
 408-943-9773
 FAX 408-943-9776

DOWNLOAD OUR CATALOG
[HTTP://WWW.ALLTRONICS.COM](http://WWW.ALLTRONICS.COM)

PAARAgaphs Ad Rates

PAARAgaphs accepts paid advertisements from non-members.
(short personal ads remain free for members in good standing).

All ads rates listed are per issue only.

1. Not for profit ads by association members for ham-related items and wants. No cost for business card size ads (additional space at \$2.50 per business card size).
2. For Profit organizations and/or individuals: \$5-business card size, \$25-half page, \$50 full page or back cover.

These fees may be reduced or waived in exchange for a valuable consideration that is given to the Association or its general membership. Such consideration must be in addition to any existing arrangements with the association.

The PAARAgaphs editors reserve the right to reject any ad deemed to be not in the best interest of the Association. All fees payable in advance by the year with "scanner-ready" copy or text-only ads. Give payment and copy to Bob Korte

PAARA · Palo Alto Amateur Radio Association · P.O. Box 911, Menlo Park, California 94026-0911

- Club meetings are on the first Friday of each month, 7:30pm at the Menlo Park Recreation Center, 700 Alma Street, Menlo Park, CA. •
- Radio NET every Monday evening, at 8:30pm, on the 145.230-600 MHz repeater, PL tone off. •

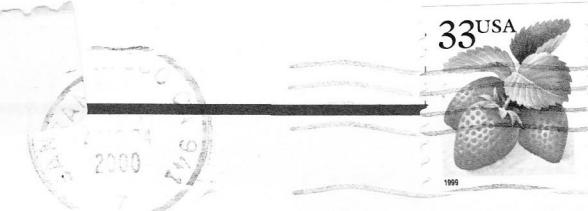
Membership in PAARA is \$12.00 per calendar year which includes a subscription to PAARAgaphs, \$6 for additional family members (no newsletter).

Make payment to the Palo Alto Amateur Radio Association.

Permission is granted to reprint from this publication with appropriate source credit.

PAARAgaphs September 2000

Palo Alto Amateur Radio Association, Inc.
PAARAgaphs Newsletter
P.O. Box 911
Menlo Park, California 94026



FIRST CLASS MAIL

Inside

Calendar & Program	77
Real Rules to Live By	WA6SBO 77
Contests	AB6SO 78
Miscellaneous Dates	78
Beginner's Bulletin	79
PAARA Ponderings	AB6SO 80
Upgrades	AB6SO 80
Web Wanderings	AB6SO 81
Technical Tip	KK6MC/5 82
Antenna Rules of Thumb	KK6MC/5 83
PAARA Flea Market	N6HM 84
Board Meeting	WA6SBO 84
Coyote Creek Cycling Classic	N2RHV 85
Map to General Meetings 1st Friday 7:30 PM	78

Visitors Welcome

94062-3319 27

|||||
Korsak, Andy KR6DD
504 Lakemead Way
Redwood City, CA 94062-3919