

**W6OTX**

**PAARA NEWSLETTER**  
VOLUME 54, NUMBER 12, December 2005

**K6OTA**

**K6YQT**



# PAARAGraphs

Celebrating 68 years as an *active* ham radio club—*Since 1937*  
The Palo Alto Amateur Radio Association, Inc.



## CALENDAR



December 9 PAARA Meeting

7:00–9:30  
Menlo Park Rec Center  
700 Alma Street  
Menlo Park, CA 94025

December 7 Board Meeting 7:00pm  
Red Cross Bld., 400 Mitchell Lane Palo Alto  
(due to Parking Lot problems location may change, check net before Bd. meeting)

Note: change of Board Meeting date for December

January 6 PAARA Meeting, 7:00pm

January 11 PAARA Board Meeting, 7:00pm



## President's corner

This is December of 2005, a year that went by incredibly quickly. Once again it is election time within our radio club, so kindly check out the announcement elsewhere in this fine publication and please come to the meeting on December 9<sup>th</sup> to cast your ballot.

The PAARA Board of Directors have been hard at work making decisions on your behalf and guiding our amateur radio association into the 2006 year. Several new committees will be established to assist those eager to learn more from our educational and special interest groups which will be taking a more active part in club matters. Some of the obvious technical leaders within PAARA will be asked to form and actively pursue training and hands on experience with various training sessions or group activities. We may be offering these exciting, new venues in conjunction with AmTech Day as it seems like the reasonable and prudent thing to do with that monthly ham event. The Board has been discussing many possible groups such as CW classes; fox/rabbit hunting; 706/703 operators, etc. The Board is always appreciative of your input and support.

The Board of Directors has appointed Bob Korte, KD6KYT, to be the official, designated association fundraiser as he has a proven track record and has expressed his intention to continue supporting our ham radio organization. Gerry Tucker, N6NV and Ron Chester, W6AZ will continue with their on-going efforts to raise money with the various radio items that our donated to PAARA on a regular basis by the estates of SK's or hams who are simply cleaning out the large, valuable items from their radio shacks. If you can participate or provide assistance with this rather time consuming effort, please contact Gerry or Ron.

I encourage you to bring newbies to the regular PAARA meetings and purchase lots of PAARA raffle tickets. This helps keep the membership numbers increasing and it really benefits the PAARA raffle which as you know is one of our big fund raisers.

I wish you all the very best of the coming season and look forward to seeing you, working with you and having fun with you in the new year. 73: Terry Finn. AA6T.



## NEXT MEETING

December 9, 2005

*(note this is the 2nd Friday)*

### Speaker:

**Jerry Ramie**

### Program:

**“BPL Compliance Emissions Guidelines”**

**Jerry Ramie** is the President of ARC Technical Resources, Inc. which provides training, equipment, systems and services for EMC (Electro-Magnetic Compatibility). Jerry is a Member of the IEEE-EMC Society, the dB Society and is a NARTE-certified EMC technician.

~Peter K6WEB

## Miscellaneous Info

**VE Exams**, 3rd Saturday each month, 10:30AM, 145.23—PL=100Hz  
 Redwood City Main Library, Community Conference Room  
 1044 Middlefield Road, Redwood City, CA  
 contact: <http://amateur-radio.org/> or Al, WB6IMX@att.net

### ELECTRONICS FLEA MARKET

Sponsorship by A.S.V.A.R.O.  
 (Association of Silicon Valley Amateur Radio Organizations)  
 Second Saturday of month, March–October, 6am–2pm  
 Howard M. Krawetz, N6HM 650-856-9761  
 Contact: <http://www.electronicsfleamarket.com/>

**LIVERMORE SWAP MEET.** Now in Robertson Park, Livermore, every first Sunday of the month 7 am to 11:30 am. Free admission for buyers. For further info, see: [www.larkswap.com](http://www.larkswap.com) or contact Ian Parker, W6TCP at [swapmeet@livermoreark.org](mailto:swapmeet@livermoreark.org)

**PAARA** Palo Alto Amateur Radio Association  
 meets 1<sup>st</sup> Friday 7:30pm each month, Net 145.230 each Monday 8:30; contact: <http://PAARA.org/> or Terry Finn, AA6T, 650-366-9111

**FARS** Foothills Amateur Radio Society  
 meets 4<sup>th</sup> Friday 7:30pm each month  
 contact: <http://www.fars.k6ya.org/>

**NCDXC** Northern California DX Club  
 meets 2<sup>nd</sup> Friday 7:30pm each month,  
 repeater for member info 147.360, Thur 8:00PM  
 contact: <http://ncdxc.org/> or Mike Gavin W6WZ, (650) 851 8699

**NorCalQRP** Northern California QRP Club  
 meets 1<sup>st</sup> Sunday each month  
 contact: <http://www.norcalqrp.org/>

**SPECS** Southern Peninsula Emergency Communication System  
 meets each Monday 8:00pm on Net 145.27, 440.80 MHz  
 contact: <http://specsnet.org/> or Tom Cascone, KF6LWZ, 650-688-0441

**SCARES** South County Amateur Radio Emergency Service  
 meets 3<sup>rd</sup> Thursday 7:30pm each month, San Carlos City Hall.  
 Net is on 146.445 [PL 114.8] & 444.50 (PL-100) 7:30 Monday evenings.  
 contact: President Phil Stripling, K6ILU, 650-342-6648, <http://k6mpn.org/>

**SCCARA** Santa Clara County Amateur Radio Association  
 Operates W6UU & W6UU/R, repeater 146.985-PL  
 Nets: 2m, 7:30pm Mon; 70cm, 442.425+ (pl 107.2) Thur.  
 meets 2<sup>nd</sup> Mon each month @ 7:30 PM.  
 contact: <http://www.qsl.net/scarra/> or Clark Murphy KE6KXO 408-262-9334  
 ARRL/VEC license testing contact 408-507-4698

**SVECS** Silicon Valley Emergency Communications  
 Operates AA6BT repeater (146.115 MHz+)  
 contact: <http://www.svecs.net/> or Lou Stierer WA6QYS 408 241 7999

**WVARA** West Valley Amateur Radio Association  
 W6PIY six-meter repeater on 52.58MHz. Normally, six-meters is linked with 147 and 223, while 441 and 1286 repeaters are linked.  
 VHF:      52.58 (-500) 151.4 ctess      UHF:  
           147.39 (+600) 151.4 ctess      441.35 (+5.0 88.5) ctess  
           223.96 (+1.6) 156.7 ctess      1286.20 (-12m) 100.0 ctess  
 meets 3<sup>rd</sup> Wed every month.  
 contact: <http://wvara.org/>, Bill Ashby N6FFC, 408-267-3118, N6FFC@Juno.com, or N6FFC@ARRL.NET

### DISASTER SERVICES

#### American Red Cross, PALO ALTO AREA CHAPTER

400 Mitchell Lane  
 Meets 3<sup>rd</sup> Wed. each month 7:30PM  
 HF, packet, BBS, ATV, OSCAR Gateway, NASA satellite.  
 contact: <http://paarc.org/> or Mac Millian 650-688-0423, [MACM@paarc.org](mailto:MACM@paarc.org)  
**American Red Cross, SANTA CLARA VALLEY CHAPTER**  
 contact: <http://santaclaravalley.redcross.org/> or Scott Hensley KB6UOO, (408) 967 7924  
[fshensley@Novell.com](mailto:fshensley@Novell.com)

(please send changes to PAARAGraphs editor: [k6uro@arrl.net](mailto:k6uro@arrl.net))

- PAARAGraphs E-mail address: [k6uro@arrl.net](mailto:k6uro@arrl.net)
- Submit material for PAARAGraphs by the 15th
- Text: WORD, MS Publisher, RTF, or ASCII
- Photos: JPEG or TIFF raster images
- Diagrams and ads: AI, EMF, or EPS vector files
- PAARA Web/WAP site: [www.paara.org](http://www.paara.org)

## Palo Alto Amateur Radio Association, Inc.

PO Box 911 Menlo Park, CA 94026

### Officers

President .....	Terry Finn, AA6T	650-366-9111
aa6t@arrl.net		
Vice President.....	Peter Sheerin, K6WEB	415-298-7383
k6web@arrl.net		
Secretary .....	Adrianus Schrauwen, W6AJS	650-494-6256
w6ajs@arrl.net		
Treasurer.....	Ron Chester, W6AZ	408-243 2221
w6az@arrl.net		

### Directors

Past President.....	Andreas Junge, N6NU	650-233-0843
n6nu@arrl.net		
Director ('05).....	Gerry Tucker, N6NV	650-326 4908
n6nv@arrl.net		
Director ('05).....	Rolf Klivo, N6NFI	650-856-2748
n6nfi@arrl.net		
Director ('05).....	Bob Korte, KD6KYT	650-595 1842
rgk4u@aol.com		
Director ('06).....	Kristen McIntyre, K6WX	
k6wx@arrl.net		

See the calendar for Board meeting times. **Visitors are welcome.**

### Appointed Positions

Membership .....	Vic Black, AB6SO	650-366 0636
ab6so@srrn.com		
Database.....	Rick Melrose K6DRM	408-732-2247
rick@faronmelrose.com		
Chaplain .....	Rev. Rick Line, KG6TMD	650 323 8544
kg6tmd@arrl.net		
Station Trustee W6OTX & K6YQT	Gerry Tucker, N6NV	
Station Trustee K6OTA ..	Ron Chester, W6AZ	
Property Manager .....	Gerry Tucker, N6NV	
Funds Coordinator.....	Bob Korte, KD6KYT	650-595 1842
rgk4u@aol.com		
Badge Coordinator.....	Doug Teter, KG6LWE	650-367-6200
dteter@wcwi.com		
Raffle Coordinator .....	Jim Rice, K6AK	650-851-2274
Ticket Master.....	Kyle Rice, KG6MSK	
Field Day Coordinator ....	Gerry Tucker, N6NV	
ASVARO Rep .....	Rolf Klivo, N6NFI	650-856-2748
n6nfi@arrl.net		
Webmaster .....	Peter Sheerin, K6WEB	

### PAARAGraphs Staff

Editor .....	Wally Porter, K6EURO	650-494 7038
k6uro@arrl.net		
Photography: Dick Kors, KM6EP, Al Montoya, WB6IMX		
John Larribeau, KR6MR, Wally Porter, K6EURO		
Advertising .....	Terry Finn, AA6T	650-366-9111
aa6t@arrl.net		
News .....	Terry Finn, AA6T	650-366-9111
Member Profiles .....	Terry Finn, AA6T	650-366-9111
terry@incognitoservices.com		
Technical Tips .....	Vic Black, AB6SO	650-366 0636
ab6so@srrn.com		
Good Old Stuff .....	Andy Korsak, KR6DD	
kr6dd@arrl.net		

### LIFE MEMBERSHIP

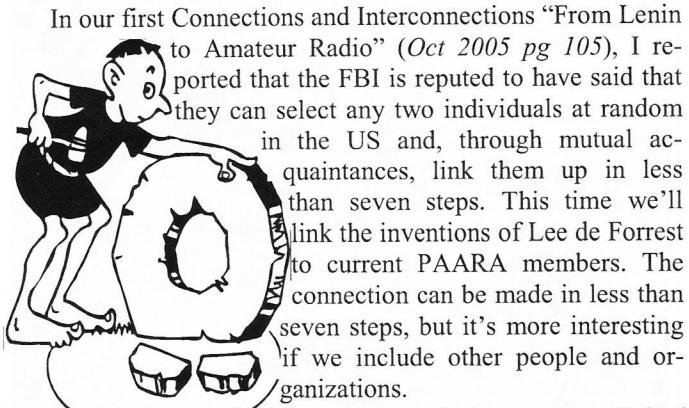
Awarded by Action of the PAARA Board

*Ron Panton, W6VG July 2003*

*Joe Gomes, KB6HDC May 2004*

## Connections and Interconnections 2: “From de Forrest to PAARA”

by Vic Black AB6SO



In our first Connections and Interconnections “From Lenin to Amateur Radio” (Oct 2005 pg 105), I reported that the FBI is reputed to have said that they can select any two individuals at random in the US and, through mutual acquaintances, link them up in less than seven steps. This time we’ll link the inventions of Lee de Forrest to current PAARA members. The connection can be made in less than seven steps, but it’s more interesting if we include other people and organizations.

The success of the western United States depended heavily on the availability of cheap and abundant natural resources, plentiful cheap energy and inexpensive and motivated labor. All of these developed within months after the gold discovery near Sacramento in 1849. The mines depended on power for efficiency and this led directly to the invention of the Pelton wheel to drive turbines and convert kinetic energy in water falls (an original “alternative energy”) to electrical power. I once rode my bicycle to the Yuba River Canyon to pay homage to the first Pelton Wheel turbine installation. The world’s first long range power lines ran 13 miles from Bridgeport to the gold mines at Bodie, once described as the “most lawless, wildest and toughest mining camp the Far West has ever known”.

The transportation infrastructure developed rapidly in order to supply food and supplies to the mining camps and to carry ore and metals from the mines to the ultimate markets. At first gold was hauled out by mules. I’ve personally found mule shoes on remote Longley Pass, a very narrow foot path at 12,000 feet elevation leading from mines on the Eastern slope of the Sierra Nevada to the San Joaquin Valley rail head in Porterville before the establishment of large cities such as Fresno. San Francisco developed into a financial center because of its excellent shipping port with access to the Asian market, although most of its growth came later during the Virginia City silver boom, which followed the Gold Rush. One of the shipping magnates, Robert Stanley Dollar Sr., was born in 1843 in Scotland and migrated to San Francisco seeking his fortune. He built the Dollar Steamship Company and began transpacific service with his fleet of ships named for US Presidents. Later as the most successful ship owner in the US he renamed the company the American Presidents Lines. In 1926 Dollar’s son, Robert, Jr. built a state of the art ship-to-shore communications facility in Pacifica to ensure communications with his fleet. Three years later, in order to further guarantee his ability to communicate with his fleet, he bought a 2/3 interest in a South San Francisco radio and vacuum tube manufacturing company, Heintz and Kaufman, founded in 1919.

H&K was later renamed the Dollaradio Company. Heintz and Kaufman, founded by Stanford graduate Ralph Heintz

and partner Herman Kohlmoos, Sr., with help from Stanford University President David Starr Jordan, became famous for their innovative radio designs. Kohlmoos later sold his interest in the company to Jack Kaufman. Their clever vacuum tube designs circumvented the patents of Federal Telegraph Company located at University Avenue and El Camino Real in Palo Alto. Two Amateur Radio operators, Bill Eitel and Jack McCullough were employed by Heintz, an Amateur Radio operator himself. Eitel became head of the tube lab.

On their own time they worked on transmitting tubes for Amateur use. This led to the development of the H&K 354 Gammatron. The Dollar Company wasn’t much interested in marketing the tube, though, so in 1934 Eitel and McCullough left the company to spin off their own company, EIMAC, in order to design amplifier tubes for the Amateur market. H&K, originally a manufacturer of scientific instruments, was also a model for Hewlett Packard, founded in 1939.

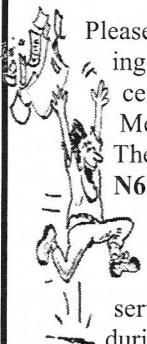
Federal Telegraph was founded by Cyril Elwell, a US citizen born in Australia of American parents. As a 13 year old Boy Scout I interviewed Cy Elwell and he helped me to understand the importance of the local economy on the rest of the world. His employee, Dr. Lee de Forrest, claimed to have invented the triode tube, marketed as the Audion. Elwell also claimed to be the inventor of the tube and disputed de Forrest’s claims in court. As a result, de Forrest never received royalties for his claimed triode invention. Dollar’s Heintz avoided both RCA’s and Federal’s patents on vacuum tube technology and remained in business until the Second World War.

Now we digress a bit. In 1930 Robert Dollar formed a company exclusively to communicate with his fleet of ships, which were by now roaming the entire globe. The original ship-to-shore communications company in the area was formed by Fessenden Systems and issued call sign KFS. After the 1906 earthquake KFS moved from San Francisco to Palo Alto just east of Bayshore Freeway (US 101) and south of Embarcadero Road located just north of Elwell Court. Hmmm. Sounds familiar doesn’t it? It later became a part of Mackay Radio and then passed on to the Dollar owned company, Globe Wireless Limited.

Some surplus H&K transmitters were later converted to 160 meters and ended up in Amateur Radio shacks. In 1925 Frederick Terman, a Radio Amateur, joined the engineering staff at Stanford University. Part of his teaching program included field trips to H&K, EIMAC and a local company in Redwood City, Litton Associates. Charles Litton’s company made metal lathes, but soon began making vacuum pumps, which were integral to the manufacture of vacuum tubes. He became a consultant on the design of klystron tubes to use in radar systems and linear

(Continued on page 130) Connections

## PAARA Election in December.



Please note that the December 2005 PAARA meeting will be held on Friday, December 9, not December 2, due to a scheduling conflict with the Menlo Park Recreation Center.

The Chief Election Officer, **Gerry Tucker, N6NV**, is actually running for one of the 2 year Board of Directors slots, so the PAARA President, **Terry Finn, AA6T** has appointed a temporary, un-biased, PAARA member to serve in that Chief Election Officers position during the month of December 2005.

Therefore, **Kristen McIntyre, K6WX**, the chairperson of the election nomination committee will act as the temporary Chief Election Officer for this 2005 election. She has full authority to appoint deputies or electoral assistants to aid in the normal operation of this regular election process.

The following PAARA members have been duly nominated and have accepted the challenges and responsibilities of the political office they are seeking.

President: **Terry Finn. AA6T.**

Vice President: **Peter Sheerin. K6WEB**

Secretary: **Adrianus Schrauwen. W6AJS**

Treasurer: **Ron Chester. W6AZ**

There are two, 2 year Board of Directors positions available:

2yr Board seat: **Andreas Junge, N6NU**

2yr Board seat: **Gerry Tucker, N6NV**

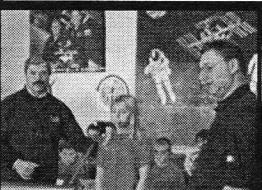
There is **only one, 1 year** Board of Directors position available:

### **Vote for one**

1yr Board seat: **Mark Cohen, K6EF**

1yr Board Seat: **David Ungar, W6DH**

*~Terry Finn. AA6T.*

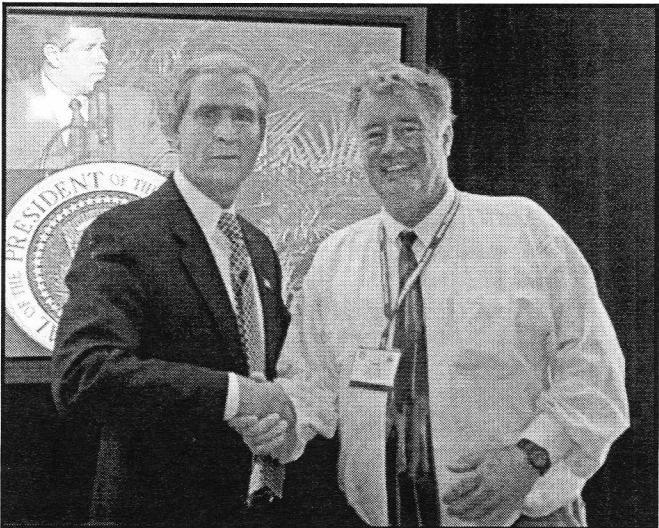


A youngster at Francesco Negri Comprehensive School asks her question of ISS Commander Bill McArthur, KC5ACR.

*ARRL Web*

Surrounded by NASA, ISS, ham radio and other paraphernalia, Negri School youngsters await the start of their contact with the ISS.

## PAARA PRESIDENT MEETS MR. PRESIDENT



The PAARA President, Terry Finn, AA6T, had the opportunity of meeting Mr. President at the World Investigators Convention in Las Vegas on September 22, 2005.

*Submitted by: White House Media Services, Inc.*

*(Continued from page 129) Connections*

accelerator experiments being conducted at Stanford's physics group under the tutelage of William Hansen. This led to the founding of Varian Associates by brothers Russell and Sigurd Varian, to manufacture microwave tubes. Local streets and schools in Palo Alto commemorate many of the names from this journey through time. For instance, Forest Avenue was simplified by dropping one "r" from de Forrest's name. Varian Associates is located on Hansen Way, etc.

DXer and contester Herman "Kit" Kohlmoos, Jr. W6ISO is PAARA's obvious connection. Another less well known connection is the Field Day Plaque we compete for against several other local clubs each year. It's built on a large solid piece of walnut from a San Francisco dining room table, which originally made its way around Cape Horn on a square rigger and survived the 1906 earthquake and fire. The brass nameplates with the engraved names of the winning clubs are salvaged surplus from Elwell and de Forrest's Federal Telegraph Company.

*~Vic AB6SO*



### **PARRA MEMBERS INPUT REQUESTED.**

**Joel Wilhite, KD6W**, is the Chairman of the PAARA committee charged with the responsibility of putting together the detailed information for our bid that will be submitted to the appropriate authority by Bruce Parsons, the grant writer. Joel has asked for input from the membership regarding this rather unique but extremely important PAARA activity. See him for the details.

In a nutshell, any PAARA member with an idea can submit their thoughts to Joel. It would probably be wise to do it via e-mail so the particulars do not get lost in translation. The committee is especially interested in specifics about equipment and how it can be incorporated into the overall project. Any idea will probably be a good one at this point as we are basically starting from scratch and attempting to build our very own, custom communications vehicle that can be used by PAARA for training, events, emergencies, etc.

~Terry Finn. AA6T..

### **RICK LINE, KG6TMD, HOSTS MUSICAL EXTRAVAGANZA.**

PAARA members, their families and friends are cordially invited once again to the live musical presentation of a Cowboy Christmas entitled: 'For Unto Y'All'. Admission is free, although it is suggested that attendees bring along an un-wrapped child's toy or gift for Toys for Tots OR canned food goods.

There will be at least four PAARA members actually involved as talent in this musical play being presented at 7 pm both nights, Saturday, December 3 and Sunday, December 4. Come and see if you can identify or even recognize your ham radio friends in this huge, on stage performance.

The TEAM Players will present this musical production inside the main building at the First Baptist Church, 1100 Middle Ave, in Menlo Park. You are encouraged to bring all of your family members; significant others and friends.

~Terry Finn. AA6T.

### **WHAT IS A SIG ?**

A special interest group is usually made up of a group of ham radio operators who have something in common. For example, people who use the Icom 706 or 703 HF radio; people who take part in locating the fox or rabbit on transmitter hunts; people who experiment with various types of portable antenna's; people who are really into low power radio operation; geo-caching players; CW operators, etc, etc.

In an on-going effort to promote educational opportunities and continue our hands on learning experiences, PAARA will ask for instructional volunteers to handle some of the newer SIG's. If you feel that your personal experience qualifies you to teach others some of your hard earned skills, then kindly advise a PAARA Board member. If you would like to form a SIG, please discuss it with a PAARA Board member.

Our intention is to activate several SIG's in the new year so the members can enjoy these rather special activities and investigate other interesting areas of the amateur radio service.

~Terry Finn. AA6T.

### **Congratulations: November 4<sup>th</sup> 2005 Raffle Prize Winners**

**1<sup>st</sup> Prize: Mark Marriott WE6N / Alinco DJ-196T**

**2<sup>nd</sup> Prize: Henrique Drews KG6ZWQ / Heil "The Traveler" Headset and Boom Mic**

**3<sup>rd</sup> Prize: Paul Lufkin K6PML/ Programmable Power Meter**

**4<sup>th</sup> Prize: Bob Shelton K6TGR/ Two 20m Ham Sticks with Dipole Adapter**

**5<sup>th</sup> Prize: Kevin Weiler KG6YYW / Two GMRS / FRS Radios with Batteries & Charger**

**6<sup>th</sup> Prize: Bob Golder WA2CFN / NiCd & NiMH Battery Charger with 4 Batteries**

**7<sup>th</sup> Prize: Rob Riley KG6HVW / 8 LED Metal Flashlight**

**8<sup>th</sup> Prize: David Unger W6DH / 04/05 ARRL Repeater Directory**

**PAARA Members and Visitors: THANK YOU FOR YOUR SUPPORT of the exciting monthly raffles!**

**Since Feb. 03, 79 Radios, including a YAESU FT-847, an ICOM 706 MK IIIG, and TWO Elecraft KX1's  
have gone to Fellow Hams,  
THANKS TO YOU!**

PAARA is having a remarkable year in 2005!

If you aren't a member, please join PAARA now, and experience fun 2005 events with the  
"friendliest club around."

~K6AK Jim

**PAARAGraphs—December 2005**  
**Celebrating 68 years as an active ham radio club—Since 1937**



## BOARD OF DIRECTORS MEETING.

The PAARA Board of Directors met on Wednesday evening, **October 14, 2005** at 19:00 hours. In attendance were the following PAARA members.

President **Terry Finn, AA6T**; Vice President **Peter Sheerin, K6WEB**; Treasurer **Ron Chester, W6AZ**; Secretary **Adrianus Schrauwen, W6AJS**; Board members **Gerry Tucker, N6NV**; **Rolf Klivo, N6NFI**; **Kristen McIntyre, K6WX**.

Visiting the Board meeting were: PAARA name badge coordinator **Doug Teter, KG6LWE**; Membership coordinator **Vic Black, AB6SO**; Editor **Wally Porter, K6URO**;

**Stan Towle, WA6ZGI**; **Andy Korsak, KR6DD** joining later **Dick Kors, KM6EP**.

The Secretary read the minutes of last Sept 14/05 meeting and the treasurer gave his report on the status of the club finances. The minutes and treasurers report were approved as presented.

### OLD BUSINESS:

The Bylaw commission is in the process of finalizing the report and aims to have it ready for presentation by next board meeting.

**MEMBERSHIP:** **Peter Sheerin** will arrange for a meeting with **Lisa Rice KG6KQS**, membership and Data base coordinator, to prepare the membership Roster for printing, so it can be distributed to our current members.

**NOMINATIONS:** **Kristen McIntyre** reported on the candidates for nomination (see elsewhere in this issue). **Adrianus Schrauwen** accepted a second term for the position of PAARA Secretary. He will also assist in obtaining the cookies for the meeting's coffeebreak.

**THIS IS AN IMPORTANT REMINDER THAT ELECTED OFFICERS AND BOARD MEMBER SHOULD MAKE IT A POINT TO SHOW UP FOR A BOARD MEETING.**

**OTHER BUSINESS:** Miscellaneous discussions regarding the semantics of 'immediate past president' followed.

The meeting was adjourned at 21:10 hours.

**Dick Kors** brought along a movie produced during the PAARA Fielday, this was viewed at McDonalds in Menlo Park by most attendees.

Respectfully submitted by

~**Adrianus Schrauwen, W6AJS, PAARA Secretary**

**THIS IS AN IMPORTANT REMINDER THAT ELECTED OFFICERS AND BOARD MEMBER SHOULD MAKE IT A POINT TO SHOW UP FOR A BOARD MEETING.**

~**Adrianus Schrauwen, W6AJS PAARA Secretary**

The PAARA Board of Directors met on Wednesday evening, **November 9, 2005**, at 19:00 hours. In attendance were the following PAARA members.

President **Terry Finn, AA6T**; Vice President **Peter Sheerin, K6WEB**; Treasurer **Ron Chester, W6AZ**; Secretary **Adrianus Schrauwen, W6AJS**; Board members **Gerry Tucker, N6NV**;

Visiting the Board meeting were: PAARA name badge coordinator **Doug Teter, KG6LWE**; Membership coordinator **Vic Black, AB6SO**; Editor **Wally Porter, K6URO**;

**Dick Melrose K6DRM** and **Joel Wilhite KD6W**.

The Secretary announced that there was a Quorum. Unfortunately a copy of the past PAARA Board meeting was not available, therefore it was decided to pass on the reading of the minutes and was accepted as unread. The treasurer gave his report on the status of the club finances. The treasurers report was approved as presented.

### OLD BUSINESS:

The Bylaw commission has reached a point of near completion and hope to present the amendment for perusal by the board and after final printing a presentation to the members for ratification of such amendment

**MEMBERSHIP:** **Peter Sheerin** will arrange for a meeting with **Lisa Rice KG6KQS**, membership and Data base coordinator **Dick Melrose K6DRM**, to prepare the membership Roster for printing, so it can be distributed to our current members.

**NOMINATIONS:** The candidates for nomination (see elsewhere in this issue) were read, there is still need for board members. A final call for nominations wil be made a the December 9 club meeting, after which the voting will take place for the officers and directors for the coming year.

### NEW BUSINESS:

The ARRL has invited 2 members of the PAARA for a cabinet meeting in Livermore. Both **Terry Finn, AA6T** and **Ron Chester, W6AZ** will attend the meeting. HRO 'Howard Califff reminded Terry that the display case in the Sunnyvale store is available for PAARA's use. Joel discussed the issues of importance for the grant writer's use. Jerry discussed ideas for special interest groups, which could be beneficiary to the club. Various discussions were held regarding speakers for the meeting.

The meeting was adjourned at 21:20 hrs

**THIS IS AN IMPORTANT REMINDER THAT ELECTED OFFICERS AND BOARD MEMBER SHOULD MAKE IT A POINT TO SHOW UP FOR A BOARD MEETING.**

~**Adrianus Schrauwen, W6AJS PAARA Secretary**

## **CHUCK WALTER. N6CAW (SK).**

Long time PAARA member **Charles Alexander Walter, N6CAW (SK)**, passed away at his home on November 6, 2005. Chuck was born in San Francisco on June 20, 1927. After a stint in the USAF where he served as an instructor, Chuck graduated with a degree in Engineering Physics from UC Berkeley in 1951. He began his career with Boeing, designing aircraft guidance systems. He returned to the Bay Area

and went to work with Sierra Electronics which basically established him as one of the pioneers of the electronics industry here in northern California. Later, Chuck started his own business known as Walter Associates and Waltronics Sales and was an early user of information technologies.

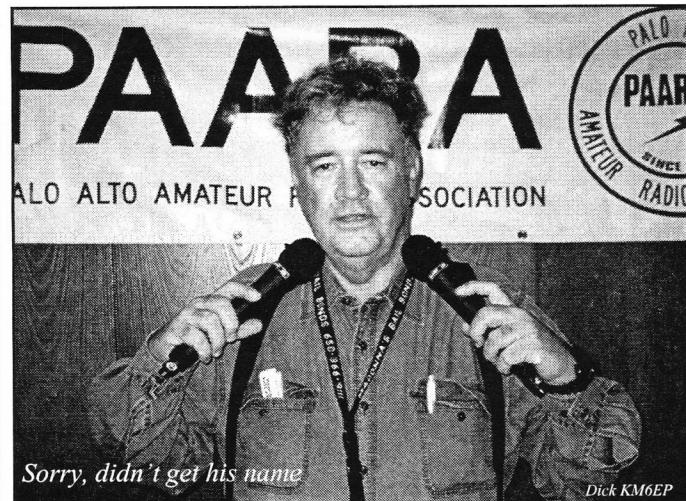
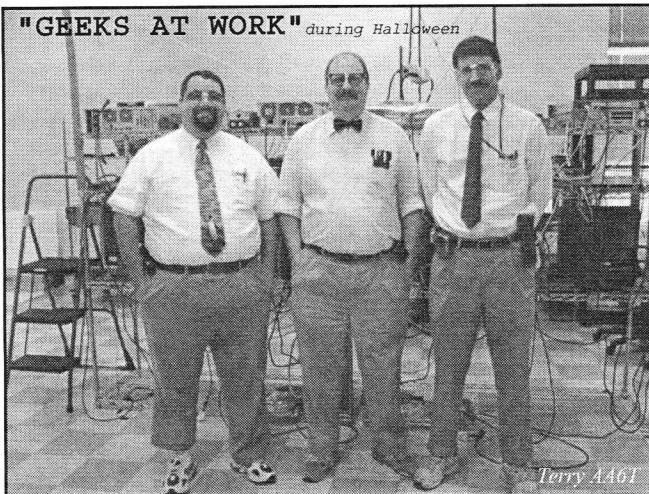
During the many years of marriage to Mary Ellen McDermott (deceased), Chuck established and became the first St. Nicholas School Board President. Later, he was a board member of the California Head Injury Foundation and a dedicated supporter of (SBI) Services for Brain Injury. In retirement, Chuck volunteered in (PANDA) Palo Alto Neighborhood Disaster Assistance and in the ham radio community in disaster response planning. He also worked as a field inspector for the County Election Board and has been a Eucharistic Minister at St. Nicholas and Companions on the Journey.

A Memorial Mass was held for Chuck on November 12/05 at St. Nicholas Church on Lincoln Ave in Los Altos. Donations in Chuck's memory can be made to SBI, 2731 North First Street, San Jose, CA 95134 or a charity of your choice.

He will be missed by many of his radio friends and PAARA members  
So long Chuck.

~**Terry Finn. AA6T.**





Terry,

FYI, I have an online signup form on the FARS web page ([www.fars.k6ya.org/](http://www.fars.k6ya.org/)). Click on the Banquet link, then on the "online signup" link. You fill in your information, then pay using PayPal. PayPal will accept a credit card, so you don't need a PayPal account to complete payment.

This allows the use of a credit card for signup and also will allow those last-minute signups to still get completed in the last two days before we have to commit our numbers to the restaurant. -- Mikel, kn6qi

**FARS/PAARA 2006 WINTER BANQUET SIGNUP - PAARA Members  
(January 20, 2006)**

	Name&Call	Meal Choice (B, C, S, V)	Amount
1	Name _____	_____	\$ _____
2	Name _____	_____	\$ _____
3	Name _____	_____	\$ _____
		<b>Total</b>	\$ _____

Send your check payable to FARS to:

David A. Cooper  
PMB 41  
270 Redwood Shores Pkwy  
Redwood City, CA 94065-1173

PAARA members use this form to sign up for the banquet.  
Your PAARA membership must be paid up to attend the banquet.  
FARS members use the [FARS Banquet Signup form](#) to sign up for the banquet.

## Research Paper on Amateur Radio

Dear Fellow Amateur Radio Operators:

I would like to interview you for a research paper I am doing. The paper is part of my General Studies class at Cogswell College. I have chosen to write my paper on Amateur Radio. Depending on how my research goes I have two possible topics.

1) Amateur Radio and Disaster Response. This topic would include information on the classes, why people decide to volunteer, what goes on at a disaster site, and generally how Radio is an important communication tool.

2) Amateur Radio, More than a Hobby. This topic would talk about how the radio is used in daily life (traffic reports, talking to friends). It would also include a section on disaster response. In this I would like to include stories about meeting people all over the world, special events, and if amateur radio's communication abilities have ever helped you out of a pickle. Anything that says Amateur radio is more than just a hobby to you.

I am guessing that the longest the interview could last is one hour. The interview will be recorded on tape. Since it may not be easy for you to meet me in person I have a few ideas on how this interview could be conducted.

1)At the Ham Radio Outlet, or at Cogswell College in Sunnyvale next to Moffet Park

2)Over the radio or phone

3)Over an instant message conversation (AIM, Yahoo Messenger)

4)Email or snail mail

If you are interested in being interviewed, please email me back with:

1) how you would like to do it

2)when you are able to do it

Thank you for your time, I look forward to talking with you. If you would like to read my Intro and Thesis first, please let me know. 73

KI6BAH, Elizabeth Marzili

KI6BAH, [Elizabeth.Marzili@gmail.com](mailto:Elizabeth.Marzili@gmail.com)

DAA Representative on ASB

Treasurer of Outdoors Club

Good Morning Gentlemen,

Please be advised (and let your people know!) that the BPL Presentation which will be given by Jamie Ramie will be presented at the **Good Samaritan Hospital Auditorium** on **November 16<sup>th</sup>, 2006**, beginning @ **7:30pm**. If you would be so kind as to let me know (Ballpark) about how many people from your clubs might be attending, it would be greatly appreciated.

The Auditorium is located on the Samaritan Drive side of the Hospital, with parking available both in the Front and Back Parking Lots. Please give yourselves a little extra time for parking. We look forward to seeing you at the Presentation! Thanks for your interest in WVARA! -- Take Care,

-73- Bill N6FFC

Folks,

Received this message in email and passing it along as requested. In summary the California State Military Reserve is looking for Communication experts to volunteer to work with them on providing communications support, particularly during a disaster. If interested, contact the email, and phone numbers provided.

-- Mikel, kn6qi

STATE OF CALIFORNIA STATE MILITARY RESERVE-  
 HEADQUARTERS,  
 40<sup>TH</sup> INFANTRY DIVISION SUPPORT BRIGADE  
 4411 YORKTOWN AVENUE # 180  
 LOS ALAMITOS, CALIFORNIA 90720-5177

## Communications Experts Needed

The Communications Detachment of the California State Military Reserve's Signal Corps, is seeking persons with radio and communications experience and expertise to train and support soldiers of the California National Guard and to provide emergency communications services for response to natural disasters.

The California State Military Reserve (CA SMR), is a component of the California Militia and provides support and training to soldiers of the California National Guard. CA SMR soldiers provide many vital services to local California Army and Air National Guard units. They are sworn military personnel and wear the uniform of the California Army National Guard with distinctive CA SMR insignia. Prior military service in any branch of the armed forces is a plus, but not required. Applicants must be residents of California, be 18 to 63 years of age, in good health, and citizens of the U.S. Both male and female applicants are welcome.

The CA SMR Signal Corps is charged with establishing and operating the Emergency Communications Network for the California National Guard in the event of an emergency or natural disaster. CA SMR soldiers meet once a month on volunteer time, usually on the first Saturday of the month. In addition, you can sign up for other paid or volunteer assignments. CA SMR soldiers also train Cal. Guard soldiers in the area of communications. When on active duty, CA SMR soldiers are paid at the same rate as Cal. Guard soldiers. There is no enlistment contract, CASMR volunteers are free to leave on 30 days notice. CASMR soldiers have no federal mission and can only be deployed within California.

We're looking for a few good men and women who would like to serve their country, enjoy the camaraderie of the Military community and utilize their talents for the good of the community and their country. Share the pride and sense of accomplishment that goes with belonging to an outstanding organization. Ham radio enthusiasts can be 2-meter or CW.

Photos and information about the new IC4U Communications Vehicles purchased by the Guard and the CA SMR Communications Mission can be found at: <http://www.calguard.ca.gov/casmr/ic4u1.htm>

For further information, contact:

SPC Christopher Mott  
 Recruiting NCO

40<sup>TH</sup> ID (M) Support. Brigade,

HQ CO, CA SMR

[christopher.m.mott@us.army.mil](mailto:christopher.m.mott@us.army.mil)

Headquarters State Defense Force

<http://www.calguard.ca.gov/casmr/> 916) 854-3847

Major Richard Lalor  
 State Recruiting Officer

[richard.lalor@ca.ngb.army.mil](mailto:richard.lalor@ca.ngb.army.mil)

Master Sergeant Richard Castillo

**PAARA Dec. 9<sup>th</sup> Meeting**  
*and “Event of the Year”*  
**“Dream to Reality Raffle III”**  
*with over \$1200 in prizes*

SPEAKER and PROGRAM: BPL Compliance Emissions Guidelines

Jerry Ramie will present a lecture on the recent developments in BPL (Broadband over Power Lines), which is still being developed and is now more likely than ever to be deployed. He returned from a field measurement trip with the ARRL on the East Coast, and will have lots of details to share.

K6WEB

PAARA “The Friendliest Club Around”

Palo Alto Amateur Radio Association, Inc. [www.paara.org](http://www.paara.org)

Date and Time: Friday, Dec. 9<sup>th</sup>, at 7 p.m.

Menlo Park Rec. Center, 700 Alma St., Menlo Park, CA.

Welcome Members and Visitors / Raffle Prizes:

**FIRST PRIZE: Yaesu FT-897D Portable Base Station**



- Operates With Portable Battery Pack / Power Supply / or DC 12v
- Using Internal Battery Max Output 20W With Expected 8 Hours Operation
- Modes: USB, LSB, CW, AM, FM, Packet
- Digital Signal Processing / DSP Bandpass & Notch Filters + DSP Noise Reduction
- Large Multi-Color Display: Four Colors and Track Signal Strength by Color
- Portable Carrying Handle
- Two Antenna Connectors
- Weight: 8.6 lb.

*“60m” also HF 160-6m 100W/ VHF 50W / UHF 20W*

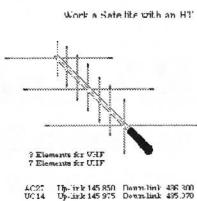
**SECOND PRIZE: Garmin Forerunner 201 Wrist Mount GPS Receiver**



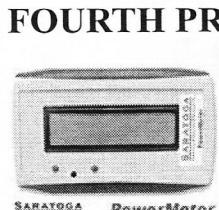
Provides Precise Latitude, Longitude, and Altitude Data  
Mark Specific Locations, and Navigate To These Points Using an Electronic Map.  
Speed / Distance / Pace / Calories Burned / Can Be Tracked and Calculated  
Tracks Lap History / Stopwatch / Pace Whistle  
PC Interface / Download Free PC Software  
AC Charger with Rechargeable Lithium Ion Batteries / 15 hours of Operation  
Weight 2.75 oz.

**THIRD PRIZE: Arrow 3EL VHF, 7EL UHF Yagi**

Portable Satellite Operation  
Maximum Gain and Efficiency  
Separate BNC Connectors  
Strong and Lightweight



Work a State Net with an HT



**FIFTH PRIZE: Grundig FR-200 AM/FM/SW Emergency Radio, NiMH Battery, Light**

Displays Instantaneous: Voltage, Current, Power, Hi & Low Voltage Warning, and alarm status.  
It shows Cumulative (since last reset): Amp, Watt, and Time Hours along with High & Low Voltage and Current.  
Donated By Ham Stop / “Thanks Mitch”

**SIXTH PRIZE: Coleman Powermate 12v Power Source with Swivel Head Power Port**

**SEVENTH PRIZE: NiCd & NiMH Battery Charger with FOUR 2300 mAh Batteries**

**EIGHT PRIZE: 3-Position PL-259 Coaxial Antenna Switch 1000 Watts**

**NINTH PRIZE: CQ 06-07 Calendar “donated by Howard W6HOC”**

**TENTH PRIZE: 8-LED Metal Flash Light / Ultra Bright Beam**

Since February 2003, 79 Radios, including a YAESU FT-847, an ICOM 706 MK IIIG, and Two Elecraft KX1's have gone to Fellow Hams.

Enjoy our fabulous speakers, free refreshments, chatting with your friends, and the chance to take home an unbelievable prize. See you at Round Table after the meeting!

Contact Kyle, KG6MSK, “One of PAARA’s youngest members” for tickets at the meeting.

Special Thanks to Bob, Howard, Rick, Mark, and everyone at HRO for their continued SUPPORT!      K6AK Jim

**PAARAGraphs—December 2005**  
**Celebrating 68 years as an active ham radio club—Since 1937**

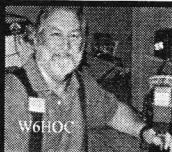
## K6FS GEAR FOR SALE

**KENWOOD TS450** HF xcvr s/n 60700070 with: Antenna Tuner (AT450) installed after-market (makes it TS450SAT)  
 Temperature-compensated oscillator (SO-2)  
 Tone unit (TU-8), IRC: Xtal filters: 88H2.1C, 455H2.1 (SSB), 455H400A (CW), PROC-450 RF speech processor, MONI-450 transmit speech monitor. NEW BATTERY INSTALLED BY KENWOOD 12/11/04 MANUALS/INSTRUCTION SHEETS FOR ALL ABOVE  
 AEA AT-300 HF antenna tuner, 400-watt p.e.p. with manuals  
**KENWOOD TR-751A** 10-watt all-mode 2-m transceiver s/n 7080243 SW-50 swr/power meter and SWT-1 antenna tuner

INSTRUCTION SHEETS, MANUALS AND SERVICE MANUALS  
**ICOM IC-560** 10-watt all-mode 6-m transceiver s/n 01194  
**MIDLAND 13-513** 10-watt 220 mHz FM transceiver, s/n 77000357, PLL mod added, with manuals

**KENWOOD LOUDSPEAKER SP-930** with manual  
**ANTENNA:** 2-meter J-pole, new, never used; manufactured by American Legion Post 599  
**BOB HEIL HEADSET WITH BOOM MIC,**  
 8-pin Kenwood Mic plug.

contact: Steve K6FS, 650 322 4952



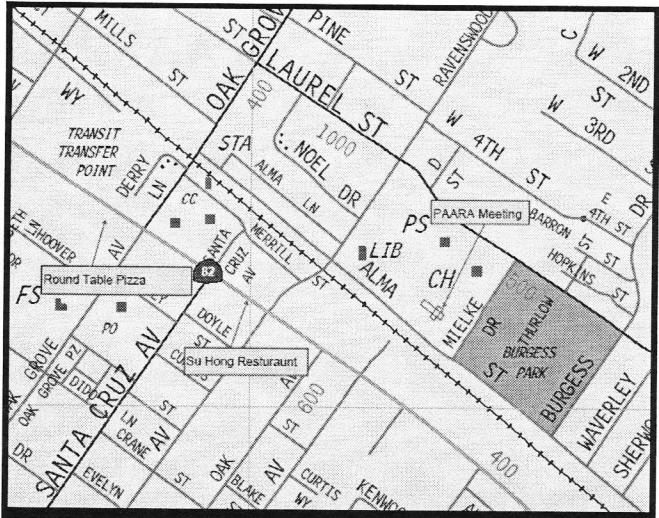
*Howard at HRO says: "HAM accessories and gift certificates are available at HRO. Congratulations to PAARA on a successful year."*

**HAM FEST**  
 at  
**ANGELINO'S RESTAURANT**  
 3132 Williams Road, at Winchester Blvd.  
 2:00 PM  
 Second Sunday each month  
[www.Angelinosrest.com](http://www.Angelinosrest.com)

**PAARA Radio NET**  
 and Swap Session  
 every Monday evening  
 8:30pm local time  
 on the  
**145.230 –600 MHz repeater**  
*PL tone off*

*control operators:*

Week	Operator
1 <sup>st</sup> Mon.	Pink Foster, KG6ILA
2 <sup>nd</sup> Mon.	Peter Sheerin, K6WEB
3 <sup>rd</sup> Mon.	Peter Sheerin, K6WEB
4 <sup>th</sup> Mon.	Bill Rausch, AA6PA
5 <sup>th</sup> Mon.	<b>Volunteer!</b>



**PAARAGraphs—December 2005**  
Celebrating 68 years as an active ham radio club—Since 1937

Students in Italy, England Entertained,  
Educated via Ham Radio

NEWINGTON, CT, Nov 16, 2005--Students in Italy and England spoke via Amateur Radio November 9 with International Space Station Commander Bill McArthur, KC5ACR. The Amateur Radio on the International Space Station (ARISS) program arranged the QSOs with the Francesco Negri Comprehensive Institute in Casale Monferrato, Italy, and with Furtherwick Park School on Canvey Island in Essex, England. Speaking via the space station's NA1SS, McArthur shared with the students in Italy how he feels about living in space.

(see pictures page 130)

ARRL Web

**PAARA Web/WAP site**

<http://paara.org/>

**PowerFlare®**

PowerFlare® safety lights:  
Ultra-rugged 360 degree LED beacon  
for your emergency kit, car, home ...  
**Order on eBay or call 650-322-2476**  
(search for "PowerFlare")

**MADONNA'S  
BAIL BONDS**



Ayudamos a la Comunidad Hispana



REDWOOD CITY ————— **650-366-9111**  
SAN FRANCISCO ————— **415-495-2245**  
SAN JOSE ————— **408-266-2245**

**TERRY FINN** CA License # 1A38965 AA6T

234 Marshall Street, UPSTAIRS #3 Redwood City, CA 94063-1550

**W6AZ**



Ron Chester  
Santa Clara  
(408) 243-2221  
[Ron@taxhelp.com](mailto:Ron@taxhelp.com)

*Tax Preparation & QuickBooks Consulting - Ham discount*

**SCANNERS UNLIMITED**

**1656 EL CAMINO REAL  
SAN CARLOS, CA 94070  
(650) 573-1624**

**SCANNERS, HAM RADIOS, CB  
RADAR DETECT .SHORTWAVE  
ANTENNAS, ACCESSORIES**

**BRING THIS CARD IN FOR A 15%  
DISCOUNT ON ACCESSORIES  
5 % DISCOUNT ON RADIOS**

A SMALL CHURCH WITH A BIG HEART



**FIRST BAPTIST CHURCH  
OF MENLO PARK**

FRIENDLY • BIBLICAL • CARING

**REV. RICK LINE, KG6TMD**  
SENIOR PASTOR  
[PASTOR@FIRSTBAPTIST.COM](mailto:PASTOR@FIRSTBAPTIST.COM)

**1100 MIDDLE AVENUE  
MENLO PARK, CA 94025  
TEL: 650-323-8544  
FAX: 650-323-8546  
[WWW.FIRSTBAPTIST.COM](http://WWW.FIRSTBAPTIST.COM)**

**HAMSTOP.COM**

**Great Products • Affordable Prices**

467 Reynolds Circle  
San Jose, CA 95112-1119

888.676.4426 / 408.453.6007  
408.453.6014 fax  
[www.hamstop.com](http://www.hamstop.com)

**Mitchell Cipriano**

[mitch@hamstop.com](mailto:mitch@hamstop.com)

**AE6AI**



**PAARAGraphs Ad Rates**

PAARAGraphs accepts paid advertisements from non-members. (short personal ads remain free for members in good standing). All ad 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 PAARAGraphs 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 Terry Finn, AE6TF

# PAAR *graphs*—December 2005



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

# FIRST CLASS MAIL

# ***“Dream to Reality Raffle III”***

*over \$1200 in prizes*



**FIRST PRIZE:**  
**Yaesu FT-897D Portable Base Station**

*see page 135*

Korsak, Andy KR6DD  
504 Lakemead Way  
Emerald Hills, CA 94062-3919

**12 STORE BUYING POWER**

# HAM Radio Outlet

WORLDWIDE DISTRIBUTION

**KENWOOD**

**SUNNYVALE, CA**

510 Lawrence Exp #102, 94085  
(408) 786-9496  
**800-854-8046**  
HICKSBROOK CO-Mgr:  
Howard WEISBLIT, Co-Mgr:  
SO. 16 Hwy. 101  
summyvale@hamradio.com

**OAKLAND, CA**

2210 11th Street, St. 94608  
(510) 533-2727  
**800-854-8046**  
Mark WITTMAN, Mgr:  
1-800 at 3rd Ave. amp  
oakland@hamradio.com

**TM-D700A 2M/440 Dualband**

- 2M/440 Dual Band
- 1000 mW SSB/CW
- 1000 mW FM/AM
- 200 W RTTY, CTCSS, DTMF
- VHF Messaging Control

**Low Pricing!**

**TH-D71G** 2M/440

- 2M/440 Dual Band
- 1000 mW SSB/CW
- 1000 mW FM/AM
- 200 W RTTY, CTCSS, DTMF
- VHF Messaging Control

**Low Pricing!**

**V-7R**

- 100W PEP SSB/CW
- Enhanced RX
- 100W PEP AM/FM
- Enhanced SSB/CW
- Enhanced CW
- Specialized Filter switch for SSB & CW
- Automatic CW keyer
- Automatic CW filter selection
- 161 The Ultimate Radio!

**Low Pricing!**

**IC-755 PRO III** All mode Transceiver

- 100W PEP SSB/CW
- Enhanced RX performance
- Enhanced SSB/CW
- Enhanced CW
- Specialized Filter switch for SSB & CW
- Automatic CW keyer
- Automatic CW filter selection
- Easy-to-use menu access

**Low Pricing!**

**FT-857D**

- 100W PEP SSB/CW
- Enhanced RX
- 100W PEP AM/FM
- Enhanced SSB/CW
- Enhanced CW
- Specialized Filter switch for SSB & CW
- Automatic CW keyer
- Automatic CW filter selection
- 161 The Ultimate Radio!

**Low Pricing!**

**DR-135TP** 2M mobile

- SWR Meter
- Antenna numeric display
- 100W PEP SSB/CW
- 100W PEP AM/FM
- Enhanced DSSS built-in
- CTCSS/DCS built-in
- 100W PEP SSB/CW
- 100W PEP AM/FM
- Enhanced DSSS built-in
- CTCSS/DCS built-in

**Low Pricing!**

**J-196T** 2M/220MHz

- 5 Watt SSB/CW
- 100W PEP SSB/CW
- 100W PEP AM/FM
- 100W PEP SSB/CW
- 100W PEP AM/FM
- Enhanced DSSS built-in
- CTCSS/DCS built-in

**Low Pricing!**

**FT-1100DPR MMV** 144/440

- Enhanced Digital Signal Processing
- Dual-Band, after filter, 144 & 440 MHz
- 100W PEP Output Power
- 200 Watts • Matchable Transistor Power
- VFO, RFO, Request

**Low Pricing!**

**COAST TO COAST FREE SHIPPING**

Buy 10 or more items from us!

Regal Distributors Free Shipping

The Best Value in HAM Radio

**Low Pricing!**

**TM-D700A 2M/440 Dualband**

- 2M/440 Dual Band
- 1000 mW SSB/CW
- 1000 mW FM/AM
- 200 W RTTY, CTCSS, DTMF
- VHF Messaging Control

**Low Pricing!**

**TH-D71G** 2M/440

- 2M/440 Dual Band
- 1000 mW SSB/CW
- 1000 mW FM/AM
- 200 W RTTY, CTCSS, DTMF
- VHF Messaging Control

**Low Pricing!**

**V-7R**

- 100W PEP SSB/CW
- Enhanced RX
- 100W PEP AM/FM
- Enhanced SSB/CW
- Enhanced CW
- Specialized Filter switch for SSB & CW
- Automatic CW keyer
- Automatic CW filter selection
- 161 The Ultimate Radio!

**Low Pricing!**

**IC-755 PRO III** All mode Transceiver

- 100W PEP SSB/CW
- Enhanced RX performance
- Enhanced SSB/CW
- Enhanced CW
- Specialized Filter switch for SSB & CW
- Automatic CW keyer
- Automatic CW filter selection
- Easy-to-use menu access

**Low Pricing!**

**FT-857D**

- 100W PEP SSB/CW
- Enhanced RX
- 100W PEP AM/FM
- Enhanced SSB/CW
- Enhanced CW
- Specialized Filter switch for SSB & CW
- Automatic CW keyer
- Automatic CW filter selection
- 161 The Ultimate Radio!

**Low Pricing!**

**DR-135TP** 2M mobile

- SWR Meter
- Antenna numeric display
- 100W PEP SSB/CW
- 100W PEP AM/FM
- Enhanced DSSS built-in
- CTCSS/DCS built-in
- 100W PEP SSB/CW
- 100W PEP AM/FM
- Enhanced DSSS built-in
- CTCSS/DCS built-in

**Low Pricing!**

**J-196T** 2M/220MHz

- 5 Watt SSB/CW
- 100W PEP SSB/CW
- 100W PEP AM/FM
- 100W PEP SSB/CW
- 100W PEP AM/FM
- Enhanced DSSS built-in
- CTCSS/DCS built-in

**Low Pricing!**

**FT-1100DPR MMV** 144/440

- Enhanced Digital Signal Processing
- Dual-Band, after filter, 144 & 440 MHz
- 100W PEP Output Power
- 200 Watts • Matchable Transistor Power
- VFO, RFO, Request

**Low Pricing!**

Sunnyvale, 510 Lawrence Exp. #102 (408) 854-6046