

PAARAgraphs



The Official Newsletter of the

Palo Alto Amateur Radio Association, Inc.

Celebrating 81 years as an *active* amateur radio club—*Since 1937*



From Faraday to Hertz: the Birth of Wireless

Kathy Joseph Balistreri

Have you ever wondered why and how Heinrich Hertz discovered radio waves? Well, it had nothing to do with communication, he was specifically trying to validate Faraday and Maxwell's radical theory that light was an electromagnetic wave. This is a story of a kind and shy Englishman (Faraday) with no math skills, a charming Scotsman (Maxwell) and his talented wife who saw mathematics where no one else did (James and Katherine Maxwell) and a pessimistic German (Hertz) in a dark room with a magnifying glass. You will never look at your radio in the same way again!

Kathy Joseph Balistreri is a Physics teacher and historian. She is currently working on her book on the history of electricity and electronics called "The Lightning Tamers: Wild Tales of How We Electrified Our World" and makes videos on the same theme on YouTube under the name "Kathy Loves Physics". By far the most difficult and rewarding part of her research and studies was in the complicated and cutthroat world of early wireless telegraphy and broadcast radio. If you have any old equipment she would love to see it!



Upcoming Events

Nov. 2 Dec 7 Jan 4	PAARA General Meeting, 7:00 PM Cubberly Community Center, Room H-6, 4000 Middlefield Rd, Palo Alto
Nov. 21 Dec 19 Jan 16	Board Meeting, 7:00 PM Everyone welcome! Location: Marty, W6NEV, QTH



President's Corner

November 2018

The year is almost over and that brings us to a number of seasonal events for PAARA. The big one coming up is the annual PAARA Dream To Reality Raffle. I know that Jim K6AK, is getting something big together. Just a dollar can win you a great radio!



I came back from Pacifcon a couple of days ago, where the special event station was a great success. I stayed in San Ramon from Thursday evening through Sunday afternoon. That allowed me to participate in social events as well as get to sessions earlier in the morning. My experience began with a nice dinner with people from HRO, Jim K6JAT, our Pacific Division Director, Bob Inderbitzen, NQ1R, and Mike Corey, KI1U. The latter two are from ARRL headquarters. It was great to get to know them a little. A good time was had by all. Friday was

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Bottom of the Barrel

Andrew, N6DRU

I have to admit to some misgivings about writing this article. At the past few PAARA meetings, Kristen keeps mentioning how she's "scraping the bottom of the barrel" for articles, and I'm thinking, "Is this how I want to be remembered?"

But seriously, as a new ham, I can't help wondering if I've got anything to say that other club members will find interesting. With the hopes that other new hams might find something useful here, and that the old-timers might remember back with a smile to when they started out, I'll tell about how I got into the hobby and how I went about setting up my first station.

I grew up in Duluth, MN, where the Olsons take up pages in the phone book, and the long "oh's" (think `antenna tooner') are the remnants of our Scandinavian heritage. When I was in third grade, my mom decided that our family should change churches. The new church had three pastors, and one by one they and their families were invited over to our house to join the eight(!) of us for dinner. And then, over the next couple of months, the bunch of us were bundled into our station wagon for dinner with the each of the pastors' families at their homes. The last was with Pastor Smestad and his wife, an older couple with no children. In the course of the dinner conversation, I found out that Pastor Smestad was a ham [K0PLY, SK 1983], with his own station up on the top floor of the parsonage, and an antenna up on the roof.

Seeing my interest, after dinner he took me upstairs to his shack to show me how it worked. He got everything turned on and tuned up, and called CQ. In a few minutes he was chatting amiably with someone way down in Arizona. It was fascinating to see this stack of equipment and to hear it turning "CQ CQ" into a crackly conversation with someone who lived where there was cactus everywhere. Next thing I

knew Pastor Smestad was saying that he had a boy sitting next to him who would like to say hello, and held the mic out for me to talk. I said hello and introduced myself, but I was surprised at being put on the spot. Sudden stage fright put any questions I could ask out of my mind, and I quickly ran out of things to say. Nonetheless, I was definitely hooked.

Before then, a long-distance conversation was something that happened over a telephone wire. Sure, you could listen to someone far away on the radio, but now here was a part of the radio dial where you could get a license and talk back and forth. There was a strange random element: you couldn't just dial up the specific person you wanted to talk to, you had to take whoever you got, but that was all part of the magic. And the radio itself was such a cool contraption of dials and knobs and tubes and swinging needles.

He dug around in his closet and sent me home with a key, a code practice oscillator and a box of Morse Code records, a gift to me. I stuck with it for awhile, and memorized the code. I was fine with sending, but learning to decode was something else again. The records started off slow, with the guy actually *saying* the "dahs" and the "dits." After awhile I realized that I was inadvertently memorizing the letters by the sequence on the record, but unable to recognize them in a different order. My neuroscientist self looks back and thinks "No wonder you had a hard time learning code with those materials!"

Fast forward to the present, and my shorthand to describe this latest foray of mine is "nostalgia for a hobby I *didn't* have as a teenager." So when I did at last get my general ticket, it just wouldn't do to go out and get the latest and greatest touch-screen SDR. Those old tube rigs were calling. After a little digging around, I settled on the Drake twins: an R-4B receiver and T-4XB transmitter. These were considered top-of-the-line performers in their day. There is an active online group exchanging tips on repairs. Plus I was buying American!

(Barrel — Continued from page 2)

I bought the rig on eBay, a set from a silent key's estate, sold by a ham friend of the family. I ordered up replacements for the old can capacitors inside each unit, and also a kit for replacing the old components of the high-voltage power supply (from WB8VGE, Mike Bryce). High voltage work was new to me, so I made sure to study up and stay safe. My work passed the smoke test, and all of the supply voltages checked out OK.

As I was getting the radios in shape, I was also reading avidly about antennas. I'm looking forward to experimenting with many more in the future, but for starters I wanted something relatively simple, multi-band, and relatively inexpensive. Those considerations led me to put up a full-wave 80-meter loop on PVC posts I rigged up on the roof. The feedline is 450 ohm ladder line, with an old Johnson Viking Match-box for presenting a 50 ohm impedance to the transmitter and minimizing the VSWR across the bands.

Once the antenna was up, I spent a fair amount of time just listening on 40 meters. As part of my education on tube rigs, I'd been reading old editions of the ARRL Handbook, and this was a suggestion that those old books made to novices which I took to heart. It helped me train my ears for tuning and digging signals out of the noise, got me accustomed to the efficient brevity of contest QSOs, and clued me in to the back-and-forth rhythms of a good rag-chew.

The microphone, another eBay find, is a vintage Turner S33D, with a finned art-deco vibe. It's brushed stainless and looks part streamlined steam locomotive and part chrome radiator grille. It would look good with a 30's or 40's era radio, but it was still available for purchase in 1968 when the Drake B-line came out.

With all the parts assembled, the receiver and transmitter were working more or less OK, but there were still a few problems. I decided to turn the twins over to a professional, Ron

Baker, WB4HFN, to get them back in tip-top shape. Ron did an amazing job, including a full disassembly and cleaning of the the gear mechanisms for the VFOs, which alone was well worth the cost of the repair. Aside from a few small scuffs on the enclosures, these fifty year old radios now look and perform like new.

I passed my Technician and General tests back on Labor Day weekend in 2017 (remember that scorcher?!). Getting all of the parts together ended up taking the better part of a year, evenings and weekends when I could get to it. I felt a bit of a fraud at my first few PAARA meetings: yes, I had a license, but as yet, no QSOs. Thanks to Christopher, AI6KG, PAARA's GOTA station at Field Day for helping me break the ice! I ended up logging something over 80 QSOs during the course of Saturday afternoon and evening.

Not long after Field Day, I had the refurbished twins back, all tuned up (dip the plate, peak the load), and I was making contacts from my own shack. It's been so much fun! I'm learning something with practically every QSO. I'm gradually building up my knowledge of band conditions and how my signal travels. I'm adding new grid squares, states, countries, and continents. I'm serendipitously meeting so many interesting people, and starting to feel relaxed at the microphone, like my first Elmer so many years ago.

One evening soon after getting my station on the air: I'm getting ready to call CQ, asking for the second time "Is the frequency in use? N6DRU," like I learned from Christopher on Field Day. And a voice comes back, "The frequency *is* in use. Thanks so very much Old Man." My first thought was, "OK, cool, now I know what to say if that ever happens to me." My second thought brought a big smile to my face as it sank in: Old Man! He called me Old Man! And boom, just like that, I'm a real ham.

– Andrew, N6DRU

October 17, 2018, Board Meeting Minutes

The meeting was held at Marty's QTH, commencing at 7:25 PM on October 17, 2018. In attendance were Kristen McIntyre, K6WX (Pres), Marty Wayne, W6NEV (VP), Jim Thielemann, K6SV (Secretary/Membership), Ron Chester, W6AZ (Treasurer), via videoconference, Larry Rebarchik, N6DB (Dir) via videoconference, Darryl Presley, KI6LDM (Dir). A quorum was present.

Kristen, (K6WX), opened the meeting with a discussion on how much the talking in the back of the room and outside the room is so distracting and disrespectful of those who are in the room listening to the information being presented. The issue is exacerbated by the voices outside being "ducted" through the open windows due to the overhang, along the ceiling of the room to the front of the room. Outside conversations can be clearly heard in the front of the room.

Conversations outside our meeting room are much worse than the choir singing several doors down as closing the door minimizes that distraction. This is due to the ducting not working from down the length of the hall. The board requests that anyone not wishing to join the meeting in the room, move to one side or the other away from the windows and door or go into the parking area. Additionally, everyone in the rear of the room also needs to be mindful of others who are trying to listen to the meeting when chatting or conducting business with someone in the rear of the room.

Kristen mentioned her reserve of stories is next to nonexistent, thus there is an urgent need for stories. Please, if you've committed to a story but have not submitted it (there are several people out there fitting this category) put pen to paper or fingers on the keyboard and let your creative juices flow! Do you have any projects, Field Day experiences, technical articles, hints n kinks, DX contacts, or experiences setting up your station or antenna, on the air experiences that might be of interest? If you have not previously drafted that story or have a new story, now is the time to draft it. "Remember it is 'homegrown' stories that make PAARAgaphs great", she said.

Vice President's Report: Marty, W6NEV, commented on how well the October speaker, Bill Borucki's, talk on "Kepler Mission in Search of Exoplanets" was received by the large audience in attendance. Marty also announced the November speaker is, Kathy Joseph Balistreri (Physics teacher and historian) who's talk is entitled "From Faraday to Hertz: The Birth of Wireless". Marty also mentioned that he has speakers booked for the remainder of the year. He's starting to work on next year so please let Marty know of anyone who would be interested in presenting at a PAARA meeting.

Secretary's report: Jim, K6SV, reported that there were 1 new member and 1 returning member joining in October. The current membership stands at 200. The current membership is made up of 48% Tech/General and 52% Amateur Extra/Advanced licensed amateurs.

Treasurer's Report: Ron, W6AZ, reported that the proceeds from last month are on a par for September/October. The finances remain in good condition especially with the larger than past years profits from the flea market.

Under Old Business,

Marty, W6NEV, updated the board, on the next field trip which is to the SS Red Oak Victory, the last surviving, out of 747, World War II Victory ships. This will be a drive yourself to Richmond tour of the ship. He commented on how few people have signed up for this trip. Unfortunately, by the time members read this issue the registration window will be closed.

Marty, W6NEV, mentioned having a good number of volunteers to staff the W1AW/6 special event station at Pacificon. The plan is to start the setup of the station late Thursday, October 18th with the goal of having at least one radio online by noon on Friday. Last year they were able to get all 4 stations operational by noon, which he hopes will be the case again this year. Teardown starts on Sunday the 21st at noon.

Clark, KK6ISP, ASVARO representative, wasn't at the meeting but did report via email that ASVARO is still in negotiations with Fry's on

(Minutes — Continued from page 4)

hosting the Electronics Flea Market (EFM) next year. The board had a lengthy conversation regarding the need to find someone to take Gerry's role as EFM sales associate. Marty, W6NEV, has collected more SK donated equipment that needs to be sold, preferably at the next EFM which PAARA happens to be hosting. Please let a board member know if you're interested in selling donated equipment at the EFM. This is an important funding source for the club that needs a champion.

There are several other items on the agenda that haven't been worked on very much or could wait until the next meeting, thus at this point there is no new news on them.

Under New Business:

Clark Martin, KK6ISP, election chair, advised Kristen via email, that all current members of the board and the director's whose term is up, are running for re-election. Ron, W6AZ, mentioned that he'll run again but the board should start looking for another treasure. If you are interested in this important board position, please see any member of the board for more information or let Clark know that you wish to run.

Kristen, K6WX, provided information received from the ARRL regarding changing the trustees of the club call signs. This is a work in progress as the current trustees have expressed an interest in a change of trustee.

Marty, W6NEV, mentioned bringing a number of radios to the November meeting which will be for sale, which are shown below.



YAESU FT-221 2 METER XCVR



YAESU FT-220 HF XCVR



HALLCRAFTERS S-38C RECEIVER



NATIONAL NC-98 HF RECEIVER

The Board meeting was adjourned at 8:41 PM.

Jim Thielemann, K6SV
Secretary/membership

Please welcome New member

Dean Levack, KD6DAN

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the Antenna Seminar, where I spoke and then participated in a panel. It was good to see Dean Straw N6BV, there speaking. Dean was editor of the ARRL Antenna Book for years and a frequent speaker at PAARA before moving out of the area a few years ago. Checking up on the W1AW/6 Special Event Station, there were many operators. The radios were humming with activity, despite rather poor band conditions. We convinced Marty W6NEV, organizer of the station, to take a break and have dinner with us. We also had Darryl KI6LDM, Karen KK6NGA, and Uncle Frank AF0XX around the table.

I tried to go to bed early that night, but I wanted to make a prop for my talk on Saturday. I ended up soldering together an Evil Mad Scientist discrete XL741 op amp kit. My talk was about op amps, so I thought it would be more fun to have one to show, and particularly a big one. Take a look at that one on the web. It's really fun. Being tired, of course I soldered one of the NPN transistors into a spot where a PNP should go. I didn't have a desoldering tool, so like any good ham, I improvised. I heated all three pads carefully while slowly rocking the errant transistor out, being careful not to lift any pads or pull out the feedthroughs. But getting it out is only half the battle. Then I had to clear the holes of solder. I heated the pads carefully and then quickly whacked the board on the desk in my room. The desk seemed fare ok, but who knows. That took a number of tries, but finally the holes were clear. I straightened and cleaned the transistor leads, and then very carefully inserted it into its proper place, soldering the three leads. Then I took out the new PNP transistor, and put it into the three holes I had just cleared. Miraculously it went right in! A little more soldering and some screws and I was ready to sleep. Fortunately I didn't set off the smoke alarm. But I still don't know if it works. I hope so.

Saturday is always the big day at Pacificon, and this one was no exception. My talk was at 11, so I got up early. I followed Bob Heil - a tough one to follow. But the room filled up and we had some fun with op amps. The rest of the

day was filled with a Pacific Division meeting and then some schmoozing until it was time for the Banquet. At the Banquet, we got a PAARA table together with Uncle Frank, Karen, Joanna K6YL, her mum, Jim K6SV, Eric KJ6LAY, Darryl, and San Joaquin Valley SM Dan Pruitt AE6SX. The evening's speaker was PAARA member Jeri Ellsworth AI6TK, who told us about her very interesting life and career. It was a great evening! And of course some adult beverages were consumed after that.

Sunday was much quieter with an East Bay Section meeting, followed shortly by the ARRL Forum. The Forum is an opportunity for everyone to get an update on League activities and also ask questions of leadership in the division. And with that it was a wrap. At least, that was my experience. What was yours? I'd love to hear about it.

Don't forget that PAARA Leadership Elections are in December. Nominations close at the end of the November meeting. If you were thinking of running for office, now is your chance. Otherwise it will be as (un)contentious as ever :).
 CU IN NOV DE K6WX



October Raffle Winners

1 st	Joe Metas WB6JOE
2 nd	Bob Kindlund KK6YRV
3 rd	Dave Pollack KM6OKD
4 th	Darryl Presley KI6LDM
5 th	Joel Wilhite KD6W
6 th	Walt Gyger K6WYG
7 th	Andrew Olson N6DRU
8 th	Paula Tucker KG7YHR

Palo Alto Amateur Radio Association, Inc.

PO Box 911 Menlo Park, CA 94026

Officers

President	Kristen McIntyre, K6WX kristen@alum.mit.edu	510-703-4942
Vice President	Marty Wayne, W6NEV w6nev@arrl.net	408-234-8023
Secretary	Jim Thielemann, K6SV thielem@pacbell.net	408-839-6815
Treasurer	Ron Chester, W6AZ ron@taxhelp.com	408-243 2221

Directors

Director ('17-'18)	Joel Wilhite, KD6W kd6w@arrl.net	408-839-5948
Director ('18-'19)	Walt Gyger, K6WGY walt@tradewindsaviation.com	408-921-5901
Director ('18)	Larry Rebarchik N6DB n6db@arrl.net	650 465-8210
Director ('18)	Darryl Presley, K16LDM ki6ldm@arrl.net	650 255-2454

Appointed Positions

Membership	Vic Black, AB6SO ab6so@smrn.com	650-366 0636
Database	Jim Thielemann, K6SV thielem@pacbell.net	408-839-6815
Chaplain	Rick Melrose K6RDM K6RDM@yahoo.com	408-341-9070
Public Affairs	<i>Position Vacant</i>	
Station Trustee W6OTX, K6YQT, W6ARA....	Gerry Tucker, N6NV	
Station Trustee K6OTA ...	Ron Chester, W6AZ	
Property Manager	Gerry Tucker, N6NV	
Asst. to the Treasurer....	Bob Korte, KD6KYT bob@rgktechsals.com	408 396 4745
Badge Coordinator	Doug Teter, KG6LWE dteter@wvci.com	650-367-6200
Historian Position	<i>Position Vacant</i>	
Raffle Coordinator	Jim Rice, K6AK	650-851-2274
Field Day Coordinator ...	Doug Teter, KG6LWE	650-367-6200
ASVARO Rep.....	Clark Martin, KK6ISP kk6isp@comcast.net	
Webmaster	John Miller K6MM webaron@gmail.com	
Technical Coordinator ...	Joel Wilhite, KD6W kd6w@arrl.net	408-839-5948
QSL Manager	Marty Wayne, W6NEV	408-234-8023
Speaker Coordinator	Marty Wayne, W6NEV	408-234-8023

PAARAgaphs Staff

Editorial Board		
	Bob Van Tuyl K6RWY	Kristen McIntyre K6WX
	Ron Chester W6AZ	Vic Black AB6SO
	Joel Wilhite, KD6W	
Editor	Bob Van Tuyl, K6RWY rrvt@swde.com	408 799-6463
Back Up Editor	Jim Thielemann, K6SV thielem@pacbell.net	408-839-6815
Advertising.....	Walt Gyger, K6WGY walt@tradewindsaviation.com	408-921-5901
Member Profiles	Diana Lloyd, KK6YGM dianalloyd76@gmail.com	650-988-8882
Technical Tips	Vic Black, AB6SO ab6so@smrn.com	650-366 0636
Photographer.....	<i>Position Vacant</i>	

VE Exams

Redwood City Main Library, Community Conference Room, 4th Saturday 10:30 am each month and De Anza Park, Sunnyvale, 2nd Saturday 10:30 am each month except November and December. See website for details and exceptions: <http://amateur-radio.org> or Contact 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-September, 6am–12 noon

Contact: <http://www.electronicfleamarket.com/>

PAARA — Palo Alto Amateur Radio Association

Meets 1st Friday 7:00pm each month at Room H-6, Cubberley Community Center; Net 145.230 - PL 100Hz Mondays at 8:30. See our website at <http://www.paara.org> for more information or contact: Joel Wilhite KD6W, KD6W@ARRL.NET, 650-325-8239

FARS — Foothills Amateur Radio Society

Meets 4th Friday each month at 7:30pm

Contact: <http://www.fars.k6va.org>

NCDXC — Northern California DX Club

Meets 3rd Thursday 7:30pm each month,

Repeater for member info 147.360, Thursday 8:00PM

Contact: <http://ncdxc.org> or Mike Gavin W6WZ, (650) 851 8699

QCWA Chapter 11

Northern California Quarter Century Wireless Association

Meets third Wednesday monthly at Harry's Hofbrau in Redwood City @ 11:30 AM.

Guests are welcome. Saturday morning net on 146.850 MHz, PL 114.8

50 MHz & Up Group

Meets 1st Thursday each month at 7pm in the Texas Instruments Building E conference room in Santa Clara.

Contact: <http://50MHzandUp.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 3rd Thursday 7:30pm each month, Belmont EOC, Belmont City Hall, One Twin Pines Lane, Belmont CA 94002. Net is on 146.445 [PL 114.8] & 444.50 (PL-100) 7:30 Monday evenings. Contact: President Gary D. Aden, K6GDA 650-743-1265 (D), 650- 595-5590 (N)

Web: <http://k6mpn.org> E-mail: pres@k6mpn.org

SCCARA

Santa Clara County Amateur Radio Association

Operates W6UU & W6UU/R, repeater 146.985-pl

Nets: 2m, 7:30pm Mon; 70cm, 10M (28.385) 8PM Thur.

Meets 2nd Mon each month @ 7:30 PM.

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

TEARS — The Elmer Amateur Radio Society

Dedicated to operational training, knowledge building & FCC exam testing.

KV6R repeater under construction.

Contact: AA6T@ARRL.NET

Most members are Extra Class or VE's. See QRZ dot com/kv6r for class info

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 ctcss UHF:

147.39 (+600) 151.4 ctcss 441.35 (+5.0) 88.5 ctcss

223.96 (+1.6) 156.7 ctcss 1286.20 (-12m) 100.0 ctcss

Meetings are 2nd Wednesday of every month except July, August and December.

Contact: <http://wvara.org>, Bill Ashby N6FFC, 408-267-3118, president@wvara.org

American Red Cross, Santa Clara Valley Chapter

Contact: <http://santaclaravalley.redcross.org> or Scott Hensley KB6UOO, (408) 967 7924 shensley@Novell.com

(Please send changes to PAARAgaphs editor)



James Farrey
 Sales Manager

James Electronics Ltd
 1355 Shoreway Road, Belmont, CA 94002
 Tel: 650•592•6718 x 350 Fax: 650•802•1520
 Direct: 650•802•1511 jfarrey@jameco.com

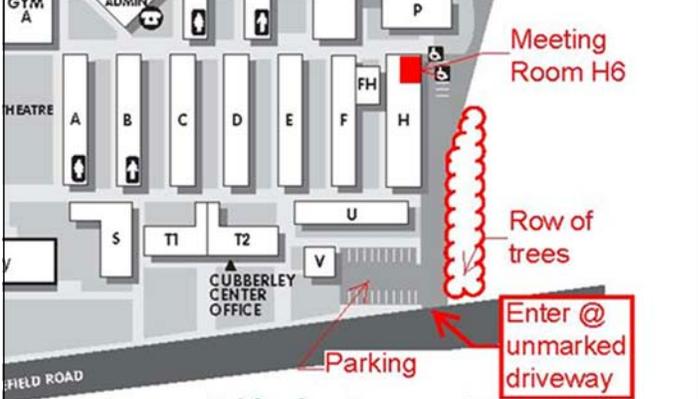
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PAARA Weekly Radio Net

Info and Swap Session
 every Monday evening at 8:30pm
 on the N6NFI 145.230 MHz repeater

Week	Control Operator
1 st	Joel KD6W
2 nd	Doug - KG6LWE
3 rd	Jack - W1VSL
4 th	Rob - KC6TYD
5 th	Rob - KC6TYD

If you're interested in trying out at Net Control,
 Contact Doug, KG6LWE. It's good practice,



Cubberley Community Center
 4000 Middlefield Road, Palo Alto, CA 94303
 650/329.2418
 650/856.8756 fax
 www.cityofpaloalto.org

**Meeting Location — Middlefield Road
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Palo Alto Amateur Radio Association

P.O. Box 911, Menlo Park
 California 94026-0911

Club meetings are on the first Friday of each month,
 7:00pm at the Room H-6, Cubberley Community Center.

Radio NET & Swap Session every Monday evening, at
 8:30pm, on the 145.230 –600 MHz repeater, PL 100Hz.

Membership in PAARA is \$25.00 per calendar year,
 which includes one subscription to PAARAgaphs
 \$6 for each additional family member (no newsletter).
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 NOT A CLUB, CLOSED GROUP OR CLIQUE; AMATEUR RADIO OPERATORS AND FRIENDLY PEOPLE ARE ENCOURAGED TO ATTEND!

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PAARA Badges

You can order a \$20 badge from the PAARA web site or at a meeting through Doug Teter, KG6LWE, and usually pick it up at the next meeting.

PAARA W6OTX DMR Repeater Frequencies	
144 – 144.9625 up 2.5 MHz	DMR—NOR CAL Brandmeister Network
440 – 444.475 up 5 MHz	DMR
1.2G – 1284.15 down 12MHz	Off line
1.2G – 1249.15 half duplex	Off line



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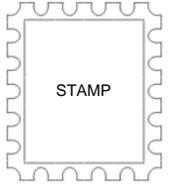
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PAARAgaphs — November 2018

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