SCOPE

Palomar Amateur Radio Club | March 2017

Inside this issue:

Faith and Begorrah

It's St. Patricks Day!

It Appears By Spears

I want to thank all of you for your comments on the first issue. I appreciate both good and constructive comments. As we go along I will be changing some things based on members responses and adding some new things.
Another thanks to all of you who have submitted articles. Without you the Scope would be a list of officers and a lot of my bad jokes. Keep those articles coming.
This month we have another installment of John Martin's, W6SE memories of the early days of ham radio in the North County. You had to be quite the adventurer in those days.
There is also a picture of our new trailer that John, WB6IQS found for us. One modified we will have our very own portable antenna tower.

Happy St. Pat's Day

73 de KM6CXW
Keith Spears, Editor

President's Corner

"Stay tuned for Echolink, IRLP, Wires-X in the near future.!"

Happy March to all! I hope your 2017 is treating everyone well. We've been a busy club already this year, as you will see in a report from John WB6IQS on page 10, we are now fully operational with Yaesu Fusion repeaters on all of our main frequencies, AND we have repeater control (which includes the return of courtesy tones) all lined up! We are working hard to get additional modes available on some repeaters, stay tuned for Echolink, IRLP, Wires-X in the near future.
Polo Shirts are still available for pre-order, if you didn't get money to me at the last meeting or via pay-pal, please see me at the March meeting, or send an email to the board to get your orders in. Once we have 20+ shirts, we can place the order. See page 15 for more info!
New website launching! Keep an eye out at www.palomararc.org for a newly redesigned website launching very soon!
Show and Tell! Don't forget to bring a little something to show off at the meeting if you want! Homebrew radio project, new radio gadget, anything you want to spend a few minutes talking about and showing off before or after the meeting!

Thanks all, see you at the meeting!

73 de K6JPE
Joseph Peterson
President, Palomar Amateur Radio Club

St. Pat's Humor

Seen on a t-shirt in an Irish Bar:
" I will have what the man on the floor is having"

Q. How did the Irish Jig get started?
A. Lots of beer and not enough restrooms.

Q. Do you know what is green and sits out in the yard"
A. Paddy O'Furniture

Q. What do you call a fake stone in Ireland?
A. A sham Rock

Q. Why can't you iron a four leaf clover?
A. Because you shouldn't press your

Board Members and Committee Chairs

Board of Directors

President	Joe Peterson, K6JPE	(619) 630-8283
Vice President	Michael Gottlieb, KB6D	(858) 212-4646 Text Welcome
Treasurer	Tom Ellett,W0NI	(858) 546-1148
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Director 1	Kevin Walsh, KK6FRK	(858) 722-5069 (Text Welcome)
Director 2	John Kuivinen, WB6IQS	(760) 727-3876
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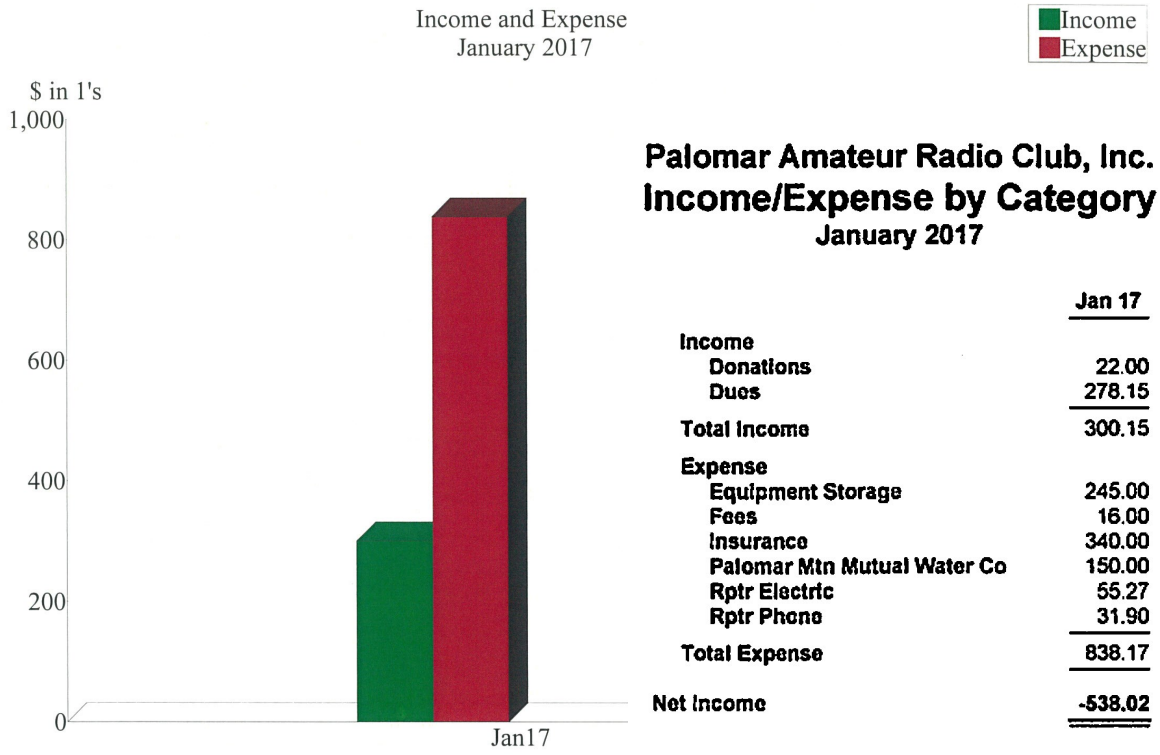
Repeater Technical Chair	Mark Raptis, KF6WTN	
Scope Editor	Keith Spears, KM6CXW	(858) 472-8442 Text Welcome

Not on Board

Repeater Site Chair	Mark Raptis, KF6WTN	(Acting)

Committee Chairs

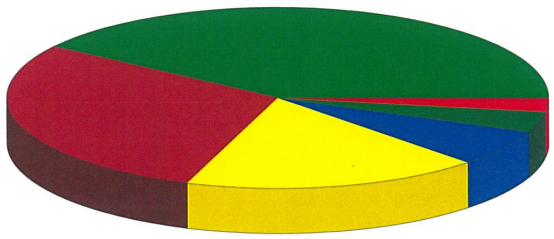
Boy Scouts	Michael Palugod	mpalugod@yahoo.com
Digital ATV	Open Group Forming	atv@palomararc.org
Echo Link	Bernie Lafreniere N6FN	N6FN@niftyaccessories.com
HF Remote	HF Remote SIG	hfremote@palomararc.org
Mesh Networking	Open Group Forming	mesh@palomararc.org
Operating Day	Tom Martin K6RCW	k6rcw@amsat.org
SANDARC Representative	John Walker AC7GK	ac7gkjohn@gmail.com
SANDARC Representative	Paul Williamson KB5MU	kb5mu@amsat.org
SD Microwave Group Liaison	Kerry Banke N6IZW	kbanke@sbcglobal.net



Palomar Amateur Radio Club, Inc.
Income/Expense by Category
January 2017

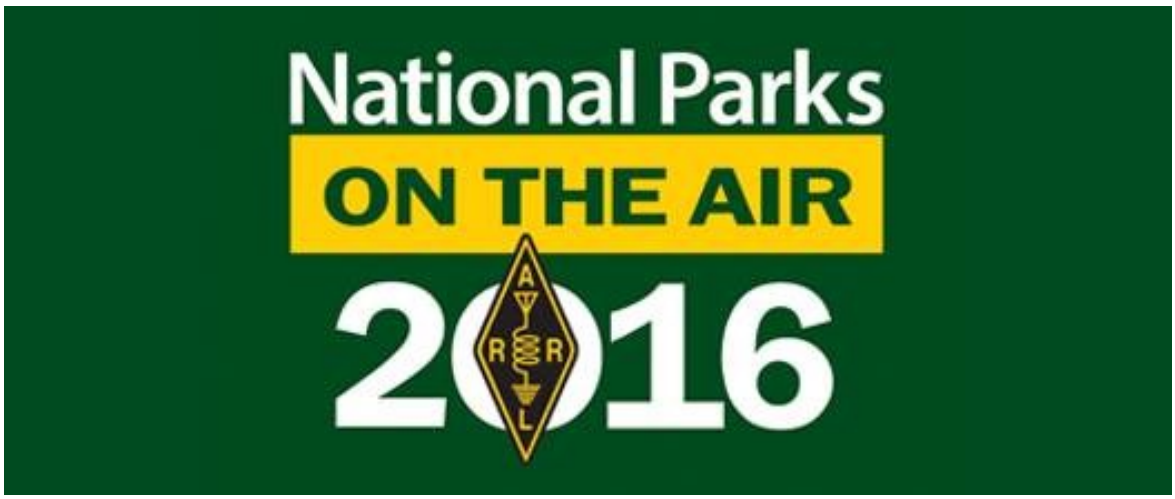
	Jan 17
Income	
Donations	22.00
Dues	278.15
Total Income	300.15
Expense	
Equipment Storage	245.00
Fees	16.00
Insurance	340.00
Palomar Mtn Mutual Water Co	150.00
Rptr Electric	55.27
Rptr Phone	31.90
Total Expense	838.17
Net Income	-538.02

Insurance	$ 340.00
Equipment Storage	245.00
Palomar Mtn Mutual Water Co	150.00
Rptr Electric	55.27
Rptr Phone	31.90
Fees	16.00
Total	$838.17



By Account

March Program– March 1st



Join us when our own Ron Pollack, K2RP shares with us his adventures participating National Parks on the Air.
National Parks on the Air has been a huge success for the ARRL and you wont want to miss this special presentation
The meeting will be held at the Carlsbad Safety Center, located at 2560 Orion Way, Carlsbad, CA 92010.
The meeting starts at 7:30 but come at 7:00 for socialization.

Upcoming Events

Wednesday, March 1st	7:30	PARC Meeting	Carlsbad Safety Center
Wednesday, March 8th	7:00	PARC Board Meeting	Poway Fire Station #3
Wednesday, April 5th	7:30	PARC Meeting	Carlsbad Safety Center
Wednesday, April 12th	7:00	PARC Board Meeting	Poway Fire Station #3
April 21st-23rd	8-5	DX Convention	Visalia, CA
May 19th—21st	8-5	Dayton Hamvention	Dayton, OH
June 2nd—4th	8-5	Sea Pac Convention	Seaside, OR

EARS
ESCONDIDO
AMATEUR
RADIO
SOCIETY

Auction

What: EARS Ham-radio-related annual auction
Cost: Sellers $2 for first tag, $1each additional tag, buyers free
When: Saturday April 8th, 2017, Seller check-in 8:30AM, Buyer 9AM, Auction begins 9:30AM
Where: Escondido Methodist Church social hall 341 S. Kalmia St. Escondido, CA 92025 (4th Ave. & Kalmia)
More Info: http://www.earsclub.org
Payment: Cash, Check, Paypal.

Repeater Status

This list includes W6NWG repeaters operated by PARC and other repeaters open to use by PARC members. All W6NWG repeaters are located on Palomar Mountain and are open to all amateurs.

Frequency	TX	Tone	Call sign	Remarks
52.680	-	107.2	W6NWG	Back on the air. Performance tweaking in progress
146.730	-	107.2	W6NWG	System Fusion enabled. See Note 1
147.075	+	107.2	W6NWG	System Fusion enabled. See Note 1
147.130	+	107.2	W6NWG	System Fusion enabled. See Note 1
447.000	-	107.2	W6NWG	System Fusion enabled. See Note 1 & 3
224.380	-	107.2	KK6KD	Americas Unidos. Down for repairs
224.900	-	107.2	WD6HFR	Convair/220 ARC
224.940	-	107.2	KK6KD	Sharp Hospital coverage
446.140	-	123.0	WB6FMT	Vista
146.175	+	107.2	N6FQ	Fallbrook ARC; linked to 445.600
445.600	-	107.2	N6FQ	Fallbrook ARC; linked to 146.175
145.050	s	N/A	W6NWG-1	Packet node; linked to metro 9600 net 1
146.700	-	N/A	W6NWG-3	Packet duplex repeater; Duplex 3

PARC operates an armature fast-scan television repeater. It's currently off the air. Currently there are not links to other ATV sites.

- ATV in: 915 MHz WBFM audio subcarrier 5.8 MHz
- ATV in 2441.5 MHz WBFM, audio subcarrier 6.0 MHz
- Intercom: 146.415 MHz NBFM simplex (tone 79.7). Currently not working.
- ATV out: 1241.25 MHz VSB, NTSC Standard

The PARC repeater site on Palomar Mountain is located at 5560 feet above mean sea level and 2132 above mean terrain. It covers most of San Diego County and beyond into Mexico and out to sea, and is shielded from the North.

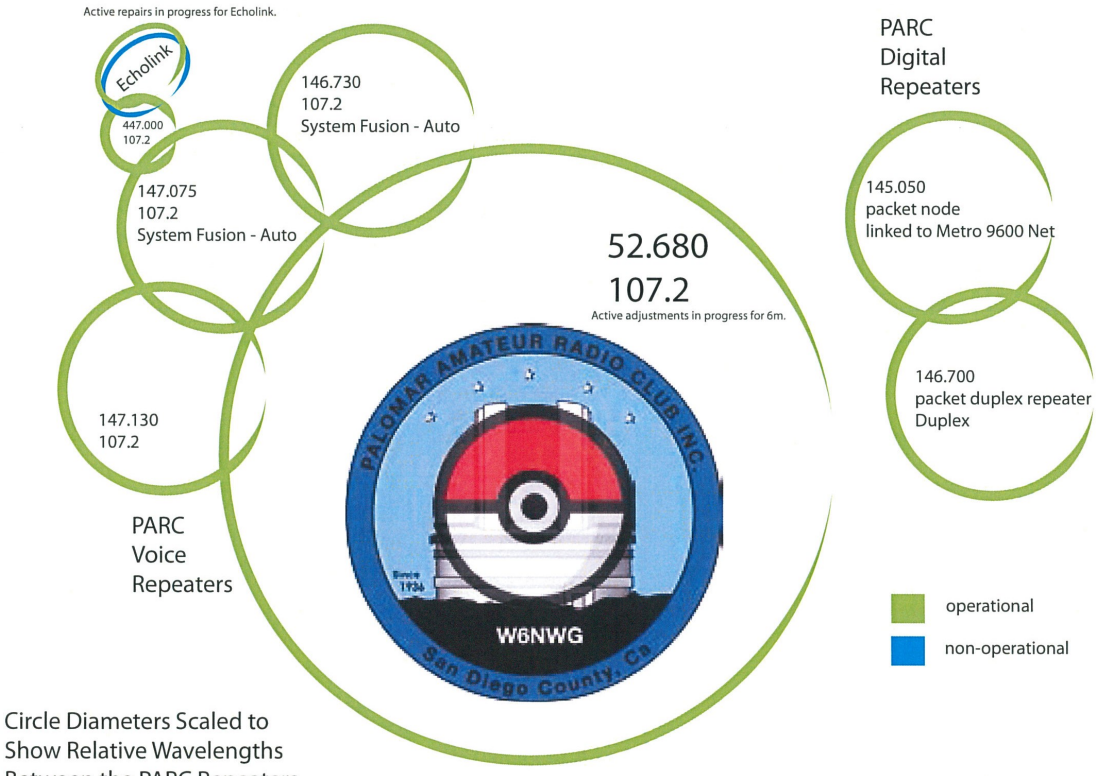
Note 1: All Fusion enabled repeaters require a CTCSS tone of 107.2 Hz to access the repeater and also transmit a 107.2 Hz tone. Since the repeater output has a 107.2 tone you can enable CTCSS receive tone squelch on your transceiver which will eliminate interference from spurious noise and other repeaters. Control operators have the capability of seeing the Fusion Repeaters to FM only operation. Consequently if you can't bring up the repeater in C4FM digital mode, try using normal FM mode. When in FM mdoe all Fusion repeater have a 3 minute maximum transmit time, after which the repeater will cut off transmission until after the received signal drops. To prevent timing out the repeater after someone finishes talking, wait until you hear the courtesy been which indicates that the 3 minute time ahs been reset. If a transmit timeout happens the repeater will provide a voice message indicating that the maximum transmit time has been exceeded.

Note 2: PARC no longer operates an autopatch or packed BBS

Note 3: the 447 MHz repeater Echo Link node is offline and there is a project to restore it back to operation.

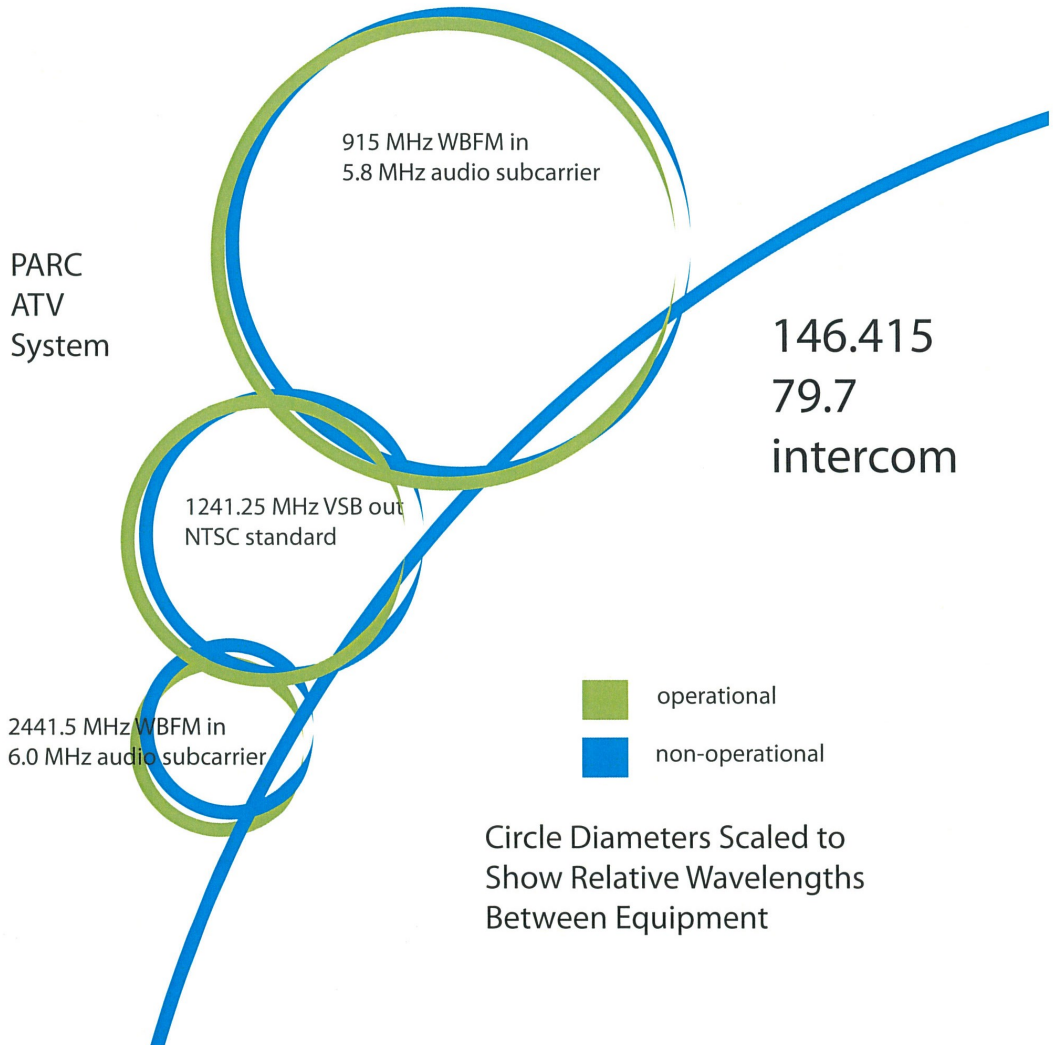
Another project is underway to investigate installing remotely-operated HF station at the repeater site as discussed. Join the Remote mailing list to participate.

Reported Repeater Status



Circle Diameters Scaled to
Show Relative Wavelengths
Between the PARC Repeaters

Reported ATV Status



Repeater Repairs

On Tuesday Jan. 31 Bernie (N6FN) and John (WB6IQS) went to Palomar Mountain to do some upgrades and maintenance. It was about 50 degrees at the site with a lot of left over snow & mud on the ground. It was good that they had Bernie's 4WD vehicle as the snow plows had cleared the main roads but the secondary roads had both mud and heaped up snow that made driving "iffy" for a 2WD vehicle.

Bernie replaced the Yaesu Fusion 146.730 repeater with a spare updated Fusion repeater. This replacement repeater can be controlled by the new 7330 controllers. He also updated the firmware on the other 147 MHz repeaters. They will now announce club meetings every 1st Wednesday of the month and have enhanced remote control abilities. All the repeaters now have the possibility of Internet connections as soon as we can get working Internet service and interfacing hardware.

John (WB6IQS) cleaned the sliding tin plated connectors on the 6 meter repeater with CRC Cramoline contact. This required removing all of the major PC boards and various RF connectors from the GE Mastr II repeater chassis. The 6 meter repeater has been intermittent for a while and this should restore it to reliability. It was made about 1982 so after only 35 years of service we guess it has a reason to be a little bit "cranky" in its' old age.

"It was made about 1982 so after only 35 years of service we guess it has a reason to be a little bit "cranky" in its' old age"

Good Things Happen When you Keep your Eyes Open

John, WB6IQS was out on the Garage Sale Circuit when spotted this old trailer. The owner was trying to sell it but not having any luck. John suggested he donate it to the club and take the tax deduction.
After a couple of days the owner called back and the trailer was ours.

John and his helpers rescued the trailer from the mud and took it to John's house .
The trailer does need some paint, new lights and other TLC but it is in sound shape.
John's has some steel that can be welded on to the trailer. His idea is to put a permeant antenna tower and then a frame to carry other antennas and supplies. This will be great for field days and emergency operations.
In the future we will need some volunteers to do this work.
We will also need to find a permeant home for the trailer.
Thanks John, for this great find.

John W. Kuivinen, WB6IQS

Notes on my history with the Palomar Amateur Radio Club.

I first got involved with some technical projects around 1975. I was helping with radio maintenance and antenna work at the mountain. In 1978 the existing repeater chairman decided that he wanted to develop his own repeater autopatch system and asked me if I would take over.

I continued as chairman until Dec. 1998. I was getting married at the ripe old age of 48 and decided that I couldn't keep three jobs going at the same time, work, a new marriage and repeater projects.

I am aware of a lot of history that came before me, but I will leave it to the others to talk about their experiences. I am going to concentrate only on what I was personally involved with as repeater projects and club activities.

After 25 years I'm still active in club projects. Offering help when I can on older repeater equipment / wiring, field day tech and the "For Sail" table. I also maintain the PALBBS and the primary club autopatch in the Vista phone exchange.

It was thanks to numerous PARC experiences that I developed one of the most easily provable theroems of electronics. The smoke theory of electronics. After several frustrating trips to the mountain with problems of reversed polarity (an existing high current power source had a red wire tied ground and the black wire +12 volts positive!), bad wiring, nosiy signals, etc. I proved that when you let the smoke out of an electronic device it always quit working. Therefore, there must have been some sort of magic smoke that was originally put into the device to make it work, when you let the smoke out of the device it always quit working. If you "Google" my name it comes up under under engineering humor, as well as my other UL safety and FCC certifications.

In 1978 all we had was a pipe mast and several antennas on the single mast. We only had the 146.73 / .13 repeater and a control receiver on that tower. We also had a few small private repeaters and they each had their own antenna towers. Later we had the donation of an 80' tall antenna tower from a commercial radio station. We took down all the miscellaneous antenna towers and consolidated our repeater systems.

The new antenna tower was a real beauty. According to Stan we had 18 tons of concrete in the base and it was heavy duty enough to support anything (including a maximum wind and ice load) that we could hoist onto it. Our repeater systems began to rapidly expand after this.

It's always been my philosophy, and I think that the club will generally agree to this too, that we never spend more money than absolutely necessary on a job. It is more important that we make something that we can maintain and document, than just getting together in a hurry. In that light, I can say with pride that many of our repeaters are still running after more than 20 years of continuous operation (knock on wood).

Repeaters currently in use that were originally installed during my time:

1. The 146.70 / .10 packet digital repeater: This started life as strictly a 300 baud RTTY repeater but soon changed into a full packet repeater. It is not a one frequency digipeater (digital store and forward), but a true repeater with a digital tone detector and tone regenerator.

2. As new repeaters came on line we had to worry about frequency coordination at the mountain site. From one repeater to over 7 now each one added another exponent to the possible frequency inter-mixes and cross modulation problems. Art came up with some super quality GASFET preampliers that really gave our repeaters some "ears" and for two systems we had one receive antenna feeding two repeaters, with a transmit only antenna on each repeater. It worked very well and this is much easier to implement than a multi-RF coupler would have required.

3. The Metronet repeater: I designed the power supply system, power backup and control logic. The repeater was a specially modified Motorola mobile radio that could handle the 9600-baud data link.

4. Antennas: We modified many commercial antennas to drop them into the ham bands and to improve their performance at our site. In one case we lowered a 460-470 MHz colinear array antenna into the 430 MHz band by adding new extender sections to each section of the array and are still using it as part of a data link. Other antennas include corner reflectors, adding a reflector element to the 2 mtr colinear arrays to make them directional, split feed yagis for an emergency antenna, etc.

5. Cavity duplexers, pass cavities, transmission lines: It has been an interesting time learning about these items. The need to check velocity factor to cut the lines to a certain wavelength, tuning cavities with signal generators and later using network analyzers as my available tools (mostly at work) improved. High quality coaxial cable, double braided, silver plated, military grade stuff is required.

   I learned more from working on PARC projects than I would have been able to learn from any school or job since there were so many more and varied kinds of projects.

   We machined some military surplus RF cavities and are still using them in some of the 450 MHz repeater systems. These RF cavities were cheap and avialable. All we had to do was cut off all the manaul tuning parts and make them fixed frequency units.

   The original repeater from the early 1970s had naval brass canon shells that had been converted to be RF cavitities.

6. We constructed the 145.05 packet repeater system from a Motorola Micor mobile radio. It used a standard MFJ TNC and switching power supply. It has been in operation for more than 25 years.

7. Autopatch system. Jerry Houser, Stan and I developed the technical concept, circuitry, hardware and radio systems from scratch. The uplinks / downlinks and computer controls are still working well although cell phones have finally come down enough in price that mobile phones are not just for the rich. Ordinary Standard business radios were reprogrammed to work into the amateur radio spectrum.

8. Before we had a land-line telephone at the repeater site, we had a control link transmitter system that was accessible via a dedicated North County telephone number. You would call a special number and enter an access code, then you could control the repeater system. It helped with people that were willing to be control operators, but did not have the required 450 MHz radios.

9. The original call sign of the repeater was WR6AII, we had a lot of problems with the FCC when repeaters were first going up and there were all sorts of restrictions on what bands could be linked, control operators on duty at all times, no auto patches etc. As time went by and more rational thoughts prevailed our equipment became more sophisticated and interlinked.

10. Mostly, I'm glad to see that the club is still working on improving the site and expanding the equipment. We have a monstrous sized battery back up system in the works, our antennas continue to operate despite some of them being more than 30 years old and Motorola and GE mobile radios continue to be the mainstay of our equipment. There is more sophisticated equipment available now, but nothing that will ever be as reliable.

Thank you for listening, I hope that in about 30 more years I can attend the centennial celebration of the club.

John Kuivinen, Professional Engineer
WB6IQS
PARC Repeater Technical Chairman, retired, 1978 – 1998.


SEA PAC
"The Northwest's Largest Ham Convention"
Host of the ARRL Northwestern Division Conference
3 Full Days of Activities!
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Our 35th Year!
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DX Luncheon
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Giant Flea Market
ARRL Forum
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Prizes, Prizes, Prizes
Wouff Hong
& More!
Become a part of the SEA-PAC experience. We are looking for volunteers on Friday, Saturday and Sunday.
Email us at volunteers@seapac.org
Phone: 503-882-7388
Website: http://www.seapac.org
Email: info@seapac.org
Mail: SEA-PAC Ham Convention
PO Box 7263

Membership Report

From the Membership Table You can check the status of your membership 24/7 at Member List (or go to the club's website and navigate to Join and click on "here" at the top of the page. Enter your call sign into the box and click the "Look up my membership status now" button.

To renew your membership or extend your membership, fill in the form on the Join page. Make sure you select the correct value from each of the drop-down menus (Type of Membership, How many years, I'm an ARRL Member, Newsletter option and License Class). If you want to receive an email when your membership is coming due for renewal, please make sure that I have a valid email address for you. To do that, please send an email to Membership@palomararc.org.

"

Callsigns for already expired memberships or those that will be expired before the April 5th General Membership meeting. (click on your call to check your status)

AA6BP AB6O AD6LP AE6HF AE6PU AF6UA AI6KO AI6NY AK4XK AK6AK K0CSD K6BLL K6DRH K6EQ K6GOR K6ISS K6JQE K6OT K6SC K7YMG KA6AAG KA6KIW KA6OYD KB6CPZ KB6CUT KB6NXC KB6PCF KB6VME KC6HUK KC6YSO KC9IYR KD1BD KD6AEB KD6EKQ KD6YJB KE6GNH KE6LGY KE6MYA KE6NPL KE6PHE KE6UYI KF4LL KF6MPI KF6SMB KF6UPP KF6UVF KF6XA KF7SJE KG6MDQ KG6OMH KG6QWR KG6RCW KG6RLA KG6TTZ KG6TUL KG6UTS KG6VVN KG6WJD KG6WWY KH6GK KI6AUP KI6AZQ KI6DBL KI6LEX KI6NCA KI6YEW KJ6KDM KJ6KLJ KJ6QQD KJ6TIM KJ6YPR KJ6ZBQ KK6AZG KK6CTF KK6DRA KK6EME KK6GHF KK6GO KK6IJN KK6IRZ KK6JDM KK6LJ KK6LNV KK6MBQ KK6MTF KK6MZF KK6NLS KK6NLV KK6NLW KK6NMY KK6NON KK6QOS KK6RIP KK6RRW KK6RWK KK6SHY KK6TNO KK6TYQ KK6TYY KK6UFP KK6WOF KK6WPQ KK6YAU KK6YLO KM6AFM KM6ARO KR6FU KW6Q N6APA N6ERD N6ISC N6IZW N6KI N6MDU N6NAU N6NCP N6RY N6TBA N6XLZ N6XT N9JZ NA6DC NC7V NE6AA NE6O NN6X NU6L W6ADF W6AOZ W6DTO W6GDK W6MJM W6OYJ W6XM W9BOI WB6LMD WB6UIR WB6ZBP WB9COY WD6FZA WN6K WQ6V WX6AAA ZZ9CR ZZ9DM ZZ9DR ZZ9JJ ZZ9MJM

Polo Shirts

We're ordering Polo shirts! Some of you already have orders in with me from the last meeting, please be ready to pre-pay for them so we can get the order placed ASAP! We need 20 shirts to get the price I've been quoted. If we end up with 30+ then the price goes down and I'll have a little change for those who have pre-paid once your shirts come in!

Base price: $21.00 includes printing on the front, PARC logo on one side and your name/callsign over the pocket.

Add $2.00 for 2XL, $3.50 for 3XL, or $5.00 for 4XL

Add $5.00 if you also want the logo printed large on the back.

73 de K6JPE
Joseph Peterson

December 15, 2016

Dear Amateur Radio & DX Enthusiast,

Are you waiting to see how Dayton does in its new home, but still want to meet and mingle with all your DX friends? Are you saving money for yet another tower, rig or amp? Then Join us next year for a fun event: The 68th International DX Convention in Visalia, CA., April 21 – 23, 2017!

IDXC 2017 is sponsored by the Northern California DX Club at the beautiful Visalia Convention Center in downtown Visalia, CA. IDXC is the premier DX Convention in the United States, and is attended by hundreds of serious DXers and Contesters looking to improve their skills, upgrade their stations and spend some quality hands-on time with the vendors' latest equipment offerings. If you're interested in getting involved in DXing, this a great place to start!

Convention Highlights:

- We've added a day!
- Onsite Registration begins on Thursday afternoon, April 20, 2017 at 3:00 PM local time
- Convention is now a full 2.5 Days: Friday (April 21); Saturday (April 22); 1/2 day Sunday (April 23)
- 15-20 DX & Technical Seminars now on both Friday & Saturday
- Excellent Keynote Speakers
- 35-40 Exhibitors in large Exhibit Hall offering all the latest gear Friday and Saturday
- ARRL QSL Card Checking
- Great Raffle Prizes
- Open DX Forum; Contest Forum; ARRL Forum; YL Forum
- Optional training on Friday : Contest Academy - Basic & Advanced Contesting Techniques
- Eyeball QSOs with your DXing friends, or make some new ones!
- Optional Friday Dinners: Top Band Banquet or IOTA Banquet or Contest Banquet
- Optional Saturday Visalia Tour
- IDXC Registration is now open!
- For more information and to register, visit our website at: dxconvention.org

IDXC 2017 will be the biggest and the best International DX Convention yet, and we hope you'll be able to join us to enjoy it all!

73,

John Miller, K6MM
Rich Seifert, KE1B
Kevin Rowett, K6TD
IDXC 2017 Co-Chairmen

The STEM Committee of the San Diego Imperial Council of the Boy Scouts of America needs
YOUR HELP
WITH THE FOLLOWING EFFORTS:

1. **Help with the Radio Merit Badge at the Boy Scout Fair on April 8th, 2017. We need on site operators with rigs and remote operators. This is the 100th Anniversary of Boy Scouts in San Diego!!! Contact KK6FRK to enlist.**
2. **Radio Scouting Technician Exam and HT sponsors. After a Scout earns is Radio Merit Badge, the next step is to pass the technician exam. Upon passing the exam, a PARC member can sponsor the cost of an HT radio for the Scout. Sponsorship cost approximately $65.00 per Scout. The sponsor can present the HT to the Scout at the monthly PARC meeting. Contact KK6FRK for more info.**
3. **Camp Balboa Radio Room Reboot: We need volunteers who can:**

A .Replace electrical subpanel and wiring in radio room per current electrical code. Problem = circuits trip under load and not to current code.
B. Remove water-damaged drywall and install new drywall, lower horizontal half of radio room walls.
C. Radio room antennas – repair or replace per your antenna engineering imagination; HF and UHF/VHF.

CONTACT KK6FRK FOR MORE INFORMATION ON HOW TO HELP

Scout Fair 2017

Qualcomm Stadium, April 8, 2017

'A Century of Timeless Values'

"

Donate to PARC by Shopping at Amazon

As publicized earlier this year, PARC is now a not-for-profit charity, and fund donations to PARC are eligible for tax deduction itemization for those who are eligible for such a tax itemization. PARC also announced that in cooperation with Amazon, it is now possible to shop on Amazon at NO cost increase, and have Amazon distribute a percentage donation to PARC.

This is done by shopping on www.smile.Amazon.com.

If you choose to avail yourself of this opportunity, when shopping on www.smile.amazon.com, specify Palomar Amateur Radio Club as your charity of choice for donation.

In the Beginning-Early Memories of Ham Radio Part II

(Editor's Note: Al Martin, W6SE provided this memoir from his father John Martin, W6SE about the early days of Ham Radio in North San Diego County. We will be publishing excerpts from it over the next several months.)

By this time, 1925 or 1926, I had gathered a sufficient quantity of parts to build a short-wave receiver, and what a beauty it was! A part we called a vario-coupler was rescued from someone's cast off trash. It consisted of a short length of bakelite tubing, perhaps four inches in diameter, into which a smaller piece of tubing was inserted and fitted on a shaft so that it could be rotated. The antenna and grid coils were wound on the larger tubing while the plate or tickler coil was wound on the rotating member. The purpose of the tickler coil was to control regeneration. The coil form was rewound with fewer turns of wire. A guardian angel must have been watching over me for I put on the right number of turns the first time. Even the polarity of the tickler coil was correct, thus avoiding Murphy's Law: One requiring that all windings be hooked up backward for the initial trial. Despite fierce hand capacity and instability the device worked, and signals were heard. I found the 40 meter amateur band easily, for it was then seven to eight MHz. The world of Amateur Radio was now at my doorstep! And it was along about this time that I encountered my first real active Ham in the person of Dick Shanks, 6BZE, who then worked the radio parts counter in Whitney's Department Store in downtown San Diego, my only source of radio parts when I could afford them. By way of explanation about radio parts in a department store, home construction of radio receivers was, for a time, a popular pastime engaged in by many members of the public. The mass production of broadcast receivers at lower and lower prices put a stop to this practice in a few years.

A short time after building the crude receiver an article in one of the popular magazines of the day led me to an inkling of why it was that receivers received and transmitters transmitted. Studying it, but not nearly well enough, I took the amateur license examination late in the year 1927, flunking miserably. The kindly inspector, Mr. Bernard H. Linden of the then Federal Radio Commission, assured me my luck would be better the next time, patted me on the head and sent me on my way. I recall that Harold Hasenbeck, 6DNS, was present. He asked for and was granted permission to copy the 20 WPM code test given applicants for commercial licenses. You may recall that Harold was the first California amateur to work the east coast on the old five meter

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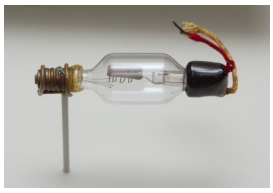
John Martin in his Shack

"I found the 40 meter amateur band easily, for it was then seven to eight MHz."



In the Beginning-Early Memories of Ham Radio-Continued

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band prior to World War II. I've not heard of him in years.

After this debacle, my quest for knowledge was pursued with grim determination in order to acquire sufficient expertise to get me past the examination and to be able to copy the International code faultlessly. I spent several months copying press broadcasts (don't try to find them now) and more particularly in memorizing the full text of my study guide. All of this paid off handsomely. Appearing for examination in August 1928 I passed with flying colors. Among the group also passing on that fateful occasion were Horton C. Kessler, W6EPZ, then a resident of Coronado, and Howard B. Bard, W6EOS, who lived in San Diego at the time. Kessler is a silent key. I've not heard of Howard Bard in years, although a relatively recent call book lists him as a resident of Chula Vista. The mail brought my license in October, 1928. The call assigned to me was W6EOM.

"The report I received was indicative of a miserably sounding weak signal; one that was barely legal. "

In the interim between examination and issuance of the license my time was spent in building a transmitter. A fairly recent (then) issue of QST carried a construction article describing a low powered transmitter for 160 meters, consisting of a pair of 201-A tubes in a back-to-back self rectifying circuit. I put it together, mounting all parts on a wooden bread- board. Actually it was a Hartley oscillator with the grids in parallel and the plates in push-pull, each plate connected, through an RF choke, to an output terminal of the high voltage transformer, a modest 300 volts, and the center tap of which was grounded. This was a full wave self rectifying transmitter, meaning that under keydown conditions it turned itself on and off at the rate of 120 times per second. It turned out that no amateur radio activity was then found on 160 meters. Taking some turns off of the tank coil, I managed to make the little transmitter work on 80 meters. There at 8:10 PM, PST, on October 17, 1928, I had my first QSO with 6BQ, George Sears, of La Jolla, who was then the San Diego Section Communications Manager for ARRL. He reported my AC signal was R2. In those days there were two components in the signal report: first the tone - AC, RAC, DC or PDC, and second the readability ranging from R1 to R9. An AC tone report meant raw AC, RAC meant rectified AC, DC meant a smooth note with a slight AC ripple while PDC was like Caesar's wife - above reproach. The report I received was indicative of a miserably sounding weak signal; one that was barely legal. Nevertheless I was off and running! I hasten to explain that in 1928 one could legally use raw AC as the plate

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In the Beginning-Early Memories of Ham Radio-Continued

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supply. The signal product of a half-wave oscillator-transmitter was a 60 cycle cw note, while the full wave had a bit, but not much more refined 120 cycle note, Of course the Hams were inventive and a few of the fraternity acquired surplus motor driven 500 cycle alternators for their plate supplies. The signal such installations produced with them as a source of power was distinctive and really beautiful to copy, but with its sidebands took up a lot of space, a matter not considered particularly critical in those days. Fortunately the rule was changed a year or two thereafter, and AC plate supplies were banned for amateur use.

You ask about my receiver? Well, in the late twenties the receiver in a Ham station was usually "home-brewed" consisting of an autodyne regenerative) detector followed by one or two stages of audio amplification. The detector was apt to be the three circuit Reinartz design having antenna, grid and plate coils, all wound on one coil form, usually the base of a defunct vacuum tube. These were our first homebrewed "plug-in" coils. There were various means of controlling regeneration, which was the critical phase in the operation of such a receiver, for the greatest degree of sensitivity occurred when the detector had barely broken into oscillation. Of course its operation was very unstable in this condition. Should the wind swing the antenna, the receiver would respond by snapping in and out of oscillation at an alarming rate. The only cure was to increase the feedback, a remedy that also reduced the receiver's sensitivity. Now, if the receiving antenna was resonant it would "load" the receiver, requiring the operator to "ride" the regeneration control as he tuned across the band. When oscillating the receiver was also a very low-powered transmitter.

Regarding the instability of those old receivers, appearance of the UX 222 tetrode vacuum tube in the late twenties did much to correct the situation. This tube was generally used as an untuned RF amplifier, supplying little gain but adding considerable stability to those rudimentary devices, effectively isolating the oscillating detector from the antenna. The screen grid served to minimize the tube's interelectrode capacitance. Hence the RF stage was stable without the requirement of neutralization, and radiation from the oscillating detector was largely eliminated. We learned also that a sheet of tinfoil pasted behind the panel and then grounded would defeat that old demon, hand capacity. The A+ B- binding post served as the grounding terminal. A lot of us were not using metallic

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John Martin's Shack, 1957

"Well, in the late twenties the receiver in a Ham station was usually "home-brewed"

In the Beginning-Early Memories of Ham Radio-Continued

chassis and panel construction at that time.

As noted before, in those days the filament voltage for receivers was usually derived from a 6 volt lead-acid storage battery. Most vacuum tubes for receiving service were rated for a five volt filament, so a rheostat was used to protect them from filament burn-out. This wasn't entirely effective, for every old-timer has, surely at one time or another accidentally applied the full "B" battery voltage to the filaments of his receiver. The result of this misapplication was devastating, and to the youngster who had invested his hard-earned cash in an expensive vacuum tube it was almost tragic!

"Amateur radio was an avocation dangerous to one's health. It's surprising that so many of us survived to tell the story!"

Then, the headphones were normally inserted in series between the plate of the audio amplifier tube and B plus, usually 90 volts, but sometimes 135. Well, occasionally the headphone cord became frayed or the metal case of the earphones shorted to a winding, in which event operating became downright uncomfortable. Because keying relays were seldom used, usually one side of the key was hotter than the hubs of Hades. As it was fashionable to install the high voltage power supply, replete with chemical rectifier, under the operating table where one's feet might well become entangled with it, amateur radio was an avocation dangerous to one's health. It's surprising that so many of us survived to tell the story!

It must have been in late 1928 or early 1929 when the late Rev. Dr. Percy Hickman, Vicar (now called Rector) of the local Episcopal Church, stepped into my hamshack to view the operation, about which he had heard in one way or another, as Vicars do. How he escaped instant electrocution in my awful den of horrors, I'll never know. After asking a few questions and looking around, he volunteered a remark that I ridiculed (to myself) at the time, but one I have thought about increasingly in recent years. "Young man," he said, "There's no limit to what you can do with your wireless. You will even talk to the stars one day!" Well, I've seen moon-bounce communication and have done a lot of communicating via satellites. We've all seen amateur radio contacts with orbiting shuttle-craft. There is also communication with far ranging space craft, so it turned out that the Reverend Dr. Hickman was not far off the mark after all. He knew something I didn't. Unquestionably his circle of friends and associates was considerably wiser, better informed and more influential than mine.

It didn't take long to learn that my 120 cycle CW note was not considered state of-the-art, even in 1928. Several of the more

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In the Beginning-Early Memories of Ham Radio-Continued

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knowledgeable chaps advised me that one should aspire to a pure DC note. Because filter capacitors, the things we used to call condensers, were pretty expensive (for me) in those days I failed to reach this exalted state. Instead I settled for the RAC (rectified AC) note. In short this meant a rough CW signal, but not so rough as raw AC. It was a question of degree, not of kind. Anyway, I built a "slop jar" rectifier consisting of mason jars filled with borax solution, into which lead and aluminum electrodes were fitted. The rule was that there must be one jar for every 40 volts of alternating current supplied to the rectifier system. However, I ended up with eight jars for a 400 volt supply. There should have been ten of them, but twelve would have been required for a symmetrical bridge layout. My one and only one microfarad condenser was hung across the output of the rectifier. Now, because a self rectifying transmitter was no longer required, I converted the little transmitter into a push- pull tuned plate-tuned grid affair. Presumptively the note was better. At least I received RAC reports.

Doubtlessly the reader has observed that thus far my discussion has been almost entirely in terms of radiotelegraphy. In those days, 1928 and 1929, there was some phone activity to be found between 3500 and 3550 KHz, as well as some in the 160 meter band, but we rank beginners usually didn't participate in it, probably because most of us didn't understand it. At least I didn't. A few years later the 75 and 20 meter phone bands were set up and gradually 'phone operation became very popular. The top band, 160 meters, later became re-popularized and was almost entirely occupied by 'phone operators, but I digress, for suddenly it was 1929, a time of travail for most hams, as the 20 and 40 meter bands had been slashed deeply by new regulations, effective on January first of that year. We lost 700 KHz of the 40 meter band and 1600 KHz out of 20 meters. Most of us didn't have adequate frequency measuring gear. There were a few crystal oscillators around, but not many.

We survived this travail despite many predictions to the contrary by the usual prophets of doom. In doing so we took a great many chances. For instance the best method I had for determining the frequency of my transmitter was to listen for the broad AC "rumble" heard in the receiver. Let me tell you about this: In those days we usually keyed our Hartley (or whatever) oscillators in the negative HV lead at the filament center tap. Because the filament transformer usually had no center tap, it was standard practice to hang two

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"the best method I had for determining the frequency of my transmitter was to listen for the broad AC "rumble" heard in the receiver. "

In the Beginning-Early Memories of Ham Radio-Continued

"If the plate turned red one would or should know that the loading was too heavy. ."

Christmas tree lights in series across the filament leads, calling the junction between the two of them the center tap. These lights, by the way, served as indicators of plate loading in the event a milliammeter for plate current indication was not available, as their degree of brightness under key-down conditions was an indication of plate current. If the plate turned red one would or should know that the loading was too heavy. Usually the filament leads were also by-passed to ground. It was said that with the filaments and high voltage turned on there was a little leakage, causing the oscillator-transmitter to try to function. This was said to be the "AC rumble" of which I spoke. At this late date no claim of accuracy is made either for the theory of this manifestation or of its ability to measure the frequency of the transmitter. Suffice it to say I used this method for a year or two, during which time no citations were received. It was either by blind luck or an almost inexcusable lack of efficiency on the part of the monitoring services of the old Federal Radio Commission that I survived unscathed.

In locating the Ham bands we were aided, in part, by the presence of "marker" stations near the band edges. The only one I now recall is WIZ, an RCA station given to sending the letter V followed by its identification 24 hours a day, seven days a week and 365 days a year at, I think, 6970 KHz. We were told RCA kept such stations on the air continuously in order to discourage foreigners from landing on "their" frequency. This practice was somewhat reduced by several international treaties and agreements that followed. At any rate, by placing the "rumble" a bit up frequency from WIZ, one, it was fervently hoped, would be somewhere within the 7 MHz band. There were other "marker" stations, but their call letters have long since been forgotten. Let me assure you that I did indeed have an absorption wave-meter, the thing we usually employed to measure frequency at the time. Using it to measure the frequency of the unstable transmitters and receivers of the day was usually an exercise in frustration. There were designs available for a shielded monitor, but for some reason I wasn't moved to build one. No doubt I would have had I been cited for off-frequency operation.

In order to prepare the amateur radio fraternity to live with the new regulations, the pages of QST in 1928 were filled with articles dealing with the construction of transmitters using high "C" tank circuits featuring plate coils wound with heavy copper tubing and higher capacity in the associated capacitor.

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In the Beginning-Early Memories of Ham Radio-Continued

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Additionally there were articles describing MOPA (master oscillator-power amplifier) transmitters, one of which employed an aluminum kitchen kettle as a shield for the master oscillator. A crude but very effective solution of a problem, characteristic of the ingenuity of the Hams of those days.

In keeping with the universally accepted practice of the day, I applied for and received the portable call of W6ECP. This was fortunate, as a postal mix-up resulted in my application for renewal of W6EOM going astray.

Unfortunately for me that call lapsed and was subsequently reissued to the late Wilson V. Rogers of Fresno. W6ECP had been issued originally to the Grossmont Radio Club.

At this juncture some may be a bit confused about the old call letter configurations. Prior to August 1, 1928, or thereabouts, all amateur calls assigned by the Federal Radio Commission and/or Department of Commerce, predecessors to the present Federal Communications Commission, had no letter prefixes whatever, the district numeral being the first character in the call. However, when DX exchanges became common in the amateur bands, an unofficial accommodation was worked out to minimize confusion. The U. S. amateurs first adopted the prefix "U" which was later changed to "NU", while the Australians took "A," and so forth. Actually this system didn't supply a prefix. Rather it was first used as an intermediate, working out like this: suppose 6HM (U.S) were to call Australian 2AB. He would send 2AB 2AB 2AB A NU 6HM 6HM 6HM K, using the new intermediate rather than the familiar DE.

Beginning on or about August 1, 1928 the Federal Radio Commission started issuing new calls with the W prefix, in accordance with a formula worked out at the International Radio Conference of 1927 in which a majority of the nations of the world participated. Some didn't take part in formulating the agreement, but most accepted its provisions. Then on January 1, 1929 the Commission ordered that the W prefix be added to the calls of all amateur stations within the continental limits of the United States and the K prefix, with sometimes another letter, as in KZ5 for the Panama Canal Zone, for those licensed to operate in U. S. possessions.

"In keeping with the universally accepted practice of the day, I applied for and received the portable call of W6ECP. "

TUNE IN NEXT MONTH FOR ANOTHER EXCITING CHAPTER OF THE EARLY DAYS OF HAM RADIO.

New CA Distracted Driving Law by Peter, W2PWS

In an apparent effort to expand the definition of distracted driving, the law which previously applied primarily to texting and other digital non-verbal communications has been dramatically expanded. Effective January 1, 2017, the new version of Vehicle Code section 23123.5 took effect. The language of the new statute is as follows:

(a) A person shall not drive a motor vehicle while holding and operating a handheld wireless telephone **or an electronic wireless communications device** unless the wireless telephone or electronic wireless communications device is specifically designed and configured to allow voice-operated and hands-free operation, and it is used in that manner while driving.

(b) This section shall not apply to manufacturer-installed systems that are embedded in the vehicle.

(c) A handheld wireless telephone **or electronic wireless communications device** may be operated in a manner requiring the use of the driver's hand while the driver is operating the vehicle only if both of the following conditions are satisfied:

(1) The handheld wireless telephone or electronic wireless communications device is mounted on a vehicle's windshield in the same manner a portable Global Positioning System (GPS) is mounted pursuant to paragraph (12) of subdivision (b) of Section 26708 or is mounted on or affixed to a vehicle's dashboard or center console in a manner that does not hinder the driver's view of the road.

(2) The driver's hand is used to activate or deactivate a feature or function of the handheld wireless telephone or wireless communications device with the motion of a single swipe or tap of the driver's finger.

(d) A violation of this section is an infraction punishable by a base fine of twenty dollars ($20) for a first offense and fifty dollars ($50) for each subsequent offense.

(e) This section does not apply to an emergency services professional using an electronic wireless communications device while operating an authorized emergency vehicle, as defined in Section 165, in the course and scope of his or her duties.

(f) For the purposes of this section, **"electronic wireless communications device" includes, but is not limited to**, a broadband personal communication device, **a specialized mobile radio device, a handheld device** or laptop computer with mobile data access, a pager, or a two-way messaging device.

(I have highlighted that language which clearly affects amateur operation.)

Prior to the start of this year, any distant application to ham radio was arguably contained in Vehicle Code section 23123. That law – which was not recently amended, made specific mention to "using a wireless telephone." Even though amateur radio operators were occasionally given citations under 23123 for using their rigs, the reference to "wireless telephones" eventually made it clear to the courts and law enforcement that amateur radio fell outside of that description and therefore, was excluded

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"In an apparent effort to expand the definition of distracted driving, the law which previously applied primarily to texting and other digital non-verbal communications has been dramatically expanded."

New CA Distracted Driving Law—Continued

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from enforcement pursuant to this statute. In addition, several years ago, an official of the California Highway Patrol issues a directive stating that amateur radio was excluded from enforcement under 23123. I know that some amateurs (still) carry a copy of that document in their mobiles, but I believe with the new version of 23123.5, hams are no longer protected as before.

The new law appears as though it will have a sweeping effect. In addition to putting a crimp on most amateur mobile activity, it looks like it will also prohibit the use of Citizens Band and mobile business communications while driving. I am curious as to what the response of truckers, tow operators and taxi cab drivers will be, given that they are frequent users of two-way communications while traversing our roadways. A local ham even suggested to me that military convoys and pilot cars riding with oversized loads will face (unintended?) violations with the enforcement of 23123.5.

What about the word "wireless" and the employment of "hands-free" operation? I know many hams who are creative and willing to utilize inventive means to comply with the law. The term "electronic wireless communications device" caries its own definition in subdivision (f) of the statute. That definition is quite broad and specifically includes "specialized mobile radio device." I think it would be a tough row to hoe to argue that amateur radio equipment in a vehicle is outside the scope of a "specialized mobile radio device." Concerning the "hands free" issue, I predict that creative hams can come up with some clever workarounds. What about a footswitch and a 1-ear headset? (By the way, having both ears covered is illegal.) Do they have foot-operated bugs and paddles? I am not suggesting that any of this is safe or preferred. Keep in mind that the intent of these laws is to eliminate distractions while driving, a noble motive. But they still haven't drafted any legislation preventing people from applying makeup or tossing a salad while driving.

The two laws discussed are not point violations, so therefore, traffic school might not be warranted. It's also important to note that traffic school is only available every 18 months (calculated from violation to violation). Nonetheless, I have heard that some insurance companies are less concerned about points than they are about distracted driving. Concerning the fines, the $20 and $50 base fines do not include the penalty assessments added by State legislators. When those fees are added, the actual $20 fine is $162 and the $50 fine becomes a ticket that will cost you $285.

Disclaimer: The information contained above is not legal advice, nor does it represent the position of any court or other governmental entity. It is provided here for general information only.

"I am curious as to what the response of truckers, tow operators and taxi cab drivers will be, given that they are frequent users of two-way communication

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Editorial Policy

The Scope welcomes and encourages members to submit articles, photos, stories, equipment reviews and any other items of interest to ham radio.

The Palomar Armature Radio Club reserves the right to edit all submissions for content and length.

Please submit documents in MS Word format and photos as JPEG or GIF. Flyers may be submitted in PDF.

All submissions need to be received by the 20th of the month.

Send submissions to:

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The Back page is a place for ham radio humor. If you have a joke, cartoon or just a fun story about ham radio, please share it with me.

Universal Truths

1. Any wire cut to length, will be too short
2. Tolerance will accumulate uni directionally toward maximum difficulty of assembly
3. Identical unties test under identical conditions will not be identical in the field
4. The availability of a component is inversely proportional to the need for that component
5. If a project require n components , there will be n-1 components in stock
6. If a particular resistance is needed, that value will not be available. Further, it cannot be developed with any available series or parallel combination
7. A dropped tool will land where it can do the most damage. (Also known as the selective gravitation)
8. A device selected at random from a group have 99.99% reliability, will be a member of the .001% group
9. When one connects a 3-phase line, the sequence will be wrong
10. A motor will rotate the wrong direction
11. The probability of a dimension being omitted from a drawing is directly proportional to its importance.
12. Interchangeable parts wont

Be Careful What you Wish For

Three hams were standing on a corner talking when an out of control bus ran them down. They found themselves at the Pearly Gates with St. Peter. St. Peter said "I am really sorry about this but we made a mistake, you were not supposed to be here for five more years". "In order to make it up to you, we will send you back to earth as whoever you want" The first guy said " I always wanted to be a famous move star and have adoring fans around me all the time" The second guy said " I was never much of an athlete, so I would like to be a famous football player" The third guy said "I have always been so involved with ham radio, I never was very good with the girls". I want to be a real stud". So St. Peter sent them back to earth.
Five year later, he called the angle Clarence and said "I's time to go down to earth and pick up those three hams we sent back five years ago" "Where will I find them" asked Clarence? Well St. Peter said "The first guy is in his Hollywood mansion out by the pool polishing his academy award" "The second guy is playing linebacker for the San Francisco 49ers" And the third guy, you will find him on a snow tire in Minnesota.