



# YAVAPAI SIGNAL



The Yavapai Amateur Radio Club • Prescott, Arizona • DM-34 • Volume 23 – No.12 • December 2008

## Season's Greetings

### New Officers Elected



**Bob Erdmann, W7TQJ**  
*President*



**Mary Vince, AB7NK**  
*Treasurer*

The following members were elected to office for the 2009 & 2010 term at our November 6th meeting: Bob Erdmann, W7TQJ - *President* and Mary Vince, AB7NK - *Treasurer*. Walter Schumann, KF6SPS, Richard Bozeat, KE7DTR and Tom Griswold, N6LSA were elected to the Board of Directors for the term 2009. Pete Morrison, K6VVR will continue in the office of Vice-President for the term ending 2009. Congratulations to all! ■

### Welcome to the Yavapai Amateur Radio Club

The Yavapai Amateur Radio Club (YARC) is an ARRL affiliated Special Service Club. The club participates in many activities in the tri-city area by providing communications for local events, emergency communications, and promotion of the hobby throughout the community.

Membership in the YARC is open to any interested amateur or non-amateur alike. Dues are \$20.00/year (Full-time students \$15). The YARC meets at 7:00 p.m. local time on the first Thursday of every month in the Technology Room 404, at the Granite Mountain Middle School, 1800 Williamson Valley Road in Prescott. It is about ½ mile north of Iron Springs road, and all amateurs and non-amateurs as well are invited. Programs of interest are included as part of the meeting.

The weekly Net is held every Wednesday at 7:00 p.m. local time on 146.880-repeater. All amateurs are invited to participate, and visitors are always welcome.

The Yavapai County ARES/RACES Net is held on Monday nights approximately at 7:00 p.m. local time on the 145.290- repeater on Mingus Mountain. A PL of 127.3 is required.

#### Club Repeater

The YARC 146.880- repeater is located on the hill above Willow Creek road and requires a PL of 100.0 Hz. Our deepest gratitude to Bill Kafka, W2YAV for allowing us to acquire the original club repeater.

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## Minutes of November 6, 2008 Board Meeting



Meeting was called to order at 1815 hrs by the President, KB7TRE.

Also in attendance: WB9VGJ, KF6SPS, KE7DTR, N6LSA, K6VVR, KD7VBG, & WB7RFY.

All committees to report this evening.

Elections to be conducted.

Requests for those deserving of recognition by certificate will again be requested; forward to WB9VGJ.

Tax Credit forms to be presented as for 2008; they need to be completed by December 31<sup>st</sup>.

K6VVR will chair committee to develop guidelines for honor of Life Membership in the club. KE7DTR will also serve.

Programs for 2009 are all open.

Meeting was adjourned at 1845 hrs.

Respectfully Submitted;

Jeff Hanna, WB7RFY

YARC Secretary

## Minutes of November 6, 2008 General Meeting

Meeting was called to order at 1900 hrs by the President, KB7TRE.

After the Pledge of Allegiance, introductions were made.

**Attendance:** 56 of whom 44 signed in. 2 visitors were acknowledged.

**New Members:** On motion of

WA6ZZJ, second by KE7DTR, and no dissenting votes:

KE7WOW, Christopher Riley; call pending, Joshua Carroll; KJ4HQZ, Nicholas Hammons; KE7WWR, Jessica Avitia; KE7WWS, Amy McCleney; KE7WOQ, Donald Haden; KE7WOZ, Donald Volkema; KE7WOV, Kevin McCarthy; KE7WOR, Alex Harris; KD0FLG, Stephanie Lengyel; KE7WOJ, Cody Blevins; KE7WOK, Elijah Brown; KE7WOL, Geimi DeLarge; KE7WON, Sara Eriksson; KE7WOO, Andrew Grant; KE7WOS, Muriel Hennig; & KE5WQZ, Adam Ritchie were voted into the membership.

**Minutes:** from meeting of October 2, 2008 were accepted as published.

**Treasurers Report:** with beginning balance of \$ 1515.48, ending balance of \$ 1832.15, and repeater fund balance of \$ 314.92, was approved as read..

### COMMITTEE REPORTS:

**ARES/RACES:** WA6ZZJ reports Nov. 1<sup>st</sup> exercise was SET, and group was activated on November 3<sup>rd</sup> for visit of presidential candidate McCain. KC7CBK invited membership to SKY-WARN Appreciation Day at open house in Belmont, Saturday December 6<sup>th</sup>. There will be Skywarn training in the spring.

**NEWSLETTER:** AC6AA has nothing to report

**PATCHES:** KD7VBG has both sizes available.

**SHIRTS:** W6CCD has 5 on hand

**BADGES:** KC7BOB is accepting orders on behalf of WB6ODR.

**VE REPORT:** AB7NK enthusiastically reports 3 sessions have been recently held. October 11th, 27 applicants

resulted in 20 new Technicians, 3 General upgrades and 1 Extra upgrade. On November 1<sup>st</sup>, 8 applicants resulted in 5 Technicians and 2 General upgrades. On November 6th, 1 new Technician from the K7GMG club. Thanks to the dedicated VE team members of all the sessions.

**SCHOOL GROUPS:** Report submitted by N5RO was read noting 10 current members of W7BMB at Bradshaw Mountain Middle School, and acknowledged and solicited several who have and will assist.

Contact [N5RO@arrl.net](mailto:N5RO@arrl.net) to offer your talents. KB7TRE reports active group of 7 at K7GMG, and the student who passed Technician test today took general book to study. There is a need for 'starter' radios to loan out when youth become licensed. Please consider donating working mobile rigs and power supplies, as well as HF and Ht's.

**REFRESHMENTS:** Committee thanks KI7JZ for amazing spread of treats available tonight.

**YOUNG HAMS NET:** KI6AHH looks forward to hearing new calls on the nets, and noted return of nightly roundtable on 147.22 repeater at 8:30 pm.

**PROGRAMS:** KE7DTR has wide open opportunities in 2009. December program is 'Get on the Air', geared to new hams but will be fun for all.

### OLD BUSINESS:

AFTER HOLIDAY PARTY at St. Michaels, Saturday, January 17. Reservations forms available at meetings, has been published in newsletter and forwarded via e-mail. Please respond promptly to WB7RRQ & KC7MTY at [rosevear520@cablone.net](mailto:rosevear520@cablone.net).

**NRA BIRTHDAY:** has been published in QST and American Rifleman. WB9VGJ encourages all to attend Monday, November 17 at Gunsite Academy 8:00 am to 4:00 pm. Special event station K7NRA, great operating and social opportunity. More info on website, talk-in on 147.22+.

**CERTIFICATES:** Of appreciation will be made by WB9VGJ, please contact [WB9VGJ@arrl.net](mailto:WB9VGJ@arrl.net) to suggest deserving recipients. Submit name, call, and reason prior to December meeting.

**ELECTION:** Nominating committee presents names of Bob Erdman, W7TQJ for President and Mary Vince, AB7NK for Treasurer. As call for additional nominations from the floor went unanswered, on motion of K6UWV, second by WA6ZZJ, nominations were closed. On motion of WB9VGJ, second WA6AQK, and no dissenting votes, the proposed slate was elected to office for 2009-2010 term. Board members at large currently seated agreed to remain if elected. Calls for additional nominations from the floor went unanswered. On motion of KE7UUV, second by KE7TWR, and no dissenting votes: Walter Schumann, KF6SPS; Richard Bozeat, KE7DTR; and Tom Griswold, N6LSA were elected to the Board of Directors for term 2009.

**TAX CREDITS:** When completed prior to 2009, you can designate portions of your tax responsibility for the current year to go to educational or beneficial organization of your choice. This does not increase the tax you pay, but allows you to designate how it is used. If you make a direction, but then do not owe that amount or any taxes, it does not affect what you pay or receive as refund.

KB7TRE has pre-filled forms available for industrial arts program at Granite Mountain as well as blank forms which are available from many locations. You can split the limit allowed between more than one designee. Bradshaw Mountain program should also be considered for benefit. Contact N5RO. KC8BOB noted that after \$400.00 designation you can make to public schools, an additional \$1000.00 is possible to designate to private schools such as Prescott Christian Academy, where KE7DTS teaches. There are many worthy programs and only takes minimal effort to see your money be used locally, and also is deductible on federal taxes.

**NEW COMMITTEE:** has been formed, K6VVR to chair, to consider guidelines for Life Time Membership honor offered by the club. Please contact with your ideas and suggestions.


**ANCHORS:** at rear of room include SBf-34, power meter, dummy load, converter and 'parts'. You never know what might appear on meeting night.

**50/50 RAFFLE:** \$ 81.00 was won by KW6J. Many won additional gifts to-night.

**TONIGHTS PROGRAM** is N7CW, Bud Semon on basics of Contesting.

Respectfully Submitted,  
Jeff, WB7RFY  
YARC Secretary

**Membership Count:**



1st Thurs. in Oct.....**150**  
Gain/Loss.....**+ 10**  
1st Thurs. in Nov... **160\***

*\* Includes 20 3-Month Memberships*

**To what use did Lee De Forest put the Eiffel Tower?**



*Lee De Forest with his Radio Telephone*

In 1908, De Forest set up a station at the foot of what was then, and would remain until 1930, the world's tallest building. He transmitted a musical program to New York, featuring gramophone records. What better way to publicize his belief that radio would be a whole new source of entertainment in the 20<sup>th</sup> century! The Eiffel Tower was nearly torn down in 1909, but it escaped destruction because of its antenna, which at that time was being used for radiotelegraphy.

*Radio Trivia from the American Museum of Radio and Electricity*

**ONLY IN AMERICA:**

- Only in America....do drugstores make the sick walk all the way to the back of the store to get their prescriptions while healthy people can buy cigarettes at the front.
- Only in America....do people order double cheeseburgers, large fries, and a *diet* coke.
- Only in America....do we leave cars worth thousands of dollars in the driveway and put our useless junk in the garage.
- Only in America....do we buy hot dogs in packages of ten and buns in packages of eight.
- Only in America....do we use the word "politics" to describe the process so well: "Poli" in Latin meaning "many" and "tics" meaning "bloodsucking creatures".



## Titan Missile Museum

By Dick Hughes, W6CCD

On November 15<sup>th</sup>, Vi and I traveled to Sahuarita Arizona to visit the Titan Missile Museum, which is part of the Pima Air and Space Museum in Tucson. If you have any interest in the historical aspects of the cold war, this tour is a must. At one time there were 54 Titan missile sites in Arizona, New Mexico and Kansas. Eighteen in each. All have been destroyed as part of the disarmament treaties, except for this one. The site is still owned by the Air Force, but it is run by volunteers. Many of them actually worked at the site. The beauty of this exhibit is that it is still in great condition, unlike many museum displays. The electronics in the control room still work, and you go through a simulated vehicle launch complete with all the lights, horns, etc.

The tour we took was called, "Beyond The Blastdoor." It is available only on the 1<sup>st</sup> and 3<sup>rd</sup> Saturdays of the month. That is the one I recommend, as you get to see most everything, including the crew quarters, and be able to stand under that 110-foot tall missile. The downside is that it is not handicap accessible, and requires that you negotiate stairs with 55 steps. We were extremely fortunate in that the tour we took (first one of the day) had only five people, and we had five tour guides, including the retired Air Force Colonel who is the founder of the museum. At least two of the other four were former crew members. The two tours following us had about 24 people. Because there were only five of us, we were able to ride up the elevator with the Colonel when we were through. We couldn't believe our luck. Larger tours have to walk up the 55 steps.

One of the most fascinating things for me was the fact that everything is built on springs, except for the missile. Even wire cables had their own springs. The reason for this was that the Titan was a retaliatory system, and not a first-strike system. That meant that it had to be able to withstand a nuclear attack, and still be operational. Another really interesting thing was that every area in the site, except for the crew quarters was posted as, "No Lone" which meant that you always had to have someone with you no matter what you were doing. For example, if a crew member needed to go behind a cabinet to check something, someone had to be with that crew member. No one could do anything by themselves for security reasons.

As the last Titan site in existence, even this one had to be permanently disabled. This meant that large, concrete blocks had to be installed to prevent the 760 ton closure door from being opened all the way for a missile launch. The blocks also had to be visible by satellite to verify that the silo was not capable of being used. It is our good fortune that our former enemies allowed this silo to remain as a museum so long as it couldn't be used again.

There is a real gem for amateur radio operators. This site has an 80-foot tall HF discone antenna that was designed and installed by the Collins Radio Company in July 1963. This antenna covers 6 through 30 megahertz continuously, and can be used by any licensed ham. All you have to do is log in at the visitor center, then drive out to the antenna, pull out the RG-58 coax, and start making contacts. Someday I hope to do that with my portable station. There has been no maintenance on the antenna since the site was deactivated, so it can be a little noisy on windy days. It is truly an impressive antenna. Don't miss seeing this important segment of our past. It is truly amazing. ■

73, Dick – W6CCD

## December Program

December's Program will be a quick-paced primer on "How to get on the air". The Program is geared for new licensees, but should be fun for all.

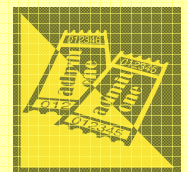
Eight to ten micro-programs will be presented, each 3 - 5 minutes in length. Topics include such items as coat-hanger antennas; portable in a can; paper chasing; using IRLP and introduction to AM.

Members are encouraged to bring their HTs to the meeting, to offer newcomers (and the rest) an opportunity to see what is current and what still works.

Relive the excitement of first getting on the air, and be reminded of the options available beyond "buying new".

## Upcoming Events

- **December 4, 2008** - YARC Meeting
- **January 17, 2009** - After Holiday Party at St. Michael's Hotel.



# Treasurer's Financial Reporting Sheet

Club / Group Name: YARC  
Reporting Date: NOV '08

Patti Halgunsth, KD7VBG  
Treasurer



Members Name	Dues Paid	Repeater Fund	Donations	Prize Money Paid Out	Net Cash In per Member
Ricky Beswick/R=KE7PIX	\$18.00	\$2.00			\$20.00
Jo Keener/R=KE7NSB	\$18.00	\$2.00			\$20.00
John Broughton/R=WB9VGJ	\$18.00	\$2.00			\$20.00
Szczepan Bartold/R=KD7HCS	\$18.00	\$2.00			\$20.00
Donald Haden/ARRL	\$39.00				\$39.00
Robert Evans		\$5.00			\$5.00
John Bednarik		\$1.00			\$1.00
6-Patches			\$18.00		\$18.00
VVARA=Field Day/Fair Booth 50/50			\$115.18		\$115.18
			\$162.00		\$162.00
Brian Stapleton/KW6J				\$81.00	(\$81.00)
					\$0.00
					\$0.00
					\$0.00
					\$0.00
<b>Total:</b>	<b>\$111.00</b>	<b>\$14.00</b>	<b>\$295.18</b>	<b>\$81.00</b>	<b>\$339.18</b>

Miscellaneous Club Expenses	Cash Out	Check Number
ARRL=Donald Hagen/N	\$24.00	1044
David Passell=Refreshments	\$16.12	1045
Jeff Hanna=Postage/Office	\$61.63	1046
Hotel St. Michael=Deposit	\$500.00	1047
Allegra=Newsletter	\$30.18	1048
Repeater Fund	\$14.00	Cash

Club Funds Summary	Totals
Starting Balance	\$1,832.15
Net Expenses	\$645.93
Net Income	\$339.18
	\$1,525.40

Total: \$645.93

Repeater Fund: \$328.92

Cash Flow: (\$306.75)





By Lloyd, WA6ZZJ

## ARES/RACES.....

### Activities Quieting Down

**T**he last training meeting of 2008 has been held and the Special Communications events have wound down. Pending any unforeseen emergency communications events we can settle down a little and enjoy the upcoming holiday season. We don't, however; want to drop our guard completely as an emergency can occur at any time.

Areas of Southern California have been going through disastrous wildfire events with many homes being lost and thousands of people being evacuated from their homes ahead of the fires.

The Prescott area had a wildfire scare just a couple of weeks ago, but due to the actions of our local fire fighting agencies a disaster was avoided.

Now is a good time to check your equipment. Get out the manuals on your radios and refresh your memory with the functions you will be using most on them. Ask yourself some questions. How long have I been using this rechargeable battery? What is the life expectancy of it? Do I have a spare or an alkaline pack if needed? Are there any items in my 'go-kit' that need to be updated? Is my equipment marked with my identification? And the list could go on.

## SPECIAL EVENT COMMUNICATIONS.....

### Special Events

'Special event' is a term coined by radio ama-

teurs that refers to activities where the public is in attendance as observers and/or participants. They include sporting events such as marathons, bike-a-thons and fundraisers such as walk-a-thons; celebrations such as parades; and exhibits at fairs and malls. These are all affairs of a preplanned, non-emergency nature.

Special events are normally held for the enjoyment of the public and often draw large crowds. They provide golden public relations opportunities for radio amateurs who provide support communications on a complimentary basis. They make our activities visible to non-amateurs. They sharpen our operating skills, and help justify our existence. And besides, operating special events is just plain fun!

### Prior to the Event

Special events don't just happen. They are well planned in advance. Event organizers look to Amateur Radio to provide a well coordinated and planned communications system to make their event a success. Special events are preplanned and non-emergency in nature. The important word here is *preplanned*. As the event is preplanned so must our communications effort be.

The first step is to volunteer. Event communications coordinators do not have mind reader in their job description. If they don't know you are coming, they cannot effectively plan the communications event. In some cases, Amateur Radio participation in a special event has been cancelled due to lack of volunteers. Your help is always needed! Listen for special event announcements on the air, on nets, at club meetings, etc. Once you plan to help out with an event, the event communications coordinators will let you know the particulars of the event. Take notes when they are giving them. Be sure and understand when to show up and with what equipment. Be sure to let the event communications coordinator know if you are not able to stay for the whole event, he or she can usually accommodate your needs if they know in advance. It's understood that last minute emergencies arise, but try

to let the event communications coordinator know if you are not going to be able to make it for any reason as soon as possible prior to the event. Try not to tell the organizer “I’ll try to make it”, or “I’ll probably be there”. If possible, give a firm commitment. Event communications coordinators usually don’t count ‘maybe’s’ in their planning. Try to know as much about the event in advance as you can.

Next, treat every special event as emergency communications training. Have the equipment with you that you might use in an emergency. Bring any equipment recommended by the event communications coordinator. They usually know what equipment is going to be needed for an event. Don’t be afraid to let the event communications coordinator know what equipment you are lacking. Again, they can usually plan for any equipment shortfalls.

Now, make sure your equipment is in good working order. Never assume (and we all know what *assume* means) that your equipment is working. Be sure to check it out operationally *before* the event. There is nothing more frustrating than to show up at a special event with a handheld and a spare battery pack and find that both the battery on the handheld and the spare are nearly discharged. A good suggestion is to have not only spare nicad battery pack(s) but also an alkaline battery shell for your handheld. If your nicad packs fail, you can, in a pinch, run down to the local ‘mom and pop store’ and get some alkaline cells. Check out whatever equipment you are going to bring *before* the event to avoid frustration at the event.

Speaking of equipment, *be certain you know how your equipment operates!* Modern Amateur equipment is certainly not ‘plug and play’. Always assume that you may have to reprogram your equipment just before the event. If you’re not *absolutely* sure you know your equipment ‘inside out’, be sure to bring a copy of the operations

manual with you (notice, I said a *copy*. It’s not a good idea to bring the original.). Never *assume* there is going to be someone at the event to help you (that knows your equipment better than you do).

Last, but certainly not least, watch the weather forecast in the days just prior to the event. Most special events go off ‘rain or shine’. Be sure to have the appropriate clothing for the event. No need to be uncomfortable when you can plan in advance. ■

Next Month “Operating in an Event”

### Some license plate frames could soon be illegal

A state law that was changed in 2006 to regulate license plates goes into effect Jan. 1, 2009.

The law says that the word Arizona at the top of the plate must not be obscured.

That’s bad news for drivers who have special license plate frames because many of them do block the word Arizona.

Once the law kicks in, officers will be able to pull you over and give you a ticket.

**License Plate Holder Law** - *State law\* requires that the state name at the top of Arizona license plates must be visible. Any license plate holder or cover that prevents the license plate from being clearly legible, is in violation of this new law.*

\* A.R.S. 28-2354(B.)

#### YARC Officers for 2008

**President**

Terry Pemberton, KB7TRE  
kb7tre@cableone.net

**Vice President**

Pete Morrison, K6VVR  
pm\_service@earthlink.net

**Secretary**

Jeff Hanna, WB7RFY  
jeff668@commspeed.net

**Treasurer**

Patti Halgunseth, KD7VBG  
kd7vbg@cableone.net

**Board of Directors (includes Club Officers)**

John Broughton – WB9VGJ

Tom Griswold -- N6LSA

Richard Bozeat – KE7DTR

Walter Schumann – KF6SPS

**Newsletter Editor:** Joe Oliver, AC6AA

# K7NRA Special Event 2008

By John Broughton, WB9VGJ

The K7NRA special event operation from Gunsite Academy in Paulden was held on Monday, Nov. 17<sup>th</sup>. The special event was to celebrate the National Rifle Association's 137<sup>th</sup> birthday. Mike Campbell, K7NRA, generously allowed us to use his call sign for this event.

The event didn't get started at the announced 8:00 a.m. time. Buz Mills, K7GST, the owner of Gunsite who lets us use the radio shack in his barn, discovered the day before the event that his antenna coupler was not working. He uses a long wire between two towers as an antenna. He had notified Terry, KB7TRE, about the problem, so Terry brought his climbing belt. With the help of Neil, KA7JAS, Mary, AB7NK, and others, Terry climbed the tower to install the dipole that Buz provided. Once the dipole was set up, Neil checked out the SWR and it turned out that the antenna tuner Terry brought was not necessary.



Terry, KB7TRE on Tower



John, WB9VGJ Operating the Station

Mike, K7NRA, started off the operation. Various individuals operated throughout the day. At times, the band conditions were not optimal on 20M. We also had a 2 meter station set up and used the VVARA repeater. Thanks to the Verde Valley Amateur Radio Association for allowing us to use the repeater. In total, we had 59 contacts on HF and 21 on 2 meters. The HF contacts included a VE7 station aeronautical mobile in Alaska and a KY6 station maritime mobile in Mexico.

An added bonus was a tour of Gunsite, including several of its ranges, given by Jane Anne, Gunsite Marketing Director. There was a group of Marines there for training and we got a chance to chat with several of them when we visited the Pro Shop and other facilities at site during their lunch hour.

With the excellent weather, it was a most enjoyable day. I'd like to thank Buz and Jane Anne for their generosity and hospitality, Mike, K7NRA, for the use of his call sign and all the folks who came up and participated.

You can see pictures I took of the event at:

<http://good-times.webshots.com/album/568750054DIJefb>

73, John, WB9VGJ

# VE Tidbits



by Mary Vince – AB7NK

**A**nother testing year has come to a close. Unless multiple requests are received for us to hold a special testing, our work is finished for 2008.

Thanks to Jack, W7JLC and his group of VI's for all their work throughout the year. Their effort and dedication has been an asset to ham radio. I still think Jack brain washes those who attend – the numbers speak for themselves.

We've had 89 applicants in 2008 – 69 now hold a technician license, 42 were able to upgrade to general and 16 to extra. Congratulations to everyone for all their dedication, hours of studying and sleepless nights.

Five of the 69 technicians are from KB7TRE's ham radio club. A special congratulations to each and every one of them! Juggling school work, after school activities, chores and studying for their ham radio license shows true dedication and commitment.

Thanks to all the VE's for so generously giving up their time to make the test sessions run so smoothly. I always know when I do the final paperwork that I'm not going to have to chase down VE's and applicants to have paperwork resigned.

Please note: **Beginning January 2009, the fee to take an ARRL VE administered ham radio exam will be \$15.00.** This is the first increase in 4 years. For the VE team, this will make life a bit easier as we (me) won't have to be concerned if there's enough \$1's in the cash box.

The ARRL – VEC department has been by far the greatest to deal with this past year. It takes approximately 4 days from the time I mail the test results to when the call signs are posted on the FCC website. In a few cases it was

2 days. If I didn't have proof, I wouldn't believe it.

Lastly, thanks to the club for all their support this past year. Our goal for 2009 is to surpass the number of hams licensed and/or upgraded in 2008.

May you all have a Merry and Blessed Christmas and a Healthy, Prosperous and Happy New Year. ■

## Major discovery from MIT



In a revolutionary leap that could transform solar power from a marginal, boutique alternative into a mainstream energy source, MIT researchers have overcome a major barrier to large-scale solar power: storing energy for use when the sun doesn't shine.

Daniel G. Nocera, the Henry Dreyfus Professor of Energy at MIT, has developed a simple method to split water molecules and produce oxygen gas, a discovery that paves the way for large-scale use of solar power.

MIT researchers have developed a new catalyst, consisting of cobalt metal, phosphate and an electrode. When the catalyst is placed in water and electricity runs through the electrode, oxygen gas is produced. When another catalyst is used to produce hydrogen gas, the oxygen and hydrogen can be combined inside a fuel cell, creating carbon-free electricity to power a house or an electric car, day or night.

With Daniel Nocera's and Matthew Kanan's new catalyst, homeowners could use their solar panels during the day to power their home, while also using the energy to split water into hydrogen and oxygen for storage. At night, the stored hydrogen and oxygen could be recombined using a fuel cell to generate power while the solar panels are inactive.

Electricity-by-wire from a central source could be a thing of the past. ■

For additional information refer to:

<http://tinyurl.com/5uu53h>

# Wartime Wireless

*Reprinted with permission from Bob Tarsio, N2CBH*

Ham radio during World War II is an interesting subject. It is interesting in that during the war there were virtually no authorized ham radio transmissions in the U.S.! Imagine that for a period of three years you could not operate your rig. This and other interesting facts are what I decided to write about for this month's edition of the *PCARA Update*.

In 1939 there were a mere 51,000 licensed amateurs in the U.S. War broke out in Europe on September 1<sup>st</sup>, 1939 with the German invasion of Poland. This action immediately changed the amateur radio landscape. Nearly half of the then DXCC nations went off the air as a result of this action. This included Canada and the United Kingdom. U.S. amateurs adhered to a code of neutrality. This code was developed by none other than the ARRL. This was a voluntary code which was practiced by nearly the entire American amateur population.

More stringent operating restrictions would follow in the following year of 1940. A ban on communication with hams outside of the U.S. was instituted along with a prohibition against portable operation below 6 meters except for Field Day operations. No doubt this was done to reduce the possibility of clandestine communications.

One has to remember that portable communications nearly 70 years ago was no small feat. There were few designs that didn't require A.C. mains to operate, which made portable operation difficult. Ironically World War II would produce some ingenious designs for battery operated sets for both receiving and transmitting.

There were some operations sanctioned by the government at the behest of the ARRL that allowed some portable and mobile operations for the purposes of training, which would become extremely valuable to the military in a short time.

The role of amateur radio operators during hostilities that involved America was important and at times resembled that of the role of any other branch of the government. For example, the F.C.C. looked to the amateur radio community for volunteer listening post operators. Within a short time the quota for 500 volunteers was filled by U.S. amateurs. Many other opera-

tors were called to active duty. In fact nearly half of licensed amateurs were in uniform before the end of the war. The other half remained at home as listeners, training volunteers and members of the WERS service which I will talk about in a short while.

There were other signs that things were going to get worse for the amateur, including the growing shortage of parts and vacuum tubes. Hams were asked to donate critically needed components for the war effort and they emptied their junk drawers and donated many needed items. Before the end of the war there were no vacuum tubes or electrical parts available for sale to the public. Most daily staples were rationed or simply not available. No running down to Home Depot on a Sunday back then!

By 1941 hams were limited to communications amongst themselves in the U.S. from fixed stations. The military decided that it needed the 80 meter band and so hams lost 80 meters temporarily. As a consolation the F.C.C. granted U.S. amateurs phone privileges on 40 meters for the first time. Previous to World War II hams had only CW privileges on this band.

To quote President Franklin Roosevelt: 'December 7<sup>th</sup>, 1941—a date that will live in infamy', was when the U.S. was attacked by Japan at Pearl Harbor, Hawaii and it was also the date that all U.S. radio amateurs were ordered to observe radio silence. The ban on transmission would last for the duration of the war, which ended in 1945. A notable exception to the ban was the transmissions of the ARRL station W1AW.

Another activity that continued during the war was that of licensing. It was assumed that the war would end, hopefully sooner than later and the ban would be lifted allowing these newly licensed operators to get on the air for the first time. The licensing effort served another important function. It helped train countless men and women who would go into the armed services and would require communications skills. Still others would need electronics training and they got it from studying for an amateur license.

The War Emergency Radio Service was created in June of 1942 at the urging of the ARRL. WERS was developed to create an emergency communication service to aid during air raid drills and protection. While not an amateur service, it was manned mostly by amateur radio operators. The service operated on VHF in the 2½ meter band, which at that time was allocated to

*See Wartime Wireless, Page 11*

● **Wartime Wireless** *(Continued from Page 10)*

the amateur radio service. Later on it would be part of the spectrum that is now occupied by aircraft communications. This band would provide good point to point communication — while it would not be useful to anyone trying to communicate outside the U.S.



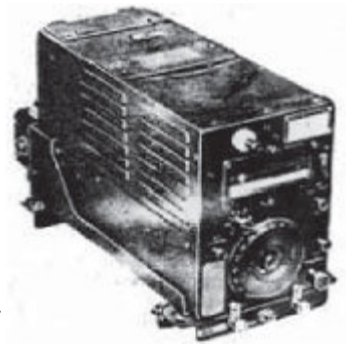
*A War Emergency Radio Service transmitter-receiver keeps this air raid warden post in direct communication with the community Civilian Defense Control center. The set was constructed out of old home receivers by civilian radio volunteers. [Library of Congress picture.]*

One privilege that Hams did have during the radio silence period was that of carrier current operation. Instead of using a conventional antenna system such as a dipole or wire antenna, carrier current uses the electrical A.C. mains in place of an antenna. By use of a specially made coupler it is possible to inject R.F. onto an A.C. mains line and have some propagation. Power was limited and R.F. doesn't travel past an A.C. transformer so communication was generally limited to a few blocks. You might be able to communicate with a neighbor, but that was about it. Carrier current is still used today for limited broadcasting mostly on college campuses using the AM broadcast band. I know of at least one amateur who tried this mode of operation during the war who reported poor results -- as in no contacts at all!

Thankfully the war ended in 1945 with the surrender of the Japanese in August of that year. Before long amateur radio was back on the air in a very different world. After VJ day, amateurs were allowed privi-

leges on the 2½ meter band to be shared with WERS service, which ended by November 15<sup>th</sup> 1945. By then amateurs were back on H.F. and things began to settle back to normal.

The post war period would begin with large amounts of surplus gear to be modified and used by post war hams.



**ARC-5 transmitter**



**BC-348 receiver**

ARC-5 transmitters and BC-348 receivers are just two examples of radios that would be owned by many hams for years to come. I in fact own an ARC-5 transmitter and a BC-312 receiver from that era. Even at today's hamfests you can still see

remnants of war production for sale or on display.

Other products that came in to being during the war included miniature all-glass tubes of the seven-pin variety. Examples of these tubes include the 12AU6. Nine pin glass tubes such as the 12AX7 followed.



**7-pin all-glass vacuum tube (6AU6)**

The germanium detector diode is another product of the industrial war effort. Modern plastics would replace brittle bakelite in electronic cabinets and some parts were also war developments.



**1N34A germanium diode**

Most hams alive today that lived through the World War II era will probably say that the amateur radio hobby suffered little inconvenience compared to the millions of citizens and soldiers who lived and died during World War II. It makes you want to be very thankful for the sacrifices of those who gave their lives and suffered under terrible circumstances. The next time you flip on your rig to enjoy this hobby today, take a few minutes to remember those who sacrificed so many years ago so that you could speak freely to anyone within the reach of your shack. ■

-- 73, Bob N2CBH

## Weekly Breakfasts



### Tues. Morning Breakfast:

7:00 a.m. at

**Back Burner Cafe**

8400 E. Long Mesa Drive  
& N. Robert Road  
Informal – all are invited.

### Wed. Morning Breakfasts:

7:00 a.m. at

**Iron Horse Restaurant**

(Hwy 89 in Chino Valley)  
(N 34°43'56.5" W112°27'15.4")\*  
informal – all are invited

8:00 a.m.

**Masonic Lodge**

(1280 Willow Creek Road,  
2<sup>nd</sup> Floor; above Bank of America)  
informal – all are invited

\* Location data (per WGS84) provided  
by Fred Zimmermann, N7PJN

## Area Repeaters

Frequency	PL	Location	Owner/Club	Auto-Patch	Rem. BaseOr Linked	Vo IP	Notes:
52.560-	100.0	Mt. Union	N7NGM			Echo	-500KHz Offset
53.040-	None	Prescott Airport	WB7BYV				-1MHz Offset
145.290-	127.3	Mingus Mtn.	ARES/RACES				
146.780-	91.5	Williams Mtn.	BWARC			IRLP	
146.880-	100.0	Prescott	YARC				
146.980-	162.2	Flagstaff	CARC				
147.000+	162.2	Mingus Mtn	MMRG				
147.040+	100.0	Prescott Heights	W2YAV				
147.140+	162.2	Flagstaff/-Mt. Elden	ARA		Linked to Mt. Ord 147.360-		
147.220+	162.2	Mingus Mtn	VVARA				
147.260+	103.5	Mt. Union	ARES/RACES				
224.080-	156.7	Mt. Union	WA7JC				
442.150+	100.0	Mingus Mtn	W1OQ/Northlink				
442.350+	100.0	Glassford Hill	N7KPU			IRLP	
445.300-	100.0	Prescott	WINSYSTEM		Node 3727	IRLP	
448.475-	100.0	Flagstaff-Elden	ARA	Yes			
448.500-	100.0	Prescott	K6JSI				
448.875-	100.0	Flagstaff-Elden	Northlink		Linked		
449.175-	100.0	Towers Mountain	Northlink		Linked		
449.675-	88.50	Prescott Airport	WB7BYV		Linked to P Mtn. 927.3875		
927.3875-	151.4	Prescott	WB7BYV	Yes	Yes	Echo	Be Nice

**Y.A.R.C. IRLP NODE**  
Node Number 3182  
442.350+ MHz with a  
PL Tone of 100.0 Hz

For more Repeater Information & Listings refer to:

- [www.w7ara.org/Web/](http://www.w7ara.org/Web/)
- [www.azrepeaters.net](http://www.azrepeaters.net)
- [www.azfreqcoord.org/listings.htm](http://www.azfreqcoord.org/listings.htm)

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Many thanks to Bob Smith, WB6ODR, our Webmaster

