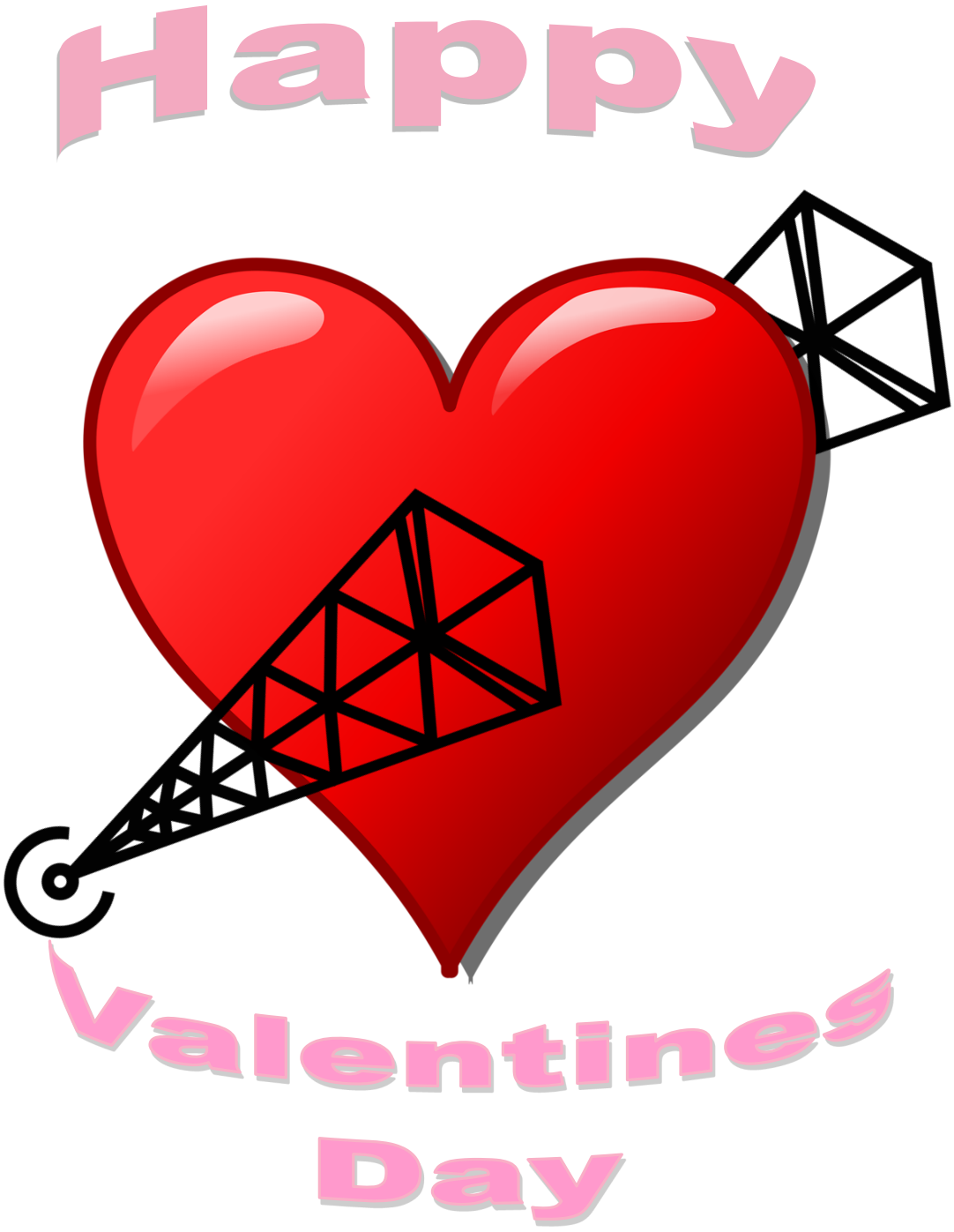
SCOPE

Palomar Amateur Radio Club February 2017

Inside this issue:



It Appears By Spears

The New Year brings a new editor, layout and one very bad pun to the Scope. I am Keith Spears your new Scope Editor.

I want to start by thanking Michelle, W5NYV for her eleven years as Scope Editor. She published an outstanding newsletter and will be a hard act to follow. The title of my article is a tribute to my grandfather George Spears, who was an Arizona newspaper editor who used it for his columns during WWII.

As always, your contributions are what make the Scope interesting. If you have a project, new equipment, event, radio history or something just fun you think would be of interest to the membership, please submit it. If you have any other suggestions please let me know.

73 de KM6CXW
Keith Spears, Editor

President's Corner

"Reminder to exercise caution when using your mobile radio while driving!"

Hello everybody and thanks for joining us in this month's edition of the Scope! As you may have noticed, we have a new look! This is thanks to our new Scope Editor, Keith KM6CXW, so let's all give him a warm welcome and thanks for stepping up! Related to media and communications, we have a new webmaster, Guido NO6I, who is working with Paul KB5MU, and me to get the website moved over to the new hosting provider. Stay tuned for more on that in the weeks to come. Reminder to exercise caution when using your mobile radio while driving! With the new law that went into effect on January 1st they have effectively made our hobby illegal the way most people use it in their vehicles! The best option I've heard is to have a boom mic (or ear-bud with in-line mic) and either use VOX or a PTT switch that is activated by your foot/knee/etc, anything but using your hands to operate the radio. We had a great short announcement from Peter Singer W2PWS at the start of the last club meeting and he written an article on that can be found on Page 28. Polo shirts! We discussed at a previous club meeting the possibility of ordering some t-shirts, work shirts, or polo shirts and it seems the masses would prefer polo (with pocket!). I'm working on getting a proof shirt and should have something to show at the February meeting, along with pricing, so stay tuned for more info on that exciting way to show your involvement in the club!

Thanks again for tuning in, see you on the airwaves!

73 de K6JPE
Joseph Peterson

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
Secretary	Sandy Pratt, KK6EED	(858)748-2611
Director 1	Kevin Walsh, KK6FRK	(858) 722-5069 (Text Welcome)
Director 2	John Walker	(949) 212-5533
Membership Chair	Glen Christensen, AI6RR	(858) 735-1144
Repeater Technical Chair	Mark Raptis, KF6WTN	
Scope Editor	Keith Spears, KM6CXW	(858) 472-8442 Text Welcome

Not on Board

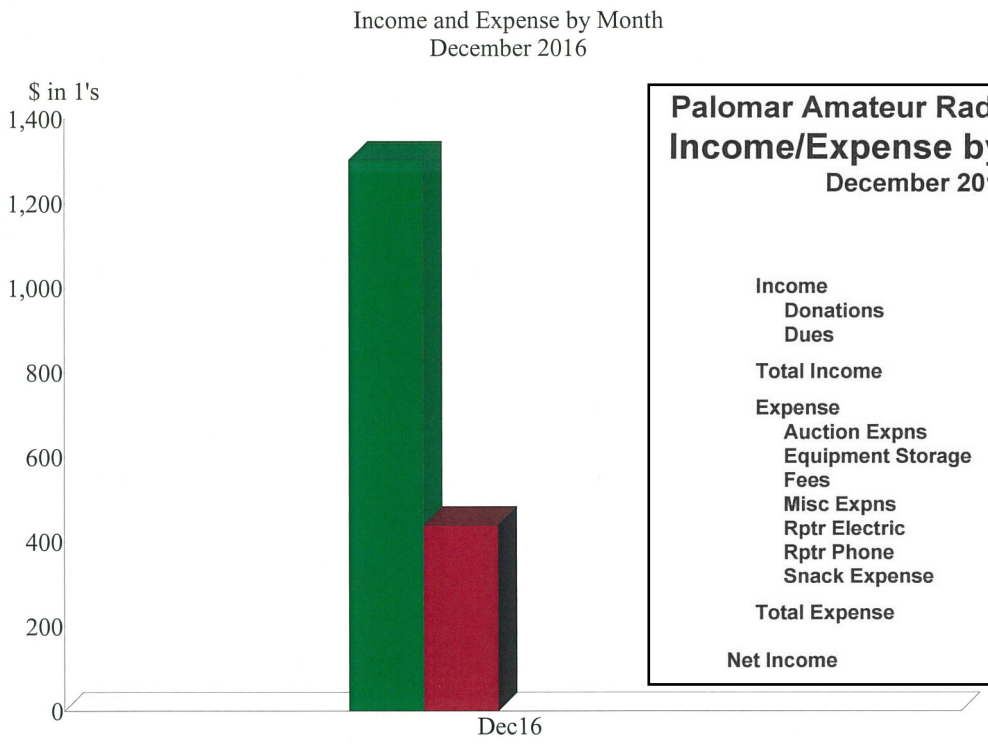
Repeater Site Chair	Mark Raptis, KF6WTN	(Acting)

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

FEBRUARY PROGRAM

Come join us at our February 1st Meeting where Mark Raptis, KF6WTN will be discussing the Samsung Galaxy phones and the possible reason they were catching fire. The meeting starts at 7:30, come early at 7:00 to socialize. The meeting is at the Carlsbad Safety Center.

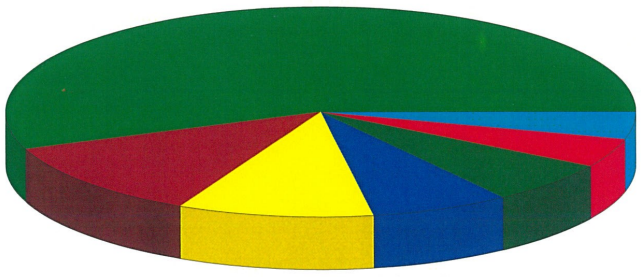


Palomar Amateur Radio Club, Inc.
Income/Expense by Category
December 2016

	Dec 16
Income	
Donations	900.00
Dues	403.00
Total Income	1,303.00
Expense	
Auction Expns	44.10
Equipment Storage	245.00
Fees	16.00
Misc Expns	20.00
Rptr Electric	52.97
Rptr Phone	32.01
Snack Expense	29.08
Total Expense	439.16
Net Income	**863.84**

Expense Summary
December 2016

Equipment Storage	$ 245.00
Rptr Electric	52.97
Auction Expns	44.10
Rptr Phone	32.01
Snack Expense	29.08
Misc Expns	20.00
Fees	16.00
Total	$ 439.16



By Account

Morse Code or Vail Code? by Urb LeJeune W1UL

Samuel Morse, in conjunction with Joseph Henry and Alfred Vail (pictured on the right, invented a telegraph system, before the invention of telephones. Their system was capable of sending messages over long distances using pulses sent to a machine which, in turn, made marks on a moving paper tape.

It is irrefutable that Samuel Morse invented a code based on dots and dashes which subsequently became dits and dahs to more closely resemble the actual sound of transmitted code. However, Morse's code is not what we use today on the ham bands.

Joseph Henry

Henry was a scientist who served as the first Secretary of the Smithsonian Institution and he was highly regarded during his lifetime. While building electromagnets, Henry discovered the phenomenon of self-inductance. He also discovered mutual inductance. Henry developed the electromagnet into a practical device. He invented a precursor to the electric doorbell that could be rung at a distance via an electric wire and the electric relay. The unit of inductance is the henry, named in his honor. Henry's work on the electromagnetic relay was the basis of the practical electrical telegraph, invented by Samuel Morse and Sir Charles Wheatstone, separately.

Albert Vail

Alfred Lewis Vail was an American machinist and inventor. Along with Samuel Morse, Vail was central in developing and commercializing American telegraphy bet ween 1837 and 1844. Vail and Morse were the first two telegraph operators on Morse's first experimental line between Washington, DC, and Baltimore. Additionally, Vail took charge of building and managing several early telegraph lines between 1845 and 1848. He was also responsible for several technical innovations of Morse's system, particularly the sending key, an improved recording registers and relay magnets. Vail also created the modified Morse's concept of code which is virtually unchanged with the code we know and love to this day.

The Controversy

Morse's concept of a code for use on his telegraph system required a three part process. A message first required that the individual words be converted to a series of numbers contained in a codebook. The sending operating send the numeric sequences corresponding to the original message. The receiving operator first copied the numeric codes and then converted them into plain English words from the codebook the transmitting operator used. Vail composed a code system virtually the same as we use today. He demonstrated the code to Morse. At a press conference, later that day Morse dubbed Vail's code "Morse Code." Unfortunately, Vail was a shy and retiring person and never claimed the code he developed.

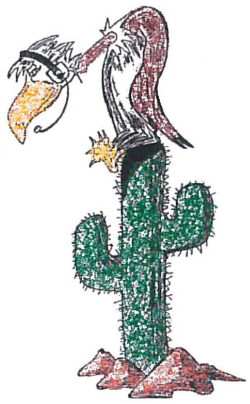
"However, Morse's code is not what we use today on the ham bands"

2017 Arizona Section Convention

Yuma Hamfest

Yuma, Arizona

Feb. 17 & 18, 2017



Yuma County Fairgrounds
2520 East 32nd Street, Yuma, Arizona

www.yumahamfest.org

Check the Website for Additional Information

Gates Open for Camping Thursday, 2 pm Vendor Setup Friday, 7 am - Noon	Event Hours Friday, Noon - 5 pm Saturday, 8 am - 5 pm	Hamfest Dinner & Grand Prize Drawing Saturday Night 6:00 - 8:00 pm

Vendors & Exhibitors
Consignment Sales
License Testing
Hourly Door Prizes
On-site RV Camping
Hamfest Dinner
ARRL Speaker
Transmitter Hunt
$5.00 Admission

Tailgating (Swap Meet)
Full Seminar Schedule
DXCC Card Checking
Incredible Grand Prizes
Emergency Preparedness
Admission Prize
Hospitality Area
Near Space Balloon Launch
Antenna Clinic

Hamfest Talk-In Frequency: 146.780 (–) PL 103.5 Hz

Email Contact: ***info@yumahamfest.org***

We are proud to have the Amateur Radio Council of Arizona (ARCA) as a sponsor of our event.

The Yuma Hamfest is an American Radio Relay League (ARRL) sanctioned event.

Presented by the Yuma Amateur Radio Hamfest Organization

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:

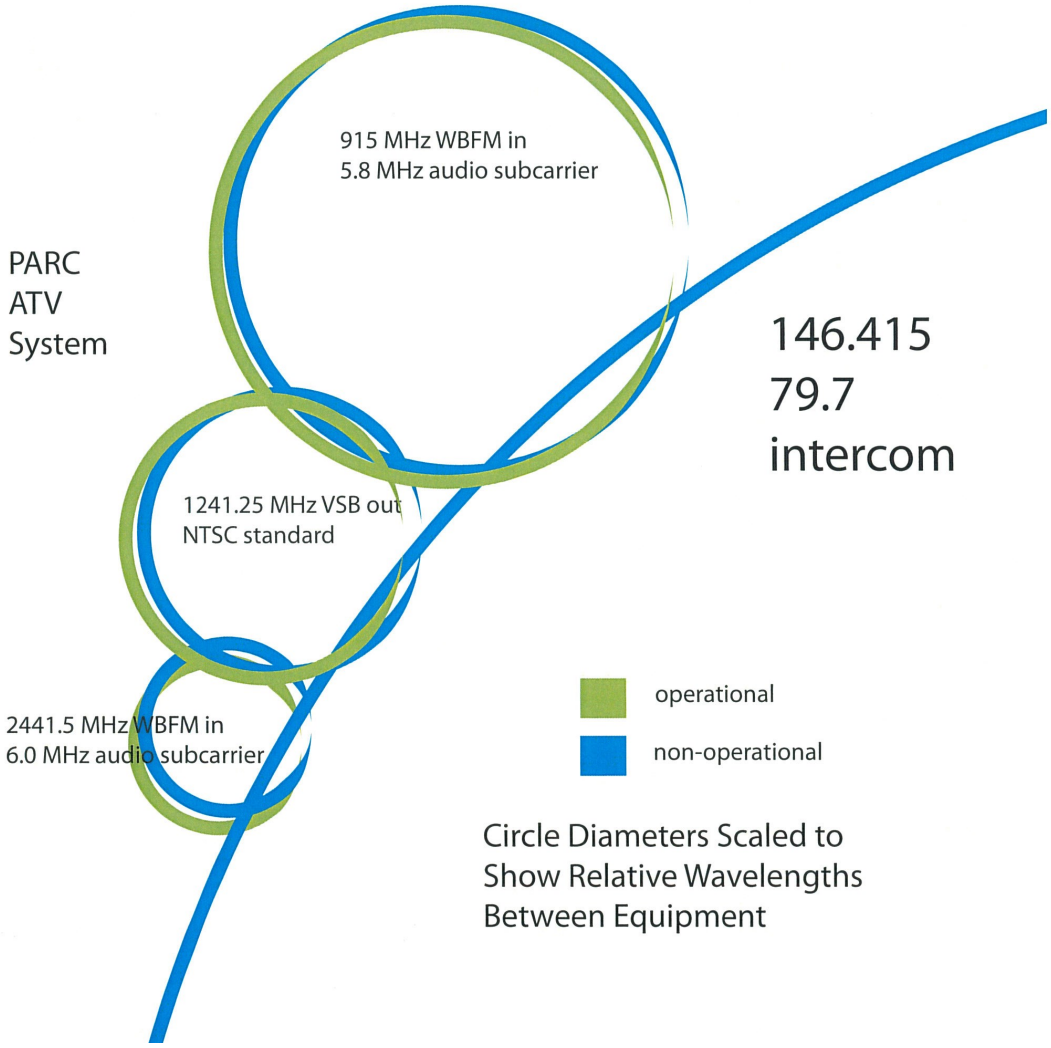
- We've added a day!
- Onsite Registration begins on Thursday afternoon, April 20, 2017 at 3:00 PM local time
- Convention is now a full 2.5 Days: Friday (April 21); Saturday (April 22); 1/2 day Sunday (April 23)
- 15-20 DX & Technical Seminars now on both Friday & Saturday
- Excellent Keynote Speakers
- 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!

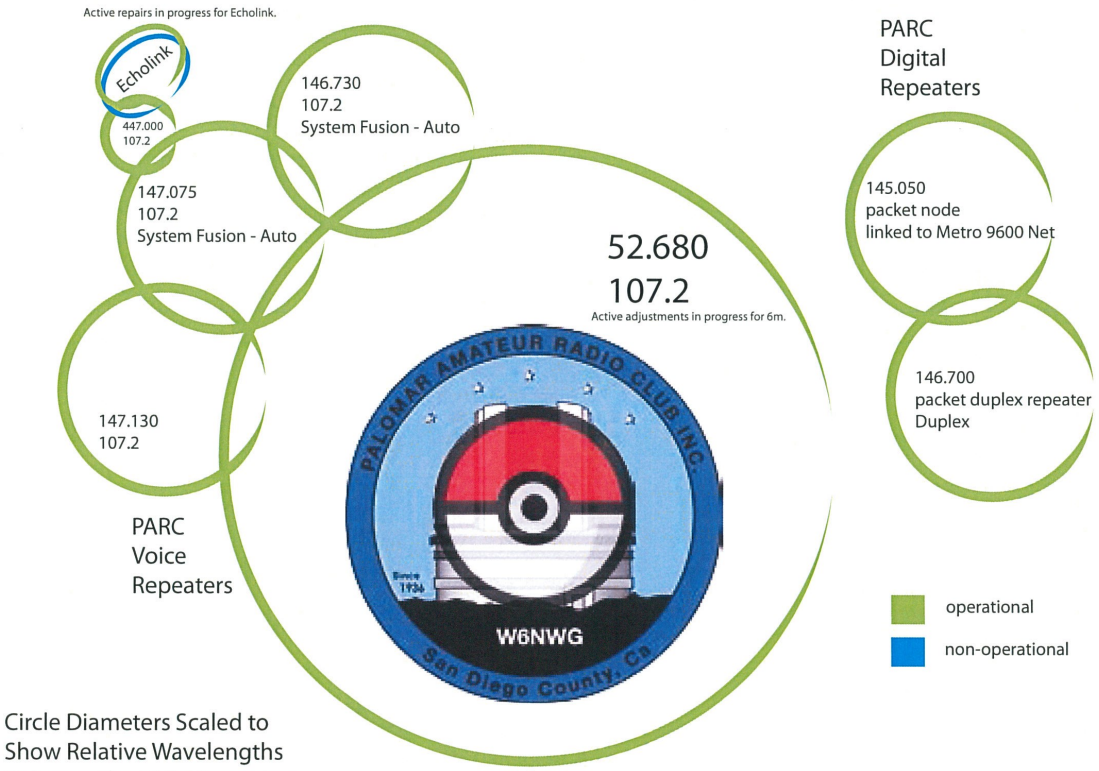
73,

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

Reported ATV Status



Reported Repeater Status



Circle Diameters Scaled to
Show Relative Wavelengths
Between the PARC Repeaters

Not Just Another Pretty Face by Urb LeJeune, W1UL

"Lamarr and composer George Antheil developed a radio guidance system for Allied torpedoes, which used spread spectrum & frequency hopping"

Hedy Lamarr was an Austrian and American film actress and inventor. After an early and brief film career in Germany that included the controversial 1933 film Ecstasy in which she is seen swimming in the nude and running naked, she fled from her husband, a wealthy Austrian ammunition manufacturer, and secretly moved to Paris. While in Paris she met MGM head Louis B. Mayer who offered her a movie contract in Hollywood, where she became a film star from the late 1930s to the 1950s .

Lamarr appeared in numerous popular feature films, including Algiers (1938), I Take this Woman), Comrade X (1940), Come Live With Me (1941), H.M. Pulham, Esq (1941), and Samson and Delilah (1949).

The spread spectrum patent issued in her maiden name Hedy Kiesler.

At the beginning of World War II, Lamarr and composer George Antheil developed a radio guidance system for Allied torpedoes, which used spread spectrum and frequency hopping technology to defeat the threat of jamming by the Axis powers. Although the US Navy did not adopt the technology until the 1960s, the principles of their work are now incorporated into modern Wi-Fi, CDMA, Bluetooth and Cell Phone technology. This work led to their induction into the National Inventors Hall of Fame in 2014. The Patent award is shown right. It's interesting to note that the US Navy took over the patent in the early part of WWII but never used it until the Cuban Missile Crisis in 1962. The US Navy never returned the patent rights to the inventors and as a result, they never made a nickel on their inventions.

Tribute to Ted Storke by Mike Fahmie, WA6ZTY

I just learned of Ted's passing while scanning the Silent Keys listings in QST. I suppose I am a root cause for Ted's entry into Amateur Radio. I met Ted at Pearl Harbor in 1967, we were both 'VIP Drivers' in the Commander-in-Chief of the Pacific Fleets motor pool. We were assigned to chauffeur the VIP guests of 'CINPAC' and 'CINPACFLT' during their stays on Oahu. Not only military VIP's but also government and industry VIP's such as Thurgood Marshall of the Supreme Court, the Crown Prince of Laos, Nobel Prize winners, and a few Presidential motorcades!

I was already a ham and had managed to bring my small SBE-33 SSB transceiver along with me to the Island. One evening I persuaded Ted to help me string a 40 meter dipole on the barracks roof, probably in violation of a dozen regulations! We got it in the air and made a dozen or so contacts that evening including Alaska, New Zealand, and

(Continued on page 11)

UNITED STATES PATENT OFFICE

2,292,387

SECRET COMMUNICATION SYSTEM

Hedy Kiesler Markey, Los Angeles, and George Antheil, Manhattan Beach, Calif.

Application June 10, 1941, Serial No. 397,412

6 Claims. (Cl. 250—2)

This invention relates broadly to secret communication systems involving the use of carrier waves of different frequencies, and is especially useful in the remote control of dirigible craft, such as torpedoes.

An object of the invention is to provide a method of secret communication which is relatively simple and reliable in operation, but at the same time is difficult to discover or decipher.

Briefly, our system as adapted for radio control of a remote craft, employs a pair of synchronous records, one at the transmitting station and one at the receiving station, which change the tuning of the transmitting and receiving apparatus from time to time, so that without knowledge of the records an enemy would be unable to determine at what frequency a controlling impulse would be sent. Furthermore, we contemplate employing records of the type used for many years in player pianos, and which consist of long rolls of paper having perforations variously positioned in a plurality of longitudinal rows along the records. In a conventional player piano record there may be 88 rows of perforations, and in our system such a record would permit the use of 88 different carrier frequencies, from one to another of which both the transmitting and receiving station would be changed at intervals. Furthermore, records of the type described can be made of substantial length and may be driven slow or fast. This makes it possible for a pair of records, one at the transmitting station and one at the receiving station, to run for a length of time ample for the remote control of a device such as a torpedo.

The two records may be synchronized by driv-

Fig. 2 is a schematic diagram of the apparatus at a receiving station;

Fig. 3 is a schematic diagram illustrating a starting circuit for starting the motors at the transmitting and receiving stations simultaneously;

Fig. 4 is a plan view of a section of a record strip that may be employed;

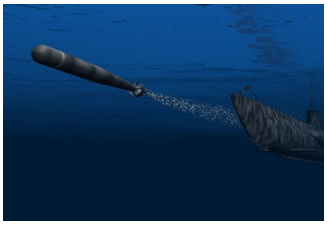
Fig. 5 is a detail cross section through a record-responsive switching mechanism employed in the invention;

Fig. 6 is a sectional view at right angles to the view of Fig. 5 and taken substantially in the plane VI—VI of Fig. 5, but showing the record strip in a different longitudinal position; and

Fig. 7 is a diagram in plan illustrating how the course of a torpedo may be changed in accordance with the invention.

Referring first to Fig. 7, there is disclosed a mother ship 10 which at the beginning of operations occupies the position 10a and at the end of the operations occupies the position 10b. This mother ship discharges a torpedo 11 that travels successively along different paths 12, 13, 14, 15 and 16 to strike an enemy ship 17, which initially occupies the position 17a but which has moved into the position 17b at the time it is struck by the torpedo 11. According to its original course, the enemy ship 17 would have reached the position 17c, but it changed its course following the firing of the torpedo, in an attempt to evade the torpedo.

In accordance with the present invention, the torpedo 11 can be steered from the mother ship 10a and its course changed from time to time as necessary to cause it to strike its target. In



"One evening I persuaded Ted to help me string a 40 meter dipole on the barracks roof, probably in violation of a dozen regulations! :

Tribute to Ted-Continued

(Continued from page 10)

Japan. Ted probably had never even heard of Amateur Radio before that and was amazing that such a small unit had such a long reach. We quietly dismantled the antenna before it was noticed. Not long afterward, I made 3rd class ETn and was put in charge of the Ham/MARS station, KH6SP, at the Submarine Base and we fell out of touch.

Many years passed, I left the Navy and returned to Northern CA. to began my civilian life. One day I logged into our local packet BBS and was surprised to find a message from Ted. He had remembered my callsign from those years long past and found my packet address. We followed up with a long telephone call and, over the years, a few eyeball QSO's. Though we touched bases infrequently, I've always considered Ted my friend and am greatly saddened .

ORIGINAL MEMBERS REUNION

RESIDENCE OF WA6KZN, CARLSBAD, CA. JUNE 28, 1980

1000 - 1500 LOCAL TIME

PALOMAR AMATEUR RADIO CLUB

OF NORTHERN SAN DIEGO COUNTY, CALIFORNIA

FOUNDED BY FRED J. ELSER, W6GVU, FEBRUARY 13, 1936

FIRST PRESIDENT DOUGLAS MAW, W6DBV

OFFICERS FOR 1980

PRESIDENT - CHARLEY GIBBS - WB6ZJZ

VICE PRESIDENT - FRANK TIPTON - WA6HPP

SECRETARY - EMILY WOLFE - WA6ZKC

TREASURER - JIM CHURCH - K6SLA

HISTORICAL COMMITTEE - W6BLL, K6HAV, WA6KZN

ORIGINAL MEMBERS

W6BGL	HANK JUNGE	W6LKC	HARRY FIELD
W6BLL	JACK WILLIAMS	W6MMO	JACK CORNELL
W6BOS	ART STEWART	W6MMZ	JOHN TRENT
W6CHV	RALPH CULBERTSON	W6NCU	WALTER WOODS
W6CYI	STAN ESTES	W6NDF	MAURICE ECKFORD
W6CLT	WALT SCHROEDER	W6NNH	JACK MILLER
W6DBV	DOUGLAS MAW	W6NWG	MEL BACON
W6ECP	JOHN MARTIN	W6NWI	BILL JAGO
W6EPM	HAROLD ULMER	W6NXR	ROY WILLIAMSON
W6FKT	GEORGE BEAL	W6OFT	CLINT CALL
W6GVU	FRED ELSER	W6OFV	VERNON CHOATE
W6JRQ	WALT HUCKABAY	W6OUQ	ERNIE EPLER
W6LAP	BILL MUSGROVE	W6RB	ROY JENKINS
W6LFU	FRANKLIN RICHTER		

PROGRAM

INTERVIEWS BY HISTORICAL COMMITTEE

PHONE CALL FROM FRED ELZER, KH6CZ, HONOLULU, HI

GROUP PHOTO

Some of the Founding Members of PARC At the 1980 Reunion

Left to right: Doug Maw, Harry Field, Ernie Epler, Walt Schroeder, Bill Musgrove, Walt Huckabay, John Trent, Harold Ulmer, Jim Kavan, Roy Williamson, Wack Williams, Clint Call, Art Stewart.

Mores Code & Bar Codes by Urb LeJeune, W1UL

"If it were not for Morse code we could possibly stand in long lines when checking out at the supermarket."

In 1948 Bernard Silver, a graduate student at Drexel University Technology in Philadelphia, PA overheard the president of a local food chain asking one of the deans to research a system to automatically read product information during checkout. Silver told his friend Norman Woodland about the request, and they started working on a variety of systems.

The Rest of the Story: The first working barcode system implemented by Silver and Woodland used ultraviolet ink, but the ink faded too easily and was expensive. Convinced that the system was workable with further development,

Woodland left Drexel, moved into his father's apartment in Florida, and continued working on the system. While sitting on the beach and running his fingers through the sand Woodland had a eureka moment. He had learned Morse code as a boy scout , and he formed his first barcode from sand on the beach. "I just extended the dots and dashes downwards and made narrow lines and wide lines out of them." Woodland them made a prototype barcode on a strip of paper. To read the code, he adapted technology from optical soundtracks in movies, using a 500-watt incandescent light bulb (removed from a movie projector) shining through the paper onto an RCA935 photomultiplier on the far side. He later decided that the system would work better if it were printed as a circle instead of a line, allowing it to be scanned in any direction.

On 20 October 1949, Woodland and Silver filed a patent application for "Classifying Apparatus and Method", in which they described both the linear and bullseye printing patterns, as well as the mechanical and electronic systems needed to read the code. The patent was issued on 7 October 1952. In 1951, Woodland moved to IBM and continually tried to interest IBM in developing the system.

The company eventually commissioned a report on the idea, which concluded that it was both feasible and interesting, but that processing the resulting information would require equipment that was some time off in the future. IBM offered to buy the patent, but its offer was not high enough. Philco purchased their patent in 1962 and then sold it to RCA sometime later.

If it were not for Morse code we could possibly stand in long lines when checking out at the supermarket.

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.

PARC Scholarship

The Palomar Amateur Radio Club is creating at least one amateur radio scholarship for San Diego students to promote our goal of fostering our hobby and motivating young hams.

QST has three pages of the pictures of the recipients of the 2016 ARRL scholarships. Only two went to a California student! The survival of The Amateur Radio Service depends on us. If we do not act, who will succeed us?

Our youth are our future.

To that end we are looking for funding sources especially corporate ones. We have two letters requesting scholarship funds from companies and corporations: one that is general, and one where we can use the name of the referring employee. Either one could be addressed to a specific person in the company.

Club members have indicated that we have members who work at companies that could be looking for a charitable tax contribution donation. If you work for one of these companies and you would like to come forward with a contact person, please contact us at board@palomararc.org with a possible contact person. We can send the letter we have created or if you are so inclined, you could personally deliver it.

"The survival of The Amateur Radio Service depends on us."

Upcoming Events

Wednesday, February 1st	7:30	PARC Meeting	Carlsbad Safety Center
Wednesday, February 8th	7:00	PARC Board Meeting	Poway Fire Station #3
February 17th & 18th	8-5	Yuma Hamfest	Yuma, AZ
Wednesday,, March 1st	7:30	PARC Meeting	Carlsbad Safety Center
Wednesday, March 8th	7:00	PARC Board Meeting	Poway Fire Station #3
April 21st-23rd	8-5	DX Convention	Visalia, CA

"My Worked All States Love Affair" by Urb Lejeune, W1U1

"The ARRL's Worked All States (WAS) award is the most popular award among ham radio operators worldwide."

Introduction

The ARRL's Worked All States (WAS) award is the most popular award among ham radio operators worldwide. The League's DX Century Club (DXCC) is the second most popular award.

The *Worked All States Club* was first announced in QST in January 1936, during the same period as the DXCC award was being developed. Except for not offering endorsements, the rules were substantially similar to those used today. However, an operator was required to be in the same location for all contacts. (Currently one can move up to 50 miles away.) Initially, there were only 48 states – the lower 48 – until 1959 when Alaska and Hawaii entered the Union. Unlike DXCC, WAS did not start fresh after World WW II and earlier contacts remained valid. Over time the certificate has undergone changes to make it more colorful. The WAS award is an especially attractive certificate.

If you could use some focus in your ham radio activities consider a quest for both WAS and DXCC. For the sake of this article, we'll concentrate on the WAS award. I have found from my personal experience that when I have a goal my ham radio activity increases. For me, the more difficult the goal the greater the satisfaction when the quest is completed.

My First WAS Journey

My first year and a half as a ham consisted of getting on the air when I got home from high school and "haming" until dinner time. My first rig was a home-brew crystal controlled transmitter operating exclusively on 40 meters. During my first year and a half on the air, I never worked a station west of the Mississippi River from my QTH in northern New Jersey.

One night in mid-1951 I woke up about 2 AM with a toothache and couldn't get back to sleep. I turned on my rig, fully expecting no one to be on at such an ungodly hour, and low and behold, I worked Montana, Washington state, and California in fairly rapid succession. I was elated and suddenly a WAS appeared very difficult but possible. The year was 1950 and Alaska and Hawaii were not yet states. WAS, then as now, required confirmation of communications with all states. Six years after the eventful "toothache night", I finally worked Utah to complete my WAS. There were two years away from my home rig during active duty military service.

Who can Work All States?

Almost anyone. Many operators have achieved WAS with 5 watts and an indoor antenna. One caveat, a Technician Class license holder can only operate HF phone on 10 meters. Unfortunately, we are approaching a minimum

(Continued on page 17)

"My Worked All States Love Affair" - Continued

(Continued from page 16)
in the current sunspot cycle during which time 10 meters is virtually useless.
From a practical standpoint if you hold a Technician license and want to pursue a WAS you will have to do one or two things:

1. Learn Morse Code.
2. Upgrade to General.

If you learn Morse code you can operate CW in the old Novice portions of 80, 40, and 15 meter bands.

If you choose to learn Morse Code there are two really good, and free, programs:

Just Learn Morse Code at http://www.justlearnmorsecode.com
The G4FON Koch Trainer at http://www.g4fon.net/CW%20Trainer.htm

The G4FON is more versatile and my personal favorite.

If you choose to upgrade to General please check out my Ham Cram website which has three distinguishing characteristics:
Don't study incorrect answers.
Only study the questions most likely to be on the VE test.
It's totally FREE
Study smarter, not harder is my mantra.

The quickest path to upgrading you license is at http://ham-cram.com
My WAS Aftermath

After obtaining WAS I was elated but my activity started to decline and I started to miss a challenge. Shortly thereafter ARRL came to the rescue with their 5 Band WAS (5BWAS) award. The 5BWAS requires confirmed contacts with each of the 50 states on the 10, 15, 20, 40 and 80 meter bands for a total of 250 contacts.

If you really want to learn about propagation start chasing a 5BWAS. It degenerates into working the far out states on 40 and 80 meters and states within about a 500-mile radius or your QTH on 10, 15 and 20 meters. My last state in my 5BWAS pursuit from central NewJersey was Tennessee on 15 meters.

Shortly after starting my 5BWAS endeavor a friend told me about the Geritol Net and award. The award requires contacts with all fifty states in the Extra class portion of the 75 meter phone band, in addition, all contacts must be with operators holding Extra class formatted calls. See the net description and award rules at: http://geratol.net

This is a difficult award if you live on the east coast of the United State. Both Alaska and Hawaii are very elusive on 75 meters. The Geratol net was fun and I was making new friends, many of whom would make schedules to give me their state on a needed band.
If you're looking for a major challenge, add a twist to the existing

(Continued on page 18)

"If you really want to learn about propagation start chasing a 5BWAS."

My "Worked All States Love Affair' - Continued

(Continued from page 17)

rules to make your goal tougher. I decided to pursue my 5BWAS using only extra class formatted calls with the same operator on all five bands. A 5BWAS with only 50 operators all with extra class formatted calls! When I finally accomplished my lofty goal and send the League my confirmations my plaque looked like everyone else's wall fixture. However, I know I had done something special and that was good enough for me. Over the ensuing years, I have pursued many variations on the WAS theme.

The second most difficult certificate I ever earned was WAS YL. Work a YL in every state, it does not sound difficult but most YL hold a Technician class license or are inactive. This award took me over five years. Toward the end of the trail, when I worked an OM in a state where I needed a YL QSO I would ask him if he knew of a YL in his state who was active on HF, several times he said, "sure, my XYL!"

My most difficult award was Phone WAZ for working all 40 CQ Magazine Zones on two-way phone. I have certificate number 18, US number six and W2 number one. At the time there was only one station available on the two-way phone in zones 19 and 23.

"My most difficult award was Phone WAZ for working all 40 CQ Magazine Zones on two-way phone."

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 I

(*Editor's Note: Al Martin, W6SE provided this memoir from his father Al 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.)*

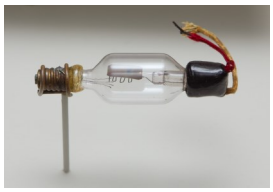
My older brother, Walter, had joined the Navy in 1918 to become a radioman. On his discharge from the service in 1922 he "liberated" a sufficient number of bits and pieces to build a receiver. I remember it well: A regenerative detector with two stages of audio amplification boasting a vario-coupler with tapped primary and secondary windings, together with several rheostats and a very large variable condenser, three vacuum tubes and a couple of audio transformers all mounted on and behind a tremendous black bakelite panel. It was impressive! When this device became operational I learned about the radio or International Code.

Discovery of Amateur Radio came in 1922. My family then lived at the southwest corner of Topeka and Hill Streets in Oceanside. Our close neighbor, Oscar Gabriel, 6BNV, was the town's only radio Amateur at the time. He lived at the southeast corner of the same intersection. One day, with the help of his fellow Boy Scouts, he erected an impressively tall pair of antenna masts. Soon one of the classic antennas of the day appeared. It was an impressive affair! There were spreaders supporting five or six parallel wires, all carefully insulated from the mast structure. His mother's clothesline served admirably as the counterpoise. At the time he had a transmitter consisting of a spark transformer, rotary gap, a condenser and a pair of helical inductances called an oscillation transformer. The raucous noise this monster generated could be heard for a couple of blocks without benefit of receiver. Being only ten years old at the time I could do no more than witness the progression of events as they took place. On a couple of occasions Oscar unbent and let me listen to 6XAD, the Catalina radiotelephone circuit. Naturally I was thrilled. If by any chance QST for August 1922 is available to you, by all means look at page 10 where a photograph of 6XAD - 6ZV is displayed. The phone transmitter to which I listened is shown at the right of the picture, I believe.

Sometime later I discovered that Oscar Gabriel was not the first radio amateur in Oceanside. Thus far my research has failed to reveal who was first in the town to take up the hobby, but the OCEANSIDE BLADE, in its issue of June 26, 1909 notes that a local lad, one Clifford Jones, was then employed as a wireless operator aboard ship on a run between New York and Santo Domingo. There is no other information available about Mr. Jones. Probably he was a telegrapher who had taken up wireless

(Continued on page 20)

"Discovery of Amateur Radio came in 1922"



In the Beginning-Early Memories of Ham Radio-Continued

(Continued from page 19)

instead of wire line operating. Then there is an article in the same newspaper appearing on March 16, 1917, reporting an announcement by government officials to the effect that "all operators of amateur wireless outfits in southern California are forbidden to copy any messages about ship movements or government business of any nature, and in the event of hostilities, which is daily expected, all such operators must take down their aerials." The item reported there were three wireless "plants" in operation in Oceanside, giving the names of Francis Mebach and Harold Bray, and mentioning a station at the local High School. We do know that the late Lynn Birchley was an active radio amateur in Oceanside at some time prior to the First World War. My research has not revealed his call letters, but it is probable he used the 6LB configuration. In those days, we are told, the Department of Commerce issued call letters at their local offices with the licensee's initials following the district numeral when it was possible to do so, as in the case of my old friend Fred Pierce, 6FP. Actually the whole procedure was rather informal for there were few problems. Many amateurs did not bother to secure licenses. According to his sister, May Lockyer, Lynn was often in communication with ships at sea, other radio amateurs and in particular with Major Lawrence Motte, who had a wireless station at Avalon, Santa Catalina Island, in the second and third decades of this century and who was licensed as 6XAD-6ZV after the first World War. In the early days there was often communication between Amateurs and stations in the commercial and government service. Unfortunately Lynn Birchley passed away in 1968, long before I entertained the idea of writing this manuscript. What has been written about him here comes entirely from the recollections of his sister, May Lockyer, of Bob Kolb, who was a friend of the family, and of Dr. Oscar Gabriel, a fellow Ham. All of these informants have passed away.

Oscar Gabriel mentioned other radio amateurs in the area who were very active in the early twenties. Among them were Leigh Young, 6BQX, later K6OAR, of Encinitas, Bob Bollinger, 6AKF, of Cardiff, Bill Pechstein, 6BHU, of San Marcos, the Gray brothers, 6MZ, of Del Mar, O. M. Wilson, 6JE, in Escondido and Stan Estes, 6CYI, of Solana Beach. QST for April 1922, at page 45 reports the appointment of John F. Gray, 6MZ,of Del Mar as Assistant Division Manager for the Pacific Division, ARRL.

I am indebted to Art Stewart, W6BOS, for the names of two Hams who were on the air in Escondido before World War I. They were Paul Kroekle, 6PK and Frank Axe, 6AX. Art says the both of them served in the Signal Corps in World

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"a five watt CW transmitter appeared at 6BNV sometime in 1923 or 1924."

In the Beginning-Early Memories of Ham Radio-Continued

(Continued from page 20)

War I and that they managed to bring home a lot of radio gear, both German and Allied, following the war. It is believed they were the first radio amateurs in Escondido.

Bob Bollinger calls my attention to the fact that a five watt CW transmitter appeared at 6BNV sometime in 1923 or 1924. He says it was owned jointly by Oscar Gabriel and another Ham whose name he no longer remembers. I don't know who it was, but one would logically suspect it was Lynn Birchley. However, Bob's recollection does bring to my mind a dim picture of this device. There were four tube sockets wired for four five watt tubes in parallel mounted somewhere behind a varnished wooden panel. I don't recall that more than two of those sockets were ever occupied by vacuum tubes, not surprising as transmitting tubes were not plentiful in those days. Oscar was able to work the Hawaiian Islands with this transmitter using the 200 meter band. In those days tube sockets could be purchased in strips of as many as four in line. See the FIRCO advertisement in QST for October 1921.

The mention above of the Catalina Island telephone reminds me of another private radio circuit existing in those days. It was operated by Boulevard Express, an intercity trucking company. Originally, I am told, interoffice correspondence between Los Angeles and San Diego was handled by radiotelegraph, using spark equipment, and in the mid twenties the spark was replaced with a radiotelephone. A frequency near 3 MHz was used for the latter. Wayne Prather, W6GWY, one of the several surviving oldtimers in San Diego, told me of an experience he had when hired as a temporary relief operator at this station back in the spark era. It seems he was given a stack of traffic to clear to the Los Angeles office. At about the time he began moving it NPL, the Naval radio station out on Chollas Heights, started up some sort of broadcast to the fleet with its 200 KW arc transmitter, the output frequency of which was in the VLF (very low frequency) region. It seems no provision had been made in the design of this brute to suppress harmonics and other spurious output. The result was that other radio services in the area were out of luck while NPL was on the air. Wayne said it took him hours to clear the hook. It is rumored that of the 200 KW the NPL arc radiated, only about half appeared at the output frequency. The rest was spurious garbage spread more or less evenly throughout the spectrum.

As an historical aside, the old arc transmitters were in fact continuous wave devices. In common with the general practice of the day they did not have a "tank circuit" to determine the operating frequency. The arc was struck in an atmosphere of hydro-carbon gas, in an

(Continued on page 22)

"As an historical aside, the old arc transmitters were in fact continuous wave devices. "

In the Beginning-Early Memories of Ham Radio-Continued

The arc was struck in an atmosphere of hydro-carbon gas, in an intense electro-magnetic field, between water-cooled electrodes"

intense electro-magnetic field, between water-cooled electrodes to which a potential of several hundred volts of direct current was applied. In short, an ionized path was generated by the arc, providing the negative resistance required to allow oscillation to occur at a frequency dictated by the dimension and tuning of the associated antenna-ground system. On the other hand spark transmitters were usually powered by alternating current, since the high operating voltages required to power the spark-gap dictated the use of a high voltage transformer. This spark-gap was the source of the negative resistance required for oscillation to occur. For lower powered applications interrupted direct current was applied to the primary of the spark transformer - the venerable Model T Ford spark coil is an example. Thus the emission of the spark transmitter powered by the commercial power mains was pulsed (to put it simply) at the rate of 120 times per second, or at whatever rate the available A-C supply provided, and it was damped. I know it is difficult for the modern generation to accept the idea that the arc and spark transmitters were oscillating devices, largely because they did not utilize vacuum tubes or transistors as the generators. If this bothers you, then consider the fact that motor driven alternators produced the power for many low frequency stations. The output of these devices was alternating current, usually between 10 and 15 kilohertz, which was multiplied to the operating frequency.

The earliest record of Ham activity in the local area in my possession comes from the 1913 Government Callbook, issued by the Department of Commerce,. Robert M. (Bob) Bollinger, now a resident of Tujunga, was a very active radio amateur (6AKF) in Cardiff during the immediate post World War I era. He tells me his interest in radio was largely generated by publications then available to him. His first receiver consisted of a Murdock loose coupler, crystal detector and a pair of headphones, Baldwins probably. The transmitter consisted of a Model T Ford spark coil, fixed spark gap, helix and condenser. As there was no commercial electric power available in Cardiff at the time, a 6 volt storage battery was the transmitting power source. With this gear he was successful in working other amateurs the area. His best DX, he said, was Long Beach. Bob goes on to tell me that in 1921 he and Stan Estes rode to San Diego in a model T Ford driven by Stan's father, where they took the test for their amateur operator and station licenses. Later, when commercial power became available, Bob acquired a one kilowatt spark transformer. He

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In the Beginning-Early Memories of Ham Radio-Continued

(Continued from page 22)
fashioned a condenser out
of five by seven inch glass photo plates, with sheet brass plates sandwiched in between, and submerged the unit in castor oil. Then he fabricated a rotary spark gap and built an inductive coupler (oscillation transformer) in helix form with number eight copper wire
mounted on wooden cross members. This very impressive transmitter fed an "L" type
antenna that was later replaced by a "fan" array. The fan consisted of two wires fanned out to a width of 20 feet at the far end. It was about 80 feet in length and 60 feet high, supported by Eucalyptus poles. Bob tells me his receiver then was a loose coupler with
a vacuum tube detector. An audio amplifier was added later on. Bob says he worked
across the country with this gear. In common with many other amateurs, Bob's career was enhanced by his exposure to Ham Radio. Attending UCLA and USC he subsequently graduated as an electrical engineer and was thereafter employed in that capacity by the Department of Water and Power of the City of Los Angeles until his retirement, quite a few years ago.

By the way, in those days the only residence standing in Solana Beach was Stan
Estes' (6CYI) home. As I recall, his prominent antenna was very imposing, making it somewhat of a landmark. It may be of interest for you to know that Solana Beach didn't acquire its present name until the early twenties when the area was subdivided by Col.
Ed Fletcher of San Diego. Before that the general area was known as Lockwood Mesa.

It was my privilege to become acquainted with Stan. I had the opportunity to visit his hamshack on several occasions in the late twenties and early thirties. He was a very capable technician, once making a copy of the National SW-3 receiver so perfect that
one couldn't tell the difference between it and the one made by the National Company.
He offered to sell it to me for $15.00. Unfortunately I didn't have the purchase price in my pocket. In the mid -thirties he built a beautiful little phone transmitter, one subsequently acquired by Bill Jago, W6NWI, now K7MO and Clint Call, W6OFT. Clint is now a silent key. Never enjoying robust health, Stan passed away sometime in the late thirties.

In 1924 Oscar Gabriel, 6BNV, went off to USC where he attended the dental
school, graduating in 1930. His radio station was dismantled, leaving Oceanside without any amateur radio activity whatever. However by this time I was considered sufficiently
mature to turn on and tune my brother's radio receiver. At the time it was equipped with the Western Electric type VT-1 vacuum tubes he had earlier
"liberated" from the Navy.
With them, two stages

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"He fashioned a condenser out of five by seven inch glass photo plates, with sheet brass plates sandwiched in between, and submerged the unit in castor oil"

In the Beginning-Early Memories of Ham Radio-Continued

of audio were only enough to drive the headset to a little more than comfortable level. By 1926 the price of UX 201-A tubes had fallen from six to two dollars per copy, so out of my meager savings six dollars was accumulated to purchase three of them. Now I could use a horn type loudspeaker. My father, although then reasonably well-off, did not believe in lavishing money on his children and, believe me, he didn't!.

"By 1926 the price of UX 201-A tubes had fallen from six to two dollars per copy, so out of my meager savings six dollars was accumulated to purchase three of them."

At this point someone will be sure to ask about the differences between the VT-1 and the 201-A. Well, they were both triodes, but here the similarity ended. The VT-1 had a tungsten filament characterized by very low emission. The 201-A's filament was made out of thoriated tungsten. Hence its emission was remarkably greater, the reason its performance was rewardingly livelier. There was another very important difference. The filament of the VT-1 drew one ampere at five volts, while the 201-A required only .25 ampere. This makes a very remarkable difference when a battery is used to supply the filaments. By the way, speaking of filaments, the only method of controlling the audio output of those ancient receivers was to vary the filament voltage of an audio stage by the expedient of adjusting the associated rheostat in the filament circuit. Lower voltage - lower emission - lower audio!

Speaking of the battery as a filament supply, a six volt lead-acid storage battery was commonly used for this purpose. However there were other sources. Some of you, not many to be sure, may recall the old gravity cell or "crowfoot" battery, widely used to power manual telegraph circuits in former times. These were popular in the early and mid-twenties as a source of power to light the filaments of vacuum tubes. While they were quite large and certainly not portable, they did produced 1.1 volts per cell and had the capacity of about 800 ampere hours at a discharge rate of half an ampere or so. Five of them were sufficient to provide filament power to a small vacuum tube receiver for about a year of the then normal usage, for in the early days of the radio broadcasting service, the hours of programming were irregular. Some stations would sign on from noon until 3 PM and then return to the air at 5 PM and remain on until perhaps ten in the evening. Hours of operation quickly increased with an increase of revenue from advertising, for the hucksters were quick to understand the value of the new medium.

It seems to me it was in 1925 or 1926 that my young friend and school-mate Bob Kolb and I discovered our mutual interest in radio. Recently he had come by a bonanza of parts given him by his uncle, Harry Brodie, an old telegrapher, who

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In the Beginning-Early Memories of Ham Radio-Continued

(Continued from page 24)

had been interested in radio during the early twenties, when it was called wireless. Immediately on gaining the loot Bob set to work building a radio receiver. His efforts were rewarded with a clever little device built in a wooden chalk box. As I recall, it was a single circuit tuner using a 201-A as a regenerative detector. Probably this was no more than a Hartley oscillator circuit with regeneration controlled by a very careful adjustment of the filament rheostat. Frankly I don't recall just how he managed this. Proud of his accomplishment, Bob fell asleep almost every night with the earphones on his head. To avert disaster, should he become restless in his sleep, his good little mother always saw to it that the earphones were detached before she retired for the night. Unfortunately Bob left us a few years ago and is now among my memories - ave atque vale, old friend.

Now while Bob was outstripping me in building projects, I was busily listening to the 600 meter band endeavoring to copy KOK and KSE, both of which were coastal stations for ship radio traffic in the Los Angeles area. There was a third commercial station there, but I no longer remember its call letters. All of them are silent now. There were several coastwise steamers, including the SS HARVARD and SS YALE, that were actively transporting passengers in those days, and considerable message traffic was generated by them. The elapsed time of their transit between San Diego and Los Angeles was four or five hours, and from Los Angeles to San Francisco was overnight. They carried a lot of passengers in the era before the automobile drove them out of business. And in those days the Navy maintained a radiocompass station at Imperial Beach, and NPL, out on Chollas Heights was still sending traffic to the fleet using manual telegraphy, and ships were sending their "M-O" signal to obtain radiocompass bearings from shoreside radiocompass stations. This is all history now.

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

"And in those days the Navy maintained a radiocompass station at Imperial Beach"

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

(Continued on page 27)

"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

(Continued from page 26)
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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KEITH SPEARS
KM6CXW

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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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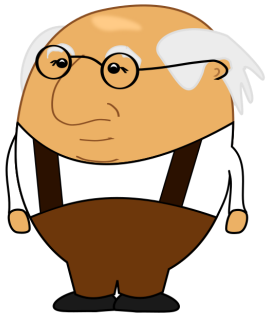
The Back page is a place for ham radio humor. If you have a joke, cartoon or just a fun story about ham radio, please share it with me. Please remember this is a family newsletter:)

Two Old Hams

Two elderly hams had been friends for many decades. Over the years they had shared all kinds of activities and adventures on the ham bands. Lately, their activities have been limited to meeting a few times a week to play cards.
One day they were playing cards when one looked at the other and said, "Now don't get mad at me.....I know we've been friends for a long time.....but I just can't think of your name and your call.! I've thought and thought, but I can't remember them.



Please tell me what they are."
His friend glared at him. For at least three minutes he just stared and glared at the gray haired old man..
Finally he said, "How soon do you need to know?