



HARMONICS

1916

South Jersey Radio Association

2014



100th Anniversary Happenings

So far the 100th anniversary committee has had 3 meetings (many more to come). Just to keep everyone up to date here is where we are.

The committee has created and approved a budget for the 100th Anniversary project.

Our first fundraiser has been started. We have 100th Anniversary coffee mugs. Supplies are limited so they are on a first come first serve bases. Mugs may be acquired by a minimum donation of \$10.00. I will be bringing some coffee mugs to the Christmas Party on December 17th.

The first raffle is in the planning stages.

The Board of directors has approved the special membership class. It will be called the SJRA Centennial Member.

SJRA Centennial Member

All Centennial Members will be considered affiliated to the SJRA.

Privileges:

- ◆ Participate in all SJRA 100th Anniversary Radio events as an SJRA member.
- ◆ Sign /100 at the end of their call sign (FCC permission pending).
- ◆ Receive Harmonics email version only.
- ◆ Bragging Rights to belong to the Oldest Continuously Meeting Radio Club in North America.

- ◆ Initiation fees will be waived when converting to a full SJRA member. Conversion must happen prior to June 1st 2017.
- ◆ SJRA 100th Anniversary Coffee Cup.
- ◆ Be allowed to purchase SJRA clothing and other logo items.
- ◆ Right to use the SJRA Logo on personnel QSL cards.
- ◆ Membership Certificate (suitable for framing).
- ◆ Pay an extra surcharge to attend to the 100th Anniversary celebration banquet.
- ◆ Available to Licensed Amateurs not an SJRA member prior to Dec. 31, 2012.

Term:

- ◆ Memberships will be available June 1st 2015.
- ◆ All memberships end December 31st 2016 with the exceptions to those signed after January 1st 2016. These will expire December 31st 2017
- ◆ Non-Renewable Membership

Fees:

Domestic Membership	\$20.00 USD
International Membership	\$25.00 USD
Membership Badge	\$5.00 USD

Funds for membership would go to the 100th Anniversary Budget with the exception of the badge fees.

Pass the word to your friends outside

(Continued on page 10)

SOUTH JERSEY RADIO ASSOCIATION

HARMONICS is published monthly and is the official news letter of the South Jersey Radio Association. The SJRA was established on June 16, 1916 and has been meeting continuously since its inception. The club has been affiliated with the American Radio Relay League since 1920.

The SJRA meets each month on the fourth Wednesday, January through September; and usually the third Wednesday, October, November and December; in one of the Meeting Room of the Gibson House at 525 East Main Street, Marlton, NJ 08053. Visitors are always welcome at our general meetings. **“Our Meetings are Smoke Free”**

SJRA operates the K2AA Repeater (145.290 - PL 91.5) located in Medford, NJ and the K2UK Repeaters (146.865 and 442.350 - PL 131.8) located in Pine Hill, NJ. The repeaters are open for use without restriction to all licensed amateur operators.

There are currently over 100 SJRA members active in most all aspects of amateur radio. Membership is by application and is subject to the approval of the Board of Directors. Club dues are currently \$30/yr. for memberships, \$22.50/yr. for retired-person membership (62 plus 1 yr membership), and \$15/yr. for additional family members and student membership. Membership information is available on the K2AA Repeater or from Mary Von Lintig, KV2M, 856-772-6475

EMAIL: [sjra at sjra dot org](mailto:sjra@sjra.org) SJRA's web page: www.sjra.org

SJRA VE Team: ve@sjra.org is the SJRA/ARRL VUCC card checker

Joe Fisher, KC2TN, is the SJRA/ARRL WAS card checker

Officers

President: Ken Botterbrodt, K2WB
Vice Pres.: Jon Mac Millan, W2MC
Treasurer: Ray Golley, N3RG
Rec. Sec: Lou Priestley, N2HQL
Cor. .Sec: Dennis Cioffi, AC2FO

Directors:

Roy Herman, WB2EOD
 Rich VonLintig, KV2R
 Rick Lawn, W2JAZ
 Ira Weinstein, W2IRA
 Mary VonLintig, KV2M
 Jim Vecchiola, KR2T
 Al Witner, N3AVT

Committees:

Historian: Mary VonLintig, KV2M
Membership: Mary VonLintig, KV2M
Field Day: Ken Botterbrodt, K2WB
Contests: Jon Mac Millan, W2MC
Repeater: Joe Fisher, KC2TN
Programs: Rick Lawn, W2JAZ
H&W: Roy Herman, WB2EOD; and Dara Herman, KC2THQ
Awards: Rick Stoneking, W2RDS
Hospitality: Jean Priestley, KA2YKN
Nets: John Fogleboch, WY2J
Publicity: **Vacant (Please Volunteer)**
Picnic: **Vacant (Please Volunteer)**
Ways & Means: Ray Golley, N3RG
Property: Jon Mac Millan, W2MC
Web Site: Ira Weinstein, W2IRA

Harmonics Staff:

Publisher/Editor: Ted Groke, W2TAG
Alternate Editor: **Vacant (Please Volunteer)**
Circulation: Mary VonLintig, KV2M;
 Jim Vecchiola, KR2T

 ★ **Harmonics** is now available on the WEB in pdf format at: ★
 ★ <http://www.sjra.org> ★
 ★ **South Jersey ARRL Section News** is available on the WEB at: ★
 ★ <http://www.arrl.org/sections/?sect=SNJ> ★

LOCAL WEEKLY NETS

Monday	K2AA, Medford	145.290 @ 8PM
Alternating Thursday	Various Locations	28.405 @ 8PM

Harmonics Deadline

Articles submitted for the next Harmonics will be accepted until Monday, January 7, 2014. Email: [ted.w2tag at gmail dot com](mailto:ted.w2tag@gmail.com)

SWAP SHOP - For Sale/Wanted ads are free of charge and are accepted for Amateur Radio related items only. While ads are not restricted to SJRA members, there is only limited space available and members have priority for listings. No items will be accepted for inclusion in the Swap Shop from commercial vendors or traders. All ads must be submitted at least three weeks prior to the scheduled SJRA general meeting date.

GENERAL ADVERTISING - Limited commercial advertising is accepted on a space available basis. Annual advertising rates range from \$25/yr (Min 1/8 page) to \$200/yr (Full Page). Information is available from Ken Botterbrodt, K2WB.

Meeting Minutes

General Meeting of 19 November 2014

The meeting was opened at 1932 by Jon, W2MC, who had members introduce themselves. The meeting was held at the Gibson House in Marlton, NJ. A salute to the American flag was held.

Minutes of the October meeting were approved as printed in Harmonics. Motion by KF2Y/N3AVT.

Ray, N3RG, gave the treasurer's report, he mentioned dues renewal, Question (N2EI, what constitutes a senior? Answer (Ray) 65 years old, a member for at least a year. Renewal forms will be on the website, paypal will also be available. Motion to accept report, passed, motion N2EI/WB2EOD.

Historian- presented a 1930's membership list., and a notice of incorporation notice for SJRC- South Jersey Radio Corporation.

H&W- December cards ready to go out, Joe LeMaris scheduled for surgery on 12/2.

Programs, by Rich, W2JAZ, tonight, Joel from RF connections. December - Christmas Party, January- Estate Sale: February White Elephant Sale.

VE- 111 tests given so far.

Nets: by WY2J 2 meters, 9 average, 16 peak. 10 meters 7.7 average, 9 peak.

DX report by Jack, N2VW: ET3AA in Ethiopia: VU4KV Andaman Is.: 3B9JB Rodriguez Is til Dec 2 .: AH2- Guam JJ1RCJ op as AH2/AB2RF Dec 27-30.: EX2- Thailand in CQ WWDXCW: FT4TA- Tro-

melin 71463 Q's/ 18407 unique Q's uploaded to LOTW Several times daily while operating. Class act by the French Crew. Navassa IS, No. 2 needed in World, was operated in 1974 and 1978, will be on as K1N 25 Jan -13 Feb. Thx, Jack.

Contests: CQ WWCW Thanksgiving Weekend; Dec; 5-7 160 Meter; 6-7 EME; 21 Rookie Roundup; 31-1/1 Straight Key night.

Repeaters working well. Club Stuff will get setup done for 100th logo.

100th Anniversary- still ongoing.

Field Day: SJRA 1st in 6A

Christmas Party; Dec 8th is sign up deadline. No Mew Business- recess @ 2015

Board Meeting of 2 December 2014

Opened at 1930 in the Gibson House, by Ken, K2WB. Absent were W2IRA, AC2FO, W2JAZ and N3AVT. Minutes of the November meeting approved as printed in Harmonics, motion N2HQL/W2MC.

Ray, N3RG, gave the treasurer's report, nine members paid up for 2015 so far. He requested the renewal form on the website be updated.

Ray will collect 100th anniversary funds and keep in a separate section of the treasurer's book. Motion by N2HQL/KR2T.

New members- Bob Fields, KC6AOH, Approved.

(Continued on page 10)

HAM TECH

Vol 5 No.12 by John - WY2J

wy2j@arrl dot net

Morse and the CW Mode

Part 2 of 2: Signal Processing

Introduction - One of the great advantages of a CW mode rig is its simplicity. Today a two band five watt HF QRP transceiver like the TenTec R4020 is only 3.5 x 5.5 x 1.25 inches including batteries for about 10 hours of operation. See the Figure 1 photo.



Figure 1, 40/20 M QRP CW Rig with Key and Phones

The price is about \$200 for the rig and when you add a set of keying paddles, headphones and a wire antenna you have a complete station for about \$325. Why so simple and inexpensive? Because there is almost no signal processing in the hardware, it is all in the hand, ear and brain of the operator. If you used a more modern digital mode you would need to add a computer and very complex software to do what CW can do in a way that is more tolerant of QRM and difficult propagation. The human brain is often a far better computer providing you program it correctly. This second part of the Morse and CW Mode addresses the signal process-

ing for Morse keyed CW and how the brain does it.

Hardware Signal Processing - The rig in transmit mode is nothing more than a stable frequency source, usually a synthesizer, and a gated amplifier to provide the output power. A single chip provides a properly timed dot or dash gating signal to the amplifiers and an audio side tone signal to the headphones. It is controlled by the operator's keying paddles. The side tone signal allows the operator to hear what he is sending. This is absolutely necessary as the brain is the source of what the hand has to do with the paddles to achieve the correct Morse. By feeding it back to the brain via the ear correct letter and word spacing is established just like a closed loop servo system. That's all there is to CW transmit mode.

In receive mode we have to step the RF signal down to a convenient IF frequency for narrow band filtering and then down to baseband audio so we can hear it. This takes two mixers, one driven by the synthesizer for tuning and the second from a crystal oscillator that can be tuned over a few hundred hertz for pitch adjustment. The IF filter is usually of a crystal design with 4 to 6 poles and a bandwidth of 300 to 1200 Hz to establish the rig's selectivity. Amplifiers are added for gain and a fast attack slow release AGC loop normalizes the audio output signal as the RF signal varies in amplitude. That's all there is to the receive mode functions.

The Ear as an Input Device - The input to the ear from the headphones is a serial chain of pulsed audio of two different widths (Dots and Dashes) with three different spacing's riding on a continuous floor of

(Continued on page 5)

(Ham Tech from page 4)

noise. The ear applies a logarithmic transfer function to allow accommodating a very large signal dynamic range, from a pin drop to a rock band. The amplitude compression of the logarithmic function allows operation with no AGC but it is a little less pleasant on the ears. The ears convert the sound pressure to a nerve signal and route it to that portion of the brain that processes sound.

The Brain as a Filter Bank - Any well trained musician can discriminate one note (frequency) from another and identify each correctly. This is filtering. In the early days of radar when CW was used and target detection was performed by human's listening to the Doppler shifted audio beat notes, it was determined that the ear and brain could form filters as narrow as 50 Hz. The same capability can be used for Morse coded CW when the IF filter is opened up to allow multiple signals to pass through to the brain. Some CW operators like this wide filter method of copy. Your author doesn't do this but keeps his IF filter set to 300 Hz to minimize QRM. There is no FFT in his head.

Decoding Morse Keyed CW - The signal processing that the brain has to perform includes:

1. Tone filtering of multiple signals when QRM is present.
2. Detection of dot and dash pulses.
3. Pulse width discrimination.
4. Decoding of 43 characters of letters, numbers, punctuation and etc.
5. Decoding of common words.

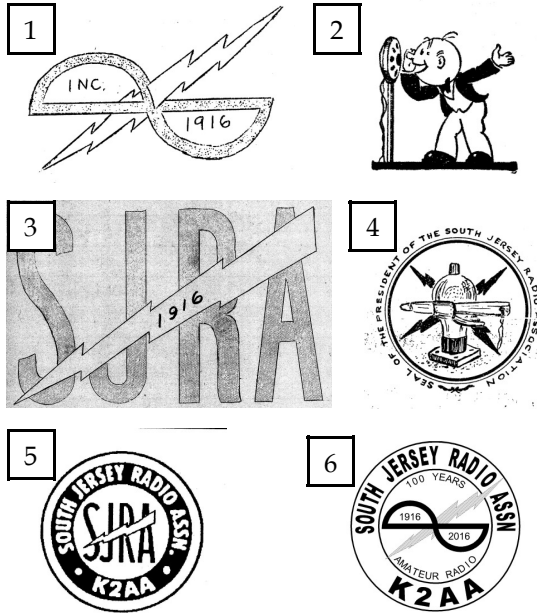
Tone filtering can be avoided with a narrow IF filter and no QRM. Word decoding is optional if you write individual letters to form words either by hand or typing. If you type it is an additional task concurrent

with steps 1 thru 4, something your author never mastered. Word decoding is more natural but requires recognition of several hundred words from the dot dash pattern. So how does the brain do this signal processing?

The brain works by pattern recognition. It contains a huge stored data base of every sound, letter, word and image that you ever experienced sufficiently often to allow permanently writing into your memory. You learn to process the sound of Morse letters and words exactly the same way you learned your letters, numbers and how to read words in elementary school, by repetitive practice. But since the connections in each brain are different the task may be hard for some and easy for others. But new connections can be put in place to learn Morse. If you have some musical ability you have a head start because Morse is like a strange music with one or more tones of two different durations in a unique pattern that represents a letter, number or word. And when it is programmed into your brain you will instantly recognize that character or word when you hear that unique pattern of tone.

The Programming Process - If you are just starting to learn Morse find a software training aid using the Koch method which sends the characters at the speed you want to achieve not a much slower starting speed. Typically the author recommends 15 to 25 wpm. The software should have a Farnsworth speed adjustment to slow down the inter-character rate while maintaining the full speed rate of character dots and dashes. You can advance the Farnsworth speed as you progress. The author found an iPhone App called CW Speed which is convenient to use. Start by reading the help file for the

(Continued on page 10)



Signs (Sines) and Symbols of Our Times

This sine wave (picture 1) was at one time the SJRA insignia. I do not know when this was first adopted as our insignia. Maybe some of you out there can enlighten me. In 1957 this was the SJRA insignia. I do not know who created it and when it first appeared as our insignia. At that time, there was some discussion by the Board of Directors to include this insignia on our new and present QSL cards. The Board also wanted to call upon SJRA members to see if the club should continue with this symbol or come up with a new one.

This happy little fellow (picture 2) appeared around 1936 and remained on our SJRA stationary for several years.

The SJRA symbol in picture 3 was created by Bill Jenkins - K2HOD in 1957. I guess that we progressed from a sine wave

to a lightening bolt. If you think about it, a sine wave is sort of like a lightning bolt rounded off.

This symbol for the seal of the President of the South Jersey Radio Association (picture 4) appeared in our documents for many years. Can anyone tell me if it is still used?

Picture 5 is the current symbol of our great radio club, the South Jersey Radio Association - K2AA. It bears the name of our club and its call - K2AA. I guess the concentric circles could symbolize our club always moving outward, yet still room for new ideas. The bolt of lightening can be a symbol for the power our nearly century old club has always had and also how the ideas of her members light up the darkness. Remember, our radio club, SJRA is hot!

In anticipation of our Hundred Year Anniversary, our president, Ken Botterbrodt - K2WB combined our past and our future into this brilliant new SJRA centennial logo (picture 6). It says it all. The South Jersey Radio Association - K2AA, a sine wave connecting 100 years of amateur radio, and that bolt of lightning searing our club together through a century of all we have we have accomplished in our outstanding past and the promise of the wonders that will be the future of our great radio club.

73 to all and I am History and Future

Mary, KV2M



President's Message

Ken – K2WB

Next year is only weeks away. Time really does fly when you are having fun.

I look forward to seeing you at the Holiday Party. The venue is similar to last year's party. It is fully catered. Come one come all (bring a friend). Admission is \$15 per person. Lots of fun and comradery and of course there will be the SJRA Awards.

I want to thank all of the committee chairs and their staff for doing a great job throughout the year. The SJRA does not run itself and it takes people to run the club. Make it a point to thank someone or better yet offer to help.

Please check your email and Harmonics for your membership renewal. It is important that all information is updated so that we can make corrections to our database. This will insure that Harmonics and other important club information will continue to go you.

Congratulations to all that participated in Field Day 2014. The SJRA took 1st Place in the 6A category. It took a lot of hard work, but the result was well worth the effort. Field Day 2015 will be here before we know it, let me know if you want to help.

The SJRA email list has been running for over a year. This is a great way to reach out to all of the members of the club if you have a question or an item for sale. This service is only available to members of the SJRA and will be the only to receive harmonics by email. If we have your email address you will be receiving an email

(Continued on page 9)

Monthly Puzzle

Don – WA2DUE, *wa2due at arrl dot net*

Last month we posed the following:

In major league baseball the pitchers mound is 60.5 feet from the center of home plate. If a pitcher throws the ball at 95 miles per hours how many seconds does it take to reach the plate?

Answer: 95 miles per hour is equal to $95(5280/3600)$ or 139.33 feet per second therefore the ball reaches the center of the plate in $60.5/139.33$ or 0.43 seconds.

A 6 Volt battery delivers an half Amperere to an electric motor. What power and energy are consumed by the motor in a 5 minute period? Provide the answer in kilowatt hours and Joules.

Answer: The power is the current times the voltage or 6 times 0.5 which is equal to 3.0 Watts. Since there are 60 minutes in an hour 5 minutes is 0.08 hours and the power in this case is equivalent to 0.00025 kilowatt/hours. 3 Watts is also 3 Joules/second and therefore after 5 minutes we have consumed 900 Joules.

Rich, KV2R, sent in his solutions. Thank you Rich.

For relaxation after all the Christmas festivities try solving these puzzles:

A digital clock operating on 115 Volts has a resistance of 12 K ohms. If electricity costs 12 cents per KW hour how much does it cost to operate it for one month?

Don and Pat are walkers and Don walks 1 km/h faster than Pat. From a common point Dons walks North and Pat walks East. After one hour they are six km apart. Find the rate each person walks.

Please submit solutions and/or comments to *wa2due at arrl dot net*.

Free Stuff!

Dan, KB6NU, cwgeek at kb6nu dot com

I'm a sucker for free stuff. Below, you'll find links to a free transistor amplifier design program, a free printed circuit board design program, and a free tutorial on antennas. All of these look to be worth a look.

TransistorAmp 1.1

This is free software for designing bipolar transistor amplifiers. I found the link to this software (<http://en.transistoramp.de/>) on the AMRAD mailing list. Phil, M1GWZ, who posted the link, says, "A transistor circuit that I'm developing needed a 5x voltage gain stage. I could have thrown in a single op amp with split power rails and all that DIL8 real estate, but a single transistor stage would suffice. Trouble is, I'm an EE by inclination, not training, and all those calculations - working out those capacitor reactance values - well, I don't do them often enough for them to be easy. And I want voltage gain, not current. And then I found Transistor Amp 1.1."

"It's a nice piece of software," says Phil, "It installs easily and did the job for me quickly and easily. Oh, and when I built the circuit for real - voltage gain of 5x!"

Altium CircuitMaker

CircuitMaker (<http://www.circuitmaker.com>) is a free printed circuit board design tool for hobbyists, people like you and me. Maxfield Parrish of EETimes says, "one key aspect of CircuitMaker is its intuitive and easy-to-use interface -- all of the important "stuff" is presented in an easily accessible manner in a ribbon at the top of the display. Another major consideration is that Altium has decided to make CircuitMaker all about "Community," so users can easily share ideas and designs, comment on

designs and offer suggestions for improvement, and generally help each other along the way."

Free antenna tutorial

For a limited time, Rohde & Schwartz and the IEEE Communications Society are offering a free tutorial on Antenna Basics (<http://www.comsoc.org/form/tutorial-registration-antenna-basics>). This tutorial explains the basic functionality of an antenna, starting with Hertz's antenna model. It also includes a short introduction to the fundamentals of wave propagation, the important general characteristics of an antenna and parameters, such as antenna gain, radiation pattern, bandwidth or VSWR. A more detailed explanation of the functionality of some selected antenna types (e.g. dipole or monopole) is also given.

Maik Reckeweg, Product Manager Antennas, Rohde & Schwarz GmbH, Munich, Germany, who is responsible for all the company's monitoring, measurement and communications antennas is the tutorial's.

The video is kind of dry, but I think Reckeweg does a pretty good job of discussing antenna basics. The video is also accompanied by a white paper that delves into these topics a little more completely. Overall, there's a bit more math than in most amateur radio discussions of antennas, but this makes the discussion a little more comprehensive.



When not scouring the Internet for free stuff, you'll find KB6NU working on updates to his "No Nonsense" study guides, working CW on 40m, or blogging about amateur radio at www.kb6nu.com.

SJRA Membership Renewal Begins January 1st, 2015.

Please consider paying your dues early this year.

We've done our best to make it easy...

Use the SJRA website and PayPal to renew at:

http://www.sjra.org/sites/default/files/2014_Renewal.pdf or:

Bring a check payable to "SJRA" to the next meeting or:

Simply mail a check payable to "SJRA" to:

Ray Golley, Treasurer
552 Newport Rd.
Millville, NJ 08332

Thanks for your consideration.

SJRA Members Birthdays

January

2 - Joe Fisher, KC2TN

12 - Robert Seeland, W2GND

15 - Brian Gross, KD2FJX

SJRA Health and Welfare

Speedy recovery to Rick Lawn, W2JAZ, and Joe Lameiras, K2WJL

Health and Welfare Co-chairpersons:
Roy, WB2EOD, and Dara, KC2THQ

List Your "For Sale" Ham Stuff in the SJRA Harmonics

Email Ted, W2TAG, with your listing, ted.w2tag@gmail.com

(Presidents Message from page 7)

from sjra-members-resquest@mailman.qth.net inviting you to join the list or you can join by going to <http://mailman.qth.net/mailman/listinfo/sjra-members>. Remember to include your Call sign with your name.

To send an email to the list, just send it to sjra-members@mailman.qth.net and it will go to all of the SJRA members automatically.

The Web Team has fully migrated the SJRA web site and all of the email accounts to a new ISP. It has been a bumpy road, but not impassible. Special Thanks to IRA W2IRA and his team for doing a great job. If you would like to help with the Web Site, please contact Ira, W2IRA.

The SJRA needs your help in several areas. Mary, KV2M, would like to step down from Membership and Historian. Mary has been doing these Jobs for at least 15 years, with almost 120 members I would think that someone would be interested in helping. Please contact me or Mary if you are interested.

In addition, we have several members of the SJRA that would like to come to the meetings but can't drive in the evenings. We needs rides from Mount Holly. I have one volunteer who can provide a ride from Cinnaminson. Contact me if you are interested in helping SJRA members get to the meeting.

I want to wish everyone and their families a very happy and healthy holiday season.

Until next year, 73!

SJRA Wishes: Season's Greetings To All

(100th Anniversary Happenings from page 1)

of the SJRA. Our goal would be to have at least two members in each of the States. At least one member in each of the ARRL sections and at least one member in 100 countries. This will make some of radio sport events planned very exciting.

Let me know if you are interest in joining the committee. 73's

Ken K2WB/100

(Meeting Minutes from page 3)

Contests- Jon, W2MC, reported receiving logs from several people.

Club Stuff- the 100th will soon be available.

H&W- Roy, WB2EOD, will make another attempt to get birth dates.

Awards are ordered.

Christmas party is still moving along.

Programs: See Members Meeting

Web team- On new servers.

VE- Same as last meeting.

Historian- Mary presented a copy of the 75th Anniversary Program., the ARRL 50 year affiliation certificate, and a copy of the NJ state Assembly Proclamation.

100th Anniversary Discussion regarding "Centennial Membership" Membership Approved , Motion N2HQL/KR2T.

New- Recognition to Kathy, KM2KME, for her service to the club, motion to enter in minutes N3RG/ WB2EOD-passed.

Ken mentioned 2015 is election year, and is ready to set up a nominating committee.

Adjourn at approx 2100.

Lou, N2HQL, Recording Sec.

(Ham Tech from page 5)

recommended software, it is very useful in understanding the Koch method. Practice on these single characters until you have mastered all of them at maximum Farnsworth speed by listening only.

Now it is time to switch to words. Obtain the iPhone App called CW Text. It has a wide variety of ham radio text like call signs and Q signals in addition to plain language text arranged for easy selection. Start with "100 Most Common Words" with the Farnsworth speed equal to the character speed because you should by now be able to copy all 43 characters at target speed. Try to copy by ear only, no writing. The answer appears on the screen after each word. Progress to the more difficult text provided including some of the short stories. When you can follow the stories by just listening you have mastered receiving Morse.

Fire up your CW rig into a dummy load while listening to the sidetone in ear phones, then start practice sending with paddles and an electronic keyer at target speed. Forget the iambic for now and just concentrate on getting the spacing between letters and words correct. Remember the 1, 3 and 7 timing specification for proper Morse. The most common sending mistake you will hear on the air is all the words being run together. Your brain is programmed and you are now a CW Op.

Next Month - I will start with a three month series on a largely historical technology that gave ham radio its world-wide communication capability, the Vacuum Tube. There will be two more of these historical topics on game changing technology over the next 18 months leading up to the SJRA Centennial Birthday in June 2016.

SJRA Jackets, Shirts, Hats

Order NOW - Next order going in soon!



Spring Jacket is \$44 (S,M,L,XL), Fall Jacket is \$55 (S,M,L,XL),
 Shirts are \$27 (S,M,L,XL), Hats are \$20 (*New Lower Price*, one size fits all)
 Name and Call Sign embroidery included....Larger sizes slightly more!
 Email Joe, KC2TN, with orders or additional info: *kc2tn at comcast dot net*

The SJRA congratulates the following on their recent achievements:
 Joseph Lambariski Jr., KD2JOE
 143 Tuckerton Rd.
 Shamong, NJ 08088
Earned his Extra

Richard Dayton Jr., KD2FND
 17 Estates Drive
 Southampton, NJ 08088
Earned his General

	Tech	General	Extra	Total
To Date	70	29	14	113

December Meeting:

Third Wednesday, December 17, 2014

The meeting commences promptly at **7:00PM** in the first floor Meeting Room of the Gibson House on Main Street, Marlton, NJ 08053. Guests are always welcome.

Program For December:

Christmas/Holiday Party and Awards Presentation Meeting

Remember: It all starts at 7:00 PM at the Gibson House.

Amateur Radio FCC License Testing

The SJRA sponsors *FREE* Amateur Radio FCC License testing on the second Wednesday of each month. The location is: 443 Commerce Lane, Suite 5, West Berlin, NJ 08091. Registration is at 7:00 PM and testing begins at 7:30PM. Walk-ins are accepted.

VE team members can be reached at VE *at* SJRA *dot* org. A calendar and more information can be found on the SJRA web site.

First Class Mail

South Jersey Radio Association
PO Box 1026
Haddonfield, NJ 08033

