



# HARMONICS

1916

South Jersey Radio Association

2015



## Leaders of the Pack – All Our SJRA Presidents

### Part 2 – From 1947 through 1965

The 'Leadoff Hitter' and the 'Cleanup Batter' are two of the most memorable names in the History of the South Jersey Radio Association – E Miles Brown (Brownie), W2PAU, and Joe Duffin, W2ORA.

**E Miles Brown: 1947** (*This is the year in which yours truly Mary, KV2M, was born. what an honor*) call W2PAU

Two cards are in membership file. Card No. 1 is dated 17 January 1946. License class 'A'. Call W?IRV (*cannot make out number*). Address – 110 Davis Avenue, Mt. Ephraim, NJ and also 88 Emerald Avenue, Westmont, NJ. Age – 28. Occupation - Radio engineer. Sponsor: – E. S. Clammet. Card No. 2 is without a date or age. License class – Extra. Call (*that never to be forgotten*) W2PAU. Address – 402 Fulton Street, Riverton, NJ.

**H. Walcott Brown: 1948.** Call K1TQ (*former W2OQN and W1KIQ*).

Two cards are in membership file. Card No. 1 is dated 20 September 1945. License class 'A'. Calls listed W1KIQ and W2OQN. Address – 205 Mount Vernon Avenue, Haddonfield, NJ, and 29 North Drive. Age – 25. Occupation – Radio engineer. Sponsor – C. H. Cooke. Card No. 2 is without a date or age. License class – Extra. Call – K1TQ. Address – 5 Pilgrim Lake Terrace, Orleans, MA.

**Lloyd L. Gainey: 1949.** Call W2UCV.

Card in membership file is dated 26 June 1969. (*This was probably not his application for membership since it is dated after he held the highest office of SJRA.*) License class – Advanced. Call – W2UCV. Address – 25 Laurel Hill Drive, Cherry Hill, NJ. Occupation – Executive. Sponsor – Bill Pehdefor (*not sure of the spelling*).

**George Weilenmann: 1950.** Call W2REB (*Also President in 1960*).

Card in membership file is dated 17 October 1946. License class 'A'. Call – W2REB. Address – P.O. Box 237, R.F.D. #1, Blackwood, NJ and also Box 533 Wilson Road. Age – 29. Occupation – Product manager. Sponsor – W. Tunnell.

**Joe Blake: 1951.** Call W2PFQ.

Card in membership file is dated 26 October (*no year shown*). License class – Advanced. Call – W2PFQ. Address – 6149 Wayne Avenue, Merchantville, NJ. Age – 48. Occupation – Systems tech. Sponsor – E.M. Brown (*Lucky Joe*).

**Edwin Kephart: 1952.** Call W2SPV.

Card in membership file is dated 17 February 1948. License class 'A'. Call – W2SPV. Address – 4309 Willis Avenue, Pennsauken, NJ. Age – 30. Occupation – Electrician. Sponsor – E.M. Brown, W2PAU (*Lucky Edwin*).

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## 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@sjra.org](mailto:sjra@sjra.org) SJRA's web page: [www.sjra.org](http://www.sjra.org)

SJRA VE Team: [ve@sjra.org](mailto:ve@sjra.org) is the SJRA/ARRL VUCC card checker

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

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 ★ **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> ★  
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### 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:** Rick Stoneking, W2RDS  
**Circulation:** Mary VonLintig, KV2M; Jim Vecchiola, KR2T

### 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, April 6, 2015. Email: [ted.w2tag@gmail.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

### Minutes of Membership Meeting 2/26/2015

The meeting was opened at 1935 by Jon, W2MC, at the Gibson House on a re-scheduled Thursday evening. We had a salute to the American Flag, followed by an introduction of all attendees, including some who have been absent for some time due to other activities in Wednesdays. The minutes could not be approved, as they were not submitted to Harmonics due to oversight by the substitute secretary.

Ray, N3RG, reported 88 paid up members so far. He also made treasury reports, available to any member on request, but not published since these minutes are available to the public. Report motion by KR2T/KC2JJT, and accepted by the membership.

New Members/Historian, by Mary, KV2M- Gene, KD2GFH, and Larry, K2NA. History- Log from Gordon Kressel 2BQ (W2BQ) dated 1925.

Programs by Rick, W2JAZ- March-K2MEN; April- Hands on course by NJ2N; May- Storm Robotics.

Harmonics by Ted, W2TAG- Rick Stoneking , W2RDS, has volunteered to assist in the editing. Ted complimented the distribution team.

VE team- 118 tests given so far. Licenses are going "paperless."

Contests- 7-8 March is ARRL DX contest.

Repeaters- working well per Joe, KC2TN. Relocation of K2UK is on hold.

Club Stuff- New 100<sup>th</sup> anniversary logo patches (large) available at \$25 each.

Nomination committee has a slate ready for the March meeting.

Frank, KC2TKD, introduced himself as ARRL Section ACC.

Lloyd, N2KPC, noted the TenTec net is on Sundays, can be heard live on QRZ

### Minutes of Board Meeting 3-4-15

Ray, N3RG, gave the treasurer's report via Webex- 84 members paid up ?? (less than general meeting).

N2HQL/W2JAZ made motion to accept the Feb minutes with a corrected call-sign/accepted.

New Members: Robert C. Beyer KE2D and Robert M Beyer KD2AWE: accepted, motion by N2HQL/AC2FO.

Historian- 1925 report to ARRL: two undated and unidentified photos were found in donated QSTs.

Ken has acquired some storage space for our historical documents- to be moved to storage after scanning.

Programs- as previously reported, address for Storm team needed.

Corresponding Secretary, received a photo of the 25<sup>th</sup> anniversary banquet, in better shape than ours.

VE- 118 so far. Al, N3AVT, is working on internet access at the test site as files will need uploading as part of the paperless change.

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## HAM TECH

Vol 6 No. 3 by John - WY2J

wy2j at arrl dot net

### The Vacuum Tube

#### Part 3 of 3: Transmitter Tubes

**Introduction** - The receiving tubes using the Armstrong regenerative detector of the very early 1920's were a huge improvement over the galena crystal receiver. However the spark transmitter was still a major problem due to its wide unstable spectrum. Fortunately if you turn up the regeneration control on the regenerative detector circuit you get a stable continuous signal oscillator with a nice narrow spectrum that matches the characteristics of the new receiver. All you need is a high power amplifier following the oscillator to produce a modern, for the 1920's, CW ham transmitter. This final article on the history of the vacuum tube focuses on the transmitter tubes and how they were used.

**Vacuum Tube Amplifier Efficiency** - All of the amplifiers discussed in the last two HAM TECH articles operated in what is known as class A mode, that is the plate current flowed for all 360 degrees of the signal sine waves. This leads to very poor power efficiency in the tube which is usually below 25 percent. This means that a class A amplifier requires 4 watts of DC plate input power for every watt of signal output power with the remaining 3 watts going into heating the tube's plate. For a few watts out like the 2A3 example used two months ago it is acceptable. But try it at a kilowatt level and it means getting rid of 3 kilowatts of heat from the tube most likely by means of water cooling. There are other ways of operating tubes than class A.

#### Vacuum Tube Operating Classes -

There are four classes of tube operation labeled A, AB, B and C. They differ only in how the grid is DC biased with respect to the AC drive signal to the grid which varies the conduction angle of the plate current. In addition the AB class is divided into two sub classes, AB<sub>1</sub> where the grid is always negative and AB<sub>2</sub> where the input signal drives the grid into the positive region where it draws current and dissipates power. Table 1 gives the conduction angle, approximate efficiency and the ratio of the RMS signal current to the DC value for each operating class.

Operating Class	A	AB <sub>1</sub>	AB <sub>2</sub>	B	C
Conduction Angle deg.	360	>180	>180	180	<120
Efficiency %	~25	~50	~50	<66	>70
$K=I_{RMS}/I_{DC}$	1.3	1.6	1.6	1.7	2.0

Table 1, Operating Classes and Major Parameters

The most efficient amplifier is operated class C however this amplifier is highly non-linear and can only be used with CW and FM signals that do not vary in amplitude. All other operating classes are linear with class A the most linear and class B the least.

**Early Transmitting Tubes.** - Triode transmitting tubes of modest power levels for Ham use appeared in the 1920's. These were modified versions of power audio receiving tubes with thorium tungsten cathodes upgraded for higher emission current. Higher power triodes and modest power tetrodes were available by the 1930's. Table 2

(Continued on page 5)

(Ham Tech from page 4)

lists three triodes and one tetrode, from these two decades, that were popular in Ham rigs. It includes the 811A which has been in production for over 75 years and is the most commonly used tube in 600 to 800 watt HF vacuum tube amplifiers today.

Type	P <sub>D</sub> (w)	E <sub>P</sub> (v)	I <sub>P</sub> (ma)	P <sub>G</sub> (w)	P <sub>O</sub> (w)
10Y	15	450	65	3.2	19
T20	20	750	85	3.6	44
807	30	750	100	0.3	54
811A	65	1500	175	7.1	200

Table 2, Popular Early Transmitting Tubes

The 807 is the tetrode of the group and was widely used in Heathkit, Johnson Viking and home brew novice transmitters in the 1950's. It was introduced in 1936 and was based on the 6L6 beam power tetrode technology of the mid 30's. It had a 12.6 volt heater twin known as the 1625 that was used in the hundreds of thousands of aircraft transmitters built during WW-2. After the war new 1625 tubes sold for 25 cents on the surplus market while a new RCA 807 fetched \$2.50.

**Early Transmitters** - The 1920's CW transmitters were usually a three tube configuration consisting of an LC tuned plate oscillator (VFO) driving a push pull neutralized triode amplifier. This was known as a MOPA transmitter for Master Oscillator Power Amplifier. It was keyed in the cathode of the oscillator for full break-in or the cathode of the amplifier for better quality keying. Figure 1 shows the configuration with neutralized triodes.

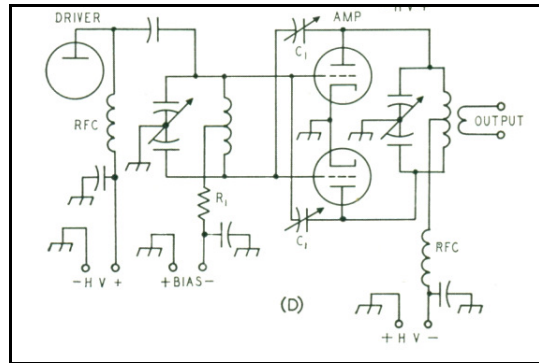


Figure 1, Neutralized Push Pull Amplifier

The typical tube configuration for the earliest of MOPA transmitters was three type 10Y triodes which could produce about 35 watts of power on 160, 80 and 40 meter CW. The neutralization of the amplifier stage with the two variable capacitors connected between grids and out of phase plates in Figure 1 prevented oscillation and isolated the antenna load from the oscillator stage. However poor power supply regulation and ripple caused significant frequency shift or chirp on the transmitted signal. This is where the T in RST came from in signal reports. Poor frequency measurement capability of hams led to many stations operating outside of the ham bands with the early MOPA transmitters. The problem got so bad that the predecessor to the FCC threatened to shut down ham radio. Crystal controlled oscillators solved the problem and VFO usage didn't return until practical frequency measurement technology became available to all hams. In 1950 when the FCC opened up the Novice class license they wrote a crystal control requirement into the amateur radio laws for the Novice license and put them in the center of the 80 meter band. The FCC had a long memory of out of band hams in the 1920's and 30's.

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(SJRA Presidents, 1947-1965 from page 1)

**Emil J. Smith: 1953. Call W2JRO.**

Card in membership file is dated 18 October 1945. License class (*none shown*). Call W2JRO. Address - 1228 Bergen Avenue, Camden, NJ. Age - 40. Occupation - Research Assistant. Sponsor - Lew Spencer, W3IAS.

**John Wesley (Wes) Sammis: 1954. Call W2YRW. (Also President in 1990 and 1991.)**

Card in membership file is dated 18 August 1948. License class 'A'. Call W2YRW. Address - 28 Gill Road, Haddonfield, NJ. Age - 28. Occupation - Advertising Production and also Safety Engineer. Sponsor - George Matthias, W2AKI.

**Anton R. Maugeri: 1955. Call W2SDO.**

Card in membership file is dated 27 January 1947. License class 'A'. Call - W2SDO. Address - 117 Cedar Avenue, Oaklyn, NJ. Age - 34. Occupation - Foreman RCA. Sponsor - Gerdelmann, W2BQC.

**Samuel Zollers: 1956. Call W2EWN.**

Card in membership file is dated 12 September 1950. License class 'B'. Call - W2EWN. Address - 118 Westmont Avenue and 44 Jefferson Avenue Haddonfield, NJ. Age - either 34 or 54 (*writing blurred*). Occupation - Electrical Engineer. Sponsor - H.W. Brown.

**Thomas E. Stewart: 1957. Call W2TBD.**

Card in membership file is dated 20 June 1953. License class - Advanced. Call - W2TBD. Address - 107 Homestead Avenue, Collingswood, NJ and Sunset Trail, Medford Lakes, NJ. Age - 31. Occupation Sales Engineer. Sponsor - W2KNW (*not sure on this one - writing blurred*).

**Charles H. Jenkins III: 1958. Call W2OGZ.**

Card in membership file (*this is not his original application since it is dated 1971*) is

dated 26 May 1971. License class - General. Call - W2OGZ. Address - 209 Roberts Lane, Moorestown, NJ. Age 43. Occupation - Commercial Photographer. Sponsor - C.H. Jenkins, Jr., W2VX.

**Phillip M. Catona: 1959. Call W2JAV.**

Card in membership file is dated 12 April 1949. License class 'A'. Call - W2JAV. Address - 400 North Second Street, Hammononton, NJ. Age - 30. Occupation - Test Foreman RCA. Sponsor - George Matthias, W2AKI.

**George Weilenmann: 1960. Call W2REB**

(*see 1950*).

**Richard Shaw: 1961. Call K2KCI.**

Card in membership file is without dates and shows Dick Shaw as Honorary Member. Call - K2KCI. Address - 3019 Windchime Cr, Apopka, FL.

**William Jenkins: 1962. Call K2HOD.**

Card in membership file is dated 27 March 1954. License class - Novice. Call - KN2HOD with upgrade to K2HOD. Address - 2852 Burlington Avenue, Delanco, NJ. Age - 32. Occupation - Electrical Tech. RCA. Sponsor - Joe Blake.

**Robert C. Dennison: 1963. Call W2HBE (three cards in membership file).**

Card No. 1. Is dated 20 June 1951. License class - none shown. Call - W2HBE. Address - 245 A Haddon Hills, Haddonfield, NJ. Age - 30. Occupation - RCA Engineer. Sponsor - Chas Jenkins, W2VX. Card No. 2 is dated 29 November 1956. License class - Advanced. Call - W2HBE. Address - 82 Virginia, Westmont, NJ. Age - 35. Occupation - Electrical Engineer. Sponsor - C.H. Jenkins Jr., W2OGZ. Card No. 3 is a reinstatement of Past President, which is dated of application - 16 January 1970. License

(Continued on page 7)

(SJRA Presidents, 1947-1965 from page 6)

class - Extra. Call - W2HBE. Address - 82 Virginia Avenue, Westmont, NJ. Age - 48. Occupation - Electrical Engineer.

**Joseph Tolotta: 1964.** Call W2OSD (*no membership records available. I really searched for membership information but could not find anything. Maybe some unknown life form in that 'back room' ate it).*

**Joseph D. Duffin (from Mooooorestown): 1965.** Call W2ORA (*Old Radio Amateur*).

Two cards are in membership file. Card No. 1 is without dates or age. Call - W2ORA. Address - 247 Kings Highway West, Haddonfield, NJ. Card No. 2 is dated 18 December 1957. License class - Advanced. Address - 4 West Central Avenue, Mooooorestown, NJ. Occupation - Engineer.

*These Leaders took our club from its teenage years to its 'half time'. They continued to build on the solid foundation set forth by her previous leaders and did a 'Grand Slam' job. Under their leadership SJRA continued to grow and prosper. The light from that June 1916 sunrise has continued to shine brightly for those first 50 years and will continue to intensify as we approach our Centennial - 100 years.*

73 to all and I am History  
Mary, KV2M

*To be continued.*

If you have not paid your 2015 dues, this may be the last issue of Harmonics you receive. Please send your dues check payable to "SJRA" to:

Ray Golley, Treasurer  
552 Newport Road  
Millville, New Jersey 08332

## President's Message

Ken - K2WB

Our White Elephant sale was very successful. Many thanks to all that have come out to help out the Donations.

Field Day will be here before we know it. Time to start thinking what you can do for the SJRA at field day, we are a team and it requires many talents to keep the SJRA #1 in the 6A category. Contact me and be part of the team! This is our only club event and *The SJRA Needs You*.

Ray N3RG has been getting a large number of Membership Renewals; we have almost 100 members and hopefully more to come. If you had not done so it is time, otherwise you will not be receiving harmonics after this issue. Please send in your SJRA membership renewal as soon as you can, act now so you don't get missed in the next roster. We have members on 3 continents. Emma san JA9AA, Yokohara san JM1VCY, and Alan EI8EM. Not to mention the 90 that live in North American.

Support our nets and check in. It is a good way to meet other members of the club. Check in today.

## 100th Anniversary Happenings

So far the 100th anniversary committee has had 6 meetings (many more to come). Just to keep everyone up to date here is where we are. The last meeting had the highest attendance yet, and the team was able to get more things moving. It is getting exciting as the momentum builds.

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## Make your own dipoles with these center insulators

Dan, KB6NU, cwgeek at kb6nu dot com

One of the things that always gets my goat is the price some companies charge for dipole antennas. It's not that they're charging an outrageously large sum of money, and I certainly don't begrudge them making a profit for their efforts. It's just that if hams would just buy their own wire and parts, they would not only save money over the long run, but be encouraged to experiment with antennas. That's what I started doing about ten years ago, and I've been very happy with the results.

One of the first things that I did was to purchase ten Budwig HQ-1 center insulators and ten HQ-2 end insulators (<http://www.budwig.com/antenna-connector-insulators.html>). I've made a bunch of antennas with these insulators, including several 40m/20m inverted vees for portable use (such as Field Day and special events), a 17m dipole, and a 10m loop antenna. These insulators are very well-made, and can easily be reused, too.

Universal Radio sells the set (<http://universal-radio.com/catalog/antsup/1782.html>) for \$18.50. I just placed another order for ten HQ-1s and 20 HQ-2s (the minimum number that you can purchase to get a quantity discount). The price, including shipping, is \$143.

There are a bunch of other center insulators on the market, including:

\*The Alpha Delta Delta-C antenna hardware kit (<http://universal-radio.com/catalog/antsup/0297.html>) consists of a Delta-C Center Insulator, antenna connecting hardware, 1 SEP Arc-Plug™ static protector (installed in Delta-C) and 2 Delta-CIN end insulators. This is a little heavier-duty

than the Budwig insulators, but it costs more, too (\$30 at Universal Radio). Unless you're going to be running a kW, I don't see the need to spend nearly twice as much money on these insulators.

\*The TEN-TEC ACRO-BAT Antenna Connector & Hanger (<http://www.tentec.com/products/ACRO%252dBAT-Antenna-Connector-%26-Hanger.html>) is an interesting product. Unlike the Budwig and Alpha-Delta insulators, this product does not have an SO-239. Instead, this insulator clamps over the coax and antenna wire, and in doing so, provides strain relief. I haven't tried this one, but it seems like a nice design. The cost is \$10, directly from TEN-TEC or from Universal Radio.

\*The Unadilla W2AU ANsulator (<http://universal-radio.com/catalog/antsup/0913.html>) is made from PCV tubing and include eyelets for terminating the antenna wire and for supporting the insulator in the middle. For \$15, I think I'd rather have the Budwig insulator. Also, you should be able to make one of these insulators for less than 15 bucks.

\*The Hy-Gain C-1C Center Insulator (<http://www.hy-gain.com/Product.php?productid=C-1C>) has a screw for tightening down the antenna wire, so you don't have to do any soldering, but overall, I don't think I like the looks of this model. And, at 30 bucks, it seems kind of pricey.

\*The W8AMZ Dipole Antenna Starter Kit ([http://www.w8amz.com/W8AMZ\\_ACC\\_Page.html](http://www.w8amz.com/W8AMZ_ACC_Page.html)) comes a center insulator made from PVC pipe, similar to the Unadilla W2AU ANsulator and two end insulators. It costs \$18.

(Continued on page 9)

### **SJRA Membership Renewal Begins January 1st, 2015.**

Please consider paying your dues in a timely manner 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](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

*(Meeting Minutes from page 3)*

Website- Security updates needed. An "elmering/help" tab to be added.

Awards- A thank you plaque was presented to Kathy, KM2KME.

100<sup>th</sup> Anniversary discussions ensued.

Old Business- Nominating committee has full slate- to be read March and April, floor nominations in May.

New Business- Rice School demo on June 10<sup>th</sup>.

Adjourn at 2055

Lou, N2HQL  
SJRA Recording Secretary

*(Make Your Own Dipoles from page 8)*

If none of these strikes your fancy, you can always make your own. WP4AOH has some very good instructions on how to do this using PVC pipe and fasteners that you can find at your local hardware store (<http://wp4aoh.blogspot.com/2012/07/dipole-antenna-center-insulator.html>).

Whatever route you take, I encourage you to keep several on hand and enough antenna wire and coax to complete the antenna. You never know when the urge will strike you to build an antenna, and if you don't have the parts you've missed an opportunity to do some experimenting.



When not checking his stock of antenna parts, you'll find KB6NU working on updates to his "No Nonsense" study guides, blogging about amateur radio at [www.kb6nu.com](http://www.kb6nu.com), or working 30m CW.

*(100th Anniversary from page 7)*

Over 48 coffee cups have been sold. There are plenty more to go. Mugs may be acquired to SJRA members by a minimum donation of \$10.00. I will be bringing some coffee mugs to the General Membership Meeting on March 25th, 2015.

The first of the fund raising raffles is still in the planning stages.

We have applications for two more centennial members. They will be voted on at the next BOD meeting. 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.

There is still a lot to do and we need your help. Please contact me if you are interested in helping with the 100th.

Ken K2WB/100

*Ham Tech from page 5)*

**Post WW-2 Era Tubes and Transmitters** - Many medium and high power tetrodes came to market following the war. Triode use at HF faded while a single or two paralleled tetrodes with Pi Network tuners matching coax cable dominated transmitters. The 807/1625 and the new 6146 were the work horse of finals in the 50 and 100 watt output class of transmitters popular in the day. Eimac supplied their 4-125A tetrode for the 500 watt Collins 30K-1 and the 4-250A for the one kilowatt KW-1 high power amplifiers. Figure 2 below shows a home brew 75 watt input Novice transmitter using a surplus 1625 mounted below chassis level to keep fingers away from the lethal 750 volts on the tube's plate.

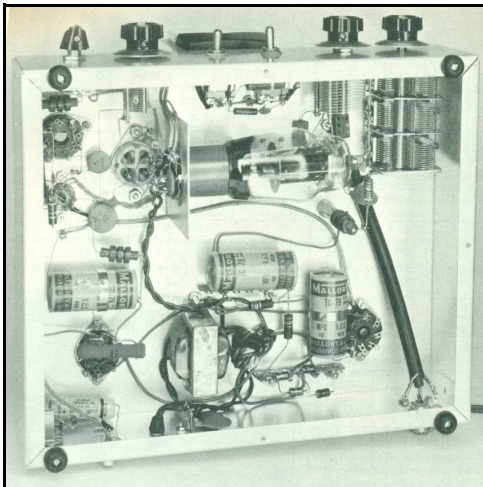


Figure 2, 75 watt Novice transmitter using a 1625.

**Next Month** - HAM TECH switches to antennas as spring arrives with a three month series on "Understanding Simple Multi-Band Antennas." The first of the series will be the "135 foot Dipole and G5RV."

The SJRA congratulates the following on their recent achievements:

Jason Marcus, KC3CEQ  
536 N. 36th St.  
Philadelphia, PA 19104  
Earned his General

Kenneth Naylor Jr  
133 N. New Jersey Ave.  
Atlantic City, NJ 08401  
Earned his Tech

Nickolas Dunlap  
915 Tuckerton Rd.  
Reading, PA 19605  
Earned his Tech

Robert Harper, KC3EER  
266 Romney Blvd.  
Newark, DE 19702  
Earned his General

Julia Saunders  
230 Morris Ave.  
Woodlyn, PA 19094  
Earned her Tech

William Latoof Jr  
557 Delaware Ave  
Roebing, NJ 08554  
Earned his Tech

Michael Dornish  
20 Parc Ridge Dr.  
Mount Holly, NJ 08060  
Earned his Tech

	Tech	General	Extra	Total
To Date	79	32	14	125

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

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

## 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](mailto:kc2tn@comcast.net)

### March Meeting:

**Fourth Wednesday, March 25, 2015**

The meeting commences promptly at 7:30PM in the first floor Meeting Room of the Gibson House on Main Street, Marlton, NJ 08053. Guests are always welcome.

### Program For March:

Sheldon Parker, K2MEN, and Rick Lawn, W2JAZ, will discuss equipment and flying RC airplanes and Copters.

### SJRA Members Birthdays

April 16, Betty Fletcher, KB2WDG. April 18, Whitney Myers, KB2ZTL

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

### 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

