BARS Billerica Amateur Radio Society

NEWS FOR AND BY BARS MEMBERS

JANUARY 2020

From the President's Desk

from the President of BARS, Andy Wallace, KA1GTT

Hello, everyone. Last meeting, I circulated some signup sheets to recruit people from BARS who could serve as mentors and another group who could be called upon to help with simple wire antenna help. I am so pleased that we got many names on the sheets! A heartfelt thank you goes out from me. It is great that we have members that 1) know how to do things, 2) actually do them, and 3) are willing to help or teach others to do them!

To me, history is important. If a new ham wants to get on HF, you can teach him that a half-wave dipole is cut to "feet = 468/f(MHz)" because someone worked out the details before. They experimented, built on the knowledge of others, and added their own ideas into the mix until it became accepted as fact.

I'd like to recount a story to you. My uncle (by marriage, so my brain contains none of his DNA unfortunately) was Gus Fallgren, W1OG (ex-W1OGU). Gus was active in PART of Westford but many BARS members may have known him. He worked at Raytheon along with two other hams, Al Hankinson (W1OSF, later KC3QU, SK) and Dick Wright (W1UBC, later W1UC, lapsed). In 1956, the three of them decided to build a CW transmitter using Raytheon transistors. Bear in mind the transistor was invented in 1947. They were still very expensive, nine years later, and flea powered compared to the vacuum tubes used in all ham equipment up to that time. The trio worked on the design using two Raytheon CK761 germanium transistors. Gus made the tests with it at his QTH because he has a 20m Yagi in the air. Initial contact was made using his large tube transmitter but then he switched to the .08W transistorized one. On 9/18/56, the hams were astounded to make contact from Chelmsford, MA, to Denmark (OZ7BO) which sparked the following magazine articles and the title "45,000 Miles Per Watt".

http://semiconductormuseum.com/HistoricProfiles/Raytheon_TransAtlantic_Transmitter_Profile_Index.htm

(be sure to click on the page 2 and beyond link at the bottom for many pictures of the team and the transmitter)

And links to the original Radio And TV News 1957 and Raytheon News 1956 articles, along with profiles of the three hams:

http://www.semiconductormuseum.com/HistoricProfiles/Raytheon_TransAtlantic_Transmitter_Profile_Page6.htm

Figure 1: W1OG Operating the Transistorized Transmitter

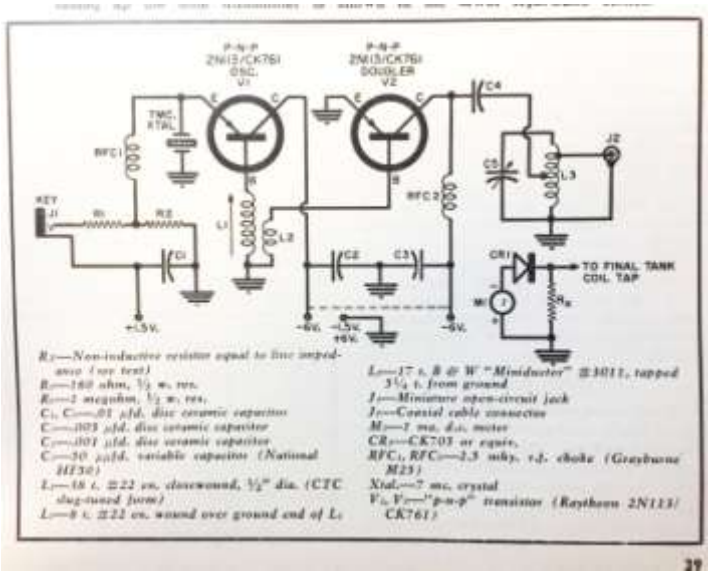

Figure 2: The Schematic of the Transmitter

When you think of how technology progressed 60+ years ago it was not as rapid as we accept it in 2019. Think of a 9-year-old flatscreen TV compared to today's. But a 1947 radio and a 1956 radio were not so different. What Gus, Al, and Dick did nine years after the transistor's invention was to blaze a new trail no one had gone down before.

After Gus's passing, his historic transmitter was donated to ARRL HQ. Be sure to see several photos here:

http://www.arrl.org/news/first-solid-state-transmitter-to-span-the-atlantic-now-part-of-arrl-historical-collection

Someone has to be the first. Before Yagi and Uda, no one had added a reflector and a director to a dipole. Someone else was the first to fold it into a Moxon. And someone else folded it again and called it a Hexbeam. Someone was first to punch out discs of PC board and invent "Manhattan-style construction". Someone was the first to decode CW with a computer, and someone else took that and broadcasted it back over the internet as the Reverse Beacon Network, and someone else combined that with a logging program allowing us to point and shoot QSOs fish in a barrel style. The takeaway here is that we are in a hobby which is rich with creativity and knowledge and someday, any of us could put new pieces of the puzzle together and become the "first."

Andy, KA1GTT
President, BARS

Next BARS meeting:
Wednesday January 8th at 7:00 PM
"BARS Holiday Party"

Important: please RSVP now to ka1gtt@arrl.net so I can get a headcount for the restaurant.

Please join us for the 2020 holiday get together which will take the place of our normal meeting in January. Since the first Wednesday is Jan 1, we are having the party the following week, Jan 8th. (The Wednesday, Feb 6th meeting will be back at the Chelmsford Bible Church.)

The BARS January 8th Holiday Party Location is in Bedford, MA. This month's meeting is very special as we greet the New Year and hold a New Year's version of our traditional Yankee Swap.

Here are the details:
Date: Wednesday, January 8, 2020
Time: 7:00 PM
Where: Great Wall Restaurant, 309 Great Road, Bedford MA 01730
Restaurant Tel. Number: 781-275-7007
http://greatwallbedford.com

Program:
– Yankee Swap (Participation Optional for members. If you wish to participate bring a wrapped gift of $15 or so in value. No boatanchors from the basement!)
– Dinner Buffet - includes soup (Cost $24 per person including tip – please bring cash as we will collect for the bill when you arrive). Exact change appreciated!
– Beverages (other than tea and water) are not included in above cost.

Ordering beverages (other than tea and water) or menu items:

Beverages, other than Tea or Water, and menu items can ordered from the main restaurant menu (other than the buffet) at an extra cost that are not included as part of the Club's bill. These can be purchased individually by paying the waiter directly.

Directions to Great Wall:

Coming from the North:

From Chelmsford and Billerica, follow Route 4 South into Bedford Center. Continue south on Routes 4/225 for about one mile (four traffic lights). At the 4th light (across from Papa Gino's), turn right into the STOP and SHOP Shopping Center. The GREAT WALL is on the right hand side near the back.

Coming from the North or South via Route 128:

Take the Route 4/225 exit towards Bedford. Travel about 1.5 miles from Route 128 and at the 3rd Traffic Light get into the Left Turn Lane (across from Papa Gino's). Turn left into the STOP and SHOP Shopping Center. The GREAT WALL is on the right hand side near the back.

Come and enjoy.
Andy
KA1GTT ka1gtt@arrl.net

PS the Yankee Swap rules from Jim, N1HTS, our Master of Ceremonies, are posted below. Consider joining the swap! It's fun and you never know what you'll end up with.

Yankee Swap Rules:

Please be there by 7:30 if you want to participate as we can't add people once we start, which will be after the meal and any business type discussions.

Everyone gets a randomly drawn number when they bring a wrapped gift of $15-ish to the swap.

Nobody leaves until the swap is over.

You can not pick the gift you brought.

The person who gets the first pick also gets the last pick.

The person with the lowest number starts the first round. They choose a gift, open it and take it back with them.

One at a time in ascending order, a swap round begins when the next person chooses a present, opens it, and decides to keep it OR swap it for a present someone else has already opened.

If the person wants to keep the newly opened gift, the next round begins.

If the person wants to swap the newly opened gift for an already opened gift, the person who receives the "new to them" gift can either keep their new gift OR swap with any other opened gift which has not been swapped in the current round. Swapping in that round continues until someone is willing to keep their "new to them" gift.

Opening and swapping rounds continue until all presents are unwrapped.

The final round begins when the person who picked first (#1) gets to choose from all the presents AND ends when someone in the swap round decides to keep the gift they have received.

Let the games begin :-)

Oh and after we are done you are free to negotiate a swap for what you really wanted but didn't get.

Jim

A Message From the Editor

from Marla Wallace, WA1GSF

As the calendar has rolled over into a new year, it is time for me to look Janus-like into the past and future of ham radio. I heard a turn of phrase a few years ago which, although it was applied to science fiction is even more true of Amateur Radio. The statement was 'The future isn't what it used to be.' In other words, what we now have is not what was predicted.

I got my license (Technician, with 5WPM code) back over fifty years ago, in 1966. The ARRL Handbook of that year had a large section devoted to vacuum tubes. I designed and built my six meter receiver mostly using discrete solid-state devices. My transmitter was a repurposed taxicab radio using tubes. My antenna was a two element cubical quad. Because of a favorable point in the sunspot cycle, I managed to work 17 states over the next four years while I got my electrical engineering degree.

A decade later, two meter FM repeaters were all the rage. I got involved in that, constructing the control logic for the WR1ABP (now W1DC/R) repeater, and operating mobile for a few years. With repeaters, reliable VHF communication using much less elaborate antennas and lower power equipment became routine.

I watched my dad, W1HH, operate through some of the early AMSAT satellites, but by then I was heavy into personal computers; I was more interested in the software that calculated the orbit of the satellite than I was in trying to make contacts through one. The equipment was daunting – antennas with dozens of elements operating on two different bands and steered in both azimuth and elevation by hand, following a plot generated by a computer program from NORAD orbital elements data.

By the 1990s, I had given up ham radio entirely except for a couple of kit-form QRP rigs that I made about three contacts with. VHF mobile seemed pointless, because I had a really short commute;VHF at my QTH was well-nigh impossible because of surrounding hills; most of the AMSAT birds used bands I never had rigs for and personal computing was consuming all my attention. Though I did take advantage of the FCC dropping the code requirement to upgrade my license to extra.

Imagine with what amazement I viewed the array of multiband VHF gear for sale at the 2018 Boxboro show and the program on networked repeaters. Ham radio is no longer a regenerative receiver, a crystal oscillator and a straight key, for sure!

Recently, I was given a gadget which acts as a Voice-over-IP gateway for a UHF digitally-encoded ham radio signal. My reaction? 'This is ham radio?' And I decided that yes, it is. Just as much as repeaters and satellites extend the range of VHF radios and make communication more reliable, the internet can act as a backbone for a QSO from your armchair to anywhere in the world.

A couple of weeks ago, I listened to an astronaut on the International Space Station talking to school kids in Pennsylvania. I was using the same gear and antenna that I use to check into the BARS net – nothing special, in other words, and certainly not as sophisticated as the early AMSAT birds needed.

Yes, the future is not what it used to be. But it's glorious!

BARS Member Profile: John Fisher, KC1FTJ

By Contributing Editor Paul Graveline, K1YUB

Hi Everyone

Welcome to a new series of profiles featuring BARS club members. Hopefully, you will get to know your fellow hams better through this series.

John Fisher, KC1FTJ, began his love of the radio hobby when he was very young as he was influenced by his father and two grandfathers. John's original interest was with shortwave listening which he pursued passionately for many years. Along with Past President, K1TW, President Andy Wallace, KA1GTT and myself John was one of the active participants in reviving the shortwave listening focused Boston Area DXers in the early 90's.The group still exists today and is better known as "the Bad Guys".

John was and still is a very experienced and highly accomplished shortwave DXer. One of his passions which has continued into his ham career is collecting QSL cards. He is proud of his excellent SWL QSL collection which he has carefully mounted in folders and which he is always willing to share with fellow hobbyists.

However, as we entered the mid-nineties it was becoming obvious that the art of shortwave listening was declining as many of the SW station began using newer modes such as satellite and local FM to distribute their programs. John's collection of new QSLs began to diminish. However, he still continues to monitor VHF police/fire/air as well as MW DX.

About four years ago John decided that with the now almost collapse of shortwave the best way to continue his radio hobby would be to obtain a ham radio ticket. He enlisted the help of Club President Andy Wallace, KA1GTT, in obtaining a technician class license. Having experienced how much fun ham radio can be, he upgraded to General in March of 2017,

This was a turning point in John's radio career for as he now was actively able to communicate with fellow hams around the world not just merely listening. And for him, making extremely enjoyable friendships made on air has been a major plus. He notes that everyone has been kind, extremely helpful, and folks he did not know before becoming a ham have become great friends. He especially enjoys the camaraderie of Field Day and all of our BARS events.

When you talk to John you realize that his desire to accumulate QSLs has not abated since he got his ham license.

Presently KC1FTJ operates from this QTH which he constantly describes during contacts as "Beautiful North Chelmsford ". He's running an ICOM IC-2000 on VHF and on HF a Yaesu 450D.

Unfortunately John lives in a condo with some very serious restrictions on antennas. Another problem that he faces is a common concern of most hams: electronic interference from the surroundings generated by modern electronic devices especially when operating the on HF bands. It is especially bothersome in a condo environment

But despite the high noise level, he has made some impressive contacts on HF. One of his favorite activities is checking into VHF nets in particular the BARS Wednesday night net of which he is a past net manager.

John regularly attends the BARS meetings along with KA1GTT and frequents the Saturday morning breakfast sessions at Stelio's Restaurant. And you will find both of them roaming the grounds at the twice yearly Nearfest shows in NH.

So if you run into KC1FTJ at one of our meetings be sure to ask him about his SW QSL collection and encourage him to give a mini talk and exhibit some of the very interesting and impressive QSLs from his SWL and ham careers.

Feature Article: Making Those Darn Elements Line Up!

By Steve Wedge, W1ES/4

Some of you will remember me from years back and will remember that I moved 2-3 times in Mass., before heading South. I also worked with quite a few members with their antenna-building and tower-raising activities. My dad was a carpenter and I've done a fair amount of remodeling, myself, so I surprised myself that I hadn't thought of this already!

When assembling an HF yagi antenna, many of us try and "eyeball" the elements to get them into alignment. Sometimes, it works and, well, sometimes it doesn't. If you're setting up on a level parking lot that's bigger than the antenna – no problem! But what happens when you're in your yard and the terrain is not flat? This is what I've gone up against after my first house in Westford (the only one, really, with a flat space that was big enough!)

What if we put the boom of the antenna on some sawhorses or other support, plumbed the boom-to-mast plate and then used a level to get the elements perpendicular? Like I said – so easy I shouldn't have to write about it, but there's a wee twist (actually a bend) to the story.

We start with my TA-33 WARC, as initially assembled by me and roughly "eyeballed". Note that the alignment ain't the best here!

Figure 1:Elements Roughed-in But Definitely Not in Any Sort of Alignment

I took a length of PVC pipe and clamped it into the boom-to-mast plate. I then put the level on the *plate* and not the pipe. This will establish that the plate is *plumb* (level in the vertical axis).

Figure 2: Make the Boom-to-Mast Plate Plumb (I pulled the level away as I snapped the photo, but the bubble should be in the center.)

I started with the two driven elements, as they have stiff, straight supports beneath them. The level rode on the entire centre of the assembly without rocking. Loosen up each element enough so that you can move it and wait for everything to stop moving before checking for level. When it is level, it is perpendicular to the mast!

Figure 3: The Driven Elements have Reinforcements to keep their centers straight. Level them as shown here, across the center.

What was this "twist" I was mentioning? It's actually *bend*. Elements that are attached to the boom with a single U-bolt clamp assembly *will* droop. You can see this in my final photo that shows everything aligned neatly. If you put even a 2-foot level on the centre, you'll have your level rocking. Set the level on one side, then the other, and move the element so that the bubble is off by the same amount in each direction. Tighten and go to the next element.

Figure 4: One Side of the Reflector. Note Position of Bubble due to Element Sag.

Figure 5: The Other Side of the Reflector. Note that the bubble is "off" an equal amount in the opposite direction from the previous photo when the element is aligned.

The results are shown in the last photo. This is pretty-well aligned and certainly good enough. I hope to send a photo of this and my Framingham 6-meter beam when they're back on the tower! (The story of the Framingham antenna goes back to when I bought it for $15 at the 1984 Framingham indoor flea. Maybe I'll do a write-up on that 40+ year-old antenna in the future!)

Figure 6: All Done! This antenna is probably 20 years old (I bought it used and upgraded the hardware.) Some elements sag slightly differently than others. This is about as aligned as you're going to get.

Keep that metal up in the air & 73,

Steve Wedge, W1ES/4
Past Pres and FD Chair Extroardinaire
Graham, NC (FM06).

Strays

I'm helping the family of a local SK sell off a variety of radio gear including some very special items that we'd prefer not to ship. If interested in any of these please let me know and please feel free to pass this on to others. Thanks!

73 Nels K1UR nels@flightsim.com

FOR SALE:

- Icom IC-7850 No 112/150 s/n 22001042 This is the special 50th anniversary edition, one of only 150 made. New, never installed, still in original box $12,000
- Alpha 78 amplifier s/n 8462 used $1400
- Alpha 87A amplifier s/n 91230107 used $2000
- Collins KWM-380 transceiver MCN 577 Rev J s/n 430 Recently updated and serviced by Bob Struk KX6K.

Includes cooler fan, optional filters, noise blanker, original box. $2800

Paul Graveline, K1YUB, writes that he is preparing an article about BARS members who operate on amateur radio satellites. Paul is assistant editor for the AMSAT Journal and would appreciate members contacting him at K1YUB@arrl.net if you would like to contribute to the article.

BARS January Suggestions - Get-on-the-air Events

BARS is a "get-on-the-air" (GOTA) club. We encourage members to participate in the varied events on HF and VHF. Here are some popular suggestions for this month:

Date	Event
January 11-12	North American CW QSO Party
January 18-19	North American SSB QSO Party
January 18-20	ARRL VHF Contest
January 25-26	Winter Field Day
February 1	Minnesota QSO party
February 1-2	Vermont QSO party
February 1-2	10-10 International Winter Contest
February 1-2	British Colombia QSO party
February 15-16	ARRL DX CW Contest

Details on each contest above and more events can be found every week on the WA7BNM contest calendar at : https://www.contestcalendar.com/weeklycont.php?mode=custom&week=current

Secretary's Reports

from Scott Ginsburg, K1OA, Secretary

BARS General Meeting, 4-December-2019

President Andy Wallace, KA1GTT called the meeting to order at 7:00 PM.

A vote was held to decide on a restaurant for the holiday party and the group selected The Great Wall in Bedford. The estimated amount for dinner will be $24. Participation in the Yankee Swap is optional.

Sign-up sheets were passed around for those interested in providing help for new hams with erecting antennas and mentoring on any Amateur Radio topics. Ten people signed up for antenna help and two for general mentoring.

A vote was held to renew the club's annual website hosting fee of $119 with qth.com. The vote passed.

A vote was held to renew the club's annual post office box fee of $60. The vote passed.

Terry Stader, KA8SCP gave a talk on Emergency Communications that included detailed overviews of the various EmComm groups such as ARES, RACES and SKYWARN, and how hams can become involved in supporting their efforts.

There were 19 attendees.

KA1GTT closed the meeting at 8:45 PM.

BARS Membership

Bruce, W1LUS, our BARS Treasurer reports that as of December, 2019, we have 97 total members.

2020 BARS Member Dues

The BARS Board has changed the policy on member dues. A $15 annual BARS membership now runs from January 1 and expires on December 31st. Any renewal or new membership made after September 1 will be valid until December 31 of the next year. Memberships allow us to

- Pay our bills;
- maintain our great web page;
- fund field day;
- and bring the membership a great variety of informative meetings and speakers.

Treasurers Report

from Bruce Anderson, W1LUS, Treasurer

December 2019 Treasurers Report

Reminder: 2020 Dues are due starting January first.
So far 35 members have renewed for 2020.

In December we had 17 members renew their membership for $255 income. PayPal fees were $11.08. We now have $338.62 in the Bank, $485.62 in our PayPal account for a total of $824.24.

Our current membership is 97 members including the three new members from the December VE session.

BARS Needs You!!!

We are looking for a few good hams to act as net control on the regularly scheduled Wednesday night nets! All it takes is one night a month; if you are interested contact Chris, KC1IUK. Also, the club needs volunteers for light tasks of ~ 1 hour a month. Are you able to pitch in? Contact Andy, KA1GTT

Wednesday Night Net

Join us on the Billerica Repeater for the weekly BARS net (except on 1st Wednesday of Month which is club meeting night)

Repeater info:
147.12 MHz
+600 kHz (normal) offset
Encode CTCSS 103.5 Hz

Club Meetings

First Wednesday of the month at 7:00PM at Chelmsford Bible Church, 128 Gorham St., Chelmsford MA
Park in back and enter by rear door
Chelmsford Bible Church Hall, 128 Gorham St, Rear Door, Chelmsford MA 01824-3220 (map)

VE Sessions

VE sessions are held every month on the 2nd Thursday at 7:00 PM at Chelmsford Bible Church, 128 Gorham St., Chelmsford MA. Park in back and enter by rear door. Chelmsford Bible Church Hall, 128 Gorham St, Rear Door, Chelmsford MA 01824-3220 (map)

At the December BARS VE exam session five people showed up for testing. Marc Richute, KC1MJJ and Douglas Bruce, KC1MJK passed the Technician exam. Ryan Drouin, KC1KMT, upgraded to General. And Cameron Morris passed the Technician, General and Extra exams and is now AC1IR. Be sure to say hello if you hear one of them on the air.The VE's at the session were Bruce W1LUS, Gary W1GFF, Guy AC1BJ and Peter N1ALO. The next VE session will be on January 9, weather permitting.

Bruce Anderson

Club Breakfast every Saturday

On Saturday mornings around 8:15AM, we also meet weekly for a casual, social breakfast at Stelio's restaurant. Stelio's Family Restaurant, Billerica, MA (map)

Future Meetings:

2/5: Mike, K1TWF, recap of ARRL Board Meeting.
3/4: TBD.

Subscribe to the BARS Mailing List

To subscribe to the BARS email list, send a blank email to bars-subscribe@w1hh.org
and watch for an automated reply. Note that bars-subscribe is all one word.

Reply to that message from the list server and you are then subscribed.

To post to the list, address your email to bars@w1hh.org

BARS Leadership Team

President: Andy Wallace, KA1GTT
Vice President: Kayla Creamer, W2IRY
Treasurer: Bruce Anderson, W1LUS
Secretary: Scott Ginsburg, K1OA
Net Coordinator: Chris Lobdell, KC1IUK
Newsletter Editor: Marla Wallace, WA1GSF
BoD: Mike Raisbeck, K1TWF
BoD: Henry Christle, WA1VAB
Ex Officio: Tom Walsh