



# CAARA Newsletter



CAPE ANN AMATEUR RADIO ASSOCIATION

NOVEMBER 2016

## President's Desk

by Rick- WZ1B

CQ CQ CQ de  
W1GLO,



About 30 years ago I attended a Lions Club meeting where a fellow Lions Club member, Bob Spanks WA1UCG, gave a fascinating talk accompanied by a film on ham radio. I had no experience or knowledge of ham radio. Being former military and in the reserves, I understood the technology but was in awe at Amateur Radio operators' technical expertise, ability to talk to people around the world, and the involvement of ham radio in community service activities.

My next door neighbor and fellow Lion (President of the Lion's Club at the time), Bob Quinn WV1A, was so excited that he immediately left the meeting and began studying to get his license. Bob can have an infectious enthusiasm and soon convinced me to do the same.

I had no idea what I was getting myself into. Being a psychologist by trade, my knowledge of radio and electrical technology could be fit into the thimble of a Lilliputian. I remember walking into CAARA for the first time to take my test. Back in those days CAARA occupied just the second floor of the clubhouse and were subletting from the Pigeon Club who owned the lease and occupied the first floor. I still remember the strong stench of the pigeons they kept on the first floor when I entered through the side door and walking up the creaky steps to the second floor.

It was a Sunday morning and there were more than 20 hams packed into the space. The room was abuzz with numerous conversations, the corner

radio room was occupied by a couple of guys working Europe on the old Ten Tec, and Al Hamilton was setting up for a testing session. Immediately upon entering the club I was warmly greeted by Mac and Larry (W1EGJ), two old-school, wonderful hams. I am embarrassed that I can't remember Mac's call sign.

Larry, in his 80s, asked if I was there to take a test which I nervously replied that I was. He gave me a pep talk, showed me around the room...packed with radios and little experiments that were ongoing by members. Well I took my first test, Novice-Tech, passed and was congratulated by many. Mike Burke (K1MB) came up to me and said "congratulations, now you are half a ham...". I soon learned about the friendly rivalry between phone and CW operators.

I was immediately taken into the shack and experienced my first contact being coached by Frannie Vidal. We talked to someone in Poland...I was so amazed and excited.

From that point on for many years, I was encouraged, taught and elmered by people who became some of my closet and dearest friends of my life. Because of their fellowship and caring, I fell in love with ham radio and the unique camaraderie. I HATED...HATED...HATED CW in the beginning. I got angry every time Mike told me I would not be a full ham until I learned CW...back then CW was a requirement to earn advanced licenses. For the life of me I could not understand why something as "archaic" as CW was necessary to get your license.

Ralph Karcher (W1RK) became my most closest friend in the world. He was a WWII veteran, a ham radio operator since the 1930s, brilliant and humble. Because of him and Mike (K1MB) I fell in love with CW and now rarely use any other mode.

All of these gentleman, plus another 40 or 50 men and women club members, took the time with me and others. We learned about the technology, operating and they taught many of us how to be elmers to future generations. Amateur radio offers learning,

(cont. p 3)



**CAARA Newsletter**  
**Cape Ann Amateur Radio Association**  
*6 Stanwood Street*  
*Gloucester, MA 01930*

CAARA Newsletter is a monthly publication of the Cape Ann Amateur Radio Association (CAARA). It is the policy of the editor to publish all material submitted by the membership provided such material is in good taste, relevant to amateur radio and of interest to CAARA members, and space is available. Material is accepted on a first come, first serve basis. Articles and other materials may be submitted by internet to Jon at k1tp@arrl.net. If possible, material should be in Word format. Material may also be submitted as hard copy to Jon-K1TP or any Club Officer.

All material published in the CAARA Newsletter may be reproduced for noncommercial use provided such use credits both the CAARA and the author of the article. Copyrighted material will not be accepted without accompanying written permission to publish.

The opinions expressed in the CAARA Newsletter are solely those of the editor or other contributors and do not necessarily reflect the opinions of either the Board of Directors or membership of CAARA.

Jon Cunningham- K1TP Editor  
Dean Burgess- KB1PGH Reporter

#### **Board of Directors- 2016/17**

President: Rick Maybury WZ1B  
Vice Pres: Larry Beaulieu AJ1Z  
Treasurer: Stan Stone W4HIX  
Clerk: Dean Burgess KB1PGX

#### Directors:

Bob Spanks WA1UCG  
Jon Cunningham K1TP  
Stefan De Simone K1SCD  
Ross Burton- W1RAB  
Jake Heard W1LDL  
Chris Winczewski K1TAT  
Hank McCarl W4RIG

## **Welcome to CAARA:**

CAARA, an ARRL affiliated club, operates the 2 meter W1GLO repeater on 145.130 MHz with antennas located on the cell tower in the Blackburn Industrial Complex in Gloucester Massachusetts. It has an average effective radius of 60 miles, and serves Eastern Massachusetts, Cape Cod, Rhode Island, Southern New Hampshire, and maritime mobile stations. CAARA also operates the W1GLO repeater on 224.900. The former W1RK 443.700 repeater is now on the cell tower in the Blackburn Industrial Complex with greatly enhanced performance.

The Association is one of the few amateur radio clubs that has its own clubhouse. Located at 6 Stanwood Street in Gloucester, it includes a permanent HF station with rotating beam and vertical antenna along with a 2 meter packet station and 2 meter voice and 220 MHz transceivers.

Amateur radio exams are held on the second Sunday of each month at 10:00AM at the CAARA clubhouse. Anyone who is considering a new license or an upgrade, is welcome to test with us. There is no pre-registration necessary. Contact the head of our VE team Bob Quinn if you have any questions about monthly testing. Monthly member meetings are held on the first Wednesday of each month at 7:30 PM except for July and August

Each Sunday evening at 9:00pm, the club operates a 2 meter net on 145.130. This is an open and informal net which disseminates club news and prepares operators for emergency communications work. All are invited to check into the net as club membership is not a requirement.

**New! The club is open every Tuesday from 4-8PM for CAARA members to stop by and socialize, as well as use the extensive collection of ham radio gear.**

service, fellowship and FUN in ways that no other hobby can come close.

For those who are new to ham radio, the “CQ CQ CQ de WIGLO” is an invitation to anyone on the air who is listening to come meet someone new, to connect to an old friend, and to experience the excitement of wondering with whom and where around the world you will connect.

My CQ is to all new members, old (experienced) members, and everyone in between who are interested in the joys of ham radio and the special place that CAARA is. I have been receiving emails recently from new hams that are excited to learn and need good elmers. I also know that we have a number of senior members who haven't been around who once were invaluable elmers...I want them to know they are needed once again.

New members, if you need help with your new radios, would like to learn about the science of ham radio, want to develop your operating skills...come to a club meeting or drop me an email. I will introduce you to willing elmers. Experienced members, if you are interested in elmering there are so many opportunities to make a difference.

CQ CQ CQ...the world of ham radio awaits at CAARA.

73,

Rick WZ1B

PS The picture on the beginning of the column is my daughter Erin W1ERN. She earned her Tech license at age 9.

## Information Desk by Dean-KB1PGH



Just to let you know the monthly Board meeting for November will be held on Wednesday the 2nd at 7:30 PM at the clubhouse and all members are welcome to attend. The members meeting will be held the following Wednesday November 9th at 7:30 PM as well. As the CAARA clerk I just wanted to let you know that club President Rick WZ1B and the rest of this year's Board of Directors are going to be transparent as possible.

What does that mean to you as a member? You as a member have the right to know everything that goes on in your club. You have the right to know everything the Board does and why and this includes all financial transactions. So if you have any questions about anything you are more than welcome to either ask me or Rick. As the CAARA clerk it is my responsibility to try my best to get you any information that you need about what your club does. This is the members club-not the Board's so don't hesitate to ask questions.

Moving on, if you're into ham radio traffic handling and emergency communications here's a new website to check out. Take a look at [www.radio-relay.org](http://www.radio-relay.org). It's a new website created by a bunch of hams who created an alternative method of the ARRL's National Traffic System. Something to consider if you're into that sort of thing.

With winter coming now is the time to check all of your outdoor antennas. It's time to make sure they are still waterproof so the rain will not get into the connectors. You can also take a moment to check your tower if you have one or anything else the antenna may be attached to. Maybe it's time to put a new coat of sealant on your connectors to your coax.

Speaking of that-take a look at your coax too to see if it's not split or dried out. If it's been a few years why not change it it's easy to get too instead of waiting for a problem to show up. Also take a look at where the coax comes into your house to make sure all the access points are sealed up tight before the snow flies.

For the emcomm prepper tip of the month have you ran your generator lately? Make sure you run it for a couple of minutes every two weeks so the gas in the carburetor evaporate and leave deposits to clog up the jets in it. Make sure you put “Seafoam” gas treatment in the gas tank as well to combat moisture in the tank.

That's it for now, 73,  
Dean KB1PGH

The **HOUSE COMMITTEE** currently consists of Jon- K1TP, Ross- W1RAB, and Stefan- K1SCD.

Our next project is to paint the first floor bathroom...you know the one, with the lovely dark brown and yellow paint. Who picked that color combination to start with?

When that is done, we hope to spiff up the kitchen with paint and if we can afford it, a new floor covering.

We are looking for donations to replace the table covers on the folding tables on the first floor. If you can help please contact Jon- K1TP.



**Your House Committee at work:** Ross on the ladder scraping, caulking, and painting the second floor windows.

# WHAT'S GOING ON AT THE CAARA EMCOM CENTER?



## CAARA Emergency Drill

The EMCOM team selected the use of the LCC. Wrote emails to the club for 2 months on frequencies, etc.

Deployed to LCC at 12 noon Oct 23, 2016. We had one fully capable hf station on the air in 20 mins. This included radio, generator, end fed wire antenna in a tree in the parking lot. Also available was a connection to the CAARA back up repeater at the club, a localized 440 repeater, a GMRS repeater for non-hams if needed and a marine radio capability.

A second and third station were operational by 12:45 PM. We divided up bands and traded off during deployment. The over all most contacts and versatile antenna for performance, quick set up time , ability to change bands , performance on bands , least complicated with no external tuner required of the 3 antennas in use was the end fed wire with built in balun.

A call was made to a half dozen non caara members who lived in North Gloucester(the morning of set up) yielded check a half dozen check in's and "spotters" on our localized 440 repeater.

## Lessons learned

At set up distractions of non equipment prepared hams is a distraction at setup. Not a problem after on the air.

The more complicated the equipment to set up the longer the time to get up and running. End fed wire out performs on all bands. **The end fed made contacts on 80, 40 , 20 , 17 and 10 with no external tuner, changing of coils etc and broadbandedness.**

Some kind of "holder " for the radio and light screening is needed on a sunny day to combat screen glare. Knowledge of the equipment is imperative before deployment in an emcomm situation.

Paper logs are needed.

Three stations are a great number of operating stations.

Volunteers for set up. break down, checking of petrol in generators etc is a plus.

Being close enough and far away enough

is helpful to combat intermodulation.

Defining roles of people to handle vhf and uhf traffic would be helpful. Weather proof equipment carriers a must.

A tool to get wires up in the air in windy conditions a plus.

Make sure to check all bands for propagation as 10 meters was open. Would need portable shelters or small tents in real emcomm situation.

Proper inter-communications of on scene operators yielded best communications results.

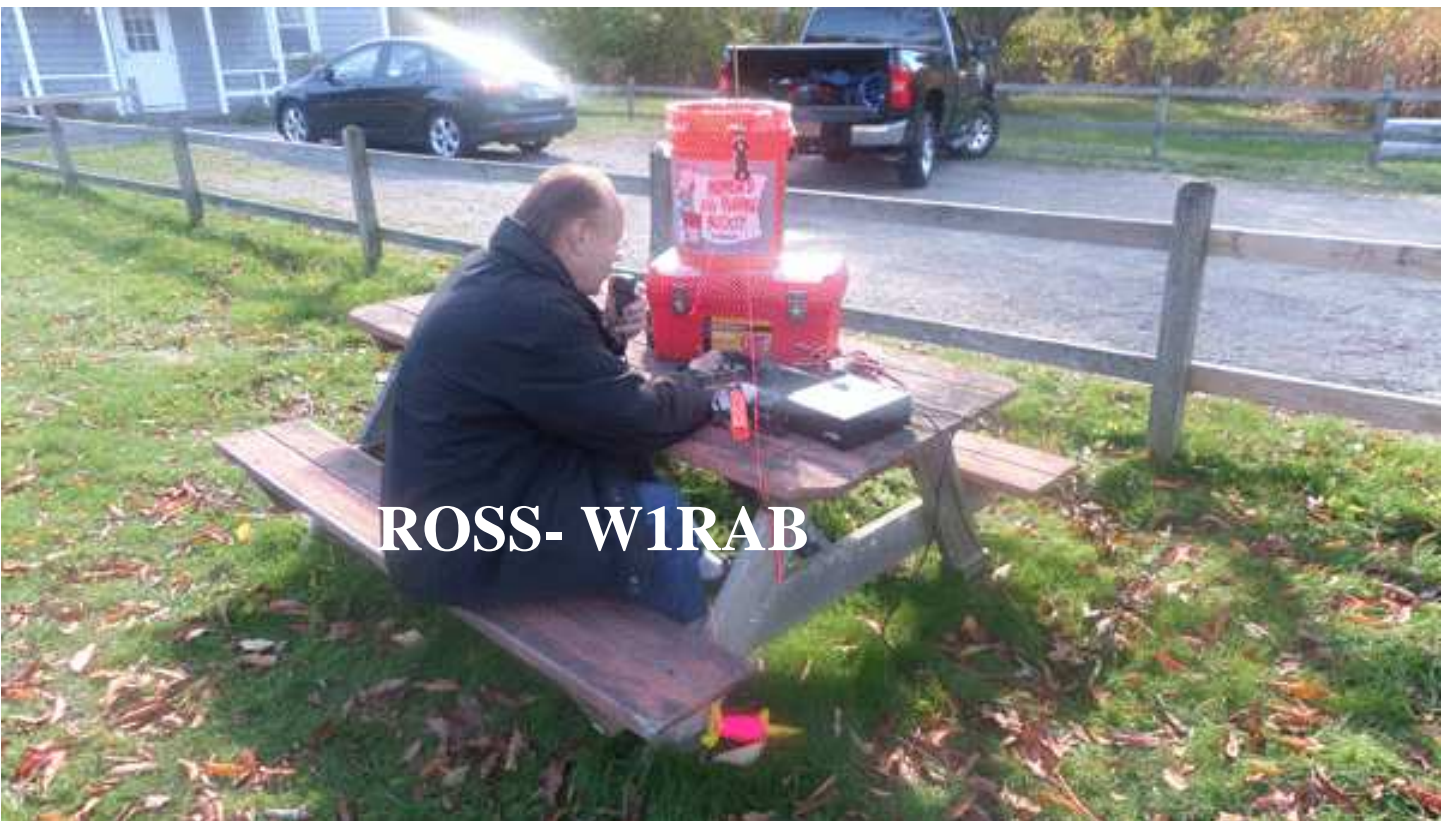
Why not join us at the next drill?

Jon, Ross, and Dean





**DEAN-KB1PGE**



**ROSS- W1RAB**

# Brakes

by Curtis-AA3JE

On the North Shore, especially near the water, there is a lot of salt in the air.

So, when the brakes began to make noise, I figured that it was rust on the drums, and a few good hard applications of the brakes would clean it off.

Amazingly, that was not the problem.

I knew it could not be pads, as the truck has only 12,000 miles on it.

And I hate trying to slack off lug nuts that were put on with an air hammer set on "STUN".

But it got louder, and then the crunching noises began, so it was clearly time to do something. So I (wiser now), looked up on YouTube, and found a really nice video on how to change pads (and rotors) on a Chevy Silverado. Not that I don't like the guys at the tire place, but prefer not to spend \$800 on a \$100 job.

So, armed with my breaker bar, I blocked the wheels, broke the lug nuts free by standing on the breaker bar (700 foot pounds), and jacked the truck up.

And the tire would not come off. That had never happened. So down to the shop to get a wooden mallet. It turns out mallets bounce when you hit a tire with them. So after applying an icepack, and determining that the teeth were just loose, I got a bigger mallet.

After hammering and thumping and whacking things, the tire came off.

And indeed, the pads were gone, along with perhaps half of the backing plate. And the rotor looked like "craters of the moon". So, after a trip to the parts place, I was armed with a new rotor, a set of pads, and started to work.



I had noticed in the video that the man in the nice clean shop with the wheel set at perfect working height had a bit of trouble getting the rear pad out after removing the rotor bolts. The rotor bolts torqued to 300 foot pounds (in an inaccessible place). For me, it took the biggest screwdriver I had and the biggest hammer I had

But I got it off. But then I had to find the right sized "Torx" bit, apply penetrating oil, and whack a lot before the tiny screw that holds the rotor on let go.

Now, in the video, the guy just screwed in two 10mm bolts and the rotor popped off.

His rotor was obviously a coward. Mine took penetrating oil, 200 taps, and still the thing wouldn't budge. And the bolts were literally singing from tension.

In frustration, I kind of lost it. So I took a hammer and screaming curses whacked the damn thing until it came off. Evidently this is the right technique. It came off. At this point, I heard a voice. "WHAT ARE YOU DOING NOW?" said "SHE WHO MUST BE

OBEYED".

"Just a routine disc rotor and pad replacement, dear."

"DOES THAT USUALLY REQUIRE SCREAMING IN WHAT I ASSUME IS KOREAN?"

"It helps, dear, it helps."

"YOU ARE FIXING THE BRAKES?"

"Yes, dear".

"I'M NEVER RIDING IN THAT THING AGAIN!"

Buoyed up by the loving support of my family, I started in again, and to my amazement it all went well! Rotor on, disc cleaned, high temperature grease applied, pads clipped in easily, bolts back in, wheel on, jack lowered. AMAZING.

Now here is the hint!

BEFORE! AND I DO MEAN B!E!F!O!R!E, YOU DRIVE THE VEHICLE

PUMP UP THE BRAKES. NICE AND FIRM.

Failure to do this will mean that to avoid hitting the Lincoln Navigator in the driveway you must steer off the driveway into the rose patch. Talley's was very helpful, and only charged \$250 to pull me out.

It is unclear exactly how much doing this job myself saved me. I will let you know after I see the dentist on Wednesday. I will tackle the left front wheel tomorrow.

What could go wrong?

## **Farrington Ave. up to the Seine Field (& St. Louis Ave.)**

**By David Linsky KA1LKX**

**Certain disaster was narrowly prevented this morning thanks to one of the Sat. morning Volunteer De-litterers who also happens to be a Gloucester Amateur Radio Operator!**

(Read further down in this narrative for the exciting details)

**Sun. Morning, September 25, 2016 from 8:30-10:50 a.m.**

**One of the Saturday morning Volunteer De-litterers** performed double duty this morning. This Volunteer De-litterer also happens to be an FCC licensed Amateur Radio Operator.

**This morning, much of East Gloucester** served as host area for the **10th annual 10K Lone Gull road race**. This is the final race of the 2016 USA Track & Field New England Grand Prix. It was a huge turnout, 1,058 registered runners plus 150 to 200 unregistered runners (some as young as 9 years old and as old as 70 plus). Two runners ran the entire race while barefoot! **All funds raised through runner registration, etc. help continue the good work of the Beverly School for the Deaf.**

**This Volunteer De-litterer/Amateur Radio Operator** took up his position at the corner of Farrington Ave. and St. Louis Ave. There were approx. 15 Radio Amateurs located along the race course. (Most are members of the Cape Ann Amateur Radio Association.) We utilize our own FCC allocated radio frequency which is totally separate from the Gloucester Police and Fire Departments' frequencies. We watch for distressed and injured runners as well as any other problems that may arise during the race. If any issues or problems are noticed, we immediately radio in to our net control operator for a quick Police/Ambulance response.

**This Volunteer De-litterer/Amateur Radio Operator** noticed **numerous small to medium size stones** scattered throughout the roadway at his position. He quickly went into action. He used his trusty EZ Reacher and his unique & innovative litter collecting container to remove all of the stones from the entire roadway area before any of the runners arrived at his location.

**After all of the runners passed his position**, he proceeded to de-litter both sides of Farrington Ave. all of the way up to the Seine Field (where countless brave Gloucester Commercial Fishermen from the late 1800's as well as much of the 1900's repaired and dried their nets). He collected lots of litter throughout this area, **including 254 cigarette butts.**

**Like to join us and help** set a good example for others to hopefully emulate?

Arrive when you can and leave early if you need to. There is no time clock and never will be!

**Be prepared to meet many friendly folks** who are like minded and care deeply about a clean Gloucester. **Such a meaningful way to begin your Saturday! It's so very worthwhile!**

**If you don't have gloves** and an EZ Reacher, we have loaners. Bags are always provided. You don't ever have to take any litter home with you! Complimentary cold Poland Spring Water is often available!



## “Squid Jig” Antenna Array

By: Gardner H. Winchester II, KA1BTK

Well, I’ve been running the MFJ HF Stick mobile whips as the elements in a dipole configuration for a while now. No complaints of the quality and performance from these antennas! And the system runs very well, self contained on the back of the van. The trouble is that it’s quite a process to change bands. I have to dig out the sticks for the band I want to switch to, go lower the mast, remove the sticks for the band I was on, and stow them away, install the sticks for the new band and hoist the mast back up and direct them for best performance to the area I’m looking for. Then I can switch the radio over and tune the new antenna on the band of interest. This process can take 20 minutes or better – just to switch bands.

Enter a “Fan Dipole” version called the “Octopus Antenna”. As the name suggests, this is a quad banded, quad dipole antenna array. 8 HF Sticks, two for each band are mounted to a center hub, with the center fed elements and shield fed elements opposite one another. In theory, the pair most resonant to the frequency in use will handle the load, while the others are relatively dormant.

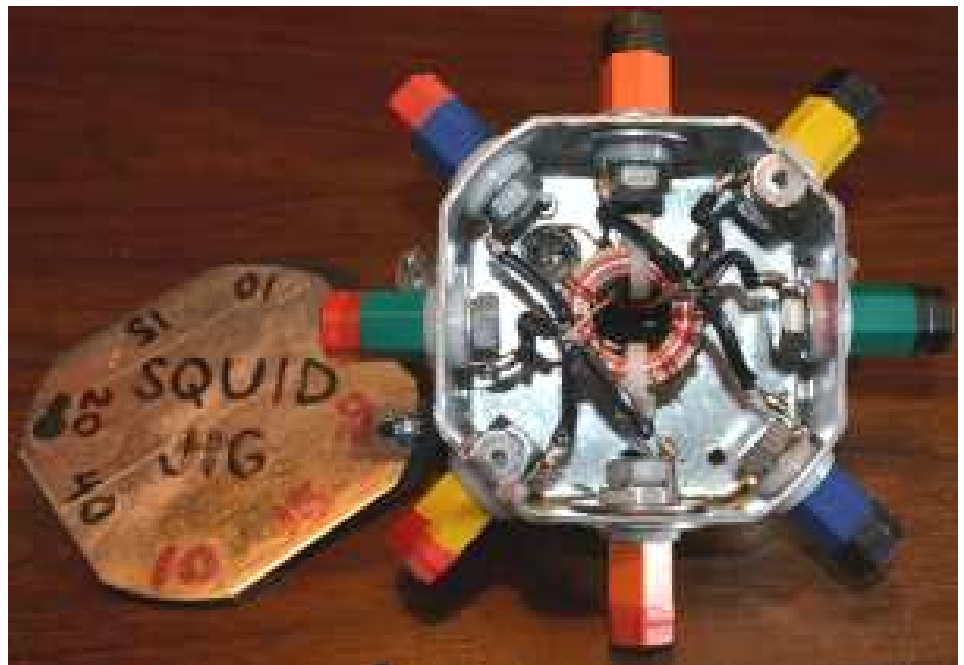
I spoke with Steve at HRO some while ago about this configuration. He suggested that there needs to be a 120 degree separation between the center fed elements to avoid any interactions between the bands, He says that he has made and operated a tri-banded hexagonal version of such antenna arrays on his ARES expeditions.

Initially I thought I’d give this Hexagonal array configuration a try. Maybe I could get both 40 meters, and its harmonic 15 meters off the same set of sticks.

I took my old MFJ HF Stick dipole head and took the guts out of its attached LDG 1:1 balun to use it in the new head. I purchased a lot of 3/8 in. X 24 TPI standard antenna lugs with nylon ferrules on eBay, and various and sundry parts from a local hardware store. After I assembled this first version of the “Squid Jig” Hexagonal antenna array, I was disappointed to find that getting the 40 meter sticks to also resonate on 15 meters too was nothing more than a fairy-tail!

In retrospect, I probably would have been just fine with a tri-banded hexagonal HF Stick antenna array. As a tri-bander, the entire package would be just that much lighter, and have that much less wind age aloft on the home-brew painter’s pole mast. Mount the Sticks for the bands you’re most likely to be using and send them up. The 40 and 20 meter bands are the most common with 15 meters next. 10 meter openings are more of a rarity. The MFJ HF Sticks are rather narrow banded, progressively worse on longer bands. Getting the 80-meter HF Sticks antenna in tune is not worth the aggravation, more of a pipe-dream than getting two bands on one pair of sticks, so the longest efficient band is 40 meters. I also found that the 10 meter sticks, without the whips, tune up rather nicely on 6 meters.

But my thoughts were to make a quad-banded version that would utilize my entire stock of HF Sticks and that would require less “silicon to biological interfacing”. So, it was back to the drawing board for the Squid Jig VII. Further research showed that this could be done and any interaction between adjacent elements would be negligible and surmountable with a bit of physical tuning. Almost all of the plans I found for such an antenna array suggested that all of the center fed elements should mount on one semicircle and all the opposing shield fed elements mount on the opposite semicircle.



So, I took another trip to the hardware store for more parts, mainly an octagonal handy box, and back to my workshop where I punched some new holes and swapped the hardware. There is a specific brand of paint roller that utilizes a hard PVC insert to mount to a 5/8 inch ACME thread found on many paint roller and broom handle extensions. This proved to be the perfect mounting point for attaching the head to the top of my telescoping Painter's Pole mast and once cut down to fit, works as a center attachment point for the wound ferrite balun, sealed inside the head.

After assembling and wiring the head and putting on the finishing touches, I assembled the antenna array on a setup jig and put the SWR meter to it. I was surprised to see that the SWR on each band was better than when the whips were set up in individual dipole configuration. While it was never really great, to begin with, I was happy to see that in complete assembly the SWR was going to be tunable on all the bands with my LDG tuner. After final assembly, I loaded the cavity of the head with spray foam to seal out moisture. This would not keep rain from getting into the attached coax feed-line so to fix that I used a small pail and punched some holes in it accordingly to drop over the head. When the rain hood is used the HF Stick's stainless steel hardware supports and secures it in place, effectively sheltering the end of the coax.

I also use a simple color code marking system for my antennas elements. It sort of follows the light spectrum. UV or Ultraviolet is Purple, which I use to mark U/V my antennas. Starting in HF, 10 meter antenna elements are marked with Blue; 15 meters with Green; 20 meters with Yellow; and 40 meters with Orange. Red denotes center-fed while Black denotes shield fed. So, Red/Green marks the center-fed 15 meter antenna element, and so on and so forth.

So far, fully assembled the antenna array is proving to be a bit too heavy to use on my minimally guyed Painter's Pole mast at full extension. Prudence dictates lowering the top thinnest tube to about half its regular extension. This puts the antenna at about 20 feet. Although on 40 meters, anything below around 30 feet is going to perform as a NVIS antenna, I have still been making solid longer distance contacts on that band! I may opt for a



new Max Gain Systems telescoping mast which may offer better support at taller heights later.

In reality, I do not notice much, if any difference in performance with this configuration over the dipole setup. I have not noticed any unwanted spurious emissions caused by the proximity of the other elements in the array. But then again, I haven't checked either. Just being able to hit the switch and perhaps give the mast a slight twist to change bands is a much more user friendly process! I'm sure there will be many tweaks and alterations down the road, but for now I'd say: "Mission accomplished"! "73" KA1BTK



**“Squid Jig” Antenna Array**

Gardi’s antenna installed on his van up at the Market Basket shopping center located in Gloucester, MA

## Rule Making Petition to FCC Calls for Vanity Call Sign

### Rule Changes

The FCC is inviting comments on a *Petition for Rule Making (RM-11775)* from a Nevada radio amateur that seeks changes to the rules governing the Amateur Radio Vanity Call Sign Program. Christopher LaRue, W4ADL, of North Las Vegas, is proposing that any licensee obtaining a vanity call sign be required to keep it for the full license term. LaRue contends in his petition that excessive and frequent vanity call sign filings are hampering the ability of other qualified licensees to obtain vanity call signs in one of the more desirable 1 × 2 or 2 × 1 formats. LaRue said that since the FCC dropped the fee to file for a vanity call sign, some applicants are taking advantage by regularly obtaining new call signs, thereby keeping them out of circulation.

“Some are changing call signs almost monthly, just to keep the newer code-free Extra class operators from obtaining a shorter call sign,” he said in his petition. “I even saw an older operator that said he does it all the time and has not even owned a radio in over 6 years. When I looked him up, he has had 16 different [call signs] in 18 months.”

LaRue said his proposed minor rule change would require any licensee applying for and obtaining an Amateur Radio vanity call sign “be required to keep it for the duration of the license, which is currently 10 years.”

He said this would “alleviate a lot of the stress on the ULS system and manpower requirements” at the FCC. “It will also keep inactive amateurs from changing call signs regularly, thereby tying up call signs for 2 years after dismissal of said call.”

Interested parties may comment using

the FCC Electronic Comment Filing System. Comments are due within 30 days of the October 26 posting date.

### Suspicious Bangladesh Border Ham Band Signals Now of Interest to Indian Intelligence

What have been called “highly suspicious” VHF transmissions along the Bengal-Bangladesh border now are being considered signals of interest to India’s Intelligence Bureau. After several days of monitoring, Ambarish Nag “Raju” Biswas, VU2JFA, told *The Indian Express* that he and his team have determined that the transmissions, taking place on Amateur Radio frequencies, are coming from the area of Basirhat in West Bengal. The voice communications have been heard at night.

Federal Ministry of Communication officials in India had asked Biswas, the secretary of the **West Bengal Amateur Radio Club**, and his fellow hams to keep an ear on the strange VHF signals. Biswas told *The Indian Express* that he’d found the recent signals suspicious because he’d heard similar communications in 2002 and 2003. Subsequently, police arrested six “extremists,” from Gangasagar, an island in the Ganges River delta, he told the paper.

An earlier **article** in the *Hindustan Times* reported that the signals were being heard in the dead of night, with participants said to be in motion and speaking in some sort of code in Bengali and Urdu with a Bangladeshi accent. They also used numerical codes, according to the

report.

Indian Intelligence Bureau officials did not rule out the possibility that terror organizations were behind the signals. “The border of India-Bangladesh near West Bengal is porous,” a senior Intelligence Bureau official told *The Indian Express*. “Smugglers and extremists try to exploit it fully.”

### New Russian Arctic Over- the-Horizon Radars Set for 2017 Startup

According to media accounts, more long-range, new over-the-horizon (OTH) radars that can identify aerial and sea targets hundreds of miles away are scheduled to begin operation next year in the Russian Arctic. It’s doubtful, however, that the news heralds the return of interference on the level of that generated by the so-called “Russian Woodpecker” OTH radar, which plagued Amateur Radio HF bands in the 1970s and 1980s.

Over the past couple of years, OTH radars, *sans* woodpecker, have become increasingly commonplace intruders on Amateur Radio bands, according to the International Amateur Radio Union Monitoring System, which has noted OTH radars in Russia, China, Cyprus, Iran, and Turkey. The frequency-hopping nature of the technology accounts for the annoying interference that covers wide swaths of spectrum. The Russian systems-intelligence “Konteyner RLS” OTH radar, transmitting from in the Nizhny Novgorod region, is frequently spotted on 20 meters. While no woodpecker, it transmits a broad, frequency-modulated CW signal at 50 sweeps per second with a bandwidth of 80 kHz or greater, accompanied by signal splatter.

## Amateur Radio Keeps “Phantom” in Touch with the Outside World from the Skull Cave

The venerable comic strip “**The Phantom**,” originally inked by Lee Falk starting in the 1930s, has recently resurrected Amateur Radio as a plot device. “The Ghost Who Walks” has resorted to ham radio in the past, dating to the early days of the strip, when the Phantom needed to get a vital message through — on one occasion using a phone patch.

In the current story thread, the Phantom goes into a rather retro-looking ham shack in the ancient Skull Cave, the jungle hideaway he shares with his wife, Diana Palmer. They’re now empty nesters, and the Phantom wants to assuage his wife’s fears that their now college-age son, Kit, indeed has arrived at his monastic school in an unspecified Himalayan country (a daughter, Heloise, is away at college in the US).

His son’s teacher breaks away from tutoring Kit to quietly keep an on-the-air schedule with the Phantom, in order to let him know that the young man got there safely. Their conversation in Morse code is displayed, in a fashion, across the panels of the strip. Only some of it actually seems to make sense.

“Darling, Morse code!?! Isn’t that obsolete?” asks Mrs. Phantom, as the

masked crime fighter sits at a hand key (with no apparent lead wires running from it) in front of what looks like a National NC-300-series receiver and assorted other boat anchors.

“Not at all,” the Phantom replies. “And certainly not in the Himalayas.” Apparently not in the fictional African country of Bangalla either, which the Phantom Family calls home. A past strip once showed the Phantom setting up a microwave dish



with a handheld connected to a solar panel.

Appearing in more than 500 newspapers around the world, “The Phantom” now is penned by Mike Manley, written by Tony DePaul, and distributed by King Features.

### Astronaut Kate Rubins and crewmates return safely from the ISS

NASA astronaut and Expedition 49 crew member **Kate Rubins, KG5FYJ**, who became the first

person to sequence DNA in space, returned to Earth Saturday after a successful mission aboard the International Space Station.

Rubins and her crewmates Anatoly Ivanishin of the Russian space agency Roscosmos and Takuya Onishi, KF5LKS of the Japan Aerospace Exploration Agency, touched down in their Soyuz MS-01 at 11:58 p.m. EDT (9:58 a.m. Oct. 30, Kazakhstan time) southeast of the remote town of Dzhezkazgan in Kazakhstan.

Rubins, who has a degree in molecular biology, contributed to several new studies taking place for the first time aboard the space station, including the Biomolecule Sequencer experiment. The ability to sequence the DNA of living organisms in space could enable astronauts to diagnose an illness, or identify microbes growing in the space station and determine whether they represent a health threat. During her time on the orbiting complex, Rubins ventured outside the confines of the

station for two spacewalks. During the first one on Aug. 19, she and NASA astronaut Jeff Williams installed the first international docking adapter. Outfitted with a host of sensors and systems, the adapter’s main purpose is to provide a port for spacecraft bringing astronauts to the station in the future. Its first users are expected to be the Boeing Starliner and SpaceX Crew Dragon spacecraft now in development in partnership with NASA’s Commercial Crew Program.



blasting cacophony of signals can change into a completely dead band in only a few minutes. Or vice-versa! Six meters offers nearly every kind of propagation known. At the peak of a sunspot cycle, when the solar flux rises to between 150 and 200, the F-layer skip familiar to HF operators can provide worldwide contacts on six. If the flux goes significantly above 200, DX work on six can even get fairly reliable. Propagation modes more familiar to VHF operators, such as sporadic-E, auroral, meteor-scatter, transequatorial and moonbounce, all have been used on six meters.

Sporadic-E is the most common workhorse for six-meter operators. Peaking around the solstices (June and December), this mode of propagation can provide contacts over a few hundred miles or a couple of thousand miles or more with a "double-hop." It comes back every season, even during the sunspot minimum. Sporadic-E was essentially discovered by hams during the 1930s, when the old 5-meter band (56 MHz) produced contacts covering "impossible" distances. The "E-skip season" runs from May to July, with another, shorter, peak in December and early January, but this propagation mode can appear at any time. A sporadic-E opening typically lasts for a few hours. For a thorough discussion of Sporadic-E, see the article by Emil Pocock, W3EP, in the April 1988 issue of *QST*.

## Stations for Six

Today, it's easier than ever to get on six meters. Many of the newer HF rigs come with six-meter capability built in. There also are transverters, such as the ones from Ten-Tec, that will put your HF rig on six, and

single-band rigs such as MFJ's "Adventure Radio." If you're interested in DX, avoid the FM-only six-meter rigs and get one capable of CW and SSB operation. You don't need a lot of power. When six is open, it's open!

Antennas for this band are readily available commercially, but also easy to homebrew. A dipole for six meters is only a bit over nine feet long, and even a wire dipole, in a good location, will perform well. At this length, it also is easy to make a rotatable dipole from aluminum tubing. A three-element Yagi will perform admirably, and makes a nice weekend construction project. Ground-plane and J-Pole antennas also work fine for six meters.

While antenna polarization makes little difference for DX work, it is important if you also want to work other six-meter operators within ground-wave range. Most operators with Yagis or rotatable dipoles use horizontal polarization, so if you rely on a vertical ground-plane or J-Pole, you may miss out on local and regional six-meter nets, which can provide a nice way of keeping up with weak-signal VHF happenings. One way to get both polarizations in one antenna would be to build an "L" antenna for six, adapting the 10-meter design of W4RNL presented in the December 1999 *QST*, page 52. Again, you don't need an elaborate station to get good results on six meters. During one opening, I exchanged honest S-9-plus signal reports with a station several hundred miles away, then he asked about my station. When I said, "ten watts and a ground-plane antenna," he laughed. His station: 1,500 watts and an array of four, 11-element Yagis. And the same signal report on both ends! (This guy uses his top-of-the-line station for six-meter moonbounce

work.)

## Getting on the air

Six-meter operators do a lot of waiting, because of the unpredictable nature of the band. To help show when the band is open, six-meter fans around the world have put a fairly extensive suite of beacons on the air. In the U.S., beacons occupy the region between 50.060 and 50.080 MHz. In other countries, beacons are spread more widely throughout the band. For lists of beacons, their frequencies, locations and other details, look it up on the internet.

Six Meters (50-54 MHz) is known as "The Magic Band" to many of its fans, but the best description I ever heard came from a ham I worked during a frantic summer Sporadic-E opening: "This is a great band if you like having Mother Nature pull your chain."

On six meters, you can do almost anything that can be done on an HF band. Hams have earned WAS, WAC and DXCC on six. Six meters can sound like a contest weekend on 20, filled with signals and pileups galore. What makes it so different from the HF bands is that you never know when this excitement will come. That ear-blasting cacophony of signals can change into a completely dead band in only a few minutes. Or vice-versa! Six meters offers nearly every kind of propagation known. At the peak of a sunspot cycle, when the solar flux rises to between 150 and 200, the F-layer skip familiar to HF operators can provide worldwide contacts on six. If the flux goes significantly above 200, DX work on six can even get fairly reliable. Propagation modes more familiar to VHF operators, such as sporadic-E, auroral, meteor-scatter, transequatorial and moonbounce, all have been used on six meters.

would hear many stations on 50.125 as the band opened up, then, as more stations discovered the opening, activity would spread upward in frequency, reaching 50.3 or 50.4 during a good opening. It seems likely that, while the new, expanded DX window probably will catch on, many operators will take some time to “let go” of the old, familiar 50.125. I would recommend monitoring both 50.125 and 50.200, as well as 50.090, during an opening. If the opening seems real good, start checking 50.110 for DX stations, too.

Most domestic weak-signal contacts on six are SSB, but in recent years, there has been an increase in CW activity. As mentioned above, the CW activity often is intermingled freely among the SSB signals. It would be nice to see more CW activity down around 50.090, and use the CW-exclusive subband to better advantage.

The first thing you will be asked when you make a contact on six is, “what’s your grid square?” While still little known among HF operators, the Maidenhead grid-square system, formalized at a VHF meeting in Britain in 1980 and adopted world-wide by the International Amateur Radio Union in 1985, is almost universally used as a locator system by VHF, UHF and microwave operators. The Maidenhead system divides the world into 32,400 squares, each 2 degrees of longitude by 1 degree of latitude. There are larger “fields” of 100 locator squares each, and each square is divided into smaller “subsquares.” For most purposes, knowing your 2 degree by 1 degree square is sufficient.

VHF operators collect grid squares like HF operators collect countries. Many are working toward the ARRL’s VHF-UHF Century Club

(VUCC) award, which requires confirmed contacts with 100 grid squares. During VHF contests, some enthusiasts go on “Gridexpeditions,” to put rare grid squares on the air, while others become “rovers” to operate from several grids during the contest. Just as states or countries serve as multipliers for HF-contest scores, grid squares are the typical multipliers for VHF-contest scores. You can find a grid-square map of the U.S. here or you can plug your latitude and longitude into AMSAT’s grid-square calculator.

If you work much on six meters at all, you’ll probably want to add your grid square to the information on your QSL card.

## **More information on the Web**

Many hams have become rather fanatical about six meters, and there is a wealth of information about this band on the Web. To learn more, you can start at the site of the Six Meter International Radio Klub (SMIRK). You can earn a lifetime membership in SMIRK by working six members on six meters and collecting their SMIRK membership numbers. SMIRK sponsors contests, publishes a newsletter and meets annually.

Another good Web site is provided by the UK Six Metre Group.

Six meters can provide you with a lot of excitement and new operating challenges. In addition to offering new awards and contests, this band can expand your experience with different propagation modes.

Finally, in my opinion, six meters serves a valuable function for the health of Amateur Radio. All licensed hams except for Novices can use six meters. In recent years, no-code Technicians have discovered this band in increasing numbers. When

someone whose only experience with Amateur Radio has been local operation on 2-meter repeaters makes a six-meter contact with another ham more than 1,000 miles away, that can be a dramatic revelation that opens up a whole new world to them. In many cases, such a revelation spurs that ham to upgrade their license and join us on the HF bands. When that happens, we have, in all likelihood, gained a lifelong radio devotee who otherwise might have dropped from our ranks from boredom. By showing such hams the wider world of our hobby, six meters earns its appellation of “The Magic Band.”

Web

It’s a good idea to pick a few beacons in different directions from your QTH and check their frequencies regularly. During an opening, go through the beacon subband and note which ones you’re receiving, then watch for them later.

Unlike the HF bands, six meters is much more rigidly structured in terms of what frequencies are used for what purposes. Ironically, six meters, available to all no-code Techs, is one of only two ham bands (2 meters is the other) with a CW-only subband which excludes all data transmissions. That CW-only subband runs from 50.0 to 50.1 MHz. Almost all weak-signal activity on six occurs between 50.1 and 50.4 MHz.

Calling frequencies are used extensively. From 50.100 to 50.125 is a “DX Window,” in which domestic QSOs are discouraged. The DX calling frequency is 50.110. The traditional domestic calling frequency is 50.125. However, there has been a movement recently to extend the DX window to 50.130 and make 50.200 the new domestic calling frequency. This movement has been precipitated by the



extension of six-meter privileges to hams in new countries around the world, and the associated increase in the number of DX stations on the air. Such band plans are, of course, voluntary, but are observed widely by the six-meter community.

The recommended CW calling frequency is 50.090, but you will often hear CW CQs on 50.125, too. Under the old band plan, you would hear many stations on 50.125 as the band opened up, then, as more stations discovered the opening, activity would spread upward in frequency, reaching 50.3 or 50.4 during a good opening. It seems likely that, while the new, expanded DX window probably will catch on, many operators will take some time to “let go” of the old, familiar 50.125. I would recommend monitoring both 50.125 and 50.200, as well as 50.090, during an opening. If the opening seems real good, start checking 50.110 for DX stations, too.

Most domestic weak-signal contacts on six are SSB, but in recent years, there has been an increase in CW activity. As mentioned above, the CW activity often is intermingled freely among the SSB signals. It would be nice to see more CW activity down around 50.090, and use the CW-exclusive subband to better advantage.

The first thing you will be asked when you make a contact on six is, “what’s your grid square?” While still little known among HF operators, the Maidenhead grid-square system, formalized at a VHF meeting in Britain in 1980 and adopted world-wide by the International Amateur Radio Union in 1985, is almost universally used as a locator system by VHF, UHF and microwave operators. The Maidenhead system divides the world into 32,400 squares, each 2

degrees of longitude by 1 degree of latitude. There are larger “fields” of 100 locator squares each, and each square is divided into smaller “subsquares.” For most purposes, knowing your 2 degree by 1 degree square is sufficient.

VHF operators collect grid squares like HF operators collect countries. Many are working toward the ARRL’s VHF-UHF Century Club (VUCC) award, which requires confirmed contacts with 100 grid squares. During VHF contests, some enthusiasts go on “Gridexpeditions,” to put rare grid squares on the air, while others become “rovers” to operate from several grids during the contest. Just as states or countries serve as multipliers for HF-contest scores, grid squares are the typical multipliers for VHF-contest scores. You can find a grid-square map of the U.S. [here](#) or you can plug your latitude and longitude into AMSAT’s grid-square calculator.

If you work much on six meters at all, you’ll probably want to add your grid square to the information on your QSL card.

## “Sweeps” Time is Upon Us!

The very popular **ARRL November Sweepstakes** (SS) operating events take place in November on separate weekends for CW (November 5-7) and SSB (November 19-21). The contest period for each contest begins at 2100 UTC on Saturday and continues through 0259 UTC on Monday. Stations may operate for 24 hours out of the 30 hours available. Logs are due 15 days after each event. SS is a “domestic” contest that not only has broad appeal, but is within the reach of stations with modest equipment and antennas. Many stations enjoy operating in the QRP

category each fall (5 W or less output).

The challenge of Sweepstakes is the lengthy exchange, as compared with other operating events. In SS, stations exchange:

- A consecutive serial number (leading zeros are not required).
- Operating category — Q for Single Op QRP; A for Single Op, Low Power (up to 150 W output); B for Single Op, High Power (greater than 150 W output); U for Single Op, Unlimited, regardless of power; M for Multi-Op, regardless of power, and S for School Club.
- Your call sign.
- Check — the last two digits of the year of first license for either operator or station.
- Your **[ARRL/RAC Section](#)**.

The SS *Operating Guide* package, available for **[download](#)**, explains how to participate. It includes all rules, plus examples of log formatting. Clubs or public service teams thinking about giving Sweepstakes a try this year will find the guide a valuable resource.

A new system for submitting club eligibility lists has been undergoing testing and is **[available online](#)**. Club secretaries can submit a list of eligible members by **[uploading](#)** a file or by copying and pasting from a list. Uploaded lists must include the club’s full name; the club territory (center of the club’s circle as a 6-digit grid locator or ARRL Section for medium and unlimited category clubs); the club’s call sign, the eligible member’s call sign, and a 6-digit grid locator of each eligible member living in and operating from the club territory.