



Scuttlebutt

October 2014

Issue 228

**Next Meeting-
Sunday, October 12th - 1pm till 4:30pm
Sturbridge Host Hotel & Conference Center
Sturbridge, Massachusetts**

Captain's Cabin

Tony Brock-Fisher, K1KP

I hope that your summer has been a productive one! Like myself, with all the goings-on it may have been tough to carve out some time for much-needed antenna repairs and upgrades, but that season is not quite over yet! We still have many fine days of tower climbing left, so be sure to get out there and walk the beverages, make much needed repairs, even add one more multiplier antenna just in time for the upcoming contest season. Propagation has been highly variable as cycle 24 makes up it's mind for the downswing. Remember the old adage: You can never have too many antennas, and with more than one antenna on a given band, one of them is certain to be better than the others! Climb Safely!

We have a great contest season coming up, and face the challenge of holding off hard-charging FRC again! To get geared up for CQWW, we have a terrific meeting planned for Sunday, October 12th, at the Sturbridge Host. We will be recognizing members for their contributions to last year's double victories in CQWW and ARRL DX with our Awards Program. We have two great presentations on DXpeditions, to PJ4X (by K1QX) and VP9I (by N1SV). Add to that an update on the details of last year's scores by Scorekeeper Alec, W2JU, and an update on CQWW rules changes by Randy, K5ZD. And if that's not enough, we have a few more late additions to the program to add as well, so be sure to mark off the day for YCCC on your calendar.

WRTC2014 Final Comments

I'm sure that you have already been thanked many, many times by the participants, judges, and organizers of WRTC, but let me, as President of YCCC, add my personal note of thanks to all of you who helped make WRTC2014 the best ever. I am truly impressed by the club's volunteer spirit, and capabilities to make this huge undertaking look so easy and safe. In closing on the epilogue of WRTC2014, I've added my personal take:

My WRTC Experience as a Beam Team Captain

What did I sign up for?

When I was elected president of YCCC in 2011, WRTC still seemed very, very far away. However it became clear that supporting this terrific event was going to be a major part of the YCCC Agenda for the foreseeable future. Little did I realize that it would also become a personal challenge! A year later at a joint BBQ and YCCC meeting held at Mark, K1RX's home the first WRTC volunteers gave a demonstration of the falling derrick tower design to be used at WRTC. A clipboard was passed around looking for more volunteers and I added my name to the list. Little did I realize that I had just signed up to be a Beam Team Captain! As I quickly learned, I was going to be responsible for recruiting a team of volunteers to undergo training in the falling derrick system and ultimately construct several WRTC sites in the summer of 2014 for the Main Event!

(Continued on page 3)

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Directions to Sturbridge Host Hotel

Sturbridge Host Hotel & Conference Center is located on Route 20.

- From the North, East and West, take the Massachusetts Turnpike (Interstate 90) to Exit 9, Route 20 West.

- From the South, take either Interstate 84 or Route 131 to Route 20 West.

Sturbridge Host Hotel & Conference Center is located on the shore of Cedar Lake, just past the first set of traffic lights.



The Yankee Clipper Contest Club is a proud sponsor of
World Radiosport Team Championship 2014

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The editorial deadline for the Scuttlebutt is the 10th of every odd month.

(Captain's Cabin, Continued from page 1)

Recruiting the team

My first problem was finding manpower for my team. I turned to two circles of hams that I knew well and had worked with for years: my companions for years at the W1HP/Pentucket Radio Club Field Day, and my list of guest contest operators at my home station. I was tremendously honored when everyone I invited signed on for the project! Thanks to N1QD, N1RD, NF1A, K1PAD & his son, KB1NOW, and W1DYJ, I now had the manpower, and we were headed for training.

First rehearsal

Having missed the first rehearsal in the summer of 2012, my team was trained by the WRTC organizers at the beginning of the summer of 2013. Subsequently, we were given responsibility for the sites to be set up in the Freetown, MA area. Our first training assignment was to set up one site for IARU site testing in 2013. I arranged to have the use of a large pickup truck, and managed to get everyone's schedule cleared for the big day. When we arrived at the site with a truck full of equipment, we thought that the WRTC had given us a challenge, as there was not enough room at the site to erect the tower without the antenna being obstructed by a large tree during the raising! But we followed the Marine Corps culture: *Improvise, Adapt, Overcome!* By *rotating the antenna 90 degrees as the tower was halfway up*, we were able to clear the tree! Our site was up and running for the test, and found to be a suitable site for the real thing to come next year. We learned a lot that day, but we had serious concerns, given the age of some of the members of the team (including your author) that we might not be able to do this four times in one day.

The real thing

There was only one year left until the real thing! Taking what was learned from that first day, the training and process was given minor tweaks to improve the setup procedures. Beam Team K1KP added two more young, strong, members with endurance to help make the final push. We modified our strategy a bit, in planning to set up our first site in the afternoon of Wednesday of WRTC week, and set up the remaining three sites on Thursday. We started working and planning our activities closely with our Site Area Manager Ed, W1MA. We were ready (we hoped) and definitely psyched to get through the physical challenges we expected.

For the site with the tree in the way, we decided to try to avoid the issue with the tree, by turning the setup 180 degrees, and raising the tower from the opposite direction. We were convinced this would alleviate the need to rotate the antenna on the way up. Little did we know that the tree had done some conspiring of its own! We were able to successfully raise the antenna just as in the manual, only to find that when we attempted to rotate it, it was obstructed by tree branches that had grown in the intervening year! We were seriously concerned that the site might become unusable by the competitors, necessitating the need to make use of one of the alternate sites. The Beam Team left to set up the other 3 sites, leaving the site team to hopefully work out a solution to the tree. Later that day we were thrilled to hear that Greg, W1VFB and other site team members had managed to trim the offending branch, and the site would become fully operational!

After two sites were set up, the team broke for lunch. We had one more site to go, which had been designated as an alternate site, but needed to be set up anyway, just in case. At each site, our team worked more productively, having gained experience from the previous site. We were working smarter, not harder! I was truly amazed at this last setup, as team members were moving quickly back and forth over the site. We were like ants, moving in apparently Brownian motion. But everything was falling into place like clockwork! I would literally reach down for a small bag of parts, only to have it be dropped into place a millisecond before I needed it! The last site definitely went up in record time!

Now all that was left was to sit back and watch the scores on the live scoreboard, and see how our sites performed in the Real Thing! (We think we won the contest, as our three active sites came in 2nd, 6th, and 8th)!

The most important word on the shirt

After it was all over, and the dust had settled, and the sites were all disassembled and claimed by their new owners, it was time to reflect on the effort. I had been focused, in a microscopic way, on the job my particular Beam Team had done in setting up four stations. But afterward I was struck by the forest-for-the-trees effect. 16 teams of hams, many of them from YCCC, had set up 64 Field Day style stations in the course of three days. Every one of those stations was fully usable for WRTC. To identify us as persons trained and cleared to perform the task, we were given colorful tee shirts to identify us. These shirts had many words on them. To me, the most important word was not 'WRTC'. It wasn't even 'YCCC'. To me, the most important word was '**VOLUNTEER**' – for that was the true spirit that got the job done – from the top organizing committee down to the many Beam Team, Site Team, drivers, and helpers – we were all volunteers. It was the spirit of volunteering that made it all happen so well!

Close Encounter with Lightning

by Chuck Counselman W1HIS

I had a close encounter with lightning on July 7th. I was fortunate. My encounter was orders of magnitude less disastrous than Jack Schuster's encounter with lightning on July 2nd.

Lightning struck a 65-ft White Pine tree 20 feet from the end of my house and less than 50 feet from where I was reclined on a couch with my MacBook Pro perched on my belly, watching the real-time lightning map at

http://www.blitzortung.org/Webpages/index.php?lang=en&page_0=30.

I had begun to watch this map because I could see and hear a thunderstorm approaching; and I had continued to watch it because most of the lightning strokes I saw from the window of my house did not appear on the map, and I wondered why they didn't. I knew that [blitzortung.org](http://www.blitzortung.org) tended to report only cloud-to-ground strokes and not cloud-to-cloud strokes; but [blitzortung.org](http://www.blitzortung.org) appeared to be missing cloud-to-ground strokes. Then I looked at blitzortung's station list and saw that [Blitzortung.org](http://www.blitzortung.org) had no station in New England east of central MA, and that this station suffered from a high background noise level.

I was thinking I should set up a lightning-receiver at my own QTH, when a very bright **FLASH!** occurred and a VERY loud **BANG!** occurred with no perceptible time-delay. Clearly, this stroke had gone to ground. :-)
The hit sounded like it was barely beyond the end of my house.

I'd had hip-replacement surgery just three weeks before; and I was supposed to limit my activity. I'd been warned not to take a step without two crutches. But I forgot all that. I jumped up and raced outside in the extremely heavy rain to check for fire, because I knew that just five days before, the home of my friend Jack Schuster W1WEF had been destroyed by fire following a lightning strike.

I found no fire, but I found a long trail of destruction. The trunk of the 65-ft pine had been split.

On the ground 60 away I found fragments of the tree, and the cover of a hand-hole that had contained a solenoid-operated valve of my in-ground irrigation/sprinkler system. The tree's roots had encompassed this hand-hole.

The tree had grown in a thin (1 ft) layer of "soil" (mostly dead pine needles) atop a broad and deep expanse of bedrock ("ledge," in New England jargon). This rock is Precambrian, metamorphic, and very solid, lacking cracks and pores. Its water content being nil,





it is a good dielectric. The lightning discharge, seeking ground, had jumped from the stricken tree's roots (full of water and thus electrically conductive) to the multi-wire cable that passed through this hand-hole on its way from the irrigation system controller in my house, to the system's several valve-solenoids.

Where the cable emerged from the "soil" and entered my house, the cable was partially broken and its insulation had been partially melted and partially burned. The vinyl siding of the house was partially melted, partially burned, and partially shattered. Inside the house, the irrigation system controller was also melted, burned, and shattered. I found pieces, including the ruins of its power transformer, scattered around the floor.

In a nearby sub-panel of circuit-breakers, I was not surprised to find the breaker for the 120-VAC circuit feeding the irrigation system controller ruined.

Immediately above this breaker in the same panel was the ganged pair of breakers for the 240-VAC circuit feeding the HF power amplifier of my ham station. :-O

The breakers for the 120-VAC circuits feeding my hamshack, and the circuits feeding computers outside my shack, were also in this sub-panel. I found two computers, two routers, two wireless access points, a networked hard-disk drive, a laser printer, an LED monitor, our home-security system, and the AC power adapter connected to the MacBook Pro on my belly(!), all ruined.

The pattern of destruction was easy to understand. The electric charge delivered by the lightning bolt did not follow a geometrically straight line to ground; but it did what Maxwell's Equations and the relevant boundary conditions dictated. It followed electrical conductors — cables of copper wire -- and it took the shortest path(s) that these cables provided — through the irrigation-valve cable to the controller and through the 120-VAC cable to the circuit-breaker panel; and it continued *via* other cables connected to this panel.



Unfortunately, the shortest electrically-conducting path to ground was not the big thick cable that delivered up to 60 A at 240 VAC to this sub-panel from the main, 200-A, panel or "load center" at the utility service entrance in the basement, halfway to the opposite end of my house.

The shortest electrically-conducting path to ground was from the 60-A sub-panel to a 120-V outlet where a computer system was plugged in, and from there *via* 40 feet of Cat 5e Ethernet cable to a switch and router connected to Verizon's FiOS terminal, adjacent to the 200-A load center in my basement. The FiOS terminal had a short and direct connection to the single-point ground of my house. Unfortunately, this Ethernet-cable path passed through, or near, a lot of computing and networking gear.

Another short electrically-conducting path to ground was *via* security-system cables in the wall behind the sub-panel to the security system controller, also adjacent to the 200-A load center in my basement. This controller also had a short and direct connection to the single-point ground of my house.

Yet another short electrically-conducting path to ground was from the sub-panel to a 120-V outlet in my hamshack where the controller for my remote antenna tuner was plugged in, and from there *via* a multi-wire cable to the tuner, which had a short and direct connection to ground. So the tuner and its controller were damaged. (I have yet to try to fix them.)

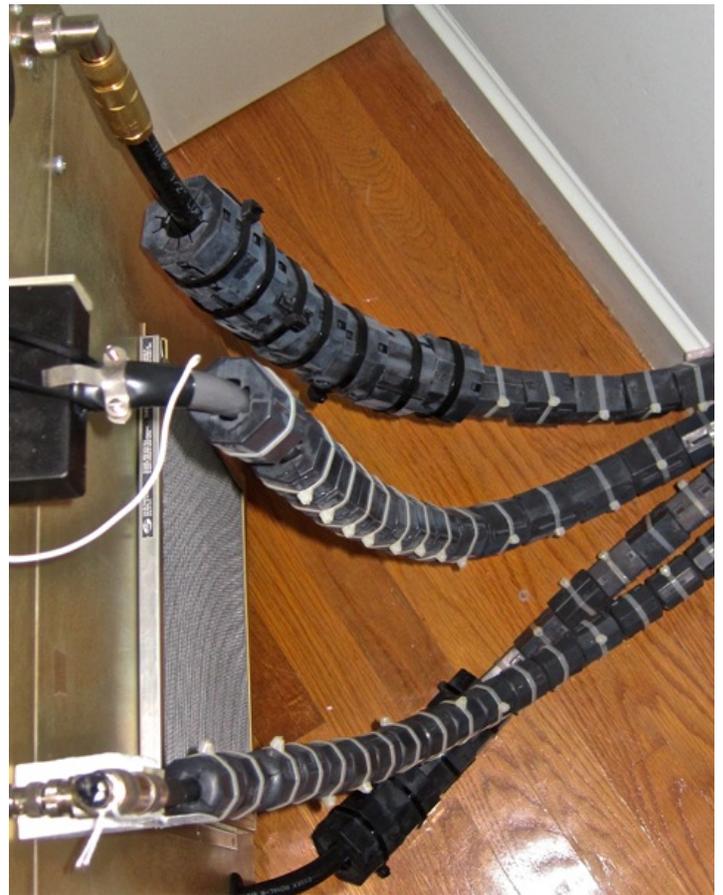
"What about your HF power amp?!" you're wondering. (I sure was!)

It was not damaged. I don't know why it was not, but I have a wild and crazy guess. The following photo shows all of the cables connected to my amp. From top to bottom, they are (1) the coax going to my remote tuner; (2) a multi-wire control

cable (not related to the aforementioned tuner-control cable); (3) the coax going to my transceiver; and (4) the 240-VAC line cord.

Every one of these cables is strung from end to end with snap-on or solid ferrite cores. The snap-on (split) beading of these cables continues for several feet beyond what the photo shows; and then there are many solid cores. Below is a photo of some of the approximately 150 toroids of O.D. = 2.4", I.D. = 1.4", and thickness = 0.5" strung on the amp-to-tuner cable just on the other side of the wall appearing in the above photo. Another 150 toroids of this size are strung on this cable near its other end. (Why such large toroids? Because most of this cable is LDF5-50 Heliax. Why such big cable? Because sometimes it operates at extremely high SWR. Smaller cable would be too lossy.)

My reason for loading these cables with so much ferrite, especially the cable going to my remote antenna tuner, was that an 800-watt DC-to-60-Hz-AC sine-wave inverter in my shack generates QRO RFI. I needed to stop this RFI from propagating from my shack *via* the common mode of the coax to my remote antenna tuner, where the RFI was getting into my poorly shielded tuner and coupling to the unshielded open-wire line between the tuner and my antenna. The RFI generated by the inverter was terribly strong; so, to attenuate it sufficiently, I needed to use a lot of ferrite. I used long strings of ferrite beads rather than multiple turns of cable on big toroidal or binocular cores, because I needed high attenuation all the way from $f = 1.8$ MHz through 29.7 MHz. I used large ferrite beads because my cables were thick.



I wonder whether the amount of ferrite isolating my HF power amp was so great that the voltage pulse due to the lightning strike did not saturate the ferrite. In this case, the ferrite would have stopped the lightning pulse just as it stops HF.



The magnetic flux in a core, in webers (the SI unit), is equal to the integral of the e.m.f., in volts (the SI unit), between the ends of the cable passing through the core, with respect to time in seconds (the SI unit).

The fact that my cores were large helped because the number of volt-seconds, that is the number of webers of flux, required to saturate a core is proportional to the cross-sectional area of the core. Saturation occurs when a certain flux *density*, in webers per square meter, is reached. The saturation flux-density of the Fair-Rite Products ferrite material 31 in my cores is about 0.3 webers per square meter.

The fact that I'd strung 100 to 300 cores on each cable helped, because the number of volt-seconds required to saturate a string of N cores is equal to N times the number required to saturate one core.

I estimate that to saturate the ferrite on my amp's cables would have taken a monopolar pulse of 0.01 V*s. That is, 10 millivolts for one second; or 10 volts for one millisecond; or 10 kilovolts for one microsecond. I know neither the voltage nor the time-duration of the pulse at my circuit-breaker sub-panel, but my gut says it was a few kilovolts for a few microseconds. In which case it seems plausible that the ferrite on my amp's cables saved my amp when so many other things, all around my amp, were ruined.

Warning: Don't try this at home. Professional ferrite-monger on a closed track, and all that.

73 de Chuck W1HIS



ARRL FOUNDATION

Administering Programs to Support the Amateur Radio Community

July 2, 2014

Yankee Clipper Contest Club, Inc., AJ11
c/o Chet Slabinski, N8RA
462 W Hill Road
New Hartford, CT 06057-2416

Dear Friends,

On behalf of the ARRL Foundation, thank you so much for your contribution of \$2612.32 to support the Yankee Clipper Contest Club Youth Scholarship Fund.

The ARRL Foundation is very pleased to offer this scholarship to deserving young hams from the YCCC region pursuing higher education. Recipients are always very appreciative of their scholarships to help with the financial burden of higher education. As you know, this year's recipient is Marian Deacutis, KB1YLJ. Marian is attending Utica College, and I am sure she has written a letter of appreciation to the Club telling you all more about herself and her future plans.

Thank you again for your generosity.

73,

Tom Frenaye, K1KI
President
The ARRL Foundation

The ARRL Foundation is an IRS-designated 501(c)(3) organization holding federal tax identification # 23-7325472. Accordingly, your contribution may be tax deductible to the extent allowed by law. No goods or services have been provided for this contribution.

YCCC CLUB RESOURCE INFORMATION

DUES AND MEMBERSHIP STUFF Dues for the year are payable as of January 1st. The YCCC has adopted a multi-tiered membership format as follows: Please note that payment of dues IS NOT a prerequisite for contributing scores to the Club aggregate, but IS for the various YCCC Awards Programs

Full Member - \$15/yr (Eligible for YCCC member benefits and electronic "Ebutt" delivery of Club newsletter)

Full Member - \$30/yr (Eligible for YCCC member benefits and paper delivery of Club newsletter)

Family Member - \$0 (Grants full membership to all amateurs residing at one domicile on payment of one member's "Full Member" annual dues and entitlement to one Club Newsletter sent to one domicile or email address. All members of said family are eligible for YCCC member benefits.)

Student Member - \$10 (Grants full membership to students at a reduced level. Eligible for YCCC awards programs and paper or electronic delivery of the Club Newsletter.)

Subscription - \$** (A "supportive friend of YCCC" - not a member but a possible candidate for future membership. Only receives club newsletter in paper or electronic form. \$10 for electronic "Ebutt" delivery domestically or overseas or \$25 for domestic paper delivery.)

Club members who move out of club territory and so are not eligible to contribute to club aggregate scores can continue to participate in the Club's e-mail reflector and receive the electronic "Ebutt" delivery of newsletter at no cost.

You can tell if you owe dues by checking your 'Butt mailing label or the Club roster in the Members Only section of the website.

NOTE: If your dues are paid to a March 31 date, then you now need to synchronize to the calendar year. Please see the "Dues" area on the Members Only section of the website for the pro-rated dues amount for a partial year.

Mail your dues to the club treasurer, Chet Slabinski, N8RA, 462 W. Hill Rd, New Hartford, CT 06057.

SCUTTLEBUTT ARTICLES should be sent to the Scuttlebutt editor, Steve Rodowicz N1SR, by E-mail at n1sr@arri.net The deadline for each issue is the 10th of the preceding month..

Scuttlebutt Advertising: Nominal Business Card sized ad, \$50 per year (6 appearances)

CONTEST SCORES should be sent to the club scorekeeper, Alec Berman, W2JU, preferably by E-mail at scores@yccc.org. Please include details such as numbers of QSOs, QSO points (if appropriate), and multipliers (all types); entry category; and power.

CLUB GOODIES

BADGES YCCC badges are available from Tony, K1KP. Send \$3, name and call desired on the badge, and your mailing address to Tony.

APPAREL Contact Richie, W1STT. Email: richd1313@aol.com

YCCC LOGO ITEMS <http://www.cafepress.com/nlik>

QSL CARDS are ordered through Dennis Egan, W1UE. To order, send Dennis an email at egan.dennis88@gmail.com, detailing card information per "QSL Request" form available at http://www.yccc.org/members/yccc_qsl.htm. You will receive a proof by email. Approve the proof, making any corrections, and return to Dennis *with payment* (make checks out to Dennis, not YCCC). Current price is \$50 (delivered) for 1,000 cards. Also available is the glossy version for \$70/1000.

MEMBERSHIP ROSTER is posed on the YCCC website. Updates are published in 'Movers and Shakers' when members move or change call signs.

COMPUTER STUFF INTERNET REFLECTOR There is an Internet mailing list for YCCC members. To subscribe, send mail to yccc-REQUEST@yccc.org. Insert only the word "subscribe" in the subject of the mail message. (Do not send messages to the reflector that have file attachments, HTML formatting, use boldface or other fancy fonts, etc.)

WWW HOME PAGE Come visit us at <http://www.yccc.org> Our Webmaster is Lyn Glagowski, WB1CCL.

ADMINISTRATIVE STUFF *The W1 QSL BUREAU* is sponsored by the YCCC. More information at: www.w1qsl.org Address: W1 QSL Bureau, PO Box 7388, Milford, MA 01757-7388. Email address: w1qsl@yccc.org

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