



ORANGE COUNTY RADIO AMATEURS

an ARRL-affiliated organization in Orange County, North Carolina
join us online at <http://www.ncocra.org> and ncocra@yahoogleroups.com

The July 2010 OCRA Newsletter

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Board Meeting Minutes

The Orange County Radio Amateurs Board Meeting for July, 2010, began at 1830L (6:30PM) on Monday, July 12th at Casa Ibarra restaurant in Hillsborough. In attendance were the following OCRA Officers and Board Members:

Ken (KR4FM), President
Dave (W4SAR) Vice-President
Dan (KR4UB), Treasurer
Woody (K3VSA), Secretary
Karen (KD4YJZ), Board Member
Dave (NA4VY), Board Member
Laurie (N1YXU), Board Member
Bruce (N1LN), Board Member

Also attending was:

Dee (KU4GC)
M.K. (W4MKR)

Upcoming ARES training events that are to take place on July 31st and August 28th were discussed (see "Membership Meeting Highlights" following), and it was noted that the next ARES Leadership Meeting is to take place at 1800L (6:00PM) on July 18th at the Orange County EOC building.

There was some discussion about the proposed club purchase of a weather station to be installed at the WCOM community radio station in Carrboro. Because of the number of questions that the leadership had about what its function would be and how well it would perform, it was agreed that a more formal proposal ought to be submitted outlining how it would work and what its benefit to OCRA would be.

It was approved for Steve (W3AHL) to market the surplus 70cm repeater, the Kenwood TS-520, and the Mirage 70cm amplifier, first by a bid process for OCRA members, and next via internet to the general community. Minimum acceptable bids were established, and it was approved that Steve would be reimbursed for any materials needed for refurbishing these three pieces of equipment.

The fan dipole construction project was discussed, and it was decided that it would be held in late July and/or August with sign-up available for those interested in participating.

The Board Meeting was adjourned at 1900L (7:00PM) with no further business needing to be done.

-Woody K3VSA

Membership Meeting Highlights

Woody (K3VSA), reporting for OCRA/ARES Adopt-A-Highway Coordinator Lisa (KG4PFB) said that the highway cleanup the preceding Saturday went well and that we had begun separating trash into recyclables with this cleanup. Thanks to all those who participated, including first-timer Tim (KJ4ELU).

The OCRA Membership meeting for June 2010 was held at the Orange County EOC building in Hillsborough on Monday, July 12th and was called to order at 1930L (7:30PM) by OCRA President Ken Kauffmann (KR4FM). Introductions were made as per custom.

Dan (KR4UB), as Treasurer, reported a club bank balance of \$6,494.11 as of that day. As Repeater Manager, he reported that the club's 6M repeater is tested and ready for reinstallation, but the antenna still needs to be repaired. Weather permitting, both of these will be done, and some surplus duplexers located in the equipment cabinet will be taken down and hopefully sold.

Dee (KU4GC) said that food sales at Field Day have so far netted OCRA \$102.37 with a few people still needing to pay up. He thanked all those who donated their time and money, especially individuals who devised creative ways of getting ice donated to us by various restaurants, etc.

Orange County ARES EC Laurie (N1YXU) reported that June, 2010's total of 84 man-hours was the highest monthly total for us since her appointment began. She had thanks for all who volunteered with the various events, including the 5K Walk, Hillsborough Hog Day, especially those involved with the heat exhaustion incident there (see "Hillsborough Hog Day 2010" following).

Laurie further announced that the July Ready Rally, to be held on July 31st, would feature a program on digital communications, and the August Ready Rally, on August 28th would have our Red Cross representative conduct shelter training.

Field Day Captain Dave (W4SAR) described OCRA/DFMA Field Day 2010 as "challenging but awesome." The points count having been completed [thanks to Bruce (N1LN) for providing the excellent logging software that made compilation of total QSOs so easy], we garnered a total of 13,445 points for 2010 as compared with 11,115 for 2009. Dave said that every year seems to just get better for us.

It was moved that Dave be given a hearty acclamation from the floor on the excellent job he's done once again as the head of our Field Day operation.

Recommendations for Field Day 2011 included having bandpass filtration for each station to help knock down proximity interference; and ground rods to improve the receive noise and help protect receive front ends from static discharges (two receivers were taken out this year because of static buildup). There was some discussion about an electrically powered ground rod installation tool, but no decision was made at this meeting toward purchasing it.

Dan (KR4FM) attempted to show video he'd taken at Field Day, but a "Microsoft moment" sabotaged the presentation.

Woody (K3VSA) described a new public relations campaign he'd begun called "Talk With The Hand." Aimed at kids, who seem to be especially awed by Morse code, the program provides them with an easy introduction to CW and provides them with award certificates based on levels of achievement.

The meeting was adjourned at 2100L (9:00PM), with some members staying to watch Dan's resurrected video.

-Woody K3VSA

Hillsborough Hog Day 2010

Historic Hillsborough held its 28th annual Hog Day event on Saturday, June 19th, with the usual retinue of barbecue aficionados slaving over their grilles in an attempt to "garner" first prize in the prestigious cooking contest. In recent years, Hog Day was a paid-admission event, but this year, thankfully, it returned to its freebie roots.

Of course, OCRA was there. We were all over that place! Our members, acting as communications support, began falling in at 0700L (7:00AM) at the EOC building and were transported to the Board of Education parking lot in downtown Hillsborough to begin fanning out for our individual assignments.

Each of us was tasked with shadowing a particular key person and keeping that person in the comm loop. My key player was David Hunt, chief judge of the barbecue cooking contest and factotum extraordinaire for the county. David is a volunteer firefighter, is involved with Orange Community Players theater group, does website work for the county, and a whole host of other things, too.

Naturally, much of my time with David was spent inside air conditioned space, since I'd made sure to slather on a goodly layer of sun screen (SPF 45) and wear a wide brimmed hat. Our first assignment together was me watching him administer the barbecue cooking contest. Styrofoam containers of barbecue, designated Number One to Number Thirtysomething, were neatly arranged on folding tables in the conference room of the county's administration building. The judges, some of whom were professionals in the trade and some enthusiastic amateurs, tasted each sample and wrote down numeric grades for each sample. At the end of the sampling, the numbers were all entered into a spreadsheet, and the top five entries were the prize winners. A tie for second place was decided by David himself. First prize was \$750, as I recall.

How good were these barbecues? I got a taste of Entry Number Three, and I can tell you that it was the most delicious barbecue I've ever had. Number Three placed 5th overall, so I cannot even imagine how good the 1st place finisher must have been!

Once the winners had been determined, it was off to the sound stage to announce the results. David is a bit of a showman and dragged out announcing the first place winner so as to increase the excitement. He said he learned this from watching "American Idol" or some such TV program.

We then made the rounds of the event, taping up sheets announcing the contest results. As we crisscrossed the grounds, we saw our other OCRA members at their stations. Ken Kauffmann (KR4FM) did an excellent job as Net Control operator. Steve Ahlbom (W3AHL), Lad Carrington (W4ORD), Jim Hicks (KB4OT), and Dee Ramm (KU4GC) also spent the day at the event as volunteer communicators. Lowell Tieszen (KK4PH)

was also there, driving his vintage 1941 Chevrolet truck, which won a prize at the antique automobile exhibit. I also saw Dave Belt (NA4VY) and his XYL. I made eyeball contact with several elected officials and invited them to come see us at Field Day.

At about 1340L (12:40PM), the day's fun suddenly turned for-real serious. I heard Lad call Ken at Net Control and advise him that a lady at the recycle booth was apparently overcome with heat exhaustion. Well, that wasn't extraordinary, considering it was over ninety degrees that afternoon. I immediately reported this to David Hunt, and we both took off for that location, only a half a minute from where we'd been standing. Dee was with Captain Clint Osborn of the Orange Emergency Management, and Clint dispatched paramedics.

Dave and I got there first. The lady was slumped down in a camp chair and only partially coherent. Dave and I applied cold compresses to the back of her neck while Lad and Jim kept Net Control up to speed. The paramedics arrived just moments later and began stuffing ice packs into her clothes. I had to leave the event a few minutes later, but I saw an ambulance going into the area with lights flashing and siren blaring. I presume it was to transport her to the emergency room. Lad later said that the woman's life might well have been saved by our quick response.

Chalk up another "Thank Goodness for Amateur Radio." Whew!

-Woody K3VSA

OCRA / DFMA Field Day 2010

It was OCRA and DFMA together once again at Field Day 2010, which took place over the weekend of June 25th through 27th. Hams were out in force on Friday evening setting up the tents and the stations so as to be ready to operate when the official start time of 1400L (2:00PM) Saturday rolled around.

In addition to the customary bucket truck from Piedmont EMC, we saw several towers erected and at least one particularly novel means of "skyhooking" an antenna. Wilson (W4BOH) had his own 40 foot trailer-mounted tower with three element beam antenna. It had to be erected twice, because it crashed to the ground shortly after its first deployment. Fortunately, nobody was hurt, and Wilson was immediately at work making the repairs needed to get it ready to be put back up, which it was. Another disappointment was the overcast sky Saturday morning that put the kibosh on our plan to do an aerial photograph of the Field Day site, compliments of Bill (W1REP) and his aircraft.

We still managed to take to the air, but in a different sense. Bill, Chris (K4CPS), and Wayne (KJ4GDW) tried something completely different this year--a 160/80M vertical antenna supported by a helium balloon. Bill had been mulling this idea over for a while and decided to try it out, and Wayne sprung for the helium (tanks, er, thanks, Wayne).

The balloon could be easily seen from New Hope Church Road but was not quite high enough to be visible from I-40. The important thing is, it worked! They made quite a few contacts and are already working on a revised version for Field Day 2011.

Probably the best operating position was aboard Steve's motorhome, dubbed the "Field Day Hilton," with comfy seats and --gasp--ice cold air conditioning! More than just a few people decided to drop in "just to see how the CW ops in there were doing." At the other extreme, Justin (KD4CPM) bicycled in from Chapel Hill completely equipped to cyclo-camp through the weekend.

We had our North Carolina House Representative Bill Faison lined up to visit us, but he managed to get some kind of flu bug and had to beg off with effuse regrets. Maybe next year, Bill. We did get several representatives from our served agencies to stop by, including Captain Clint Osborn from Orange County and from Durham County, and we also were visited by ARRL officials representing the Roanoke Division. Dwayne (N4MIO), recently appointed over ARES Area 10, also came out and spent time with us.

Our visitor's tent was well equipped and even had ARRL literature embossed with our own custom rubber stamp. Copies of our most recent newsletter and membership application for both OCRA and DFMA completed our vast repository of paraphernalia.

We had a few younger visitors who took advantage of our offer to actually sit in and make contacts. Two of my daughter Michaela's friends, Ian and Richard Johnson, got to make a couple of 20M SSB QSOs under the tutelage of Ted Hodges (KE4NBB). Ian moved over to Ken's (KR4FM) PSK-31 operation and spent a good deal of time learning the ins and outs of this digital mode. Amy Johnson, their mother, was also on hand and expressed her appreciation for the kindness and patience that both our operators showed her kids. Whether one of them becomes a ham in the future or not is not clear at this time, but Ian left with a copy of Ward Silver's "Ham Radio for Dummies." Ian, by the way, is the artist whose likenesses of historic radio inventors grace the OCRA website.

Several days later, they had the opportunity to have lunch with their friend, George McBride (W4DGJ), FOC member and CW operator *par excellence*, and they told him what a great time they'd had playing radio. (George was scheduled to come operate Morse, but opted out: "When you're over ninety years old and it's over ninety degrees outside, you'd better just stay inside.") We don't know what George had to say to them at lunch, but afterward Ian remarked to his mother concerning his ham experiences that "it's fun to talk to old people, because they know a lot of stuff." Well, this wouldn't be the first time that Amateur Radio has bridged a generation gap.

Propagation and operators permitting, we worked around the clock as usual. During the Sunday afternoon load out, several hams were overheard praising the skill of certain CW operators and it was mentioned that one of them could probably send code in his sleep. Modesty keeps me from revealing his name, but at the moment he was being talked about, he stepped up and confirmed that, yes, in fact, he had sent Morse in his sleep. He'd fallen

asleep at the key only to wake up to find that he was still sending code. Another sleep deprived operator, Wayne (KJ4GDW) admitted to actually falling asleep in the car once he'd pulled into the home garage Sunday afternoon.

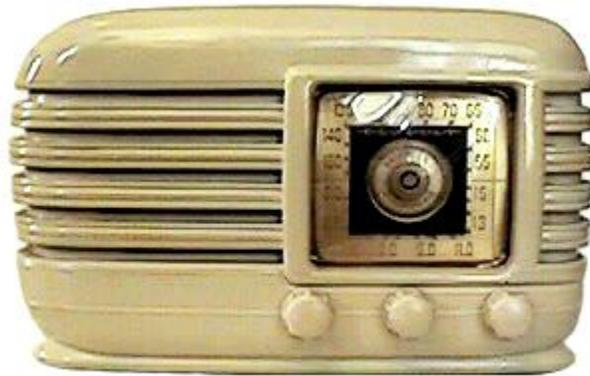
In all, OCRA members were pleased. DFMA members were pleased. Will this be another year where we garner the top spot for our category? Wait and see, but it's lookin' real good as of right now!

-Woody K3VSA

Our Rich Ham Heritage

Number 17 of a series

Our Ham Heritage celebrates the good old red, white and blue tradition of the month of July by featuring the "All American Five" radio. I am just old enough to remember these sets, which are so named because they generally had five tubes and were most prolific (some might say endemic) here in the USA. These radio receivers are variously described as a textbook model of cost engineering at its best and a prime example of corporate disregard for the safety of the public at its worst. They were produced from the late 1930s to the early 1960s when the "Japanese Six" transistor radios made them obsolete, and they can still be found in large numbers. If you run across an old tabletop tube radio, it will probably be an "AA5."



This Crosley radio from the period is an excellent example of a vintage AA5.

Let's begin our story with a brief history of radio technology, which will bring us to the creation of this receiver. In the beginning was wireless, which used spark gap transmitters emitting a very broad spectrum of what was essentially radio frequency noise that was keyed on and off to send Morse code. The great advance in receiver technology at that time was the use of mineral crystal detectors, such as galena, which had diode

semiconductor properties. These crystal radios had poor selectivity, but they were well matched with the spark transmitters then in use.

Amplitude modulated voice transmissions became truly practical when the vacuum tube triode was invented, and this led to radio and broadcasting. The TRF receiver (for "tuned RF") superceded the crystal set. The typical TRF set of the day had three triodes, one after the other, as RF amplifier stages, and the selectivity was better than that of the crystal radio, but it got worse toward the high end of the dial. Keeping these sets neutralized (that is, preventing the amplifiers from breaking into oscillation) could be challenging, too. In the beginning, each RF stage's tuning capacitor had its own knob, so operating such a radio could be a bit tricky for grandma and grandpa.

You'll still see some of these sets for sale at hamfests and antique stores. If it's in a wooden case that's wide and shallow with a hinged top, chances are it's a TRF. Open the top and look inside. If there are three tuning capacitors, and three coils at right angles to each other (to minimize mutual inductive coupling), you're looking at a TRF. Many of them are quite beautiful and can still be made to operate after a fashion.

By the end of the 1920s, several significant things had occurred. First, broadcasting had really taken off. The number of stations on the dial had increased to the point that it was beginning to be difficult to find any vacant channels for new stations. Second, the stock market crash initiated the Great Depression. Radio receivers of the day were becoming inadequate because of selectivity issues, and they were now too expensive. What to do?

The selectivity issue had already been taken care of, at least theoretically, near the end of World War I when Major Edwin Howard Armstrong invented the superheterodyne receiver. This advanced architecture used an internal "local oscillator" to transform the received signal to a lower "intermediate frequency" which could be stably amplified. The lower IF guaranteed better selectivity. The trouble was, "superhets" were anything but cheap. Well into the 1930s, even most hams were still using regenerative receivers in their shacks because superhets were out of reach cost wise.

So how was the radio industry going to supply the benefits of the superheterodyne while bypassing the costs? Tubes were high-value items. If there were some way of decreasing the number of tubes that were required, that would help. The front end of the receiver used an RF amplifier, a local oscillator and a mixer. A new tube type, called a pentagrid converter, combined the local oscillator and the mixer together within one glass (or metal) envelope. The RF amplifier could be dispensed with altogether, since there were now so many stations broadcasting that a station close by could likely be found.

Another high-value component in the radio was the power transformer. Its job was to supply both the filament and plate voltages for the tubes. The transformer's filament winding could be eliminated by connecting all the tube filaments in one series loop if the voltage drops across all the tubes could be made to equal the AC line voltage and run properly from the same current flow. This was accomplished by creating special rectifier

and audio power output tubes that used filaments with higher voltages.

Only DC would work for the plate voltage, but that could be had by simply running the AC line voltage directly through the rectifier. By thusly eliminating the power transformer, an added sales point was that this new radio would operate from either 110 Volts AC or DC. Big whoop!

You now had a small, lightweight table radio that was a fair performer at a price people were willing to pay. What could be wrong with that? Well, one side of the AC power line was directly connected to the chassis of the set. Depending upon how the power plug was inserted into the socket (there were no polarized plugs and sockets back then), the “hot” side might be felt at the chassis. Even plastic or wooden cased sets often had chassis retaining screws that could be contacted from outside, and you could get a nasty, even fatal, shock if you were the monkey in the middle between chassis and ground. Depending on where the on/off switch was located in the schematic, the radio might be hot even when turned off! The idea that companies could legally market such products seems ludicrous today, but it was all *caveat emptor* back then.

This is why there might have been a radio in every room but the bathroom. I can remember my mom's fear that a radio in the bathroom might fall into the tub and electrocute somebody who was taking a bath. This concern was so deeply ingrained in some people that they were superstitiously afraid of transistor radios in the bathroom, even if those sets ran on 9V batteries.

Not all radio manufacturers were enthusiastic about this new design. In 1939, Arthur Atwater Kent, the manufacturer of the legendary high quality broadcast receivers which bore his name, decided to close up shop rather than to so cheapen his products. The UL eventually stepped in and required manufacturers to use a so-called “floating” chassis, which was at ground potential for RF but blocked for AC power.

Acquiring some of these sets is an easy and relatively inexpensive way to begin a collection of antique radios. They were produced in a wide assortment of shapes and a kaleidoscope of colors. Tubes for them were made in the millions and are still readily available as new old stock (“NOS”). Be sure to operate these radios through an isolation transformer, however. Or, you can replace the factory power plug with a newer, polarized plug if you’re sure the electrician who wired your home did it correctly!

-Woody K3VSA

We Get Letters

You'll no doubt remember Ruthanne Morningstar from last month's OCRA newsletter. We received the following letter from her last week as a result of our Secretary mailing her a copy of that issue, which had a prominent write-up about her along with a great

photo of her and her OM. Here's what she had to say:

Hi Raymond - K3VSA !

Thank you for a copy of the newsletter and the write-up. Enjoyed meeting & talking with you and everyone you introduced me to.

Really enjoyed the newsletter, and the scenery back home was nice.

I'm in the process of studying for the General. David has installed a radio in my car-so I'm mobile!

Thanks Again - Ruthanne Morningstar KD8OET clear

The Next OCRA Meeting

The next OCRA Meeting will take place on Monday, August 9th at 1930L (7:30PM), as usual at the Orange County EOC Building in Hillsborough. In the meantime, join many of us for Saturday morning breakfasts at the Hillsborough Bojangles on South Churton Street beginning about 0930L (9:30AM). See these and other upcoming events on the calendar portion of the OCRA website and become our friend on Facebook.

Errata

1. Justin Heinecke's callsign was incorrectly listed in the June Newsletter as KD4CMP. Of course, it should've been listed as KD4CPM.
2. In the July Newsletter, the section marked "Errata" should've been listed as "Erratum."

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*This edition of the OCRA Newsletter, along with the
archive of past issues, can be viewed online at:
<http://www.ncocra.org/newsletters.html>*

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