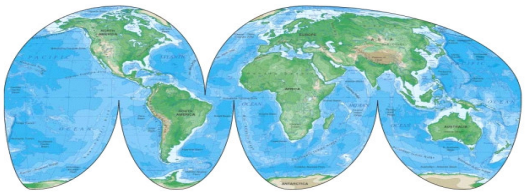
MOUNT VERNON AMATEUR RADIO CLUB

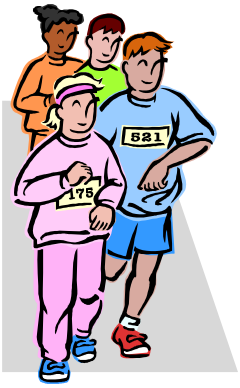
C  Q

May 2007 Newsletter

MEETINGS SECOND MONDAY OF THE MONTH AT THE RED CROSS ANNEX BUILDING,
300 N MULBERRY ST, MT. VERNON, OHIO
REPEATER FREQUENCIES: 146.790 (-) K8EEN /R 444.750 (+) KC8YED /R 53.790 (-) WA8YRS/R
SUNDAY NIGHT ARES NET AT 8:00 P.M ON THE K8EEN REPEATER OPEN TO ALL

Earth Day Challenge a Success

By Don Russell, WA8YRS



Members of the Mt. Vernon Amateur Radio Club showed their stuff (communications that is) at the Kenyon College sponsored Earth Day Challenge held Sunday, April 22, 2007.

This challenging 26 mile course started in Mt. Vernon at the Comfort In. After arriving in Danville, the runners would turn around and head for the finish line at Kenyon College in Gambier. There were approximately 120 runners participating.

The challenge for our Ham Radio Group, lead by Mike McCardel, KC8YLD, was to provide communications at each check point, which was distributed every 2 miles along the course. There was a lot of concern that hand-helds would not be able to get back into the Mt. Vernon Repeater at all points along the course due the hills on the East of Mt. Vernon.

It was decided that a critical point in the course would be the turn around in Danville and we wanted to make sure that we had good communications from there. Don Russell, WA8YRS, set this station up using a mobile antenna mounted on a tripod, a 30 watt transceiver, and a deep cell battery. This station had no problem working into the repeater. Don was able to check into the repeater with his hand-held at the Danville location. The set up did, however, allow worry free operation from the Danville check point. Emily Bain, KC8YAE, was chief operator at this site and did an excellent job of relaying information back to net control.

There was at least one runner who did not finish the course. This runner had sprained a muscle. Don Bunner, KB8QPO, transported him to Howard, where the mans spouse picked him up. Don then returned to his check point.

Another important service was provided by stations reporting the need for more water cups. On a marathon run, we wanted to make sure that all runners had enough water to get them through to the end.

Another area of communications need was the Gator mobile. This was the vehicle trailing the last runner to be sure all runners made it to the finish line safely. Jack Koelbl, N8JQZ, was in charge of this station. Zack McCardel, KC8YLE, relieved him the last 4 miles or so of the race.

There was one runner who somehow got behind the Gator. Evidently a restroom stop. Because of our communications, the Gator was aware of this and allowed the runner to catch up before continuing on.

There were some problems communicating through the repeater with our hand-helds starting at about Gambier. Net Control was able to work most of these stations on a simplex channel. After leaving Danville, Don, WA8YRS, was posted at a check point close to Gambier. He was able to talk directly with Net Control, and relayed information from other stations as needed.

In analysis, this was a good test for our Club. We showed that we could, on short notice, provide communications into a difficult area. It also showed some of our weaknesses, which can and will be addressed. Mainly, a lack of emergency antennas that we can build really cheap. If we had antennas that could be used in place of the hand-held rubber duckie antenna, there is little doubt that everyone along the course would

have reached the repeater. The 300 ohm line J-Pole comes to mind. Another area of improvement would be to have the net control station antenna up higher in the air instead of the mag mount mobile whip stuck to a chair. Being higher in the air would have made simplex a bit more reliable. This can be easily remedied.

Club members and Local hams that participated in this event include: Emily Bain (KC8YAE), Charlie Berger (KD8FMI), Jim Chandler (KB8YAA), Don Bunner (KB8QPO), Dick Huggins (WD8QHY), Larry Helzer (AA8WP), Zack McCardeL (KC8YLE), Mike McCardel (KC8YLD), Jack Koelbl (N8JQZ), and Don Russell (WA8YRS).

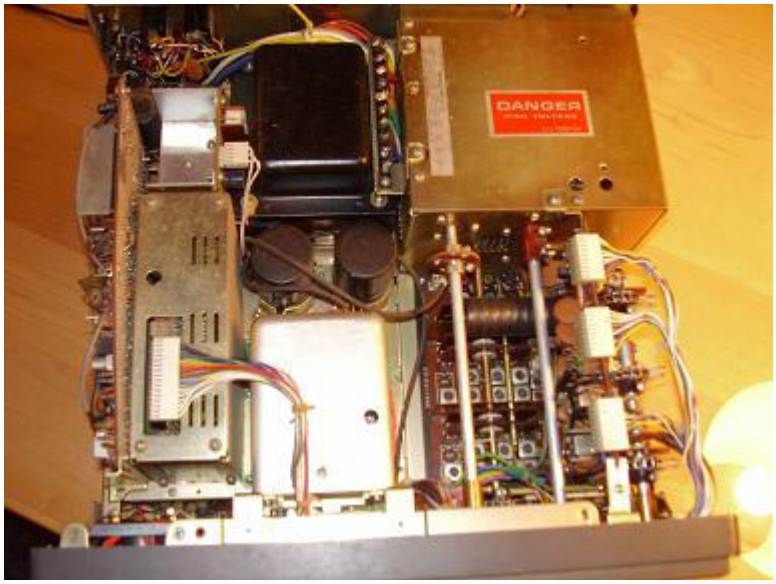
My apologies if I missed anyone.

A final word of note. Special thanks to Charlie Berger, KD8FMI. Charlie is one of our new hams and was thrown into the fire, so to speak, without any training. He sounded and acted like an experienced ham. Good Job!

KENWOOD TS-830
RESURECTION

Catchy title, isn't it? Actually, the clubs Kenwood TS-830 was not dead, so it did not really need resurrected. However, it did have one foot in the grave and the other foot starting to slide in.

This all began when Dan Crowthers, KB8TEX, brought the Clubs Kenwood TS-830 to the February club meeting. Dan had been club equipment trustee for many years, and although he was not a current member, still had the radio. As a bonus, Dan brought in a Heathkit SB-101 transceiver, which apparently, no one knew the club owned. More on the Heathkit later. Dan has since rejoined the club and is a member in good standing.



Barry Butz, N8PPF, and new equipment trustee took both radios home with him. Upon examination, both radios where very dirty. The Kenwood had apparently been sitting on its side for a long time, and there was a lot of dirt/dust, etc inside where it had been closest to the floor. The Heathkit had plenty of dust all over on the inside. Barry did fire the Kenwood up and it appeared to be working. However, when trying to tune it a station, all that was heard was noise and the frequency readout display jumped around erratically. Barry discussed this with me (Don, WA8YRS) and it was decided that the tuning capacitor was very dirty and needed cleaned up. Since Barry was preparing to head South for a few months, he left the radio in my hands to see what could be done.

I had remembered that the club last use the TS-830 for Field Day maybe five years ago, so I at least knew that it had been working then. One of my worries was that it did not appear to be putting out full power during that Field Day so perhaps it would be necessary to replace the finals and /or driver tube. Yes, this is a hybrid transceiver. It is all solide state except for the driver and finals, which are tubes. First order of business though, was to get the receiver working.

Off to Radio Shack I went and picked up a cleaning kit made by a company called Caig Laboratories, http://www.caig.com/. The cleaning kit was a spray contact cleaner and deoxidizer. Radio Shack #640-4338.

After thinking real hard as to whether I really wanted to spray this stuff on a tuning capacitor with rotor blades, I finally bit the bullet and started the cleanup procedure. The instructions said to spray it on and wipe it off. Well, I didn't know any effective way to wipe it off in between the rotor blades, so I merely sprayed it on and hoped for the best. After tuning the radio through its range a couple of times, things seem to start working normally again and I was able to tune stations in without problems. So far so good.

Then I noticed that the radio had a real bad frequency drift. I mean BAD! Five Kilohertz in a matter of 30 seconds bad! On to the internet to check what might be causing this. The internet in a wonderful tool. You can get information, join user groups, etc. for just about any radio out there. However, I could find nothing about a severe frequency drift on a TS-830.

Since Barry had not left on his vacation yet, I invited him over to see how the radio was playing. While we were both playing with it, we noticed something really strange. If you left it on a station for a while, the drift would finally settle down and hardly drift at all. When your tuned to another station however, it would start drifting again! After a bit of thought, it dawned on me what was happening. When I cleaned the tuning capacitor up, I

got rid of a lot of the dirt and grime. However, the rotator blades where still wet and had cleaning residue left on them. So after tuning to a new station, the rotor would dry out a bit. As it dried out, the capacitance would change, and thus the frequency. Back to the problem of how to wipe it off. I remembered having some never uses small paint brushes on hand. Using one of these, I jammed it into the rotor blades and tuned the radio through the entire tuning range. Bingo! This did the trick and now the radio hardly drifts at all.

Next step was to try tuning the transmitter. Like I said, I was a little worried here. I was not expecting to be able to tune it to full output power.

This is not a modern solid state rig, so you do have to actually tune the finals. Not really that hard though. A mixture of tuning the driver tube for max drive, and then dipping the plate current to the finals to obtain resonance for the frequency of choice. This radio tuned up quickly and easily put out 100 watts plus. So, I guess we need not worry about the finals for now.

Next item on the agenda was to get a microphone for the transceiver and try making a few contacts. Dan had not been able to locate the microphone that came with the radio. He is still looking.

Mike, KC8YLD, had an Astatic microphone he had picked up at a garage sale for twenty five cents. These microphones were popular with the CB crowd in the 60's and 70's, from what I have read on the internet. Hams have also made use of them with good results. This particular microphone had an amplifier built in, which I did not see why I would need it, so since I had to rewire the microphone anyway, I wired the mic element directly to the microphone plug. I guess this was a CB power mic!

This seemed to work well and the microphone drove the transmitter to full output without any problems. I had a forty five minute chat with a ham on the East Coast and he said the audio sounded fine.

The next weekend, I played around a bit in the Wisconsin QSO Party. The same day Ohio State played Wisconsin for the Big Ten basketball title. Interesting. I had no problems working the stations I heard. The TS-830 seems like a very nice radio.

While the Kenwood TS-830 is an old radio, it does seem to play very nicely. I know I have been in favor of selling the Clubs equipment. The idea was to take the money from selling the equipment and put it towards a newer solid state transceiver that covers 160 meters through 70 Cm. I would still be in favor of doing this, if the club decides to do it. However, after using this radio for a bit at home, I believe the club can still get a lot of use out of it. I would like to get some kind of station set up at the Red Cross. For one, to show Red Cross officials that we are serious about providing communications. For two, it would be nice to get some members to operate a bit before or after the meeting. Maybe spark the HF interest of some of our Technician Class members.

ComPIOnents

by Mike McCardel, KC8YLD

Earth Day Challenge

The folks at Kenyon College decided to sponsor a marathon April 22 and appropriately named it the Earth Day Challenge. The event turned out to be a challenge for the Mount Vernon Amateur Radio Club as

well. Last January, I, as club president, suggested to event director Emily Mountain that the club may be interested in helping with communications. We heard nothing back from her until the week before the event. I immediately put out a call for volunteers. Other than knowing the race route there was little information about what the race wanted us to do or where they might want us to setup, or even how many people they expected us to provide. Friday April 20 at a meeting for volunteers I finally had a course map with aide stations located on it. At this time I still only had 6 for sure volunteers. I quick email'd again mapping a communications strategy and I quickly had more volunteers and an idea of where we would put each station. We would be able to cover all 12 Aide Stations, the follow-up vehicle, the turn around and the finish line. Since the race route doubled back along the Kokosing Gap Trail check points 5, 6, 7, 8 also served as check points 12, 11, 10 and 9. People who staffed check points 1, 2, and 3 relocated to later check points after their check points were cleared by the trailing vehicle. Don Russell, WA8YRS, was going to staff the trailing vehicle, a "Gator" utility truck. But between needing to get a radio and antenna to Emily Bain, KC8YAE, at the turn around and the repeater mal-functioning just as the race was about to start at 9am, he was diverted. Jack Koelbl, N8JQZ, took over Don's place on the Gator. Dick Huggins, WD8QHY, took over at station 1 for Jack, and later moved to help me at Control located at the Finish Line. Zach McCardel, KC8YLE staffed Aide Station 2 and later moved to the combined Station 6/11. New ham Charlie Berger, KD8FMI, from St. Louisville, volunteered to take Station 3 and later moved to combined station 8/9. Larry 'Doc' Helzer, AA8WP, and Jeff Butz, N8SMT took up residence at station 4. After Don resolved the repeater issues and helped Emily set up at the turn around in Danville, he took up responsibilities at combined station 5/12. Don Bunner, KB8QPO, set up at stations 7/10, roaming a bit to cover nearby crossroads and to assist a couple of runners. Later in early afternoon Jim Chandler, KB8YAA, joined us by going to station 5/12 to assist Don. Dick eventually had to leave and Jeff and Doc returned to the finish line to give me some needed relief, once they secured their station. (Drinking coffee all day was a bad idea.) All in all it was a great day, both in the weather and in the service we provided. It's not easy to keep track of 138 people over a course of 26 miles, especially since nearly 5 hours passed between the first finisher and the last. But we did a good job accounting for everyone. We were also able to relay requests for supplies and relief to race officials, aid runners in distress, and alert the race officials to ETAs of groups of runners to check points. Everyone performed well. Cooperation and flexibility of all the Amateur Operators were greatly lauded by the Race Directors.

So what did we learn? First and foremost, we are flexible and stable, were able to set most of what we did on the fly and adjusted to malfunctions quickly and efficiently. Of note was reception at some check points was poor, especially those between Gambier and Danville. Better antennas would have helped, but we tested and were able to communicate by reversing the repeater input and output and could relay information up and down the race path (the hiking trail) using simplex as well as reversing the input. Control, could have had a better antenna system. There is some RF interference from all the electronics in the KAC as well as we were operating from the end zone of the football field which is in a low spot. Perhaps using a cross band repeater set in a vehicle set at a high point on campus would have helped.

What else would I like to have done? Well tracking the Gator and a few select participants via APRS may have made for an interesting exercise.

I would like to thank everyone who helped make this event as much fun and productive as it was.

Learning To Use My New Radios

In the past couple months, I have had an opportunity to get more acquainted with my new equipment, some of which I used during the Earth Day event. I recently bought a Kenwood TM-D700A dual band radio which has a built in TNC and cross-band repeat capability. I recently used it to track my progress on a trip to Milwaukee. As I am moving it relays information from my attached GPS via packet to amateur radios operating as digi-peaters and Internet gateways. Others can track my progress and I can track others as their packets are reported back to me. My son Zach, KC8YLE, used it to estimate what time I would get home during our return trip. I actually turned it off because the GPS battery was fading, two hours before I got home. Zach, noting when and where my last packet was received, estimated my arrival home within 15 minutes. Pretty cool stuff. This could be useful tracking units in a parade, or race, or keeping track of mobile units during a storm or emergency. You can view some of my recent movements including my Milwaukee trip at

http://www.db0anf.de/hamweb/aprsdb/showdata/KC8YLD/shmovements.

http://www.findu.com/cgi-bin/track.cgi?call=KC8YLD.

Mt. Vernon ARC Officers

President: Mike McCardel, KC8YLD	**kc8yld@arrl.net**	**Phone: 740-599-6614**
Vice President: Don Russell, WA8YRS	**Wa8yrs@arrl.net**	**Phone: 740-397-0249**
Secretary: Jeff Butz, N8SM	**Jaylynn@copper.net**	**Phone: 740-965-9368**
Treasurer: Barry Butz, N8PPF	**n8ppf@mvarc.net**	**Phone: 740-397-7540**

If you know someone who uses APRS, substitute their call sign for mine to view their APRS tracks.

The TNC can also be set up to report weather data via APRS or other packet data transmits. Something I am going to try soon. Note you don't need anything more fancy than a 2 meter radio tuned to 144.390 MHz and a TNC interface to start experimenting with APRS. Zach has done just that and has setup an APRS gateway to the internet which captures packets of local APRS users and relays them to the Internet, like the sites mentioned above.

The TM-D700A also has cross-band repeater capabilities. I can set it up to receive a signal from my handheld and it will retransmit on another frequency 146.190, the K8EEN input frequency for example. When it receives a signal back through the repeaters output frequency, in the case of K8EEN 146.790, it retransmits on my handhelds simplex frequency I am set to and I hear it on my handheld. Draw back is that I can't hear anything until under the repeater's squelch tail ends. I can also operate in Locked-band mode. In Locked-band mode I only transmit remotely via 70cm and listen direct from the repeater via my dual band capability of my handheld. This works well because of the sensitive receive of my Yaesu VX-7R handheld. Now I can walk about my property near Jelloway and talk through the repeater using low power on my handheld through my mobile Kenwood TM-D700A set on high power, using the antenna on my tower. I can just as easily talk from my office in the basement of Chalmers Library at work, through my mobile parked at higher ground. This could prove useful at events like the Earth Day Challenge where I could set up the mobile away and higher than where I might need to be positioned. Also, I can easily participate in a weather net from the safety of my office while monitoring the radar on my computer or a cable weather feed. PS, it helps to read the manuals!

Ruben Clark, KB2SAI, appointed new EC for Knox County

The following appeared in the May District 6 Newsletter, put out by DEC Jay Bookwalter, KC8GNL

http://www.iarc.ws/ARES/May07.pdf

"A welcome to Ruben Clark KB2SAI the now official EC for Knox County. Ruben is replacing Bob McBride N8QPM who has resigned as their EC after many years. Ruben can be reached at kb2sai@mvarc.net or 740-326-4154. Please make sure to update your EC roster with this change."

Field Day Tops Mays Agenda

The next meeting of MVARC will be 7 pm May 14 at the American Red Cross Training Center, 300 N Mulberry (Rear), Mount Vernon. Topping the meeting's agenda will be selection of a Field Day site. Leading location is the ARC Training Center where it was held last year. Club President, Mike McCardel, KC8YLD, will have official ARRL Band plans to pass to all in attendance. This colorful pamphlet will reflect all the recent changes. We are looking for demonstrators for Field Day and future meetings. If you have a radio related technology, procedure, or demonstration and would like to volunteer, please contact me or Don, WA8YRS.

KUDOS

Emily Bain KC8YAE who really did a stellar job staffing the turn around at Danville during the Earth Day Challenge. Emily doesn't yet own a radio and hasn't been on the air since the Bicentennial parade. Nevertheless, her radio procedure was right on the money. She tracked and relayed the time of every runner as they passed this check point which allowed the race directors keep track every runner. Thanks, Emily!

Charlie Berger, KD8FMI, a newly minted ham who just jumped right into the fray during the Earth Day Challenge. He manned two different stations and made some nice adaptations moving from repeater to simplex and figuring out net protocol on the fly. Nice Job Charlie!

Ruben Clark, KB8SAI, for his recent appointment as "official" EC for Knox County. Good luck with your new duties, Ruben!

David Cluggish, N8IIQ, from Mantua, OH and an AEC for Portage County. Dave works for Rolls Royce and has activated two Knox County Skywarn Nets during a Tornado Warning and a Severe Thunderstorm warning in the past month. thanks for you vigilance and help Dave!

VHF WORLD

By Don Russell, WA8YRS

This is be the third and final piece on our little tour of repeaters. In this part, we will discuss audio mixing and Digital Voice Recorders.

Repeaters generally have several audio components that need to be sent to the repeaters microphone (or audio) input. Of course, the audio coming from the Repeater receiver would be a very important one. Others would be the Repeater Voice ID, the CW Repeater ID, the Telephone Patch audio from the telephone line, and perhaps a controller generated touch tone, if a repeater is involved in the linking of several repeaters.

While it would be nice if all we had to do was hook the audio lines in parallel and be done with it, this is not really a good idea. All audio lines need to be isolated from each other. Not doing so could cause problems such as RF getting into the audio system, grounding problems that would cause hum on the repeater audio, and perhaps short circuits that would allow no audio to get through. Also, one would like to be able to adjust each audio level separately and without affecting the other audio devices. This is usually done with an audio mixer circuit. Music buffs and audio geeks should be familiar with this device. Radio Shack has sold at least one version for many years.

An audio mixing circuit has several inputs isolated from each other, and each with their own level control. A mixer also has a main audio output control for setting the proper maximum drive level to the microphone or line input. In fact, mixers may have more than one output. Our repeater has audio outputs for two transmitters. The second transmitter can be a repeater on a different frequency, a link transmitter, or a separate radio altogether, like a 20 meter transceiver which would be controlled through the repeater controller via touchtone. I will bet you didn't know that! It is necessary to have some amplification between the audio input circuits and the audio output circuit. This assures that all audio channels can be set to a level acceptable to the device it is being outputted to. In this case, the Repeater transmitter. This amplification now days is usually via a transistor or IC Op amp, or some other kind of audio amplifier. Not so in the 1960's. I remember building our first audio mixing circuit for the original Mt. Vernon Repeater. It was, of course, a tube type mixer. Three tubes for three inputs if I remember right. Got the circuit out of the pages of QST. Being a tube type mixer was no surprise back then, the whole repeater system used tubes!

Fortunately, audio mixing is included in the modern day repeater controller. Everything is done for you in a nice package. You still need to set the audio levels however. This can be tricky. Set the audio to the transmitter too high, then no matter what you adjust at the receiver, the audio has hum, a rushing sound, or noise. Not good at all. As with all things, it takes a little playing around with. Once you get it close, you just keep tinkering until you get it just right.

Ideally, the Repeater receiver audio should be set so that the transmitter deviation is at a full 5 kHz. The trick is to saturate the transmitter input slightly so that varying audio volumes which is produced by repeater user radios with varying degrees of deviation (but all pretty close to 5 kHz.) sound close to the same audio level. Sort of like an automatic gain control. This is not entirely possible to do, but one can get it close. Again, saturate the transmitter too much and all you get is a bad sounding repeater. I think our Repeater sounds pretty good most of the time.

All other audio levels are usually set for about 2 kHz deviation. With the CW ID'er set at 2 kHz on our repeater, you can hear the CW ID over someone using the repeater. This is required by the FCC. The repeater must identify every ten minutes, and it must be heard! The voice ID is another problem. Two voices talking at the same time, like the voice ID and the repeater user, is not a good thing. Our repeater is set up so that the voice ID will only come on when there is no signal present. If a signal comes on while the voice ID'er is announcing the repeater call, then the controller changes from voice ID to the CW ID. You hear this occasionally on our repeater. Someone forgets to let the repeater ID, and starts transmitting, then listeners will hear the ID change from voice to CW.

Our repeater is capable of recording audio, like timely announcements, unique time of day announcements, signal report feature, etc. This is because it has a DVR (Digital Voice Recorder) built into the controller.

Sorry to say, I have not used the DVR much, although I did have the idea of using it for a unique hourly chime, instead of our synthesized repeater voice. Danielle Jenkins, KG8FP, worked with me creating some hourly time announcements a few years ago. Unfortunately I could not get it to work the way I wanted it to and finally gave up on the idea. I have used it a few times for club announcements.

Our DVR is capable of several minutes of recording time, all divided into sixteen tracks. Some of these tracks are thirty seconds long, others are as little as six seconds. This does give many options, and maybe I will revisit using the DVR in the future.

For those interested, you can hear what the DVR sounds like by accessing the Signal Report feature on our repeater. Key the repeater up and identify. Then use the touch tone sequence 24* (two-four-star). Wait for the repeater to say "Start test now", then give a brief transmission, like "This is WA8YRS testing one two three four five". After a brief pause, the repeater will repeat your test message just as it was received through the repeater receiver. Neat. With this feature, even if no one is around to talk to you, you can still check and see how well you are getting into the repeater. Got a new radio and want to see how it sounds? Use this feature on the repeater and you can hear it for yourself. This feature uses the DVR to record, and then play back your signal.

That is a wrap on the repeater issue. I am thinking of presenting a piece on VHF propagation in the next VHF/UHF World. If readers have something else in mind, please let me know. Another way to do it would be for a few of you "Author Want to Be's" to write this column yourself and send it in to me. I promise to give you full credit as a "Guest Author" of the column.

MVARC

Mt. Vernon Amateur Radio Club
Minutes for the April 9, 2007 Meeting.
By Jeff Butz, N8SMT

Attendees:

Don Bunner	**KB8QPO**
Larry Helzer, DVM	**AA8WP**
Dick Huggins	**WD8QHY**
Mike McCardel	**KC8YLD**
Don Russell	**WA8YRS**
Jeff Butz	**N8SMT**

President Mike McCardel, KC8YLD, called the meeting to order at 8:25 P.M. after an enjoyable radio related social hour with all the trimmings.

Field Day Report: Doc Helzer, AA8WP. Doc suggested we have Field Day here at the Red Cross, His house or the new park on Gilchrist Road, which he hasn't had a chance to take a look at yet. After much discussion it was decided to see if the Red Cross facility is available and if not then we would either go to Doc's House or the Fair Grounds.

Treasurer's Report: None

Emergency Coordinator's Report: None

Old Business: Don Russell, WA8YRS, reported we have the money for the Library donation and are just waiting for the updated books to become available.

New Business: Don Russell, WA8YRS, would like us to have an ARRL membership drive. He is going to include a membership form with the newsletter. We are supposed to have 51 % to maintain our ARRL affiliation and the extra money we would receive for processing the applications wouldn't hurt either.

Repeater report: Don Russell, WA8YRS: The Echo-Link is down and Ruben Clark, KB2SAI, reports that he hasn't had a chance to repair the problem yet.

Earth Day Marathon: Mike McCardel, KC8YLD, The marathon is April 22 the organizers requested 5 or 6 people. Mike will e-mail a request to everyone and place them as they show up.

The meeting was adjourned at 9:06 P.M.

At The April Meeting:

Don Bunner, KB8QPO

Jeff Butz, N8SMT

Larry "Doc" Helzer, AA8WP (left)
Dick Huggins, WD8QHY (right)

Mike McCardel, KC8YLD

HAM HISTORY
By Barry Butz, N8PPF

Credit for this article goes to: International Electrotechnical Commission (IEC)
http://www.iec.ch/100years/techline/

This installment could have been in the December issue. One hundred years earlier Reginald Fessenden (1866-1932) astonished shipboard radio operators as they heard voice instead of Morse code.

Canadian engineer and inventor Reginald Fessenden is known for discovering amplitude modulation (AM) radio and explaining its scientific principles. With this heterodyne principle, he put into practice the idea of mixing two high frequency signals to carry the audible low frequency of the human voice. He broadcast the first program of music and voice ever transmitted over long distances.

Fessenden left Canada at 18 and worked for both Thomas Edison and George Westinghouse before becoming professor of electrical engineering at Purdue University and chief of electrical engineering at Western University of Pennsylvania. Here Fessenden explored his major interest, the study of Hercules sound waves.

Marconi believed waves were generated by creating a spark that caused a whiplash effect, but Fessenden rejected this concept, theorizing correctly that sound waves continuously rippled outward — like water when a stone is dropped into it. Further experiments led him to suggest that, if the waves could be sent at a high frequency, it would be possible to hear only the "variations due to the human voice."

In 1900 he joined the US Weather Bureau on the understanding that the bureau could have access to any devices he invented but that he would retain ownership. Within months he improved their Morse code systems for weather forecasting, and in his own experiments transmitted voice a mile away for the first time.

With the help of two Pittsburg entrepreneurs he formed the National Electric Signaling Company (NESCO) to develop Morse code services and to carry on his own research. In 1903 he sent a voice message to an assistant 50 miles distant, and another was heard at his experimental towers in Scotland. In 1904 he was also hired to help engineer the Niagara Falls power plant for the newly formed Ontario Power Commission, and in 1906 he opened his own Canadian company in Montreal.

His greatest achievement that year, however, occurred on Christmas Eve, 1906, when wireless operators of several United Fruit Company ships in the Atlantic, tipped off to expect something unusual on their NESCO-provided sets, heard Fessenden transmit a recording of Handel's "Largo" on an Ediphone, play "Oh Holy Night" on the violin, and read from the Bible before wishing them a Merry Christmas.

Fessenden continued to innovate and eventually had some 500 inventions to his credit, including a wireless system for submarines to signal each other, and a device – to avoid another Titanic disaster – that could "bounce radio waves off icebergs miles away." Later he sent sound waves to the bottom of the ocean to accurately gauge its depth.

Newsletter Credits
Editor: Don Russell, WA8YRS

Clip Art and Cartoons thanks to http://wm8c1.50megs.com/radio_clip_art.htm, http://www.qsl.net/k4adl/, http://pages.prodigy.net/kg0zz/clipart/ham_art3.htm, http://www.arrl.org/,

The ARRL letter is a weekly e-mail publication by the ARRL. You may read the entire ARRL letter by visiting the ARRL Web page at http://www.arrl.org/. **Other News** from: http://ky4ky.com/fyi.htm.

The ARES E-Letter is an e-mail digest of news and information of interest to active members of the ARRL Amateur Radio Emergency Service (ARES). Past issues of The ARES E-Letter are available at http://www.arrl.org/ares-el/. Issues are posted to this page after publication.

Project OSCAR is a monthly column written for Newsletter Editors. Columns will appear as space permits. You may download all the columns yourself at: http://www.projectoscar.net/beacon.php

Members are encouraged to send articles pertaining to ham radio, with an emphasis on local activities, equipment reviews, and personal experience to wa8yrs@arrl.net or Don Russell, WA8YRS, 815 Brookwood Road, Mt. Vernon, Ohio 43050

ARRL Membership Drive Begins May 2007

At the April MVARC meeting Don Russell, WA8YRS, proposed that the club sponsor an ARRL membership drive. The Mt. Vernon Club has been affiliated with the ARRL since 1958. To maintain this affiliation, the club needs 51 percent of our club members to be ARRL members. We have always maintained this without much advertisement, however, the past few years has been really close. With the influx of new hams who may not have had a opportunity to join the ARRL, or may not even know much about the ARRL, it is important that we promote this feature as much as possible.

To make it as easy as possible for Club members to Join the ARRL, the club has obtained membership forms that can be sent in though the club. See the last page of this Newsletter, or better, come to a meeting. As an affiliated club, our club gets to keep $15 of any first time ARRL membership application. The club also gets to keep $2 for each ARRL renewal that is sent in through the club. This is if the club sends in the application. We should not pass up this opportunity to bolster our treasury and our Club affiliation with the ARRL. An application appears on the last page of this Newsletter. It should be sent to the Clubs Post Office Box number and the Club Treasurer will handle it from there. So, if you would like to join the ARRL, or would like to renew your current membership, please consider doing so through the club. Of course this is not mandatory. You may download an ARRL membership form and send it directly to the ARRL, or can join online, or by the telephone. Come to a meeting. I will have these forms available too. The main thing is to join the ARRL and help support your hobby. Please let Barry Butz, N8PPF, our club Treasurer know that you have joined the ARRL so that he can update club records.

One of the many reasons for joining the ARRL is getting the monthly publication **QST**. Here's some of what you'll find every month:

- Informative and hard-hitting Product Reviews of the newest radios and accessories from hand-held and mobile FM radios, to home-station transceivers, antennas and even shortwave radios.
- Advertisements. You'll find everything from full-color pages introducing new radios to a large classified ad section.
- The Public Service column keeps you up to date on the public service efforts hams are providing around the country and shows you how you can join in this satisfying aspect of our hobby.
- Digital Dimension covers news in the Amateur Radio digital world and includes information on useful Web sites.
- The New Ham Companion section is filled with features and how-to information just for beginning hams. There's no jargon-filled "tech talk"--just straightforward, easy-to-understand articles designed to get you on the air doing the things you like best..

Another reason to join the ARRL is for access to the membership only area of the ARRL web page:

- *The ARRLWeb Extra* Web 'zine -- Exclusive features, photos, reviews and sounds from the world of Amateur Radio!
- Product Review archive -- Get copies of any *QST* Product Review column from 1980 to the present in an Adobe Portable Document Format (PDF) file.
- ARRL E-Mail Forwarding Service -- Sign up for this service, and email sent to your ARRL address ("your-callsign@arrl.net") will be forwarded to the email account you specify.

Or check out the Technical Information Service (TIS):

The Technical Information Service (tis@arrl.org) has been around for a long time, but, thanks to the addition of new staff, it has an all new face! Questions on topics ranging from A (antennas) to Z (Zener diodes), and just about anything in between, are answered by expert ARRL Technical Coordinators and Technical Specialists in the field and at ARRL Headquarters. Our Headquarters technical staff will help you over the phone, refer you to a volunteer ARRL Technical Specialist in your area, or send you the needed information from a growing collection of information packages.

Other features of the ARRL:

As a League Member, you can take advantage of the ARRL All-Risk Equipment Insurance program at a substantial savings over other plans.

Let the ARRL be your mail carrier and handle your overseas QSLing chores. The savings you accumulate through this service alone can pay your membership dues many times over.

Your ARRL Membership helps fund the following services. You may use one or two of these services during the course of your membership, or you might take advantage of them all. As an ARRL member, you insure their existence and continuation:

- Representation of your Amateur Radio interests in Washington, DC
- A Regulatory Information Branch that provides information on FCC and regulatory questions; problems with antenna, tower and zoning restrictions; and reciprocal licensing procedures
- Volunteer Counsel Program
- Volunteer Examiner Coordinator program
- Amateur Radio Emergency Service
- Registered Amateur Radio Instructor program
- W1AW code practice, bulletins and code proficiency sessions
- ARRL-sponsored contests

ARRL The national association for AMATEUR RADIO
225 Main Street ■ Newington, CT 06111-1494 USA ■ 860-594-0200 ■ fax: 860-594-0259 ■ e-mail: hq@arrl.org

Membership Application

(Application for use by ARRL Affiliated Clubs)

☐ **I am a brand new member** or my membership has been lapsed for 2 or more years. My club will keep $15 of my dues.
☐ **I am renewing** (includes lapsed members of less than 2 years). My club will keep $2.00 of my dues.

Name _____ Call Sign _____

Address _____

_____

City _____ State _____ ZIP _____

☐ Sign up my Family Members, residing at the same address, as ARRL members too! They'll each pay only $8 for a year's membership, have access to ARRL benefits and services (except *QST*) and also receive a membership card. (club commission not applicable.)

ARRL Family Members:

Name _____

Call Sign _____

Name _____

Call Sign _____

US and Possessions			
Term	☐ Regular	☐ 65 or Older Date of Birth: _____	☐ Family ☐ Blind
☐ 1 year[1]	$39	$36	$8
☐ 2 years[2]	76	70	16
☐ 3 years[3]	111	103	24

Please charge my ARRL dues less my club's commission.

I have paid the commission directly to my club.

☐ Charge to: ☐ VISA ☐ MasterCard ☐ Amex ☐ Discover

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Card Number

Expiration Date __ __ /__ __

Signature _____

ARRL Member Benefits:

QST—Amateur Radio's #1 Magazine! Delivered each month, ***QST*** is **THE SOURCE** for Amateur Radio news, information, projects, and equipment.

Technical Information Service—Expert Advice. ARRL members enjoy the problem-solving knowledge of hundreds of experts through our Technical Information Service.

Ham Radio Equipment Insurance— "All Risk" protection. Safeguard your station, including antennas and towers, from loss or damage by lightning, theft, accident, fire, flood, tornado, or other natural disasters (available to members who reside in the US, its territories and possessions).

[1] 1-year membership dues include $15 for a 1-year subscription to QST.
[2] 2-year membership dues include $30 for a 2-year subscription to QST.
[3] 3-year membership dues include $45 for a 3-year subscription to QST.

Members-Only ARRL Web Site Features—online info! Enjoy services, news, and features not available anywhere else. Product Review archive, article index, contest results, E-mail Fowarding Service ("yourcallsign"@arrl.net), and more.

Voice in Washington—preserving our privileges. ARRL supports legislation to protect the future of the Amateur Radio Service.

Operating Awards—enhance your skills. Members enjoy participating in ARRL-sponsored contests, and earning attractive ARRL awards.

Dues are subject to change without notice.
If you do not wish your name and address made available for non-ARRL related mailings, please check this box. ☐

CLU 10/04