

The Hamilton Amateur Radio Club
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<http://www.hamiltonarc.ca/>

The Hamilton Amateur

The Hamilton Amateur Radio Club Newsletter 76 Years of Amateur Radio 1932-2008

Next Meeting

by President David
 Bruton, VE3DWJ



On Wednesday,
 May 20th we **WILL**
 be having our
 annual
Home Brew and
Show and Tell
 night.

The Home Brew portion of the meeting is a competition for construction projects that are useful in the Ham Shack and have been completed within the past year (since the last Home Brew). The competition is designed to foster home brewing of equipment in the tradition of amateur radio enthusiasts since the beginning of the hobby. When you couldn't buy commercial equipment hams made their own. Recently we have seen that fine tradition continuing in the area of SDR (software defined radio) where the technology was so new that only the home brewers were able to create SDR receiver and transceiver equipment. Homebrewing lives. The prize of course is the Crawford Trophy which is awarded by a panel of judges.

A second part of the meeting - the Show And Tell part is designed to inform club members about ideas, techniques, pieces of equipment or software etc. that are useful in the amateur radio hobby, but do not qualify as home brew projects. Presentations are open to anyone

with something of interest to demonstrate. This part of the meeting takes place while the judges are deliberating, and is open to anyone with something to show and explain to the group

We hope you will join us and bring a contribution to make the meeting worthwhile and enjoyable.

Minutes for the Meeting of April 15th, 2009

By secretary Ron
 Ouwehand VE3OUW.



Mardy introduced the speaker for the evening, George Gorsline VE3YV

George first described how the DARF (Defense of Amateur Radio Fund) was managed and how it contributed to the well being of our hobby.

George's talk for the evening was about DXing. He laid out his talk in several easy to understand sections. First there was the fundamentals of a station setup. Then there was the choosing of the rig or type of radio desired for the application. This was based on features that would be needed if one were to compete with today's noisy environments. George also talked about common radio courtesy and station operation. He then moved on to explaining the DXCC system and how QSL logging

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Club meetings – 3rd Wednesday each month – 7:30 pm (except July and August) at Hamilton District Christian High School, 92 Glanaster Road, Ancaster, L9G 3K9, corner of Rymal Road (Hwy. #53) and Glanaster Road. Parking on location. Complimentary refreshments.

worked. George mentioned that he used the Logger32 program for his setup. All in all it was a very informative evening.

Business meeting

John Hudak VE3CXB made a motion to accept the minutes of the previous meeting as printed in the newsletter. CASEY VE3CVP seconded this. The motion was carried.

Contesting – Awards were handed out for the 160-meter worldwide contest from last year. Again VE3DC was first in multi operator for SSB in Ontario.

Field Day – Jack announced that the site at the RGB has been secured again this year but it will be our last year at this location. Jack also mentioned that we need people to show up at the site on field day to get extra points for the day. He asked that families show up and bring the kids to introduce them to the hobby and show members of the general public what this exercise is all about.

Repeater – John Vandenberg VE3DVV is still in the process of debugging the software and setting up the phone patch.

Membership – Sherry has sent out 100 letters to local hams in the city inviting them to come out to the meetings and join the club. She will mail out another 100 letters next month and the balance in the future after that. She has mentioned that there were 300 operators in the Hamilton area.

Health and Welfare – Mary mentioned that there was another silent key here in the city. Jim Hardwick VE3OWL passed away and RAC has been notified. John's wife Linda VE3LJU was once president of our club. The club sent a card expressing our sympathy to Linda, VE3LJU, Rebecca VE3BLK and David Hardwick.

Treasurers Report – Fred VE3GCP reported that all was well with the finances and we were on track with anticipated income and expenses. The next big expenditure for the club will

be field day. A motion was made by Mary to accept the report as presented. Mardy VE3QEE seconded. Motion carried.

President's report. David, VE3DWJ reported that the executive had made a decision to not hold the Home Brew night at the April meeting and not award the Crawford Trophy. This decision prompted a lively discussion among members and a number of concerns were raised. The topic will be revisited at the executive meeting on April 21st.

New Business;

Sherry brought up the idea of making a donation to DARF. This will be taken up at the next executive meeting.

Jack VE3WBT made a motion to reinstate the home-brew night next month. John Hudak VE3CXB seconded and the motion was carried by the general membership pending executive ratification.

Jack VE3WBT made a motion to adjourn the meeting at 9:35 and Ron VE3DF seconded. Adjournment 9:35 P.M.

HAMS ASSIST WOMAN INJURED IN DESERT

*from the The ARRL Letter Vol. 28, No. 11
March 20, 2009*

It was a sunny day, not a cloud in the sky, when Hal Whiting, KI2U, Todd Kluxdal, Kluxdal's father and Whiting's two sons decided to go out to the Poverty Mountain area in Arizona to search for airplane crash sites. Whiting, who lives in St George, Utah, and Kluxdal, who lives in Mesquite, Nevada, took two vehicles that day. According to Whiting, they always take two vehicles, just in case a problem pops up: "We always have two spare tires, extra gasoline and a tow rope. We take enough food and supplies to stay

HARC 2008-2009 Executive

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two or three days." In addition to the extra equipment, Whiting took the one thing he never goes without -- his ham radio.

"It was a bit after lunch, about 73 miles into our trip," Whiting told the ARRL, "when we were flagged down by a man wanting to know if we had

a satellite phone, since he couldn't get coverage on his cell phone." Whiting didn't have a satellite phone, but he asked the man if this was an emergency. Whiting said that the man told him that one of his friends had been injured when her ATV rolled on top of her. "I told him I could call for help on my ham radio," he said. The injured woman was knocked

unconscious by the fall, but had regained consciousness and was speaking coherently, but was in pain.

"I picked up my mic and put out a call on the 146.910 repeater, one of four repeaters run by Dean Cox, NR7K," Whiting said. "I called for assistance a couple of times when Mac Magee, N6LRG, in the Arizona Cane Beds, answered."

"Mac lives about 50 miles away from the accident site," Whiting said. "It's funny -- it's usually Washington County hams who are on the repeaters, since that's the direction they're pointed in. But Mac lives in Mohave County. And the accident happened in Mohave County. We were lucky, since if the call was answered by a ham in Washington County, there would have been a delay in them getting the info to the proper authorities in Mohave County, but with Mac answering, all our information went right to the proper place."

That morning, Magee told the ARRL that he came into my shack "and for some reason, turned on the 2 meter rig and it happened to be on the 146.910 repeater. I usually have a problem with the repeater 'hearing' me, so I rarely use it. About 11:20 Arizona time, I heard someone call and say they had emergency traffic and needed help. I fully expected a bevy of hams to answer the call, since so many are in range of that machine, but after his second call, and no answer, I took it."

Magee said that the calling station had been flagged down by another motorist. "He told me there had been an accident in the vicinity of Poverty Mountain," he said. "I really had no idea where that was, but I began to write down details. As soon as I had basic info, I called 911. The Mohave County Sheriff Office answered; I explained who I was and what the call was about."

The dispatcher asked Magee for the coordinates to the site, and Magee relayed the request to Whiting. "I looked at my GPS and gave Mac my coordinates, but he said the

dispatcher wanted the coordinates from the accident site," Whiting said. "So I got in my 4-wheel drive and drove down the ridge to the site, about 5600 feet above sea level, and got the coordinates. I had to drive back to the ridge, another 1000 feet up, to call Mac back, because I couldn't get a signal down there."

Whiting told the ARRL that in addition to his ham radio, he also carries a set of FRS radios. "I gave one of the FRS radios to Todd and he drove his Jeep down the ridge to the accident site," he said. "I kept the other one and Todd was able to relay me information about the injured woman's condition and I was able to relay that information to Mac who in turn relayed it to the 911 dispatcher. Mac put the mic right up to the phone so the dispatcher could hear exactly what was going on."

Magee said the 911 dispatcher requested more information: "While Hal was replying, I held the phone up to my radio speaker. When he finished with the details, I asked them if they copied that. The dispatcher said he did, and they held me on the line. Hal and I talked a while as he gave more data. When the dispatcher returned, they said a chopper was being dispatched from Phoenix! Well, we finished that call after they had the actual accident site GPS coordinates that Hal had passed on."

With emergency help on the way, Kluxdal returned to the ridge and he and Whiting and his group went on their way to go check out an airplane crash site, the original intent of their trip. "The family members told us to go on and get on with our trip, so we did, after making sure they were all okay," Whiting said. "So we left to go to the crash site, about 3-4 miles away. As we were getting ready to return, we saw the helicopter overhead, taking the injured woman to the hospital in Las Vegas. We returned to the top of the ridge and a sheriff's deputy was there and he told us that our GPS coordinates were off, but only by 20 feet! He said that the helicopter crew was real happy that they were so on-target."

HARC 2006-2007 Chairs

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John Vandenberg VE3DVV 905-692-3802
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Health & Welfare Chairperson

Mary Urbanski VE3OGQ 905-388-8383

Hospitality

Currently an open position seeking volunteers.

Membership Chair Sherry Goeller

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Whiting said they were glad to have been able to help. "This is a remote area," he said. "There's only one way in, one way out with no shortcuts to get in and out. There are only dirt roads, and it can get very muddy when it rains a lot. I was out that way two weeks ago and got stuck in the mud there, but it was all dry this past weekend."

Whiting said he learned a few things after this trip: "I am glad I had my radio equipment with me, and I am glad there was someone listening on the repeater to take the emergency call. Having the spare FRS radios created an efficient means for relay with a non-ham person, and having the GPS equipment provided a very effective means for the helicopter rescue team to locate the accident, since they did not want the road designation information but the exact patient coordinates. It would have been useless to have my equipment if there had not been someone listening. This proves that there is a good reason to keep your radios with you and in good operating condition."

Whiting, who was first licensed in 1976, is the ARES Assistant Emergency Coordinator for Washington County. A CAD Manager and Aerial Photographer for Bulloch Brothers in Mesquite, Nevada (he and Kluxdal are co-workers), he is currently teaching an Amateur Radio licensing class to 13 prospective hams at the Dixie Regional Medical Center in St George.

Magee said that before this incident he had never been involved in an actual emergency. "I have established emergency communications networks, in particular for the LDS Church in Newbury Park, California, where I was the Stake Emergency Communications Coordinator." He told the ARRL: "Our communications group won the first worldwide test of the system back in the late 1980s. This is like ARRL Field Day, but involved mostly LDS members and facilities, then under the name of Mercury Amateur Radio Association (MARA) <<http://www.mara.net/>>. I feel very pleased in knowing that I had

the opportunity to serve in this rescue incident and that every penny I spent on my system, radio and antenna was certainly worth it. In these days of extensive cell phone service and coverage, isn't it satisfying to know that ham radio can still be of use for public service?"

Why 50 Ohms? - The Birth of Modern Coaxial Cable

by John Hudak,
VE3CXB



As amateur radio operators we are only too aware that the outputs of our transmitters (transceivers) need to work into loads with a characteristic impedance of 50 ohms. Stray too far from this value and our equipment will become very unhappy. Virtually all of the coaxial cable that we use has an impedance of 50 ohms. Yes, there are coax cables with differing impedances such as 75 ohms, 93 ohms, 35 ohms, etc. They may have their uses in our shacks (impedance matching sections for example) but by far most of us are using 50 ohm coax.

Have you ever wondered why 50 ohms? There was a time, many years ago, when there was no coaxial cable. Feedlines for HF transmitters consisted of pairs of wires, or even more than 2 wires. Coaxial cable started to come into it's own in the 1930's. However it really wasn't until after WW2 that it became more commonly used by hams, typically because before the war it was very expensive and not readily available. After the war there was a lot of surplus coax available at cheap prices. It was in the 1930'

s that the impedance of coax for HF usage was standardized at 50 ohms. To be sure, when manufacturing coaxial cable you can make it any impedance you want, but 50 ohms was adopted for a good reason.

Important Points

Executive Meetings

HARC Executive committee meets each month, except July and August. Members are invited to attend and participate. The meetings are on the Tuesday following the club General Meeting each month. Ask an executive member for the location.

VE3NCF 146.760 - & 444.075 +

HARC operates VE3NCF repeater, located atop the Niagara Escarpment. It's open for use by all Amateurs. Special features are a privilege of membership.

Nets

HARC "check-in net" is held every Tuesday evening at 7:30 p.m. HARC "swap net" follows at 8 p.m. All contacts are welcome.

Examinations

Amateur radio license examinations are conducted the second Wednesday of each month, except July and August. Contact the voluntary examiners to make an appointment. There will be a fee for each examination.

Membership Information

Club membership, including all privileges, is \$25 per person, per year, Sept 1 to Aug 31. Additional membership, for immediate family living in the same home, is \$1 per person. One newsletter sent to each address.

The Hamilton Amateur

The Hamilton Amateur is published ten times each year (not in July or August). Deadline for article submission is the last Saturday of the month for the next month's issue. Preferred format is .txt file. Articles will be checked for spelling and grammar, but the author is responsible for factual content. E-mail submissions to Editor, John Hudak VE3CXB, <judakjm@mcmaster.ca>

Simply put, the impedance of a coax cable depends on the ratio of the sizes of the inner conductor and the outer conductor, and the dielectric separating them. Or, in other words we have basically built ourselves a cable which has both inductive and capacitive reactance, the values of which will determine the cables impedance. [The characteristic impedance of a cable is the square root of the ratio of inductance per unit length to the capacitance per unit length.]

The first concept for a coaxial transmission line was patented in England in 1880, and the first modern day form of coax was patented by Bell Labs in 1929. These early coax cables had an air dielectric. This is the insulation that separates the centre conductor from the outer conductor of the cable. Of course just about all the coax that hams use today has a plastic dielectric, whether it be polyethylene, teflon, etc. In the old days though there was no plastic insulation inside the coax. Needless to say the inner conductor can't just freely float around inside the outer conductor and remain centred, so every so often there would be a little stub of some insulating material to keep the inner conductor properly spaced inside of the outer conductor of the coax. For all intents and purposes though the dielectric was air. I have no idea if the very first coaxial cables were rigid or flexible. They may have been somewhat flexible, like our present day hardline, so they

could be bent, but were still fairly stiff. Or they may have been very rigid like a piece of copper tubing. I suspect that truly flexible cable probably didn't become readily available, out of necessity, until the war.

Back in 1929 the RF engineers at Bell Labs wanted to come up with a coax cable that would handle several kilowatts of power without overheating, or arcing over. They ran a series of tests on an air dielectric cable with an outside diameter of 10mm, which is close in size to our present day RG-8 cable. As it turns

out it became a balancing act between power handling and cable losses. And, it turned out that both of these factors depended on the impedance of the cable. Further, to complicate matters, it was found that best power handling capability and the minimum cable loss did not occur at the same impedance. I won't go into the mathematics, but minimum loss per unit length for our air dielectric cable occurs at an impedance of 77 ohms. Recall though that these early engineers also wanted to put some serious power through their cable. It turned out the best power handling capability occurred at an impedance of 30 ohms. They also needed to consider maximum breakdown voltage, which occurred at 60 ohms.

Keep in mind that the quality of the air inside our air dielectric cable will effect it's characteristics. The air quality inside the cable can vary due to temperature, pressure, composition (air, pure nitrogen, argon, etc.), humidity, and so on. That's why many of today's high power air dielectric coax cables are fed under a slight positive pressure with dry nitrogen gas. It keeps everything nice, neat and tidy. [Note: Some of the larger sized Andrews Heliac cable is a compromise air dielectric cable. Running the length of the cable inside is a thin spiral strip of teflon which keeps the inner conductor accurately centered in the cable. Still, for all intents and purposes the cable is as close to being air dielectric as practical. Typically it can be pressurized with nitrogen gas. This cable is not really flexible, but it is "bendable".]

Why 50 ohms? Well it comes down to a simple matter of finding some happy compromise. When you consider the above requirements of power vs losses, plus the materials available to them back then, and then add in the manufacturing methods available in the 1930's, the compromise value came out to be somewhere near 50 ohms. Actually the arithmetic mean value between 30 ohms and 77 ohms is 53.5 ohms, and as the story goes, someone just

rounded the number off to 50 ohms. It's as simple as that.

After the war, as coax cable became easily available and cheap, more and more hams used it as a feedline instead of the previously common open wire feeder. Push comes to shove, more manufacturers started supplying their rigs with input/output connectors that were of the coaxial type (SO-239/PL-259), which also became more commonly available after the war. As a result, to this day all of our rigs are manufactured to work into 50 ohms because 80 years ago some engineers needed to decide on a best compromise impedance for the new commercially available coaxial type of feedline. We are so used to thinking of our equipment and associating it with an impedance of 50 ohms, but if the laws of physics, or the requirements of those long ago engineers, dictated some other value, all of our equipment today could very well need some totally different impedance. And now you know why 50 ohms. And - HAPPY BIRTHDAY to coaxial cable - 80 years old this year.

A Portable Experiment

by Mardy, VE3QEE

In the April issue of THA (The Hamilton Amateur) John VE3CXB described an experiment operating "portable"



from a cottage. Taking inspiration from John's experience I threw a few things in the car trunk when my wife and I headed off to Brome Quebec to visit relatives during the March Break. I took a Yaesu FT897 transceiver a battery booster pack and a tripod mounted dipole, the Buddipole.

On location I set up the Buddipole at the edge of a cow pasture behind the farm house and pointed the broadside towards Hamilton. I set up



Buddipole in the pasture aimed at Hamilton.



Portable HF station Yaesu FT897 and booster battery power supply.

the station outside, on the porch and used the battery booster pack for power. It took several attempts to tune this antenna for 14.135 MHz where our group holds an informal net on Monday nights between 7:30 PM and 8:30 PM. Because it was so cold outside I did not try to make any contacts at that time. As soon as I got a decent match on the antenna I left the station equipment, all set-up and ready to go, and went inside until later that evening when the net was scheduled to begin. The sun had set by the time I returned to join the net and it was getting progressively colder sitting outside in the dark. At 7:30 I listened intently but heard nothing. I put out several calls but heard nothing back. After 15 minutes

of failed attempts at calling and hearing nothing from the other end, I took down the station and went inside to get warm again.

The next morning I assembled the station once again, this time tuning the Buddipole for 40 meters, 7.055 MHz to be precise. I heard the net control operator Dave, from Echo Bay calling for contacts on the Trans Provincial Net. I responded, and soon we were having a conversation. The signal report received from Echo Bay was 5X4, Dave's signal was 5X9 at my location in Brome. I explained the modest antenna and thanked him for the signal report then checked out of the net and tried for contacts up the band. There were a few other operators on the air but I made no

further contacts. At least, the portable arrangement had worked, and I was able to get back into Ontario with a weak signal. However, the next time out I will take a full length wire antenna, like a G5RV, and use a handy tree beside the farm house to support one arm up in the air at least 40 feet. I bet the results will be a lot better. In conclusion I would say the experiment was somewhat successful. I am encouraged to try again another time, improving from the lessons learned on this trip.

Upcoming Events

Membership Renewal. The club year runs from September 1st until August 31st each year. You are now invited to bring in or send in your membership renewal for the 2009-2010 season, still \$25.00. Early membership renewals are entered in the incentive draw for a free membership which some lucky member wins each year. This draw features the best odds you are likely to encounter.

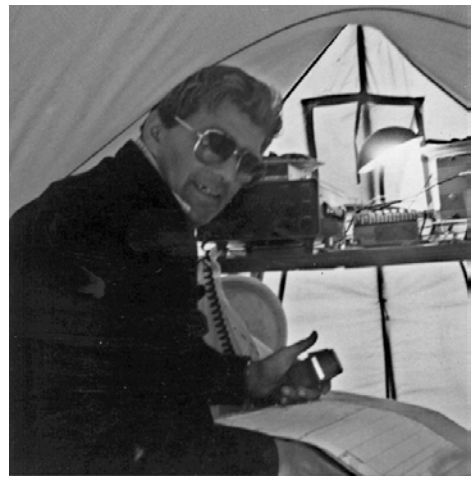
Elections. Nominations are now open for candidates to fill 6 spots on the Board of Directors. Since the quality of our annual program depends on how well the leadership works it is important to get effective people at the helm. Step up and take the reigns. It is our club. Help steer it in a direction that makes sense and keeps the hobby fun and interesting. Being on the executive is a better alternative than getting annoyed and quitting; besides that, it feels good to improve things for everyone.

Canada Day Contest. Each year on July 1, the anniversary of Canada's Confederation, Radio Amateurs of Canada sponsors the Canada Day Contest. Amateurs all over the world are invited to Canada's Birthday Party on the air. The contest period is 0000 UTC to 2359 UTC July 1, 2009. That means 8:00 P.M. Tuesday June 30 until 8:00 P.M. Wednesday July 1st around here in Daylight Savings Time. Ask Rick, VE3BK for details. Also check out the RAC website at www.rac.ca/en/rac/programmes/contests/



Rick VE3BK sends along these pictures taken at Field Days long ago and more recently.

Do you recognize any of the participants?



Field Day ends at 2:00 P.M. Sunday. By then some of the participants are very tired from setting up for a couple of hours and then operating for the next 24 hours. On Sunday after the exercise, if you would like to offer the band captains a hand taking down equipment I am sure your offer of help would be greatly appreciated.

