

# AARC

## WA4TFZ

Albemarle Amateur  
Radio Club  
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Charlottesville,  
VA 22906



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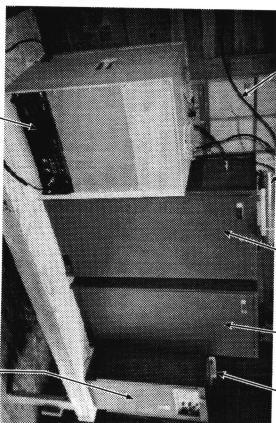
# AARC

## Bulletin

October, 1993



Newsletter of the Albemarle Amateur Radio Club, WA4TFZ



224.76MHz  
feed line

224.76MHz  
duplexer

444.250MHz  
repeater

224.76MHz  
repeater

DXTROY

146.76MHz  
repeater

MACHO

*Carter's Mountain AARC repeater site.*

This month: Very Important Meeting October 12 at NRAO

**ELECTIONS!**

DISCUSS BYLAWS!

COMMITTEE  
REPORTS!

# From the Presidents' Desk



From time to time I get the opportunity to use this column to share my personal views about subjects that in my opinion are important to the Club's future and Amateur Radio in general. This month I want to talk about support for the Repeater and Packet services provided by the club.

For years our practice was to encourage new members to make a "one-time" donation to the repeater fund and packet fund when they joined the club. For years that has seemed to many to be all that was required to keep this effort going and the equipment operational. Of course, those of you who have been to Richard's barn or have been part of the hamfest crew know that many people have worked very hard to raise money by getting donations of equipment and recycling the stuff through sales at hamfests and selling copper by the pound.

On the Packet side, I have to tell you that the Club and our packet users have benefited greatly from the labor of love and the personal generosity of Roy, W4OTF, and Jack, KB2C, and others whose efforts keep our system up and up to date.

I certainly don't want to forget the time and personal investment made by Bill, N4AOP, that has resulted in a fine 440 repeater on Carter's Mountain. There are of many others that I could mention with similar stories, but by now you are probably saying, So what's your point, Bob?

## WORKING TOGETHER

I've just done something good for ham radio. It wasn't hard, it didn't cost much, and it didn't take much time.

I just grabbed a blank QSL card, and wrote this on the back:

<date>

I URGE YOU TO LEND YOUR SUPPORT AND JOIN AS COSPONSOR TO THE AMATEUR RADIO SERVICE JOINT RESOLUTION, H.J. RES. 199, AND THE AMATEUR RADIO VOLUNTEER SERVICES ACT OF 1993. H.R. 2623.

<signed>

I stuck the QSL card in an envelope addressed to:

THE HON. <congressman's name>

HOUSE OFFICE BUILDING

WASHINGTON, DC 20515

and put it in the mailbox. That's it!

The AMATEUR RADIO SERVICE JOINT RESOLUTION looks like your everyday "commemorative" legislation, but this one is different. It puts into law the policy of protecting ham radio rights and spectrum.

The AMATEUR RADIO VOLUNTEER SERVICES ACT protects volunteers from lawsuits filed by others, so long as the volunteer was acting in good faith.

Both of these bills are worthy of our support. But a lengthy, type-written letter isn't necessary. The visual impact of dozens of QSL cards with hand-written messages will have a greater effect!

So, grab a QSL card, and do it today! Don't put it off!

73, Chris, KD3OA @ KD3OA.PA.USA.NA

ABRRL EPA Bulletin Manager

2201 TRADE OR SALE: HAYES-COMPATIBLE 2400 BAUD POCKET MODEM This modem is very small, and can operate either from a 9V battery or from AC. Almost new. Leave a message on the WA4ITZ PBBS or call Joe, W2PVY at 804/589-1495.

SALE: 10 Meter SSB MOBILE Don, KE4DDR, wants to sell a Radio Shack HTX100 10 meter SSB mobile transceiver. If interested, call him at 978-1439.

WANTED: TONE BOARD FOR KENWOOD 2600A N4YXG, Ray, is looking for a tone board for a Kenwood 2600A. If you can help, please call him at 703 822 5961.

WANTED: HANDHELD SCANNER and BIRD SLUGS Pat, NORDQ, is looking for a hand held scanner. Also wants slugs for a Bird wattmeter. Desired ones are 250 watt 2-30 MHz, 100 watt 100-250 MHz, and 100 watt for 450 MHz. Please call him at 978-4117.

WANTED: ALINCO 110 Richard, KO4EV, is looking for an Alinco 110 2 meter mobile. If you can help him, please call 973-3723.

WANTED: SWR/POWER METER and 2 METER MOBILE RADIO I need a SWR/POWER meter for 2mtrs. Also looking for reasonably priced 2 meter mobile radio to put in car. Call Richard, N4SIF, at (703)943-9968 or leave me a msg on WA4ITZ PBBS.

WANTED: MANUAL FOR IC-251A Buddy, AD4CG, is looking for a manual for an ICOM IC-251A. Please call him at 703-825-2835 or contact K4RKA.

WANTED: 6 METER FM BASE RIG Don, KE4DDR, is looking for a 6 meter FM base rig. Please call him at 978-1439.

WANTED: COLLINS 51J-51J4 Please contact Carter Elliott, WD4AYS, 804-979-7383.

My point is simply this. The annual club dues cover our mailings, printing, postage and the refreshments at meetings. They do not go to the costs involved in supporting, maintaining or improving our repeaters or the packet services. I want to encourage each club member who uses these services, if you can afford it, to make a contribution to these funds when you renew your membership.

Bob - KM4DL

## October Meeting

The meeting will start at 7:30 pm on October 12th and will be held at NRAO, located on the UVA Grounds. This is the Annual Business Meeting. Annual reports will be presented, election of Club Officers for 1994 will be held, and the Awards Committee will be open for nominations for the Elmer Award, Ham of the Year, Lifetime Achievement, etc. Time permitting, Bob Ross, WA2MFL, will present a program on homebrew equipment and QRP operations. (Maybe we can get him to tell us how he cured his squirrel problem). This is THE MEETING for setting the stage for 1994. If you only make one meeting this year, THIS is the one.

## Veep Column

Well, another month has gone by and it's time once again for me to take my keyboard in hand to bring things into fuzzy focus. I would like once again to say "Thanks" to Will for his Sperry Tour. I am still fascinated by what we saw. Next to Crutchfield, I think that might be a really neat place to work.

The Picnic this year seemed to go well. We had a pretty good turnout and it was nice to meet with everyone on a less formal

basis. I also got a kick out of being able to meet some of the family members who are not Hams, but whom I feel like I know after talking to their Ham spouses. Things got off to a slow start, but the fire was really getting going by the time we were all ready to leave...hi. Well, we had a nice night for it and I hope everyone had as good a time as I did. (Joe, I'll be back next year to cook your burgers again...hihi).

I would also like to say "Thanks" to Greg, Hein, and all the other people who went up and did the work on changing over the 76 machine. We now have 911 access, and I still maintain that, propagation notwithstanding, the machine has much improved coverage in the Valley and I REALLY like that!

The October Meeting will be our Annual Business meeting with election of a new Board of Directors. Time permitting (and WA2MFI willing), we will try to get the QRP presentation in that was postponed earlier. Also, we can look forward to a tour of the GE FANUC facilities for our November meeting (you all set, Greg?).

I have no particular topic for our December meeting, so I will take any suggestions you have. I also want to apologize to all not being by the radio much in the past month and a half. Things around the Bearden household have been pretty hectic and I think you know why. Well, things should be entering a slow period, so I will be available much more often. If you have any topics for discussion, gripes, etc, you can now probably reach me. Well, That's about all I have for this month. Stay well and see you next month.

Bill - KC4TQF

**Next Bulletin Deadline!**  
**November 15, 1993**

The Brezeshooters ARC will operate W3XX from the USS Requin on October 2-3 from Pittsburgh, PA. Look for them on 40 - 10 meters, phone and CW. Local contacts can be made on 146.52 simplex.

The first IOTA day for Kent Island, MD, will be October 23. The Kent Island ARC will put the island on the air on 40 and 20 meter phone. Listen for KB1AW, 1600 - 2400 UTC.

The North Country ARC, St. Lawrence County, NY, will operate N2PSL on October 15-16 to mark the founding of the club. They plan to be in the lower 25 kHz of the General bands on 80, 40, and 20 meters, and in the Novice 10 meter band.

The Pennsylvania QSO Party, one of the largest state contests in the USA, will take place October 9 and 10. Most operations are on 40 and 75/80 meters.

Novices and Technicians are encouraged to compete on 10 meters. The exchange is a serial number plus the county for PA stations and the ARRL Section for non-PA stations. The contest is sponsored by Nittany ARC of State College, PA.

Hugh Turnbull, W3ABC, Director Atlantic Division ARRL @ WB3YJ MD  
Kay Craig, W73P, Vice Director Atlantic Division @ WB3JOC PA

## FOR SALE or WANT

\* UPDATED 9/28/93 \*

TRADE: AXONIX PORTABLE PRINTER and BROTHER HR-40 LETTER-QUALITY PRINTER Axonix printer can print on its internal batteries or from AC. Can use either fan-fold or single sheets. Brother printer produces excellent print. Both can be either serial or parallel. Leave a message on the WA4TFZ PBBS or call Joe, W2PVY at 804/589-1495



might say go ahead and put the key down but it does not do much good to put out 50 watts 50 miles away when the guy talking about his sick hound dog is right under the repeater. The rescue squads keep transmissions as brief as possible to allow more time for emergency traffic. John commented that the amateurs seem to use the repeater almost continuously even when there is emergency traffic on the frequency.

If anyone has any questions or comments, please call me on 146.76 evenings, leave a message on W4ATFZ, or use the telephone.

Mike Dinnall, AC4ZQ



## ATLANTIC DIVISION OPERATING EVENTS

OCTOBER 1993

The Carbon ARC will commemorate the Carbon County, PA, sesquicentennial on October 9-10 from Jim Thorpe PA. This coincides with the PA QSO Party, and the special event station will participate actively in the contest.

The Southern MD ARC will operate W3USS from Clements Island, MD, on October 2-3 to commemorate the landing of Lord Calvert in 1634. Operations will be in the lower General bands on

## REPEATER UPDATE

### Phase One complete!

The first phase of the Club Repeater Project is now officially over. On September 13th, the last piece of hardware was installed, a last minute "battery test" was conducted, and now all FIVE machines on Carter's Mountain are fully operational. Yes, five machines. They are:

- 146.760 MHz voice repeater
- 224.760 MHz voice repeater
- 444.250 MHz voice repeater
- 145.030 MHz "MACHO" packet node
- 145.090 MHz "DX TROY" DX cluster node

All the machines are running off an Astron RS-20M and a battery supply capable of continuous operation as long as AC power is OK, and up to 18 hours of operation from the battery when AC power has failed. The Astron AC power supply is rated to provide 13.8 VDC at 16 continuous amperes and 20 amperes for short periods of time (50% duty cycle, 5 minutes ON, 5 minutes OFF). It charges the deep cycle marine-type lead-acid battery through a LARGE isolation diode. The battery is connected directly to all the machines on a common bus. In this configuration, when AC power fails, the Astron power supply voltage falls below the battery bus voltage (plus a forward bias diode drop) and the battery supplies all the current to the machines. The current drain can be significant. Each repeater can draw up to eight amperes of current during their transmit modes, so the length of repeater operation, when on battery, is determined by the amount of transmissions the repeaters make. The new 146.760 (76) repeater will announce "battery" at the end of transmissions when the system is on battery power. When you hear the "battery" prompt, please shorten your QSOs on the repeaters. Doing so will save the energy stored in the battery and extend the operation time of the whole system.

The 146.760 MHz machine consists of an almost new ICOM Model IC-RP1520 repeater and a Model CAT-1000 Repeater Controller made by Computer Automation Technology, Inc. These two pieces of equipment, along with various housings, connectors, cables, antennas and user's manuals, were purchased from MARA (Monticello Area Repeater Association) and used to be the 145.290 machine. The ICOM repeater transmitter provides 25 watts into the duplexer and about 18 watts into the antenna; that's a 3db (twice the power) increase over the old repeater. The CAT-1000 repeater controller provides many interesting features, including:

voice synthesis, remote programming, digital voice clock, auto patch, scheduler and PL tone encode/decode

On September 10th, our friends at Sprint/Centel installed a phone line to the repeater building and the CAT-1000 controller is now connected to the outside world with a "landline". This allows the controller to be remotely programmed with a computer and, more importantly, gives us a 911 autopatch. Check the "Repeater Operation" article in this issue of the newsletter to see the functions available on the repeater at this time.

Our new 220 MHz repeater is truly a new machine. It is a Hamtronics REP-200 repeater, purchased new this summer. Housed in a large brown EF Johnson cabinet, it sits just to the right of the 444 MHz machine. The repeater operates on 224.760/223.160 MHz through a home-made duplexer and into an ISO pole antenna mounted on the repeater building. If you get a chance to visit the repeater site, check out the duplexer on the 224 machine. It's a work of art. Bud, KB4JNI, and Gene, W4JWW, constructed them from copper gutter pipe, sheet copper and brass hardware. Hein, N4FWA, then added some tuning elements to each can, mounted them on a wooden frame and tuned them up for 224.760. They work GREAT! Thanks guys, for saving the Club at least \$600 by building a duplexer that probably works even better than a commercial unit.

The 444.250 MHz repeater continues to perform well, sitting

night. The ride home was even longer. I got home about 9am Sunday.

I observed several things from this experience:

1. If you really want to help out in an emergency, you must be trained. If you are not trained, you will not be as effective. The main reason we were selected to enter the cave was because we had training in cave rescue techniques by the National Cave Rescue Commission. This organization is similar to ARES. The training we received allowed us to be very effective with little guidance. Training yourself in traffic handling and other radio procedures help Hams be more effective.
2. There must be a call-out system that works. If you cannot get in touch with trained people, then all the training was for nothing. In this case, the two contacts for the local cave club were out of town. Apparently, similar problems occurred when other cave clubs were called. Since the rescue team still needed people, they started calling rescue squads in surrounding cities. When they called Albemarle County Rescue Squad, the supervisor called John Smith. John called me and we then tried to contact other local caver.
3. You must be prepared to help out. You should have your gear ready so that when you are called all you have to do is throw some stuff in a bag and go. Better yet, keep the equipment in the bag so you don't have to look for it.
4. In an emergency you must be prepared to take care of yourself for 24 hours. That means food, drink, suntan lotion, warm clothing or whatever is required. If you must go out and stand on the side of the road and provide communication all night, be prepared. During this rescue, one amateur (KD4SZS) did just that.
5. And last, but not least, keep radio traffic to a minimum. A repeater used for an emergency net or as an emergency talk-in should be used only for that purpose. I drove for over 10 minutes before I found a lull where I could break in without just plain keying the transmitter while someone was talking. Some people

It started with a phone call around 9:00 pm the Saturday before the Berryville Hamfest. The person on the other end was a member of the Albemarle County Rescue Squad and a fellow caver, named John Smith. Yes, John Smith is his real name. Unfortunately, John was not calling to plan for a future cave trip. John was calling because a caver had been seriously injured in a fall in a cave near Clifton Forge, Va. We quickly discussed the situation and what equipment would be required. We agreed to meet at the small store next to the flashing light on 250 at 10pm. At the store, we quickly loaded John's carving gear into my truck. Ateled of us was about a two hour drive to a farmer's field outside of Clifton Forge. On the way, I monitored the Covington Repeater on 146.805. When we got in range, I heard some emergency traffic on the frequency. I checked into the Emergency Net and let them know that two more cavers were coming. We got to the site after midnight. Fire and rescue trucks were all over the place. Net Control directed us up the road to park and check in at the Incident Command Center located in a farmer's field. There were about 40 cars there already. We learned that the injured caver was climbing up a steep slope and dislodged a large rock. He fell to the bottom of the slope. The dislodged rock fell on his upper right leg, breaking it. Rescuers suspected that he also had a broken shoulder and injuries to his left ankle. We learned that our turn to help would start at 3am Sunday morning. We got dressed and collected our gear and laid down for a while to try to get some rest. At about 3:30am Sunday we entered the cave. We were in a group of 9 cavers, replacing another group that had been in the cave for some time. We joined up with the rescue team and the victim. This brought the total number of people in the cave to 25 cavers plus the victim. At first, you may think that everyone would be getting in each other's way, but this was not the case. Cave rescues require a lot of people to move a victim. Almost everyone in the cave had received formal cave rescue training on their own. Everyone knew the procedures for moving the victim. The fact that few had ever met the person beside them made little difference. We finally got the victim out at 6:30am Sunday morning. Everyone cheered when we got the victim down to the road and the waiting ambulance. It had been a very long

next to the 224 repeater. The duplexer for this repeater is much smaller than the 2m and 224 MHz versions, so it's built right into the cabinet, which is an EF Johnson cabinet similar to the 224 repeater. This repeater shares an antenna with the 76 machine, using a diplexer, a device that couples two transceivers to a single antenna. If you take a look inside the cabinet at the construction of this repeater, you'll see a very professional looking unit, thanks to Bill Day, N4AOP, who designed and built it.

MACHO, the 145.030 MHz packet digipeater and DX TROY, the DX cluster digipeater, round out the equipment on the Mountain. These devices provide packet users the ability to connect to other stations over a wide area and offer access to information nets used for DX hunting. More about these devices in future issues.

All of the above equipment, with the exception of the 76 machine's duplexer and the battery, rest on a new plywood table built by Pete, KC4UJCK, with the assistance of Miles, N4YEQ. The table keeps all the equipment two feet off the floor, away from mice and things, and gives us a good area to put the battery, right under the equipment it powers. We've been fortunate to have the help of a large group of hard-working volunteers who have put in a LOT of time into installing the new equipment and fixing up the repeater building and the surrounding area. The area around the building has been cleared, the grass has been mowed, there are new wooden steps on the building, the door has been repaired and is now stronger than ever, many of the holes in the building have been patched and it has two new coats of white paint. Special thanks to:

Ed Lang - lawn mowing, painting, cleaning, DX  
TROY installation  
Pete Taylor - painting, table construction, building  
repair  
Sam Gentry - stair/door construction, repeater  
installation/wiring  
Miles Gentry - cleanup, painting

Mike Duvall - ground rod installation, patching, wiring

Sharon Duvall - painting the trim

Steve Santos - cleanup, painting

Bill Hariu - repeater installation

Tom V? - electrical service wiring, building lights

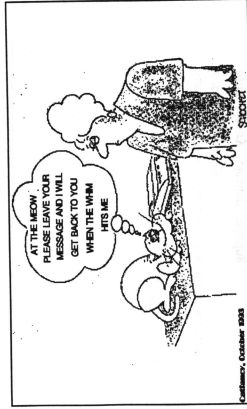
Bob Pattison - 224 repeater installation, wiring

Shawn Pattison - cleanup

Hein, co-designer, co-programmer, duplexer tuner extraordinaire, jack-of-all-trades and for bringing that wonderful tool kit so we can all use nice new tools.

All this equipment needs care and regular maintenance. If you'd like to help AND learn more about repeaters, power systems, controllers, antennas, duplexers and lots of other good stuff in the process, please think about joining the Technical Committee. Stay tuned for the next issue of the newsletter where the packet equipment will be described in more detail.

Greg Faust - N4PGS



Continued... October 1983

911 is available! Just press 911 on your keypad to engage the autopatch on the 76 machine and you will be connected to the 911 Center in Charlottesville. Use the # (pound) key to terminate the autopatch. The autopatch time-out timer is set to five minutes, so you should have enough time to make your call, but - if you get cut off, call the 911 Center again immediately so they know what happened. Hein is going to give us a 911 procedure that will show the proper way to make a 911 call. Ask him about it.

If you really HAVE to find out what time it is, you want find out if your HT is working, or if you want to know if we left the repeater on, press 10 on your keypad. The repeater will then announce the time. Remember to ID! Don't just hit those buttons and run...

## REPEATER FUNCTIONS

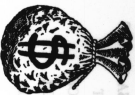
- 10 - Time of day
- 325 - disables PL tone access
- 911 - initiates a 911 call
- # - terminates a 911 call

Greg - N4PGS

## ARE YOU READY?



I am a member of the Charlottesville Cave Club. Recently, I was involved with a cave rescue. The rescue involved amateur radio operators, cavers, policemen, firemen and rescue personnel. The incident involved more than 200 people on site plus many more behind the scenes. The rescue call went out around 3:30 pm Saturday, Aug. 7. The following is an attempt at an informative, yet brief description of the events starting from where I entered the picture.



In the future, the Treasurer's Report will be included as part of the Meeting Minutes and will be printed in the AARC Bulletin.

## REPEATER OPERATION

The 146.760 MHz repeater now transmits a sub-audible (well... hard to hear, anyway) tone on 91.5 Hz. This means if your radio gear is so equipped, you can use the tone DECODER in your radio to listen to ONLY the 76 machine - you don't have to put up with Jessup's noise anymore!

On those rare occasions when intermodulation interference is bad, or propagation is so good that Jessup and other remote stations bring up the 76 machine, repeater PL tone access will be turned on. This means that it will be necessary to transmit a 91.5 Hz sub-audible tone to turn on the repeater. So, if your radio is so equipped, you can use the tone ENCODER to bring up the 76 machine. Don't have a sub-audible PL tone encoder built into your radio? Don't despair, if you have a DTMF keypad (telephone-style keypad) and can generate those tones, just send the number 325. This will temporarily disable the repeater PL tone access so you can use the repeater without a sub-audible tone. It will remain open for as long as you talk, and will close again after a minute of inactivity.



## DON'T LET THE WELL RUN DRY

Well now, what in the world is this guy talking about this time? Very simply, the well is the grand and glorious hobby of Amateur Radio... something all of us enjoy very much. Each and every one of us enjoys some facet of our involvement in Ham Radio, whether it be DX, Traffic Handling, Rag-chewing, Experimentation, OSCAR Satellite Communications, RTTY, Emergency Preparedness Planning, the local radio club, Repeaters, Moon-bounce, AMTOR, Packet or any of the other parts of our hobby.

Perhaps you participate in many of the above specialties and find lots of enjoyment in whatever you do in Amateur Radio. That's a great way to use the privileges you worked so hard to obtain via classes, home study and just plain perseverance. The new friends gained via the airwaves is possibly one of the greatest assets we will ever find.

C'mon, you say... we now know what the "well" is, but what's this business about "running dry?" Here's the story. Our frequencies are like the water in the well except for one very important difference... the well can run dry, but the frequencies will always be there... right? Well, yes and no! Awwww, c'mon again, what's this yes and no stuff? Simply, the frequencies will be there but there is an important question about our continued use of them in the "public interest, convenience and necessity" which is why we have the frequencies in the first place! And, that's where the "NO" comes into the act.

All of us should use the frequencies with the same care with which we are concerned about our water supply. Keep the water clean so that it can be there for all to enjoy. Don't take over the supply of water so that only a privileged few may survive! And,

most of all, and this is not quite the same as the well, but equally important...PUT SOME WATER BACK IN THE WELL WHEN YOU CAN!

And, there's another odd statement, right? Yep, but frequencies (water in the well) have now become the enjoyment you receive and the point is that we should help others to that same enjoyment. When someone asks for volunteers to assist in a Ham Radio project such as preparation for field day, the club picnic, work on one of the club's committees, or... heaven forbid... a request to be a club officer, step up and say "Yes!" It's time for me to pay back just a bit of all the fun and enjoyment Ham Radio has given to me. Don't let the well run dry. Help to keep it ready for those who come after us.

Harry - W2HJD

## AARC AWARDS ISSUED

The following individuals have been issued Certificates designed for the indicated AARC Awards. After a bumpy start with equipment, the Awards Committee is now prepared to receive applications for these awards and to issue the certificates. Applications can be obtained from Joe, KD4RWX (SASE). Also, check at club meetings for sample certificates and applications. Review your logbook and determine if you are eligible to apply for one or more of these awards. If so, you can be the next kid on the block to receive one or more of these nice certificates.

### ☆ BIG TEN (Worked All Call Areas)

NORDQ PAT  
KC4TQF BILL  
KD4RWX JOE  
KD4NRE AL

### ☆ WORKED LOTS A STATES

NORDQ (50) PAT  
KD4RWX (50) JOE  
KC4TQF (49) BILL  
KD4NRE (44) AL

### ☆ WORKED ALL BORDER STATES

NORDQ PAT  
KC4TQF BILL  
KD4RWX JOE

### ☆ ALL-AMERICAN

KD4RWX JOE  
KC4TQF BILL

Congratulations to the above recipients!

NORDQ - Pat



## HAPPY HALLOWEEN!