



# The Minuteman

Volume 29 Issue 2



November 1999

## President's Corner Clark Conti, N1NVK

Some of you have probably heard that Bud Thorpe, KA1DPZ, resigned as President at the last board meeting. It is true; Bud had a number of things pop up in his personal life between last summer's election and this fall's official start of the club fiscal year. We were all surprised to hear his resignation - myself included, but life goes on. As Vice-president it has fallen to me to assume the leadership role. I will endeavor to do my level best. We wish Bud well, and hope for his continued involvement in club activities.

Over the past 5 years we have concentrated on replacing the club's overworked home-brew systems with commercial grade equipment, acquired and donated by Andy Morrison, N1BHI, and new Scom controllers - largely to try and prevent "catch-up" maintenance. Brian W1BRI has spearheaded this campaign (with much help from many others) and should be commended. Bill WA1NLR has helped with replacing the "crunchy" fiberglass antennae with newer models which promise to last decades into the future. We now have almost all of the improvements in place (except Stoneham, which I'll talk more about later) and I am proud of the result: the best amateur repeater network in the northeast. The Minuteman REPEATER association exists primarily to provide reliable repeater operation here in eastern Massachusetts. Everything else - newsletters, fox hunting, field day, even meetings - is secondary to the machines. You could say "Repeater is our middle name".

Now for the bad news - Ian AF1R our club treasurer reminds us that all this updating has cost us a bucketload of cash. In fairness he has been warning of this for some time, but a majority of the board believed that the investment in infrastructure was needed. This year, renewals are well behind plan, in fact at the present rate we could be out of business in a few years. The board recognized that budget cuts were needed. We were forced to make some difficult choices, but I for one believe them to be in everyone's best interest. Here are some of the more noticeable ones.

**Renewals** - All members are reminded that our fiscal year is from September to August. Please get your dues in by labor day each year. Those who have not renewed will get a letter to this effect. It is important that we keep ahead of the bills.

**New members** - We will encourage all members to try to get hams who use the repeaters to join the club. The more members we get to share the load, the lighter the burden.

This year's budget is truly bare-bones with no scheduled improvements, and almost no maintenance costs factored in - the system should need a minimum of work for the next couple of years.

(Continued on page 3)

## A Call To Arms! An Editorial...de N1BHI

*Read the President's Corner...then come back here.*

The Minuteman Repeater Association chose its name because of the heritage implied...it was a small group of rag-tag militiamen who made one of the major steps toward our independence up in Concord. They called themselves Minutemen.

Using that name implies a level of devotion to a concept or idea...in our case, it is the concept that ham radio is of vital interest to our community. So, over the years, the MMRA has built up a repeater system that anyone - even commercial groups - could be proud of. We did it so we could enjoy the communications capability it gave us, and more importantly, so that we could help out in a communications emergency.

It looks to me like a lot of hams have forgotten what we are all about...and/or have just lost interest. If you still own ham gear and power it up, you at least have interest in the hobby. If you get on the air to any extent, you know just how significant a resource we have in our repeater network.

The problem is that as people drift away from the MMRA, all the positive things it represents, and can do, get harder and harder to maintain.

Even if you are relatively inactive, someday this group, this repeater network may do something to help you and your neighbors. *We are still Minutemen...This is a Call To Arms...renew or re-join...keep the idea alive!*

## November MEMBERSHIP MEETING

Wednesday, Sept 17, 1999 - 1930 Hrs  
Campion Center, Weston MA

**Program:**  
*Astronomical Imaging*  
*Dave Croll, KT1X*  
*Raffle*  
*Other Stuff*

### Here's What It Takes to Keep the MMRA Going.

Take a look at the repeater information on the MMRA information page. There's a whole bunch of them, aren't there. Just like any major communications system, it takes a lot of work and cash to keep it all functioning. It was either Clark, N1NVK, or Chris, N1NVL, who coined the phrase: "We're just amateurs..." What made it funny is that both of those guys, along with a bunch of others, know what the average quality of what is done by communications "professionals." What the MMRA does can stand up to most any professional engineering and quality standards...and beat a lot of them. But we don't accomplish that without serious allocation of monetary and human resource.

Let's break it down some....

Repeaters use electricity...fortunately, at most of our sites we do not pay for it...but we do at two of them: Slygo and 146.61. Between those two, our cost is close to \$600 per year.

We have telephone lines going into 5 sites – the 2 meter machines in Stoneham, Weston, Marlboro and Quincy, along with the Marlboro 440 site. That costs us about a grand per year...one thousand bucks so we have autopatches and repeater control.

This newsletter costs about \$200 dollars per issue to print, and another \$100 or so to mail it to you. That comes to about \$1500 per year. It takes about 10 – 15 hours to prepare, and then 4 to 6 people get together and get it ready for mailing, taking an evening out of *their* busy lives.

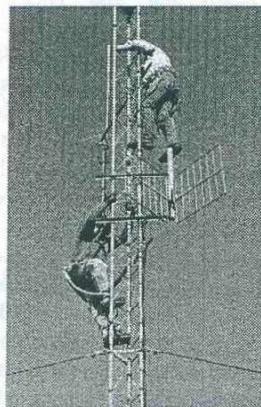
Because we have our equipment on other organizations' properties, we need to protect ourselves against general liabilities that could come as a result of something that we do, or that happens to our equipment. For example, we have a 30 foot tower on the roof of the Campion Center...if that were to fall, it could do serious damage. So we have a general liability insurance policy, and that costs nearly another \$1000 per year.

Let's see...what are we up to so far....looks like about \$4100 dollars per year. We haven't even talked about fixing anything yet. To cover what we have so far, it takes 164 members at 25 bucks each. By the way...if you are not familiar with just how heavy-duty our stuff is, take a look at the picture of the 146.82 racks. If you want an example of the type of work out

guys volunteer to do, look at the picture of the 82 tower.

Let's talk a bit about fixing stuff. We usually figure that we will spend an average of \$200 on each of the 2 meter repeaters and the 449.925 each year...that comes to another \$1000. So far, \$5100 and 204 memberships.

In each of the last few years, we have spent monies for major capital upgrades. SCOM controllers, new antennas and the like. Usually, we limit that to one major upgrade each year. Last year, we figured \$1200 for upgrading the antenna systems at Stoneham. \$6300 and 252 members.



Since we have 5 meetings each year, we need a place to gather. We do that at the Campion Center...that costs us \$600 per year. They provide a comfortable place to meet, with coffee. We buy the donuts....another \$500 per year.

We're up to \$6900 and 276 members.

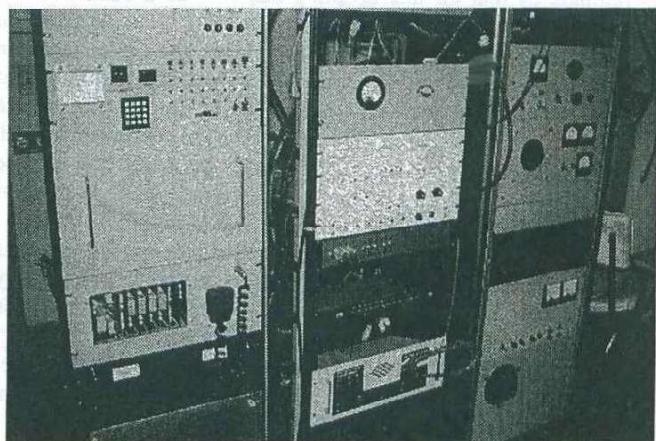
Since stuff happens (...would like to have used the popular version of that phrase) we need to re-

serve a few bucks to cover the unexpected. We put aside \$500 for that kind of stuff....\$7400 and 296 members.

So, that's the picture as far as the cost of keeping things going...of course, we are fortunate in that our labor is all volunteer service. We get easily a "person year" of free work.

Now let's play the game that a corporation plays when it is on the block – up for sale. In order to figure out what the bid for the stock should be, a company will do a replacement value analysis. The normal stock book value does not reflect what it would take to build from scratch what the buyer is going to get

Recently, we completed the upgrade of all our 2 meter machines to GE commercial base stations, converted for repeater



### MMRA VE Sessions



2nd Saturday of Each Month  
Marlboro Public Library, 9AM  
Contact: Bill Wade, K1IJ  
617-891-9079 Evenings 6 to 10 PM,  
Weekends 8 AM to 10 PM.  
Accredited - ARRL VE Program

What does it Take....  
service. Each has a state-of-the-art controller, used in thousands

(Continued on page 3)

### President's Corner

(Continued from page 1)

Phone patches - A review of our phone bills has shown that very few calls are ever placed on the repeaters. This is no surprise to anyone since the explosion in both the cellular and PCS markets have taken all the novelty out of our simple half-duplex phone patch. I am not at all shocked to hear people comparing it to rotary dial service, or to have outsiders ask us why we bother with that sort of old stuff. In fact if you divide the phone bill by the number of calls placed each month on even '82 (the busiest one) it comes to about \$4 per call. Obviously not the club's best use of funds, and in fact the board felt that this should be cut. We do not want to prevent emergency calls, so since we have a unique situation - the network - we are working to route all auto-patches through the 449.925 repeater - as this can be linked to any of the others.

PL codes - We have spent far too much time and effort chasing interference from low level sources and occasional ducting to put up with it any more. The technology to virtually eliminate this has existed for over 25 years and it is long past time to implement it. Twice the issue of PL tones on the 2m repeaters has been passed by a general membership vote, and has been delayed so as not to offend those without new equipment. It appears to me that we offend far more by delaying any longer. The new repeaters have the capability. The gripes I heard all summer about the kerchunking of repeaters tell me that we should turn PL on at this time. There will be a bypass for those who do not have a tone encoder allowing them open the squelch until the next in-active cycle.

Post office box 2282 - Cute, however expensive, (over \$100 per year) and very time consuming since someone has to drive out there, pick up the mail, then forward it. This is why it takes weeks to process memberships and checks. Look for a new address to streamline renewals.

Pager hotline - again cute, but hardly worth the price - very few calls and increased rates made canceling this expense an easy decision.

Stoneham - At the time of this writing, the new owners of Memorial Hospital have not been announced. We are delaying any action on this site until we know who the players are. I will keep you apprised, as soon as I know myself.

The leadership & tech crew are also working on other low-cost (or no-cost) improvements to the system, and welcome any input from members. Please drop us a line at mmra@mmra.org

Keep one key fact in mind...We can avoid additional "belt tightening" if our membership levels come up to expectations. So it is largely up to those of you who have not yet renewed to keep the repeaters running. We need all the support we can get to keep the MMRA's status as the premiere Amateur Radio organization in New England.

of commercial applications. Replacement cost? About \$9000 for each 2 meter site. That comes to \$36,000...and we've only just begun. The antennas at those sites are worth about another \$4000. Add miscellaneous stuff like hardline, hardline connectors and so on...probably another thousand per site. So, we have a rough replacement value for our 2 meter systems of \$44,000.

We are very fortunate that so many businesses and organizations recognize our value to the community. They give us space on their tower facilities or buildings *for free*. Want to know what a commercial organization would pay the landlord to be at a site like Slygo Hill? **About \$1500 per month!** That's only \$18,000 per year...a pittance.

*Every one of our sites would cost a business close to that figure! We have 5 sites of that quality - \$90,000 per year.*

Oh...we left out the 440 and 220 machines in the replacement cost estimates. 449.925 - another 9 grand. Stoneham 440, probably \$2000...no commercial gear there. The 220 machines, about \$2000 each, including antennas and stuff. Let's see...that now comes to a total of \$51,000. **That's \$51,000.**

We own 2 shelters...the average radio shelter would cost at least \$10,000 to replace...**\$71,000.**

To summarize...an annual budget of about \$7500 maintains an organization with a replacement value of over \$70,000, and takes a lot of time from a small core group. To keep that going, the MMRA needs 300 members. Right now, we have less than 100 renewed. Looks like a little shortfall in the making.

If you have any doubts about the physical assets we have...take another look at the collage in this article. These things are representative of the resources we have. They are not "hobby toys" and we are *not* "just amateurs."

*When you join the MMRA, you are not a member of just another "club." You are participating in and supporting something very special. The MMRA has the assets and capabilities of a major communications system. And as an organization, the MMRA embodies the best in ham radio. It has 29 years of heritage behind it, and has done many things that live up to the name "Minuteman."*



146.61 GE...the cabinet with "21" on it. Full duty cycle, 220 watt final stage.

## MMRA – Resource to the Community

We've waxed prolific about what makes up the MMRA and what it takes to keep it going...but what of the reason behind it all?

Take a high level view of what we have – a repeater network, consisting of 10 repeaters on 3 bands, 8 of which can be linked in a simulcast mode. What does that mean? It means that if there were a major communications emergency in eastern Massachusetts, we could provide *hand-held* radio coverage over most of the region.

Take a look at the coverage map on page 5...the circles show approximate coverage areas for each of the sites. They show that we pretty much blanket the area with redundant coverage. If you get into an area where terrain limits your ability to hit one of the repeaters, there will probably be another you can work.

What this means to public service and emergency communications is that through selective linking, we can provide the coverage needed for just about any occasion.

When the MMRA was first formed, it had only one repeater. Over the 29 years we have been around we have grown to become the most sophisticated amateur radio communications network in New England.

Other linked systems have concentrated on long distance linking...allowing hams in one state to talk to another several states away. We built our system to be able to support any kind of communications emergency in our area.

FEMA and MEMA know about us...should something serious happen, they know that we are capable of providing significant added inter-agency communications during an area-wide emergency.

Our system has been used during lost-children searches – the Weston repeater was the key in supporting the hunt for Sarah Pryor. The Marlboro machine was used during a search for a lost child in Hudson. During hurricane alerts the system has stood ready to support shelter linking and other communications needs.

The system alone is useless without a large body of hams who are available to help...our experience has been that when things happen, hams come out of the woodwork to do the job. All of us who have the gear, the knowledge of communications and dedication that is typical of the amateur radio community are the glue that binds our network's capabilities.

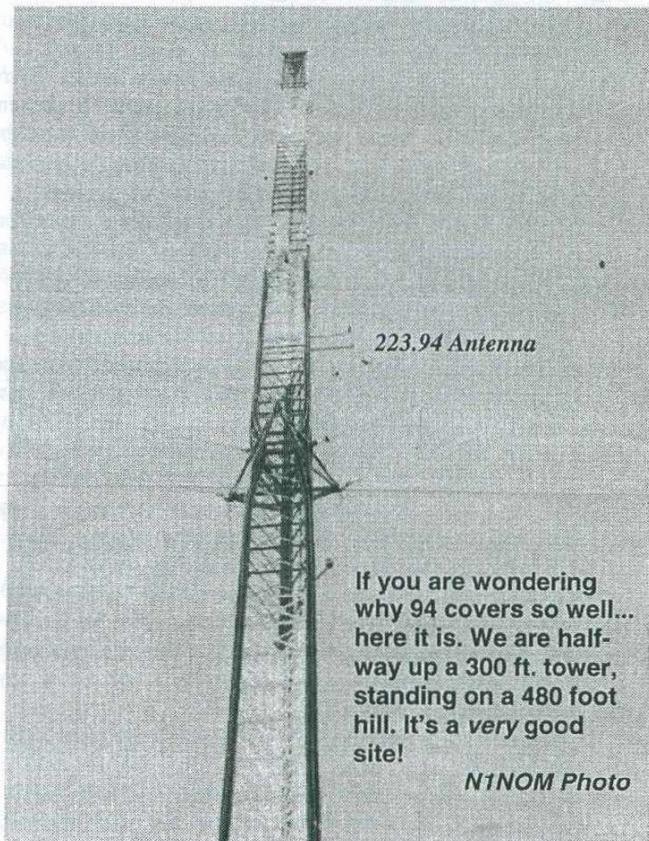
We could say that we are very fortunate not to live in an area that is visited yearly by weather disasters or earthquakes. That does not mean we should be complacent. If we are visited by some major disaster, we will have the resources to help.

Of course, maintaining that readiness requires that a good number of the hams in Massachusetts remain willing to support the MMRA. If you read the article about what it takes to keep the MMRA humming, you will understand what needs are. All it takes is to remember what this organization means to the community, and be willing to support it.

## 223.94 Returned to Hopkinton! Andy Morrison, N1BHI

Well, it actually happened...223.94 is fully ensconced down at the Hopkinton Tenneco site. Bryan, W1BRI, and I went to the site on a Friday morning to survey the building and tower. Things looked pretty good...the antenna cables were still there,

*(Continued on page 7)*



N1NOM Photo

**Give the MMRA World Wide Web Home Page a try.... let us know what you think... any ideas are welcome. There is a lot of new stuff there, so check it out!**

**WWW Address:**

<http://www.mmra.org/~mmra>

**Webmaster: Andy Morrison, N1BHI**

## MMRA Information - Repeaters, Officers and Board Members

Marlboro	146.61	N1BHI/R	FTL	P	PL - 146.2 out, none in
Marlboro	449.925	N1HBR/R	FTL	P	PL - 88.5 in and out
Quincy	146.67	K1ML/R	PTL	P	PL - 146.2 out, none in.
Quincy	224.40	N1KUG/R	FTL	L	PL - 103.5 in, none out
Weston	146.82	KA1AL/R	PTL	P	PL - 146.2 out, none in
Weston	224.70	N1HBR/R	FTL	L	
Hopkinton	223.94	N1BHI/R	FTL	L	PL - 103.5 in, out
Stoneham	146.715	N1NVL/R	PTL	P	PL - 146.2 out, none in.
Stoneham	446.725	N1NVK/R	PTL	L	PL - 88.5 in, none out
Marlboro	449.575	N1NVL/R	FTL	L	PL - 88.5 in, none out
Marlboro	53.81	W1BRI/R	PTL	L	PL - 71.9 in, none out

**MMRA Officers:**

President:	Clark Conti, N1NVK
Vice President:	
Secretary:	Bill Thorpe, WA1NLR
Treasurer:	Ian MacLennan, AF1R
Clerk:	Ed Mulhern, N1NOM
Director:	Bryan Cerqua, W1BRI
Director:	Al Kunian, KA1AL
Director:	Paul Cabral, N1ZCB
Director:	Wayne Foley, N1XXI
Director:	Andy Morrison, N1BHI
Newsletter Editor:	Andy Morrison, N1BHI
Technical Directors	Chris Conti, N1NVL

•Email: [mmra@mmra.org](mailto:mmra@mmra.org)

•Web Page:

[www.ultranet.com/~mmra](http://www.ultranet.com/~mmra)

### Minuteman Articles — Solicitation

If you have ever built anything, fixed something, or have an experience that you want to share, then you should submit an article to the MMRA Minuteman. Contact Andy Morrison, N1BHI, if you want to talk about it. We can scan artwork and schematics to make an article more interesting and useful. Give it a try!

**Important MMRA Club Information:**

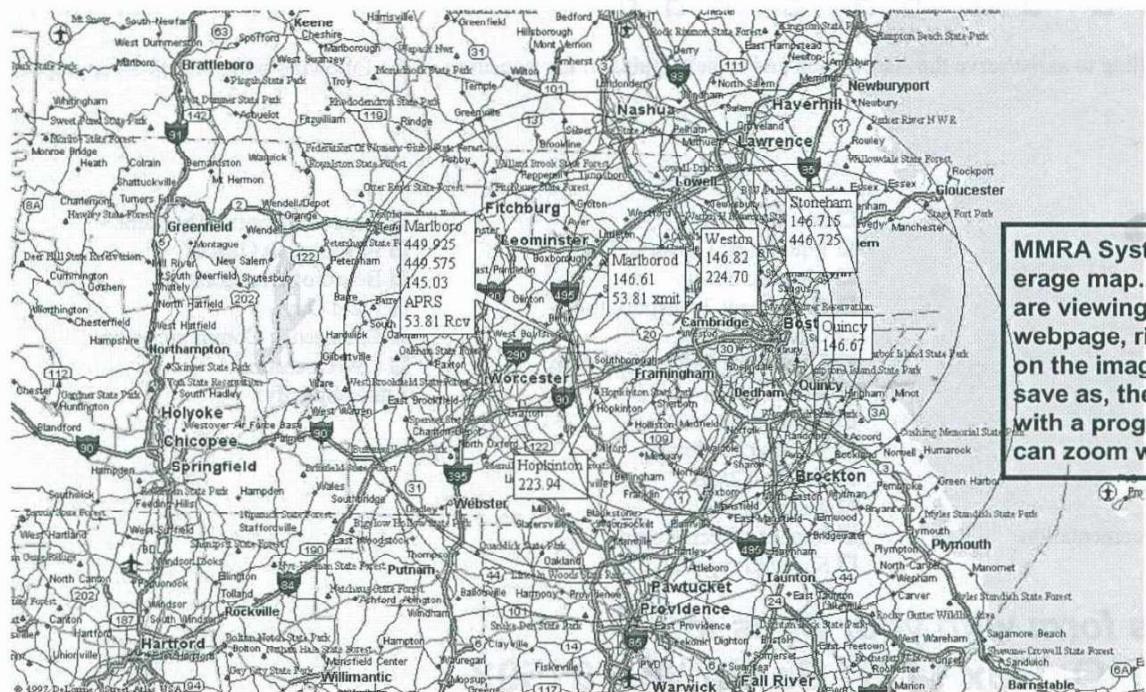
Membership Meetings: 3rd Wed of Sept, Nov, Jan, Mar, May at Campion Center, Weston at 7:30 PM

Meeting Dates for 1999-2000 Season: September 15, November 17, January 19, March 15, & May 10.

Board Meetings: 3rd Wed of Oct, Dec, Feb, Apr. Meetings are open and members are welcome. If a visiting member wants to be on the agenda, please contact Clark Conti beforehand.

Newsletters are mailed one week before each meeting; article submissions are due one month before each meeting.

The MMRA is dedicated to Amateur Radio and the public service. The MMRA is a registered non-profit Massachusetts corporation. Membership is open to all amateurs. Annual dues are \$25.00 individual, \$35.00 family.



# The Minuteman

Minuteman Repeater Association, Inc.

Volume 29 - Issue 1 Page 6

P. O. Box 1127

Berlin, MA 01503

A Non-Profit Communications Organization Serving the Public in Time of Emergency.

## -Application for Membership-

- New or  Renewal
- Individual Membership (Dues \$25 per year)  Family Membership (Dues: \$35 per year)
- Novice Membership (1st year dues: \$10)

I hereby apply for Membership in the MINUTEMAN REPEATER ASSOCIATION, INC. I agree to abide by the rules and regulations of the Association as stated in the by-laws, and understand that acceptance of this application entitles me to all rights and privileges of membership as provided under the by-laws.

Signature: \_\_\_\_\_ Date:

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_ Class of License:

Home Address:

E-Mail Address:

Occupation: \_\_\_\_\_ Employer:

Work Phone#: \_\_\_\_\_ Home Phone:

Member of: ARRL? \_\_\_\_\_ Other Clubs?

Equipment Available for Your Use:

Type No. Mobile Port. Fixed DTMF FM SSB Packet CW Patch Rtty

HF	_____	<input type="checkbox"/>								
VHF	_____	<input type="checkbox"/>								
UHF	_____	<input type="checkbox"/>								

I can and am willing to assist/serve the Association and/or help maintain the Repeaters in the following ways (check all appropriate boxes)

- Antennas
- Flea Market
- Receiver
- Publicity
- Transmitters
- Newsletter
- Logic
- Public Service
- Telephone
- Legal Aid
- Education:
- Technical Documentation
- Shelters

- Medical Aid
- Equipment Construction
- Meeting Set-up
- Equipment Transportation
- Social Events
- Technical Documentation
- Refreshment
- Schematic Drawing
- Technical Library
- Teach Code
- Teach Theory
- Repeater Tech Committee
- Special Projects

- Repeater Control Operator
  - Association Officer
  - Board of Directors
  - Field Day
  - Emergency Communications
  - CW Operation
- Other-Specify: \_\_\_\_\_

**Send this form with your Dues to:**

**MMRA, P.O. Box 1127, Berlin, MA 01503**

### 223.94 Returns Home.....

(Continued from page 4)

and the antennas looked fine from the ground.

The link antenna cable had somehow been buried, so rather than dig it up, we determined that there was enough there to reach the feed-through, so we cut and re-terminated it. Bryan is a perfectionist...so he took a long time to do a painstakingly good job. We hooked up a 440 HT and an SWR meter – the system looked perfect, and 449.925 was full pin.

We then checked the 220 hardline connection. We have 7/8 inch hardline going up the tower...the connector was in good shape, so we made a similar test with my 03AT...the antenna looked good also.

The shelter is a cell phone building...one of two at the site – Tenneco, when the cellular people asked to use their tower, agreed with the proviso that they would get their own brand new shelter out of the deal. There is tons of room in there...but there was one little problem that we noticed. Whoever installed the cable feed-through plate had just hung the cables for the two Tenneco radio systems off the feed-through with *no strain relief!* Whoever it was also had used three adapters where one would have done the job...and they were about to break from the weight of the hardline.

By about 11:00 we were ready...we had made arrangements

for Ed, N1NOM, to provide transportation for the repeater...he has a very large truck. We met him for lunch, then went up to Slygo to get the repeater.

It took about an hour to get back on the road, so we convoyed back down to Hopkinton and unloaded the repeater. We rolled it into the shelter hooked the pigtail feedlines to the feed-through and fired it up. Everything

worked well, but we had used cables that were not up to Bryan's standards inside, and we needed to do something about that strain-relief problem outside. Failing to do that would cause our stuff to break over time.

We had already informed our contact at Tenneco – Dick Jasmin – that he had a problem. We offered to make a bracket to take care of it...so Bryan and I went to one of those big home-improvement warehouses and picked up a bag of hardware, some angle iron and hacksaw blades. We planned to return the next morning, so we went to Bryan's garage and began building the bracket. It was a funny sight...we hacked up the angle iron, bolted it together, and when we laid it up against the wall, it only needed one little adjustment...it was perfect!

Saturday morning, we hooked up with Wayne, N1XXI, and

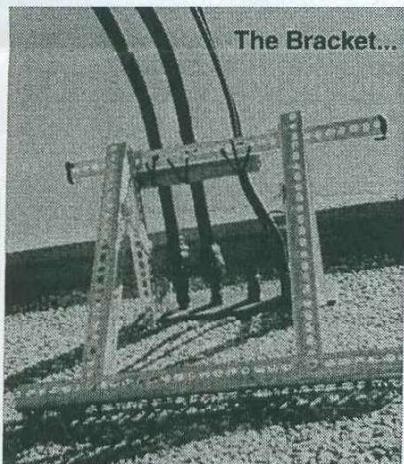
returned to the site to install the bracket and high-quality pig-tails that Bryan made overnight. We started working on it, and were just finishing up when a Tenneco technician drove up...a lady who has the responsibility of keeping the data radio network up and running so that all the information about gas flows through Tenneco stations gets to the control point. She had been at the site after we left it on Friday...their system was down solid. We told her about the problems with their feedlines, showing her the new bracket, and how their adapters were falling apart.

She admitted knowing very little about RF...so we offered to do some tests. Bryan hooked up a meter to the output of the Tenneco data radio...it showed infinite SWR. We wiggled the outside feedline while transmitting, and, sure enough, the SWR bounced around between low and infinity.

It was obvious that they needed a fix right away...and as usual, Bryan had just the right stuff to do it...we replaced their 3 adapters with one, weather-proofed everything and tied their cable to our bracket. Their system came back up – even stations that had not been able to send their data for weeks could now be heard. So, we earned a whole bunch of points with our site landlord!

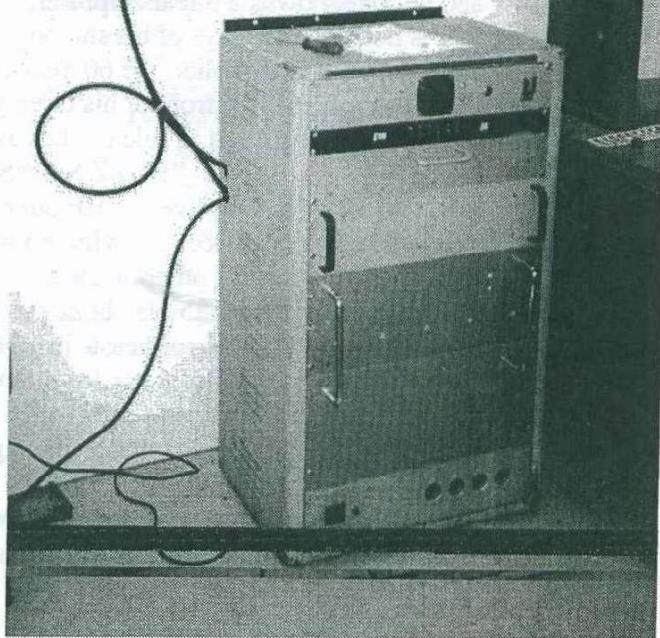
Over the last month, I have been all over the place checking the coverage of 223.94. It is extensive...it works well in downtown Boston, all along the Southeast Expressway –even behind Blue Hill – and all the way down 95 to Providence. It also covers well up into the Lowell/Lawrence area.

394 is back! So, if you have some 220 gear gathering dust somewhere, dig it out – 223.94, down 1.6 meg, tone 103.5.



The Bracket...

The repeater was re-packaged by Bryan a long time ago...nice and compact!



## Items of Interest

*From the ARRL Letter*

### MISSISSIPPI HAM AWAITS COURT DECISION IN RFI CASE

A Mississippi ham arrested for interfering with his neighbors' telephones is awaiting a decision on his request to throw out the complaint on the grounds that the state court has no jurisdiction in the matter. ARRL member Bennie Stewart, KJ6TY, of Meridian, was arrested and charged September 10 after a neighbor filed a complaint with the Lauderdale County Justice Court.

Stewart, a ham for 12 years, appeared in court October 26. He says his attorney, Felecia Perkins, filed a request to dismiss the complaint, brought under a Mississippi law that makes it illegal to "intentionally obstruct, injure, break or destroy, or in any manner interrupt any telegraph or telephone line or communication thereon between any two points." Stewart maintains that only the FCC has jurisdiction, and his station is operating properly.

The ARRL has provided legal defense assistance to Stewart's attorney. The case has been continued while the court mulls its decision. If convicted, Stewart faces a fine of up to \$500, six months in jail, or both.

"It should have never gotten to this point in the first place," Stewart said, adding that he's tried to work with his neighbors regarding telephone interference ever since the first complaints arose three or four years ago. "I put myself on a schedule," he said, explaining that he

operates on 40, 20, and 10 meters only on weekday mornings. He says he never operates on weekends, only runs 100 W, and no longer owns a linear amplifier.

"The problem is not here," he says of his station.

A retired professional photographer, the 60-year-old Stewart is confined to a wheelchair. He described his arrest--which he says took place in front of his three-year-old granddaughter--as "humiliating."

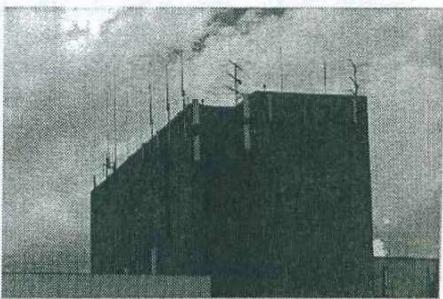
Stewart says he expects the court to rule on the case very soon.

### "BUZZ SAWS" ABOUND ON HF

"The HF buzz saw is dead; long live the HF buzz saw!" That might be the cry from the crowd these days as various buzzing intruders have been showing up with some regularity on HF. Sometimes, though, it's hard to distinguish one intruder from the other on the basis of anecdotal reports from amateurs.

Recent reports of the so-called 125-Hz "buzz saw" intruder on the 80-meter band are a case in point. The intruder--heard primarily in the US northeast--had plagued amateurs as well as an aeronautical weather station just below 80. In the wake of protests from amateurs and coordination between the ARRL and Radio Amateurs of Canada, the transmissions--determined to come from two HF surface wave radar facilities in Newfoundland--moved off the amateur band. The signal has not been heard on 80 meters since early October.

IARU Region 2 Monitoring System Coordinator Martin Potter, VE3OAT, credited ARRL and RAC assistance in getting the HFSWR systems moved off the amateur bands. The HF surface wave radar sites in New-



The Stoneham Hospital. Look at all those antennas... Only we get off rent free. This is a monster site... coverage is excellent.

## Items of Interest.....

(Continued from page 8)

foundland are a joint project of Canada's Department of National Defence and Canadian industry. Canadian officials see the technology as playing a role in maintaining Canada's territorial sovereignty as well as for search-and-rescue operations and to assist in combating illegal immigration and drug smuggling.

Responding to the initial "buzz saw" reports, amateurs in the US and elsewhere alerted the ARRL Monitoring System to a plethora of signals they claimed were the now-infamous intruder. It's now clear, however, that a similar mystery visitor on 40 meters is not coming from the Newfoundland HFSWR facilities. "Although a number of additional reports of buzz-like interference were received from the western USA and elsewhere, none could be confirmed as due to the same signal," Potter said. The signal has been widely reported in Region 1.

ARRL member Dave Bowker, K1FK, in extreme northern Maine was the first to report--and graph--both the "original" 80-meter buzz saw as well as the more-recent 40-meter signal. "Although it sounds similar, it has three distinctly different characteristics," he said. The signal's sidebands extend 7 kHz either side and "it is a frequency hopper, moving randomly in time and frequency steps."

Steve Yates, AA5TB, in Fort Worth, Texas, also has monitored, graphed and recorded the 40-meter signal, and his observations are consistent with Bowker's. "The transmissions would jump frequencies every few minutes but not at regular intervals," he says. He reports measuring the different transmission center frequencies at about 7020, 7040, 7050, 7070, 7080 and 7090 kHz, and believes the signals came from the same transmitter. Yates has posted information about this and other intruders at <http://home.swbell.net/aa5tb/>.

The IARU Region 2 Monitoring System now refers to the 40-meter intruder as an "unusual jammer," but concedes, "If the signal is truly a jammer, it is not clear who or what the target is." Potter says the signal is modulated by strong harmonics of 50 Hz and 100 Hz and seems to be associated with a "wobble" or "bubble" jammer on the same frequencies.

Another "buzzer" on 3795 kHz has been reported to the ARRL Monitoring System from hams in various parts of the US including Rich Chatelain, K7ZV, in California, and Bill Avery, K6GNX, in Nevada. Both agree that the signal appears to be coming from somewhere along the Utah-Nevada border. "It transmits for 80 seconds every five minutes. It is approximately 20 kHz wide," Avery said.

Potter says the 3795 kHz signal is worthy of further investigation.

Additional reports and observations are welcome to ARRL Monitoring System Administrator Tom Hogerty, KC1J, [thogerty@arrl.org](mailto:thogerty@arrl.org).

### "New Foxhunting Aid" by Paul Cabral-N1ZCB

A new shirt pocket foxhunting tool has been designed and produced by avid foxhunters KD1LE, KD1SM, W1XP and others. It is called the "Fox Finder". This device, designed for use with stereo or mono headphones, is actually a very sensitive 2 meter receiver with an audible signal strength meter. It emits a variable frequency audio tone which ranges from very low (weak RF signal) to very high (strong RF signal). Although it is designed primarily for use with a directional antenna, it also performs well when using the "body fade" method of hunting. The unit can be internally tuned to your favorite fox frequency and has a built-in 3 position attenuator, which allows you to literally walk right up to the fox transmitter.

The Fox Finder comes as a build-it-yourself kit that is designed for just about anyone who can solder electronics and drill and file holes in a small plastic enclosure. The directions and illustrations (including photos) are very informative and easy to follow.

The alignment and final setup require only a multi-range voltmeter and a low power 2 meter transmitter (HT). The finished kit, containing its own 9V battery, is the size of a pack of 100mm cigarettes. It's a great DFing tool, especially when hunting foxes in close and on foot.

For more info, send e-mail to Stan at <[kd1le@amsat.org](mailto:kd1le@amsat.org)>.



# The Minuteman

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In this issue.....

- *A Call To Arms!*
- **Items of Interest**
- **223.94 Goes Home!**
- **What It Takes to Run the MMRA**
- **What The MMRA Means...**
- 

*Meeting Program:*  
**Astronomical Imaging**  
Dave Croll, KT1X

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