



# ♦ The Minuteman ♦

Volume 25 Issue 1

September 1995



## The President's Corner

We hope you all had a good summer; it seemed to go by quickly. About the only MMRA activity other than working on stuff that broke was the FoxHunt program. We had good participation; a number of new hunters have come out to search



"WALTER, WHO SAYS FIELD DAY IS ALL WORK AND NO FUN?" ED MULHERN, N1NOM, CAPTURES THE TRUE SPIRIT OF FIELD DAY AS HE CONTEMPLATES AND PLANS THE WORK THAT NEEDS TO BE DONE TO GET ON THE AIR.

A. MORRISON PHOTO

for the fox. The MMRA FoxBox was deployed about once every two weeks, and provided fun and frustration for the hunters. Also, it was used up in Manchester at the convention. We loaned it to WB9MUP who gave a talk and ran a couple of hunts.

If you've ever considered fox hunting, you owe it to yourself to go after the FoxBox. It gives the beginner a chance to make mistakes out of the view of those who would bust his chops. No one ever needs to know if you take a whole day to find it...and you will build enough skill to go public without fear of embarrassment. Of course, the fox hunters will be disappointed that they had no opportunity to bust people while they make the same goofs everyone has made....

(Continued on page 5)

## Field Day, 1995

We had a small field day effort this year....but small was a lot of fun. There were enough of us to have some laughs, score some points and eat just about all the food.

The day started early..... Clark, N1NVK, Andy, N1BHI and Ed, N1NOM, gathered all the masting and shelter pipe while Tom, WB1GMA, and Bob, WA1ZJE, went up to Slygo and began unloading antennas and setting up the generator. Upon their arrival, both Tom and Bob immediately began commenting on the fact that Andy must have recently invested in an outhouse company.

"N1BHI from WB1GMA."

"Go ahead, Tom."

"Hey Andy...you planning to spend a lot of time in your house?"

Andy wasn't sure just what Tom was talking about until he arrived and saw the structure to which Tom referred. See the picture on page 3.... He was sure that someone had defiled the sign on the door.

When everyone had arrived, Ed decided that he needed a strategic location to survey the situation from and beat the heat. There isn't much shade up on Slygo Hill, but Ed managed to find a patch large enough for him, his lawn chair and umbrella.

We began assembling antennas, starting with a doublet that is essentially a dipole on 80 meters and an extended double zep on 40 meters. The antenna was strung from the big mast over to one of the trees near the rocket ship tank, oriented to put maximum signal to the southwest. The antenna was fed with open wire. We

(Continued on page 3)

## September MEMBERSHIP MEETING

Wednesday, Sept 20, 1995 - 1930 Hrs  
Campion Center, Weston MA  
Program:

Operating 10 GHz in New England  
WA1BMA Thomas Williams. Phd.

MMRA Annual Budget

Raffle

## HANDI-FINDER IMPROVEMENT

Last year Dave, KT1X, and Eric, KA1EEC, ran a kit building class for the club at Regis college and built the HANDI-FINDER for our fox hunts, or just for goofing off. Many users found the unit useful, but a it was little hard to pick out the null in actual hunts. The problem seems to be in the antenna designed with the kit, which is two quarter wave wires folded around in a sort of semi-loop using the feed line as a counterpoise. Many experiments were tried with various antenna alternatives, but so far Chris, N1NVL, seems to have come up with the simplest and most practical. He connected a set of dumb old rabbit ears to the two inputs on the board and holds the antennas at about a ninety degrees to each other (45 degrees off center each) extended to a length of about 15". It is best not to make them over 1/4 wave long, because the wavefronts do a sort of cross phased underhanded trick and start to mess with the sharpness of the null. I have used this setup on many hunts with good success, as have others. If you have a HANDI-FINDER and would like to try this mod for yourself, join us every Saturday from 10:00 to noon and we'll get you hooked on fox hunting. For the next newsletter I'll try to finish my write-up on adding left-right indication to this same unit, which is a little more fun, but takes some getting used to. Thanks to Chris, my ugly little brother for the idea. CUL -de N1NVK Clark

## Current and Future Repeater Link Statuses

Freq	PL IN	PL OUT	Link Status
146.610	None	None	Full time
146.670	None	None	Disabled
146.715	None	146.2	Part Time
146.820	None	146.2	Part Time
223.940	103.5	103.5	Full Time
224.400	103.5	103.5	Disabled
224.700	None	None	Full Time
446.725	None	None	Disabled
449.575	88.5	88.5	Disabled
449.925	None	88.5	Full Time (Node)
Future Plans	PL IN	PL OUT	Link Status
146.610	146.2	146.2	Full Time
146.670	146.2	146.2	Part Time
146.715	146.2	146.2	Part Time
146.82	146.2	146.2	Part Time
224.400	103.2	103.2	Full Time
224.700	103.2	103.2	Full Time
223.94	103.2	103.2	Full Time
446.725	88.5	88.5	Full Time
449.575	88.5	88.5	Full Time

## Meeting Program - September 20

Operating 10 GHz in New England

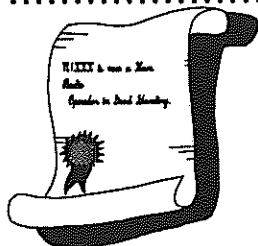
WA1BMA Thomas Williams Phd. V.P.Engineering, Amerinex  
Artificial Intelligence Inc. 409 Main St. Amherst, MA.

Tom recently presented this program at the Northeast UHF/VHF Conference, and it was excellent. A group of MMRA members attended and believed his talk to be the best they had heard in a long time. N1NVK asked if he would be willing to come and talk to us, and Tom was happy to oblige.

Tom breaks down the myths and mysticism of microwaves with a sort of off-beat yet scientific approach and proves that it is possible to operate beyond line-of-sight, over hill and dale, without surveyors tools and even penetrate rain! He will explain why 10GHz actually works better in the rain, using charts graphs and years of scientific data delivered with a dash of wit. You will even get an electron's eye view of a waveform ziping through the radio and off to the target station. How does all this relate to the common bagel? Come to this month's meeting and Tom will show you.

RIGHT: THE "ROCKET SHIP" TOWER IN MARLBORO HAS OUR ANTENNAS ON IT FOR 449.925 AND 145.03. IT'S BEEN THERE FOR THE BETTER PART OF A CENTURY, AND ONCE, A MAN FELL INTO IT AND DROWNED. IT'S A LANDMARK THAT CAN BE SEEN FOR MILES; PILOTS HAVE USED IT FOR DEAD RECKONING NAVIGATION, AND PEOPLE TRAVELING THE HIGHWAYS ALWAYS KNOW WHEN THEY ARE GETTING CLOSE TO MARLBORO.

Ed Mulhern Photo.



## MMRA VE Sessions

Second Saturday of Each Month  
Marlboro Public Library, 9AM  
Contact: Bill Wade, K1IJZ  
617-891-9079 Evenings 6 to 10 PM,  
Weekends 8 AM to 10 PM.  
Accredited - ARRL VE Program



## PROPOSED WESTON WEATHER STATION

A suggestion has been made that an automated packet weather station could be placed at the weston repeater site for next to nothing. This would be a fun project and would be something everyone could benefit from. I thought the station would work well as an addition to the APRS national network, which combines mapping software with real time packet updates and message handling. I have been using the network to track all of the hurricanes we have had this year.

I made the suggestion on the air to see what kind of interest there might be and folks said "GREAT! do it." Suddenly I remembered the rule "Never make a suggestion, unless you are prepared to carry it out". I asked around and Brian N1SZH and Henry N1OAG donated a workable, but slightly dusty '286 computer for the station. I am willing to contribute my BAYCOM Packet Interface, and I am pretty sure the club has an old transmitter & receiver in the basement. The '82 site has an extra coax to the roof, and a 2M antenna on the floor. All I need now are the sensors, interface, and the time to put it all together. Unfortunately the last part is always the hardest to get. If you would like to contribute to the ham community by taking over this project, PLEASE SPEAK UP! Come talk to me at the meeting, or just say so on the network. I'm usually on '82 during drive time, but I monitor the links and of course 449.725 most of the time even if I have nothing to say (a rare event indeed!)

Thanks....de N1NVK, Clark

BELOW: ED MULHERN, N1NOM, AND CLARK CONTI, N1NVK, WORK ON THE VHF MAST. A 432 MHz YAGI WAS STACKED OVER A 6 METER YAGI. ED LOOKS HAPPY HERE; CLARK LOOKS LIKE HE'S THINKING "....ANOTHER FOOL WITH A CAMERA."

RIGHT: EVERY YEAR WE HAVE TO GET A PORTABLE HEAD. WELL, THIS YEAR WAS NO EXCEPTION....ANDY, N1BHI, MADE NO SPECIFIC ACCUSATIONS; BUT HE WAS CERTAIN THAT THE THING WAS NOT DELIVERED WITH THE SIGN VANDALIZED...IT'S REALLY CALLED A HANDY HOUSE.

## Field Day.....

(Continued from page 1)

decided to keep the HF antenna simple to save time as there were too few of us to do the beam antenna assembly quickly.

We had the HF station on the air at 2 PM while we finished putting up the 70 CM, 2 and 6 meter antennas. At about that time, we decided to put up the shelter.

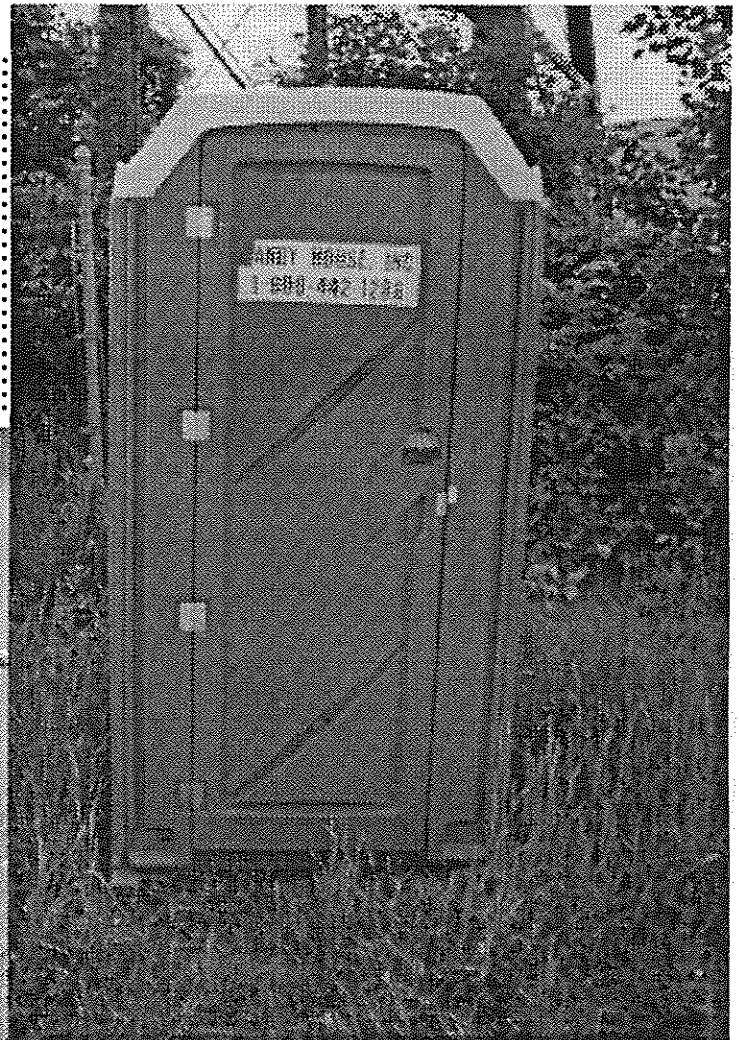
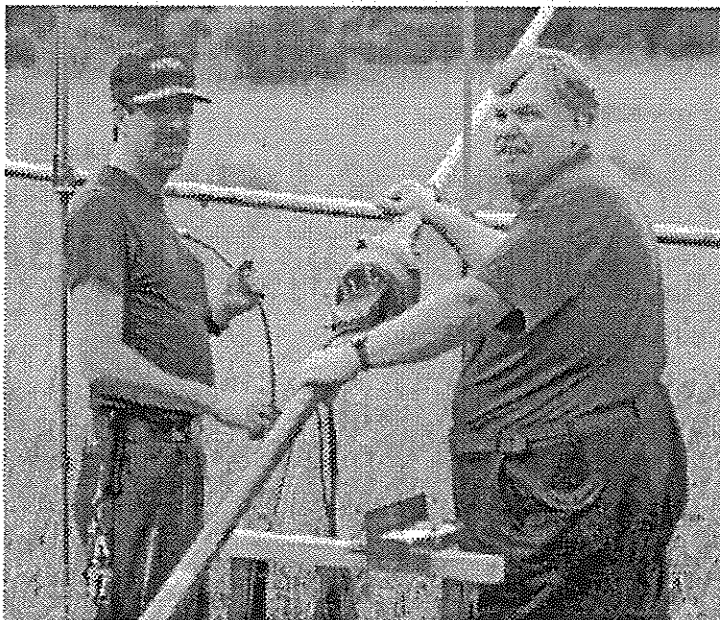
"What the hell are we gonna do without Walter....he's the only one who knows how this thing goes together!"

Clark stepped in and saved the day....."I'll be Walter, I remember how it goes...."

So Clark and Andy sorted out pipe sections, screwed them together, and soon had the frame standing. It took only about 30 minutes to get it up.....a tribute to Walter's design and Bob's construction. We almost had no tarp and tent stakes, but Walter came through — even though the press of business and other plans had kept him from being there, he was able to take enough time to make a "dust off" drop of the stuff we were missing.

Leaving the others to finish off details, Ed and Andy went off to buy food. The two of them wandered through the supermarket. A pair of real experienced shoppers....

(Continued on page 4)





## Field Day.....

(Continued from page 3)

"Whadaya think, 3 of these packages of hamburger?"

"I dunno...."

"Well, what about hot dogs?"

"I think you and I are the only ones who like 'em"

The two filled up a shopping cart with about seventy bucks worth of food and drink and returned to Slygo with their bounty. Since it was after lunchtime already, Andy decided that he was going to make lunch, so he fired up the grill and started hamburgs. It didn't take long for the group to inhale about 2 pounds of hamburger.

Shortly after lunch-dinner, Frank, W1JDO, and Dottie, N1BHI, came up for a visit. Frank took some pictures, surveyed the scene and gave the group his seal of approval.

As the sun set, the crew settled in for a night of operating....we ran 2A — this let us have the free vhf station, packet and HF. We even had a novice station on the air for a while.

Tom had us all set up to get the solar power bonus, along with the all mode equipment for 70 cm, 2 and 6 meters. He also provided the computers we used for logging. The operating was done from the trailer. It was comfortable, even when it started raining late Saturday night.

Our best bands were 80 and 20 meters. We made a lot of contacts on vhf and UHF, even though the bands were lousy....there had been a lot of ducting right up to the beginning of the field day period. As soon as we got started, the openings closed up.

One of the things that seemed to help when working phone were the phonetics we used...."Whiskey Bravo One Good

## Repeater Report

### 449.925 N1HBR/R Marlborough, MA

This one has been running well but getting some interference. Looks like soon it will become a CTCSS operated repeater. Of course this opens a can of worms because now we have to ensure all the link radios can transmit a Tone on the output. This means start programming your rigs to put out an 88.5 Hz tone on 444.925. Interference coming from another 449.925 link began to really bug the network. Walter, N1HBR, has been working closely with the other hams involved to clear up the problem. Tone encoding the network will eliminate this problem and avoid similar situations in the future.

### 449.575 N1NVL/R Taunton/Weston MA

This machine has been in Weston now for a short time while we work on finding permanent home. No link on this one at the moment.

(Continued on page 5)

Morning America...." Other operators seemed to be able to pick that out of the noise pretty well.

When it was all over, everyone was pretty beat. They were all glad that the setup had been kept simple....it was pretty easy to take down. We are going to do it again next year, so join in!

.....  
BELOW: THE FIELD DAY SHELTER IS FABRICATED FROM 1 INCH BLACK WATER PIPE. IT'S CAPABLE OF WITHSTANDING HIGH WINDS AND HEAVY RAIN...WHICH IS NICE, BECAUSE THERE IS NO OTHER SHELTER ON SLYGO HILL. WE CAN USE IT FOR OTHER PURPOSES...LIKE A RADIO CLINIC, WHICH MAY TAKE PLACE THIS FALL. Ed Mulhern Photo



## The President's Corner.....

(Continued from page 1)

Over the summer we had a bunch of system problems that had to be dealt with. Take a look at the article on MMRA work later in this issue, and remember to thank the people who did all that work.

Our first meeting should be an interesting one...Clark Conti arranged for a good speaker; you will see the details elsewhere in this issue. A major item on the meeting agenda will be the annual MMRA budget. On page 8 there is a breakdown of how we did last year, and what we plan to spend this year upcoming. We will have a vote to approve the budget.

Hope to see you at the meeting!

Tom, WB1GMA,  
DURING SETUP. JUST TO  
THE RIGHT OF HIS HEAD  
IS THE 10 KW  
GENERATOR THAT  
POWERS FIELD DAY.  
BOB IS KIND ENOUGH TO  
LET US USE IT.  
Ed Mulhern Photo



## Repeater Report.....

(Continued from page 4)

### 224.400 N1KUG/R Quincy, MA

This machine is playing well into Boston. I've used it often even on an HT at Logan Airport. As soon as we can coordinate a work party, we'll have the link working soon.

### 223.940 N1BHI/R Marlborough, MA

Bryan, KA1YQB, did a fantastic job rebuilding this machine from top to bottom, but because site access is available only during business hours, we could not get it back in place. It has found a temporary home in Marlborough alongside the 449.925 machine. Hopefully we can get an antenna up at the top of the water tank soon for it. Right now it plays fairly well. Also note this machine now has CTCSS and requires a tone of 103.5 Hz to access it.

### 146.820 KA1AL/R Weston, MA

The machine went low-power for a while. Rework on the Power Amp was taken care of by Bryan, KA1YQB. A Driver Transistor was replaced and all is well so far.

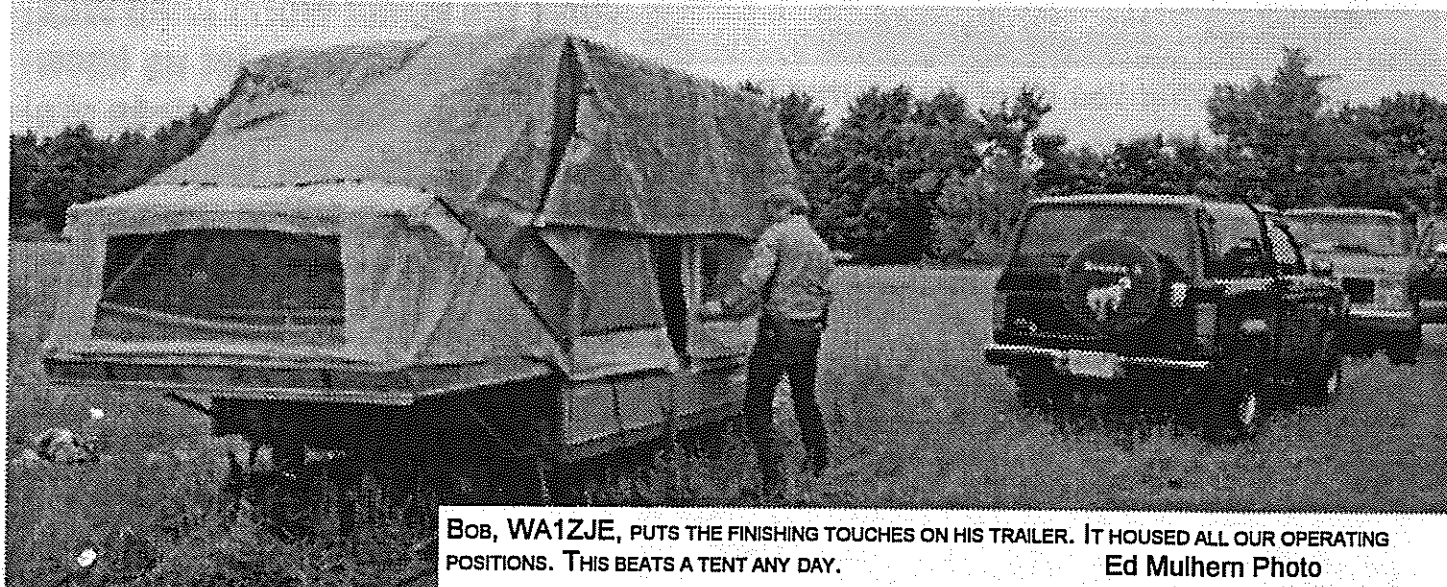
### 146.670 KA1HKP/R Quincy, MA

The Power Amp once again died on this machine. Mike, KA1HKP, has reworked this amp a few times and we may get a brand-new commercial grade repeater amp to replace it. This machine gets lots of use and it will probably be best to put a new amp in place.

### 146.610 N1BHI/R Marlborough, MA

The Power amp also died at '61, and Bryan, KA1YQB, managed to patch it up (Starting to sound like a broken record, all these PA's dying). We need to work on the Battery Backup at '61, and the telephone line needs replacing. We may be able to get Nynex to do it, but if not....anyone interested? We also may be putting a commercial grade GE Master II at this site.

Until next time, see you On-the-Air, 73 N1NVL



BOB, WA1ZJE, PUTS THE FINISHING TOUCHES ON HIS TRAILER. IT HOUSED ALL OUR OPERATING POSITIONS. THIS BEATS A TENT ANY DAY.  
Ed Mulhern Photo

## MMRA WORK DONE

During the last year or so, we've done a lot of work on a lot of stuff. The newest member of our Tech Crew, Bryan Cerqua, has been doing a lot of work in the background....we owe him a lot of appreciation for what he has done. Chris, N1NVL, has been really busy with his new job, and Bryan has taken up a lot of slack. By singling out Bryan, we do not mean to belittle the contributions of the rest of the guys, but we think it's important that you all know that he did a lot of the stuff on the list below.

- Bryan modified three Aerotron UHF link radios for Weston, Stoneham & Hopkinton. Involved adding chip caps to the main board for operation on 449.925. Added new crystals to channel elements. Also added PTT and COR relays and standard molex connectors.
- Bryan converted a Uniden to a link radio for Quincy.
- Bryan added 146.2 PL on 146.82 output.
- He also solved intermittent in the Weston 224.70 receiver.
- Bryan solved the intermittent drop to low power on the 146.82 amp. (Bad connection to the RF transistors on the 10 Watt board.) He obtained the proper schematic set for the 146.82 PA.
- Chris, Bryan and Walter went to Westboro to extract the 449.575 repeater.
- Bryan cleaned up the the 449.575 repeater and ran it at home for a while.
- Chris located a site in Taunton for 449.575 and installed the repeater with a work crew.
- Bryan converted a Johnson UHF amp for Taunton (449.575) 50W and installed it.
- Chris organized an antenna replacement party at Taunton.

Both Bryan and Bob, WA1ZJE, spent a windy day in Taunton on the tower hanging on for dear life. The wind forced us to abort the party. Also there were Andy, N1BHI, and Ed, N1NOM.

Bryan modified the clubs doppler box so that it would not blow the compander IC and sent the mod to Doppler systems. He also added various connectors to make interfacing the box to power, audio and computers.

Bryan fixed the doppler box after the fuse blew.

Bryan rebuilt the control circuit for the 146.82 amp. Involved replacing the control hybrid and adding some DC power transistors.

Repaired the UHF amp for 449.925, added two new expensive RF transistors. Blew up due to over voltage on the power supply.

Bryan added the frequency board for the Quintron transmitter and, working with Chris and Walter, installed the transmitter up at Slygo. It was a tough install, as problems forced Bryan, Chris and Walter to go up to the site several times. The problem was finally solved with a tie-wrap.

Bryan added 88.5 PL output to 449.925.

Bryan built the MMRA fox box. A second revision improved the voice module on the fox box.

Bryan re-built the Hopkinton 223.94 repeater and added the link radio. He built a new audio interface box and documented it on a CAD system.

Andy pulled the failed '61 amp; Bryan replaced both power transistors in the 146.61 power amp.

Chris installed the 449.575 repeater at Weston where it will operate until a new site can be found. There is something really good in the works....more if and when it firms up.

(Continued on page 7)

**Fast, Reliable and Low Cost Direct Internet Access**

**More of What You Want the Internet For!**

- Dial-Ups to 28.8Kb/Local Access
- 56 kb, 384 kbs, T1 and ISDN
- SLIP/PPP Accounts
- Web Sites Available
- Friendly and Professional Support

# UltraNet

For Info or Enrollment: 1-800-763-8111  
To Enroll Via Modem: 608-229-0775

**Ultraneet Communications, Inc.**  
910 Boston Post Road, Marlborough, MA 01752

**Give the MMRA World Wide Web Home Page a try... let us know what you think... any ideas are welcome. We are looking into things like an MMRA list server. We now have our own domain name - mmra.org. The Web Page keeps getting better...**

**WWW Address:**

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



## Items of Interest From the ARRL

### The Massachusetts Antenna Bill — H-2782

A small but important bit of progress for H-2782, the Massachusetts PRB-1 bill:

On Tuesday July 18, the Massachusetts Senate voted to send H-2782 to the Committee on Bills in the Third Reading. The Committee on Third Readings makes sure that the bill is constitutional and does not contradict existing law. Once the Committee gives the bill an OK, H-2782 returns to the Senate floor for an up-down final vote. This is the one that counts.

The "Committee" has only one member, Sen. Thomas Norton of Fall River. Folks from down that way should call him & thank him for his support on this bill and urge him to return H-2782 to the Senate as soon as possible.

This came from Shawn O'Donnell, K3HI, ARRL State Government Liaison.

### EMF cancer link studied (ARLX023)

The Council of the American Physical Society (APS) has issued the results of a study entitled "Power Line Fields and Public Health," concerning the potential dangers of cancer from electromagnetic fields that emanate from common power lines and electrical appliances.

The APS concluded that "the scientific literature and the reports of reviews by other panels show no consistent, significant link between cancer and power line fields" and "the preponderance of research findings have failed to substantiate those studies which have reported specific adverse health effects from exposure to such fields."

"While it is impossible to prove that no deleterious health effects occur from exposure to any environmental factor, it is necessary to demonstrate a consistent, significant, and causal relationship before one can conclude that such effects do occur. From this standpoint, the conjectures relating cancer to power line fields have not been scientifically substantiated."

The APS said that billions of dollars are being spent by states and municipalities to mitigate and litigate this perceived problem and "the burden of cost placed on the American public is incommensurate with the risk, if any."

A background report on this issue by David Hafemeister is available on the Internet through the APS World Wide Web HomePage at: <http://aps.org>

### NH antenna bill signed - (ARLB057)

New Hampshire Governor Stephen Merrill has signed into law a bill protecting amateurs' rights to antennas.

The bill, HB 379, earlier passed both the state's House and Senate unanimously and was signed by the governor on June 5. It was originally written to include slightly stronger language regarding antennas than that contained in PRB-1; the language was then fine-tuned at the suggestion of members of the legislature who are "friendly to Amateur interests," according to

## MMRA Work.....

(Continued from page 6)

- Chris, Andy, Bob and Ed installed the 223.94 repeater up at Slygo Hill to let it play at a location we can get at easily before returning it to its normal location. It plays pretty well within a ten mile radius of Slygo. They used a Ringo Ranger 2 loaned by Bob; if time permits, a 220 antenna up on the tower may be hooked up, if the feedline can be identified.
- Mike, KA1HKP, has been plagued by problems with the Quincy power amplifier. As of this writing, he has it out of service for repair.

We may have left some items off the list inadvertently, but you should get the idea...a lot has been going on in the background. When you hear one of the guys that make it happen on the air, mention your appreciation to them. It makes them feel good, and hopefully willing to keep up their commitment to MMRA technical excellence.

Plans for the future include several major items.

- We are going to install PL (Private Line) tone on both inputs and outputs of all our repeaters. We've been putting this off for a long time, to be sure that as few users as possible will be inconvenienced by not having PL capable rigs. Interference has been getting a lot worse, and PL will solve the problem of having repeaters in our network pumped by random interference.
- We will complete the linking scheme — it might even be done by the time the meeting is held....we sure hope so. But if not by then, soon after.
- We may be given two GE Master II commercial base stations. One is on VHF, the other is on low band. They both have 300 watt full duty cycle power amps. One will go in at '61, the other can be turned into a six meter repeater.

Anyone wanting to get involved in these projects please contact Chris (N1NVL), Andy (N1BHI), Bryan (KA1YQB) or Clark (N1NVK). We can use all the help we can get....we need more of our members to get involved in the technical end. It's actually fun, and you can learn a lot.

ARRL New Hampshire Section Manager Al Shuman, N1FIK.

The bill was filed on the coattails of New Hampshire's HB 380, passed in 1994, which provides protection from taxing Amateur Radio towers as real property. HB 379 reads:

"No city, town, or county in which there are located unincorporated towns or unorganized places shall adopt or amend a zoning ordinance or regulation with respect to antennas used exclusively in the amateur radio services that fail to conform to the limited federal preemption entitled Amateur Radio Preemption, 101 FCC 2nd 952 (1985) issued by the Federal Communications Commission."

Income:	1994 Budget	1994 Actual	1994 Variance	1995 Budget	<div>MMRA 1995 Budget</div> <div>This budget sheet shows 1994 Budget versus Actual. The 1995 Budget will be voted on at the September 20 Meeting.</div>
Dues	7750.00	7675.65	(74.35)	7650.00	
Advance Dues		50.00	50.00		
Flea Market	1300.00	2285.75	985.75	1300.00	
Raffles	200.00	387.00	187.00	200.00	
Misc.	0.00	133.75	133.75		
<b>Total</b>	<b>9250.00</b>	<b>10531.75</b>	<b>1281.75</b>	<b>9,150.00</b>	
All Expenses:	Budget	Actual			
Administration	4600.00	5311.78	- 711.78	4910.00	
N1BHI-146.61	540.00	275.66	264.34	600.00	New Repeater, PL
KA1HKP-146.67	1130.00	1334.33	-204.33	500.00	Linking, PL
N1NVL-146.715	530.00	271.92	258.08	500.00	PL
KA1AL-146.82	480.00	309.41	170.59	500.00	PL
N1BHI-223.94	250.00	384.43	-134.43	200.00	
N1KUG-224.40	100.00	63.01	36.99	100.00	PL
N1HBR-224.70	100.00	0.00	100.00	100.00	PL
N1NVK-449.725	100.00	3.38	96.62	100.00	PL
N1NVL-449.575	0.00	1428.86	-1428.86	100.00	PL
N1HBR-449.925	800.00	690.02	109.98	350.00	PL, Bat Backup Imprvmt
KA1OUI-145.03	100.00	0.00	100.00	100.00	
R&D/Contingency	500.00	209.53	290.47	500.00	
Field Day	0.00	95.00	-95.00	100.00	
<b>Total</b>	<b>9230.00</b>	<b>10,377.33</b>	<b>-1,147.33</b>	<b>8,660.00</b>	See Note 1.
<b>1994-95 Administration</b>					
Newsletter	1500.00	1446.82	53.18	1500.00	
Meetings	300.00	319.45	-19.45	500.00	Price Incr frm Campion
President's Account	50.00	0.00	50.00	50.00	
Secretary's Account	300.00	279.19	20.81	300.00	
Treasurer's Account	200.00	22.15	177.85	200.00	
Flea Market	1000.00	1870.14	-870.14	1000.00	See Note 2.
Insurance	950.00	836.00	114.00	900.00	
P.O. Box	100.00	93.00	7.00	100.00	
Voice Mail/Pager	0.00	156.98	-156.98	160.00	
Miscellaneous	200.00	288.05	-88.05	200.00	
<b>Total</b>	<b>4,600.00</b>	<b>5,311.78</b>	<b>- 711.78</b>	<b>4,910.00</b>	
<b>Bank Balance - 9/1/94</b>	<b>6978.92</b>				
<b>Test Equipment Fund- remaining from money raised by raffles</b>	<b>1045.99</b>				

Note 1. The actual for 1994-1995 included the unplanned expenditure for the 449.575 repeater, formerly owned by W1OJ, and part of World Net.

Note 2: The Flea Market Costs included higher then normal janitorial time — 12 hours at a higher rate, police detail, and telephone costs, along with food, and table rental.



# Minuteman Repeater Association, Inc.

P. O. Box 2282

Lexington, MA 02173

Voice Mailbox: (508) 489-2282

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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VHF	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UHF	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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, PO Box 2282, Lexington, MA 02173

# MMRA Information - Repeaters, Officers and Board Members

## MMRA Repeaters:

Marlboro	146.61	N1BHI/R	FTL	P	
Marlboro	449.925	N1HBR/R	FTL	P	PL - 88.5 out, none in
Quincy	146.67	KA1HKP/R	PTL	P	
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 and 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
Taunton	449.575	N1NVL/R	FTL	L	PL - 88.5 in, none out

[FTL = Full Time Linked] PTL = Part Time Linked]

[L = Patch available via link] P = Local Autopatch]

## MMRA Officers:

President:	Andy Morrison, N1BHI
Vice President:	Clark Conti, N1NVK
Secretary:	Frank Morrison, KB1FZ
Treasurer:	Ian MacLennan, AF1R
Clerk:	Ed Mulhern, N1NOM
Directors:	Tom Qualtieri, WB1GMA
	Al Kunian, KA1AL
	Chris Conti, N1NVL
	Bob Feltmate, WA1ZJE
	Andy Morrison, N1BHI
	Walter Ching, N1HBR

Newsletter Editor:

Associate Editor:

## 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 1994-95 Season: September 21, November 16, January 18, March 15, & May 17.

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 Andy Morrison beforehand.

(508) 489-2282. — This is a local call from any 508 exchange phone, and is a free call from both 617 and 508 areas.

MMRA Voice Mailbox

Newsletter Information

Mailing Date

Submission Deadline

September issue

November issue

January Issue

March Issue

May issue

Sept 14, 1994!

Nov 9, 1994

Jan 11, 1994

Mar 8, 1994

May 10, 1994

Sept 1, 1994

Oct 26, 1994

Dec 28, 1994

Feb 22, 1994

Apr 26, 1994

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.

## Mail Return Address:

MMRA

P.O. Box 2282

Lexington, MA 02173

TO:

If you have not won one at our meetings, you can get your  
**Official New England Scanner Guide** for \$24.95

by calling:

**1-800-351-7226**

or sending a Fax to:

**603-425-2553**

The new 544 page guide covers all of New England with maps, frequency allocation charts, 220 allocations, new Emergency Medical. ***It has Everything!***

Next  
Day

To Contact Officers  
or Board Members  
Call MMRA Voice  
Mail Line:

508 - 489 - 2282  
Toll Free from  
508 and 617 Areas

MMRA E-Mail  
mmra@mmra.org