



♦ The Minuteman ♦

Volume 28 Issue 2

November 1998



President's Corner

In this issue there's an article by Bryan Cerqua (W1BRI) about the re-building of the Quincy repeater. He's completed the conversion of our 2 meter network to GE commercial gear. There's a noticeable performance improvement in the machine. It's important that we recognize Bryan's achievements...single handedly, he's modified and prepared all the GE systems for 2M, modified and installed another GE as a 6 meter machine, re-built 223.94, repaired our service monitor and kept things on the air. I've probably missed a few things I should have mentioned, but you should get the drift.

We've been lucky over the last 10 years or so; we've had people like Scott (KA1CLX), we still have Chris (N1NVL), Clark (N1NVK) is no slouch technically and Walter (N1HBR) is still around, maintaining our repeater software and web page. Plus we have a few others who will always show up to help out however they can - Ed (N1NOM), Paul (N1ZCB), Wayne (N1XXI), Marty (N1QIR), Larry (W1DYJ), Bill (N1QPR), Shelley (N1VJE) and Roger (N1NUS) along with probably some others I should mention but can't because I had one of Ed's famous brain cramps. So I don't insult any of them, I had better mention those who are more behind the scenes, but just as important to the organization - Dave (KT1X), Lynne (KA1NLD), Ian (AF1R), Tom Qualtieri (WB1GMA), Al Kunian (KA1AL) and Bob Feltmate (WA1ZJE).

We are planning a work party up at Slygo to do some antenna work. We hope to get the 6 meter receive antenna up on the rocket ship, along with 223.94 and the packet systems antenna. Keep your ears peeled for the date...if you can make it we'll surely need some ground people, or just come up and give us moral support. Bill (WA1NLR) is arranging for a couple of climbers to do the tower work. Bill is getting more and more involved in MMRA technical stuff. Cross your fingers and hope that he continues the trend...he's been in the radio biz for years and knows his stuff.

I just know that there are other people out there with ability and interest. Regardless of where the ability lies, we can use more people who can get involved. I make this plea at least twice each year; this is my first this year. We do have a lot of fun doing the stuff we do; if you've ever felt a little tug to come out with us, give into it now and join us in keeping the MMRA systems up and working well.

This month's meeting should be fun. Mike (KD1OA) is a Marlborough police officer. He's going to talk about a subject that applies to any of us who spend time on the highways: What to do when you stop to help a motorist in distress. I've talked to him about the subject - you would be surprised at how many little nuances there are that should be observed to ensure that you are safe and that assistance is rendered effectively. So Mike

Boxboro Convention

The MMRA played its usual role in support of the ARRL convention at Boxboro this year. The usual bunch showed up; they are all named elsewhere on this page. We signed up a good

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Below Andy (N1BHI) and Clark (N1NVL) fiddle with the club service monitor, getting ready to check handhelds for visiting hams.

N1NOM Photo



will be there, and we promised to have extra donuts there for him. He and other members of his profession are supposed to have a proclivity for significant donut consumption....

So come to the meeting, it should be a fun time.

NOVEMBER MEMBERSHIP MEETING

WEDNESDAY, NOV 18, 1998 - 1930 HRS
CAMPION CENTER, WESTON MA

PROGRAM:

So You Want to Stop and Help?

Mike Ryan, KD1OA

HT Clinic

Raffle

Other Stuff

Re-build of Quincy 146.67 / 224.40 system.

Bryan Cerqua W1BRI

On Saturday October 17th, Mike (K1ML) and I (W1BRI) met at the Quincy site at 7AM to extract the old repeater system. (Mike likes to get up real early, I don't). Upon arrival Mike tried to unlock the padlock but the key just didn't want to turn. Not having a blowtorch or any WD-40 I started to poke around in the back of my jeep for something that might free up the lock. I found some engine lifter cleaner that we poured into the keyhole and still no luck. After about 15 minutes I started to think that I would be going home empty handed and why on earth did I get up this early for nothing on a Saturday morning. All this time Mike kept trying and then just when we were about to toss in the towel the lock opened, I was psyched. We removed the old repeater out of the 6-foot rack to lighten the load and placed the whole mess into my jeep. Mike grabbed the back up repeater from his truck and no time had it running just fine. The episode only took about an hour and half and I was home in time to listen to Saturday morning foxhunt.

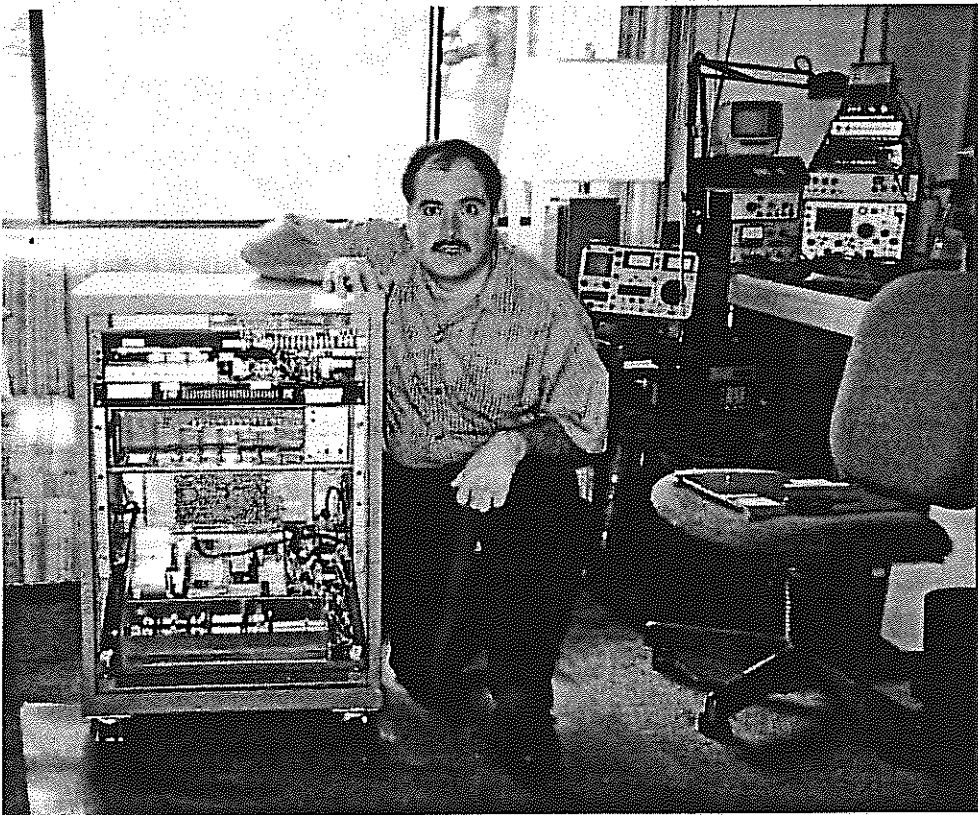
Once home I started to look at the possibility of putting everything inside a three foot high GE Low-Boy rack. I quickly mounted up the parts to see if it would all fit - it did, with room to spare. This is what goes into the one rack: 2 meter repeater, 220 repeater, SCOM 5K and 7K controllers, UHF link radio, audio interface box and last but not least the system power supply.

Anyone having visited the Quincy site knows just how important it is to have everything in one small rack (Read "I need to go on a diet to fit between the old rack and the door frame"). The original repeater system was in tough shape, the two-meter link was intermittent, the 220 link was not working at all and there was no documentation - all this persuaded me to rebuild the entire system.

Since I had already used the radio box from the GE Low-Boy station for the Weston two-meter rebuild project I used the original GE radio box from Weston. This radio box was missing just about everything and forced me to cut up a GE MASTER II mobile

frame and retrofit it into the empty radio box. Also missing was the interface board that connects all radio components to the backplane of the radio box. To solve this problem I pushed out the pins in the connectors and re-configured them to plug down onto the MASTER II mobile radio pins; this worked out much better than anticipated.

A new link audio interface box was designed that allows the two meter, 220 and UHF link radio all to work together without inter-dependencies of the audio paths. This part of the project took about a week, each day making updates to the schematic using a CAD station at work. Once all the logistics of the interfacing were worked out I figured that it would be much easier to work on the system upstairs in my shop instead of the cold garage. With the help of Wayne (N1XXI) I carried the three foot rack up two flights of stairs. Wayne wasn't even breathing heavy while I tried to not talk to let on that I was out of breath. I've



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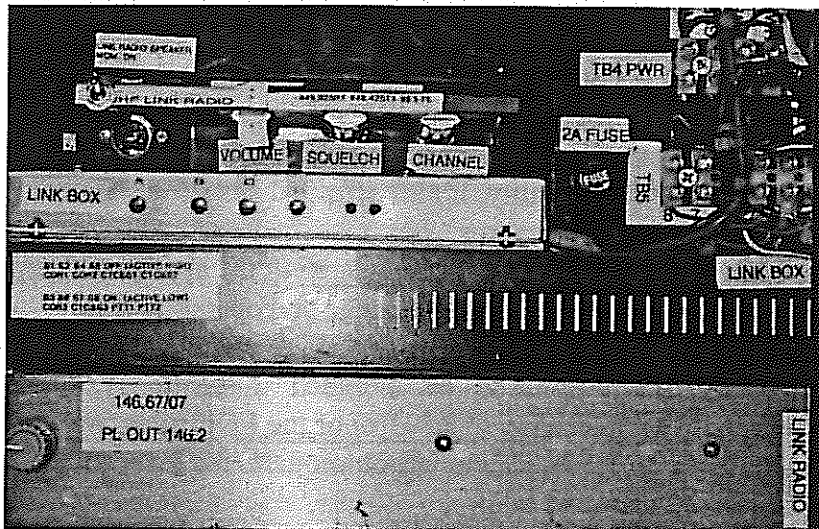


MMRA VE Sessions

2nd 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

Above: Bryan took this photo of himself...or maybe he had help...he looks a little shell-shocked. He spent crazy hours building the repeater he is leaning on. The GE base was acquired by Andy (N1BHI) and given to the club. The total new value of GE gear he has provided is somewhere in the vicinity of \$25,000 to \$30,000. Bryan has made the gear work like new.

Quincy Re-Build.....



Above: Looking into the front of the system, you can see that Bryan is a documentation nut...everything is labeled clearly. He built ease of access for maintainability into the system. The link box and the Scorn are the brains of the system.

also asked Wayne if he would help be bring it back down to load in my jeep for the trip back to Quincy. Much heavier this time but Wayne's been working out so it shouldn't be too bad for him, but it will probably kill me.

For the last two weeks I could only think about this project, staying up to 2AM each night working on it (Strange - but true). Most of the work was wiring up everything. I would like to thank Dave (KA1JYW) for making a nice piece of wood and painting it black to mount all the terminal strips on.

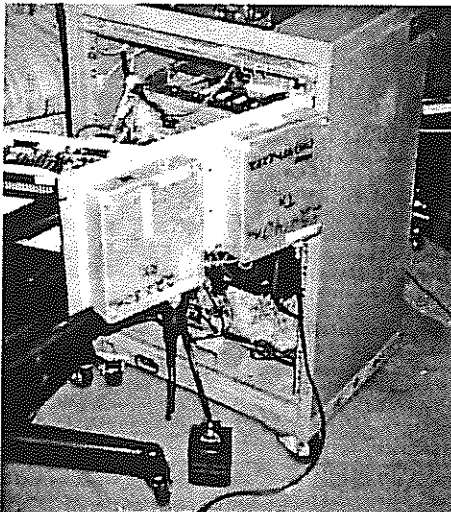
One of the things I tried to do on this project is to fully document the system using computers both at home and at work. Last Saturday I made a trip to Home Depot for some wheels for the rack and then to Staples for a P-Touch labeling machine. I always wanted one of those machines after seeing Clark's (N1NVK). Never having used a P-Touch machine I just had give it a try on this repeater project. As you can see by the photos I got a little carried away, using more than one 25-foot roll and starting on a second roll in less than a week.

While working on this project I tried everything to make the system easy to maintain. One of the best

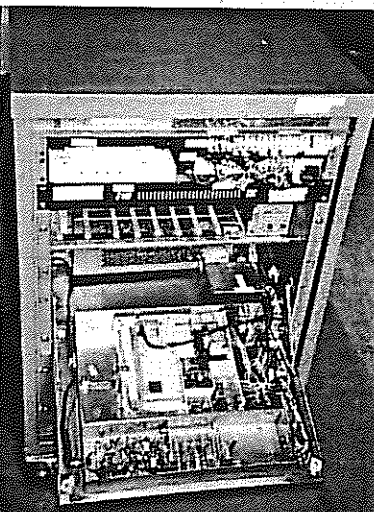
features is that the 220 repeater mounts to the back of the rack on a hinged panel. By removing one screw one can get at all the other

components of the system.

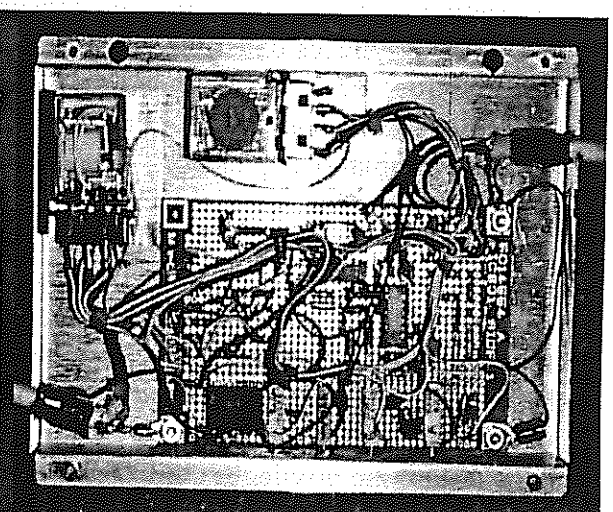
- Hopefully by the time you read this the new Quincy system will be on the air. This now completes the conversion of all four MMRA two meter repeaters and the one six meter repeater to GE grade quality.... I think I still have some P-Touch tape left, wonder what else I can label.



This view shows the 220 repeater swung out. It's mounted on the back of the system, and consists of a Hamtronics transmitter and receiver. The only part of the overall package you do not see here are the duplexors.



Looking at the front of the repeater, you see the 2M receiver and transmitter section swung down for easy access. This is the standard GE configuration in the lowboy bay package.



This is the interior of the link box. Bryan had to make 9 audio paths mixable and selectable. Normally the 7K controller will do this, but only for 2 pairs of receivers and transmitters. The 2M and link radio fill that capacity up; adding the 220 repeater requires additional switching and mixing. Bryan build the link box from scratch to do this.

Items of Interest....From the ARRL Letter**ARRL BOARD REAFFIRMS,
MODIFIES ITS RESTRUCTURING
PLAN**

In a special meeting October 24, the ARRL Board of Directors reaffirmed the bulk of its July 1998 Amateur Radio License Restructuring plan with some modifications. Among other things, the Board's July plan would eliminate the Novice and Tech Plus license classes. To provide a logical entry path to HF for Technicians, the Board now has suggested offering CW privileges to Technicians in the current General CW allocations on 80 through 10 meters. Technicians would be permitted up to 200 W PEP.

"The July plan eliminated the HF door by eliminating the Novice license," observed ARRL Executive Vice President David Sumner, K1ZZ. "This is, in effect, a replacement for the Novice, but without an additional license class."

The Board also agreed to replace its originally proposed A, B, C, and D license class designations with Extra, Advanced, General, and Technician.

Under the July plan--and under the FCC's proposed streamlining--the entry-level HF license would be the General. Board members at the October 24 meeting near St Louis expressed concern that the leap to HF privileges under the July plan could prove too daunting, especially for younger newcomers. Under the ARRL plan, it would require passing two written examinations plus a 5 WPM code test to become a General. Some also were troubled about the growing gulf between the "traditional" HF operator and the newer VHF-only amateurs.

Addressing the Morse code requirement in the International Radio Regulations, Sumner summed up the Board's position by saying that the new privileges would amount to self-testing. "By their very nature, you can't use the privileges until you know the code," he said.

The special ARRL Board meeting was called to consider the League's comments on the FCC's amateur licensing "streamlining" proposals in WT Docket 98-143, released in August. Comments are due December 1. During the daylong session, the Board also proposed that the FCC rules ban multiple-

choice Morse code tests and establish that a passing grade for a code test be either 70% correct answers to 10 fill-in-the-blank questions or one minute out of five of solid copy.

The Board affirmed its proposals in RM-9196 to improve the procedures for granting Morse code exam credit on the basis of a physician's certification of a disability. It also affirmed "its strong desire" that written exams be modified as necessary "to demonstrate better the depth of the applicant's current radio technical knowledge and operating skill."

The Board supported retention of the topic definitions to be included in written exams, as contained in §97.503(c) of the FCC rules, with some modification to accommodate the new four-class structure.

The Board also reaffirmed its desire that Advanced class volunteer examiners be permitted to administer General class exams, and it renewed its request in RM-9115 for several rules changes involving RACES stations.

The Board noted that it had "heard and considered the views of thousands of ARRL members" on the amateur licensing issues raised in both the ARRL and FCC proposals.

**FCC CRACKS ENFORCEMENT
WHIP ON JERSEY HAM**

The FCC has begun to crack its amateur enforcement whip. A New Jersey ham has been ordered off 40 meters until further FCC notice after

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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>

MMRA Information - Repeaters, Officers and Board Members

Marlboro	146.61	N1BHI/R	FTL	P	
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
Taunton	449.575	N1NVL/R	FTL	L	PL - 88.5 in, none out

[Marlboro Full Time Linked PTL = Patch available 24 hours] [L = Patch available 24 hours] [P = Local Autopatch]

MMRA Officers:

President:	Andy Morrison, N1BHI
Vice President:	Clark Conti, N1NVK
Secretary:	David Croll, KT1X
Secretary:	Lynne Ausman, KA1NLD
Treasurer:	Ian MacLennan, AF1R
Clerk:	Ed Mulhern, N1NOM
Director:	Tom Qualtieri, WB1GMA
Director:	Al Kunian, KA1AL
Director:	Chris Conti, N1NVL
Director:	Bob Feltmate, WA1ZJE
Newsletter Editor:	Andy Morrison, N1BHI

- Voice Mail: 508 489 2282
- Email: mmra@mmra.org
- Web Page:
- 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 1998-99 Season: September 16, November 18, January 20, March 17, & May 19.
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.

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.

Items of Interest....

(Continued from page 4)

allegedly causing interference to the ANARC Net on 7.240 MHz October 18. The FCC also issued an Official Notice of Violation October 21 against James C. Thompson, KA2YBP, of Waretown, New Jersey.

Thompson, 58, was accused by FCC inspectors out of the Langhorne, Pennsylvania, FCC office with illegally retransmitting programs from a Standard Broadcast (AM) station on 40 meters and willfully interfering with the amateur net. The FCC also charged Thompson with failing to properly identify.

It's the Commission's first amateur enforcement action since the FCC announced it would consolidate amateur enforcement within the Compliance and Information Bureau under the coordination of Riley Hollingsworth, K4ZDH, the CIB's legal advisor for enforcement.

Hollingsworth said the FCC acted in the Thompson case on complaints from amateurs, but FCC inspectors did all the legwork. FCC inspectors at Thompson's home found an AM receiver "positioned adjacent to the Amateur station's microphone and tuned to 1450 kHz," the FCC said. Hollingsworth said FCC personnel used a combination of long-range and local monitoring and tracking to zero in on Thompson's QTH as the source of the interfering signal.

Hollingsworth said he anticipates additional amateur enforcement cases to develop as a result of calls to the Amateur Enforcement Line, 202-418-1184.

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Items of Interest...*(Continued from page 5)***MITCH ACTIVATES HURRICANE WATCH NET**

The Hurricane Watch Net, activated October 24 to keep an eye on Hurricane Mitch, formally stood down October 30 at 0100 UTC. By week's end, Mitch remained stalled off the coastlines of Honduras and Belize, downgraded to a tropical storm after pummeling the area with high winds and torrential rain for several days. Mitch began the week as an extremely dangerous Category 5 storm packing winds of more than 155 MPH. Nearly three dozen people have died as a result of the storm.

As Mitch hit its stride, the Hurricane Watch Net shifted late Tuesday to round-the-clock operation. Hurricane Watch Net Manager Jerry Herman, N3BDW, reports that the Net and the operators of W4EHW at the National Hurricane Center operated through the night on 3950 kHz and then resumed operation on 14.325 MHz during daylight hours, once 20 meters was open into the affected area. The Net secured operations after Mitch was downgraded to a tropical storm.

"Net members will remain on frequency informally to assist stations in the affected area as long as propagation lasts," Herman said. The Net could be reactivated should Mitch regain hurricane status, however.

The Hurricane Watch Net shares storm tracking reports with the National Hurricane Center in Miami via W4EHW.

Other Amateur Radio nets also have been active. The Mexican Hurricane Net was active on 7055 kHz. A Central America Emergency Net also has been active on 7090 kHz.

The Salvation Army Net was reported monitoring 14.265 MHz to assist with health-and-welfare traffic. A health-and-welfare net also was active October 28 on 14.320 with W9KJI as net control.

NEW AMATEUR SATELLITE IN TROUBLE

SEDSAT-1, Amateur Radio's newest satellite, is in trouble following its successful launch October 24 from Cape Canaveral. After fewer than two dozen

orbits around Earth, problems arose with the spacecraft's batteries and solar panels.

"This should not have happened," said SEDSAT coordinator Mark Maier, KF4YGR, at the University of Alabama-Huntsville, in a posting to SEDSAT team members and others. SEDSAT-1 was fabricated by students at the UAH. It was boosted into orbit by the same Delta II rocket that carried the Deep Space One probe into space. The package contains a Mode L digital store-and-forward transponder and a Mode A analog transponder. SEDSAT-1 has been heard from at various times this week, however, and ground controllers remain optimistic.

Maier said any hope of useful recovery depends on establishing uplink communication, "and the sooner the better." He said the satellite likely would need uplinks from more than one site "because the uploads will have to be compressed into daytime periods." Maier is hoping to upload code to alter the spacecraft's power-consumption cycle so it's more conservative.

"We can still activate the Mode A and imaging function, but only on a conservative schedule," he said this week.

Chris Lewicki, KC7NYV, of the University of Arizona reported earlier this week that telemetry from SEDSAT-1 indicated the spacecraft's power had dropped to zero at one point and the satellite reset itself. Intermittent telemetry suggests the batteries were not storing their specified 8 Ah. Lewicki said the satellite went quiet halfway through a pass over Tucson on orbit 27, indicating it had gone into its "power cycle" mode. Lewicki said in this state, the satellite notices that it is in extremely low power conditions and waits 10 hours until attempting to transmit again.

The solar panels appear to be producing as much power as expected, but Lewicki said they are "slow to react when exiting an eclipse period," so charging does not start until at least 10 minutes into a daylight cycle. As a result of the power cycling, images of the satellite's deployment from the booster were lost.

Maier said the team needs "full daytime data" for SEDSAT-1, and the SEDSAT team has been actively seeking monitors around the world to listen and decode telemetry for periods when the spacecraft is

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Items of Interest.....

(Continued from page 7)

nearing the end of its day cycle and entering eclipse. He said the satellite's orbit "processes out of North America for fairly long periods"--a half a day or more at a time--making it unavailable to ground controllers. The downlink is 437.91 MHz, 9600 baud FSK (with adjustment for Doppler shift). A telemetry program is available at the SEDSAT Web site, <http://www.seds.org/sedsat/tracking>.

"To use it, you must put your TNC in KISS mode and must set the appropriate COM port parameters," Lewicki said. Current two-line Keplerian elements also are available at the SEDSAT Web site. E-mail telemetry reports including the orbit number, your latitude/longitude, UTC, and brief description of hardware used to telemetry@seds.org.

For more information, visit the SEDSAT Web site at <http://www.seds.org/sedsat/>.

HAMS HANG TOUGH DURING TEXAS FLOODING

After nearly two weeks of flood duty, hams in Texas are battered but not beaten. Some individual stories of dedication and heroism also have begun to emerge from within the Amateur Radio ranks.

Many residents displaced by the flooding remain in Red Cross shelters this week. More than two dozen people died. South Texas Section Manager Ray Taylor, N5NAV, reports that at one point, hundreds of hams were active in Texas, Louisiana, Oklahoma, and Arkansas handling various flood-related duties ranging from net control to shelter communication.

"We've had awful good cooperation," Taylor said. Some hams from as far away as Nacogdoches, near the Louisiana border, volunteered. Hams manning shelters got some relief when the Red Cross was able to get cell phones. "We are beginning to secure the Red Cross net here in San Antonio," Bexar County EC Neil Martin, WA5FSR, said earlier this week. "There are still shelters open, but the Red Cross will handle everything by cell phone unless we have more problems."

Martin said the net control station at the Red Cross still was being staffed around the clock "because we are using a VHF/UHF linked system to communicate

with shelters in Cuero, Victoria, and other areas toward the coast."

Martin singled out three San Antonio-area hams for special recognition--Shelter Communications Manager Bobby Rodriguez, K5AUW, Red Cross Liaison Stan Stanukinos, KA5IID, and Teri Thomas, KC5BJI. "Bobby and Stan have been at the Red Cross communications center almost continuously since Saturday afternoon with only snatches of rest," he said. "Teri has done yeoman service in finding and scheduling operators."

Taylor said prompt response by a ham couple in his area, Comal County, made the difference between life and death for some residents of a flooded mobile home park there. Taylor said husband-and-wife team, Susan and Leo Manor, NF0T and N0ERI, went down to the trailer park to check out the situation. "Nobody had warned these people," Taylor said of the residents. Using their vehicle, the Manors were able to pull several trailers to higher ground before the water got too deep. "At least we saved some lives there," he said.

Taylor also credited Comal County EC Todd Covington, N5IJR, with taking time away from his own flood-damaged home to roll out the PrimeCo communications van and pressing it into flood duty. Two repeaters in the van have been aiding Red Cross communication.

Taylor said linked repeaters have ensured wide coverage. *Editor's Note: This is why the MMRA has made so much effort to have a linkable system. We can provide the same kind of capabilities in an emergency.* In addition, hams in Texas made use of HF nets on 40 and 75 meters for regional coordination. A voluntary communications emergency affecting net frequencies on the two bands has been rescinded, however. In addition to helping the Red Cross, Taylor said, ham radio operators have been providing communication and other support for the Salvation Army, the Dallas-based Baptist Men's Kitchen feeding program, and other outside relief agencies.

Taylor himself has been deeply involved in coordinating much of the flood emergency traffic throughout the affected region. He said this week that he expected hams to be active in the flood emergency "for another three weeks."

Boxboro....

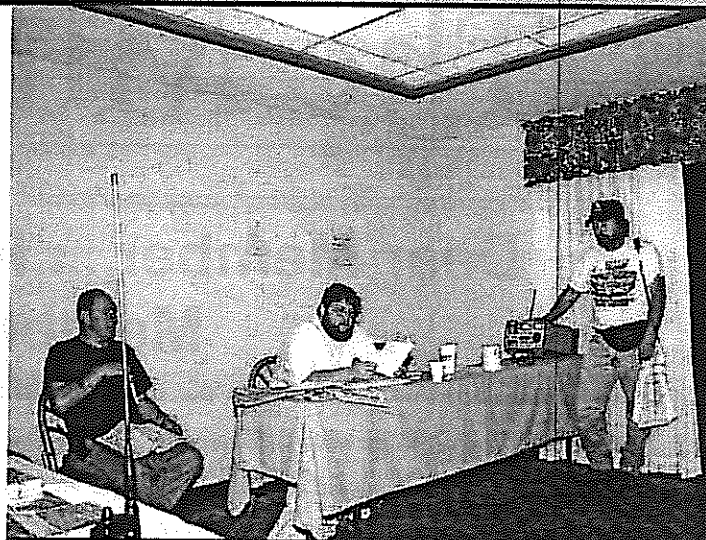
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number of new members and renewals and had a lot of fun.

This year the affair was held in August, so the conflict that killed attendance last year - scheduling it on the same weekend as HossTraders - was not a problem. The Saturday flea market was heavily attended. The parking lot area was full of vendors and crowds of bargain hunters. Unfortunately, there did not seem to be much really good stuff.

We checked a lot of handhelds; we did get a couple of guys who wanted us to open up the rigs and tweak them when we found stuff wrong, but we told them that we could not do that. All we would have needed was to run into a problem with some poor fellows radio in pieces on our table.

We had plenty of help, so that everyone got a chance to wander around the flea and the exhibit hall. Some of us even blew some cash with the vendors...that's one bad thing about events like this; there's plenty of temptation to spend money.



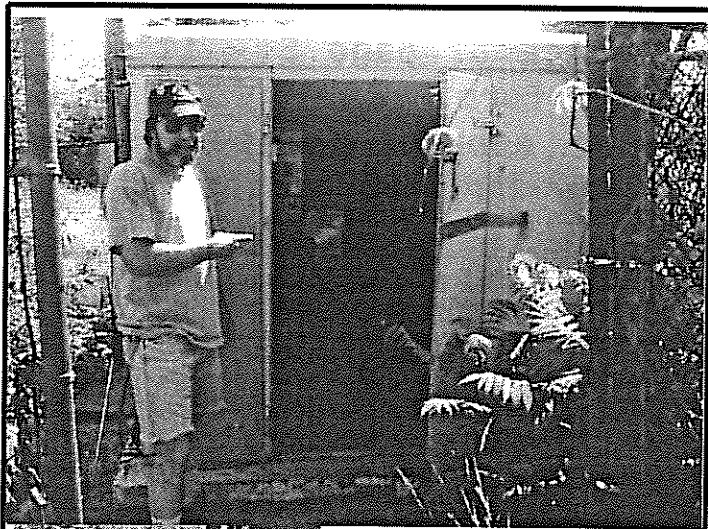
Above: Roger, Dave and Paul at the membership table. Dave and Lynne, who share the duties of club secretary, got a good number of renewals and new members.

N1NOM Photo

We had our usual room, provided by the convention sponsors. Needless to say, because of the prices at the concession stands, we set up the club coffee pot and grabbed donuts and bagels to go with it. Our coffee was better than that served by the hotel...

We get a lot of good press by doing talk-in for Boxboro; people stick their heads in and ask who we are and what we are doing. We give them a newsletter copy, a repeater map and conversation along with a place to sit and rest for a while.

We managed not to get anyone lost; Ed did most of the talking-in. All in all, it was a good weekend. Next time the convention comes to Boxboro, remember that our workers get free access to the whole shebang. It's worth your time.



Well, I managed to screw up again and insult a couple of guys....Above is Paul. The guy to the left is Wayne (N1XXI), who I identified as Paul in the caption for the picture in the last edition. You'd think I would have learned by now... Anyway, apologies to Wayne. He took it well, laughing it off.

More Errata...

If you are one who believes that foxhunting is an arcane sport with little interest, look at the motley crew below. Ed took this shot at a recent hunt finish. Among the normal crew (Clark, Bill, Paul and Dave) there are a few new faces we do not have the names to match with. But it does appear that more and more people are gradually getting into it...

N1NOM Photo

