The Minuteman

Volume 25 Issue 5 May 1996

Weston Gets A New Antenna!

by Chris Conti, N1NVL

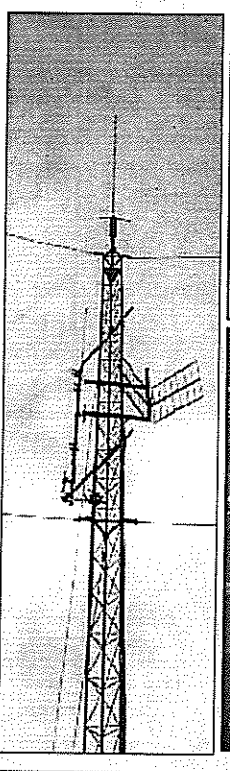
Let me begin by saying that I was impressed and overjoyed with the response we got from both the regulars on the Tech Crew and many others who came out to help for this project. It was good to see so many new people pitching in and giving a hand. Sometimes it can be overwhelming to have a large to-do list and a small number of helpers. THANK YOU, THANK YOU !

It all began when we determined that the 82 antenna was coming apart. We decided that we needed to replace it; Andy, N1BHI, had experience with the Decibel Products DB-224E antenna. He had used nine of them in commercial applications; their performanceis good, and they will far outlast a Super Stationmaster that is top-mounted. The antenna is an aluminum 2 inch diameter, 20 foot long pole with 4 half-wave dipoles mounted top to bottom and a phasing harness arrangement to provide a 6dB gain. The antenna is rugged, and the flexing that will kill a Stationmaster over time will not affect it. Should anything happen, all components are accessible for easy repair.

We were also able to save the club over $300 by ordering 2 at the same time. The second one will be erected at Quincy, 146.670. It has also gotten a case of the crunchies and is exhibiting the same behavior that an old Stationmaster develops after 10 years top mounted.

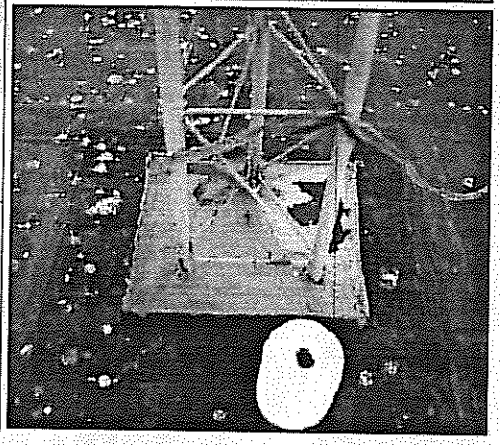
The First Work crew arrived on Saturday 3/23/96. It was cold windy and started to snow. We decided that the 30 degree weather would make it too uncomfortable and the wind too dangerous. A check with the TDR I borrowed from work showed that the line was intact but the Antenna itself, which would normally show a curve from 50 ohms ground was jumping up and down from 0 ohms to wide open as the wind blew the antenna around.

Unable to get the antenna up, the crew found other ways to help the club out.We worked on re-arranging and cleaning the 82 repeater room. We moved equipment that blocked the door and arranged things to make it easier to work on everything. The gang pitched in and in no time we could move freely in and out of the room and get to the machine easily again - Thanks for all your Help - Crew #1 consisted of Eddie (N1NOM) Bryan (KA1YQB), Bill (WA1NLR), Dave (KT1X), Lynn (KA1NLD), John (KB1EB),



Left: *The tower before we started - at the top is the super stationmaster that was broken internally, causing all the crunchies.*

Below: *We had thoughts of laying the tower down, but a new roof at the Campion Center moulded the base into a rubber casing. Oh well.....*



Time's Passing, and a lot of you have not yet renewed your MMRA Membership....we need your continued support. Membership in the MMRA is your way of showing that you value Public Service, Emergency Communications and other important activities.

MAY MEMBERSHIP MEETING

WEDNESDAY, MAY 15, 1996 - 1930 HRS

CAMPION CENTER, WESTON MA

PROGRAM:

STRATOBEACON ONE

PHIL METCALF, KA1NHZ

Raffle

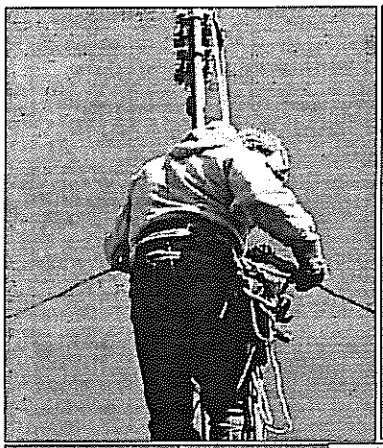
Elections - See Slate, MMRA Info Page

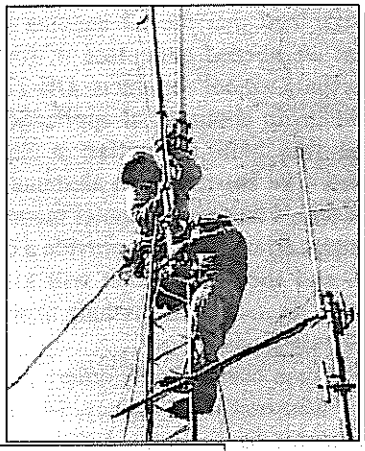
Weston Gets A New Antenna!

Reed (KD1LV), Dick (K1KMN) and Laraine (His Wife), Bob (WA1ZJE) and Ubou (His Doberman) and Chris (N1NVL).

Saturday 3/30/96 - The next week came and a new crew showed up for what became the real thing. A home made gin pole was provided by Al, KA1AL. Bob and Bryan did the tower work; while it was a much better day than we had for our first attempt, it was still chilly and breezy up there. The first step was erecting the gin pole. This went well, and soon the guys were un-mounting the Stationmaster, readying it for lowering. It came down easily, and once on the roof, the crew readied the DB-224 to go up....Bill, WA1NLR, did the detailed preparation, weatherproofing the phasing harness and positioning the dipoles. He's got a lot of commercial experience, and it proved more than useful.

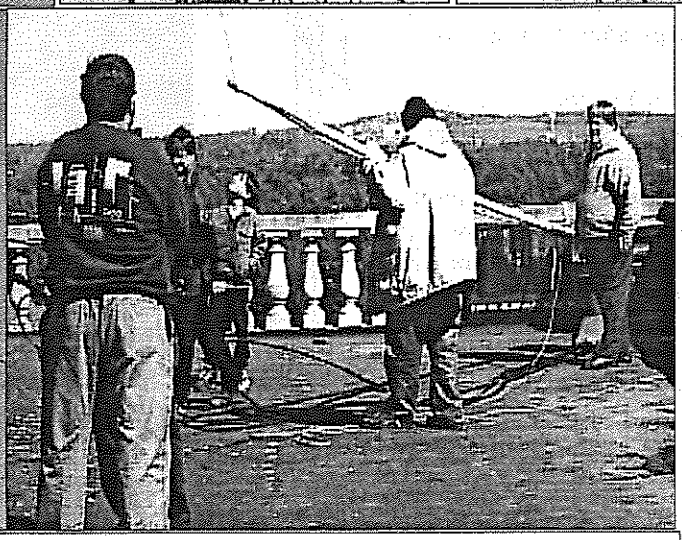
Getting the antenna up to Bob and Bryan was a snap; but they had their hands full working the antenna into position against a breeze that had just come up. Once they had the antenna on the right side of the gin pulley, they were able to get it into its clamps and secure it. After re-working the connectors, we made some low power tests with Frank, W1JDO. The sensitivity was good enough that Frank could hit the repeater with his HT on low power from his living room! Then the amplifier was turned on, and at full output the sensitivity was the same.





Left: *Bob, WA1ZJE, on the tower, preparing for the gin pole.*
Middle: *Bryan, KA1YQB, watches for falling tools.*
Right: *Bob and Bryan raise the gin pole into place. Now the ground crew watches for falling tools.*

Ed Mulhern Photos

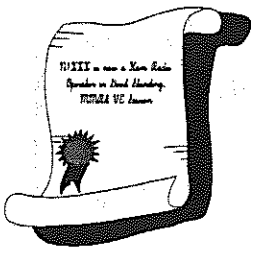


Left: *Bob and Bryan begin lowering the stationmaster. At this point they had been on the tower for about an hour and a half.*
Right: *The antenna is down! The roof crew marvel at the fact that the gelcoat is still in very good condition.* Ed Mulhern Photos

We did find that there is a grounding problem; the braid at the base of the tower is not a good ground; that will have to be re-done at a later date.

The Second crew consisted of Bob (WA1ZJE), Bryan (KA1YQB), Jeff (N2EJG), Mike (N1WOZ), Eddie (N1NOM), Bill (WA1NLR), Dave (KT1X), Andy (N1BHI), Al (KA1AL), Clark (N1NVK) and Chris (N1NVL). Special recognition also to Frank (W1JDO) for a test base (Other than 2 feet from the repeater) and Joe (WA1HAI) who stood by upside down (on the repeater pair) informing people of repeater status and relaying messages.

Thank You Again to all who made this repair and upgrade of our network a complete success !



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

(Continued on page 3)

Antenna Party....continued

(Continued from page 2)

Other Repeater News.....

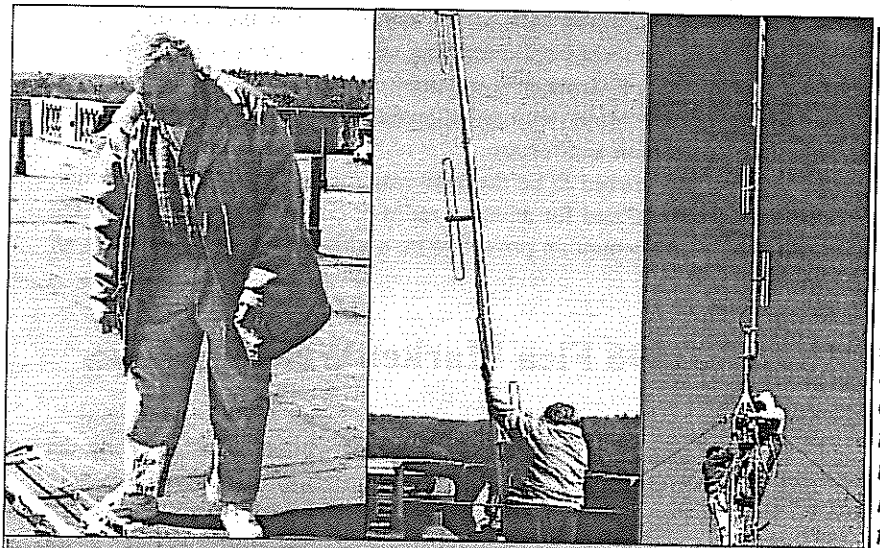
Quincy 146.670 KA1HKP/R - There are a couple of problems plaguing this repeater. First the amplifier is in serious trouble, Mike (KA1HKP) is working hard to patch it together 'till a replacement can be obtained. But as fate would have it, yet another 10 year old Stationmaster is on the way out. This explains the cutting in and out on the Quincy machine....fortunately we have a replacement in-hand. The second DB-224 was slated for '61; Andy (N1BHI) decided that since the problem at '61 is not as critical, that the antenna should go to Quincy. A date has not been set for erecting the antenna, but reconnaissance work will begin soon. If you think you would like to join the fun loving hard working Tech Crew for this venture let us know at 508-489-2282 or mmra@mmra.org.

Dave, KT1X, pictured after the job was done. If you don't think it was a long day....just look at that face.
Ed Mulhern Photo

Stoneham 146.715 N1NVL/R - Bill (WA1NLR), has rebuilt a receiver which should be in place soon. Hopefully this will make some improvement.

Marlboro - 146.61 - N1BHI/R - The crystals for the new GE Master II repeater have arrived. Once the machine is re-tuned, the controller and link interfaces will be installed and the machine moved to the site. The schedule for this is not yet clear; but as soon as we know when things will happen, everyone will be informed.

Editor's Note: The whole episode of the '82 antenna is a good example of how the MMRA gets going when the going is tough. Congratulations to the antenna crew for a job well done. We hope the other projects we need to do this summer get the same kind of turnout.....



Top Left: *Al Kunian, KA1AL, looks down at the new antenna. An old gooney bird pilot, he asks "Is this aircraft grade aluminium?"*
Top Middle: *Bill, WA1NLR, raises the antenna to get ready to attach it to the gin pole line. He prepared the antenna....it was nice to have a real pro do the weatherproofing.*
Top Right: *After a lot of juggling, line handling, cussing and shivering in the wind, Bob and Bryan get the antenna attached to the mast. A few minutes later, we found that the hardline connector was loose but undamaged. After fixing that, the new antenna installation proved to be a success — '82 was back!*
Bottom: *Here we see most of the roof crew - from left to right: Bryan, before going up the tower, Andy, N1BHI, talking with one of the Campion Center facilities management people, Clark, N1NVK, presenting his most prominent feature, Jeff, N2EJG, and his son Mike, N1WOZ, Bill, WA1NLR, and Bob, WA1ZJE. Not shown are Chris, N1NVL, and Ed, N1NOM. We know Ed did not take this photo — it was taken from a point too close to the roof edge to have been him. We think it was Chris with Ed's camera. Ed stayed within 6 feet of the ventilation shaft just behind Jeff, or in a corridor 2 feet wide in the exact center of the roof. We tried to get him to see the view from the edge, but he declined....*

Ed Mulhern Photos

Climb To The Clouds

By Ian MacLennan, AF1R

Does standing at the side of the carriage road on the Northeast's highest mountain clutching a radio and staring at the cars screaming by your location sound like an interesting Field Day weekend? This was the way 50 hams from 6 states experienced Field Day '95. Oh yes...a new record was set to travel the 7.4 miles up the Mt Washington Auto Road: 6 minutes, 44 seconds, an average speed of 66 MPH up the 12 % grade road.

The Mt. Washington Auto Road is one of the most challenging roads in New England to drive even at normal speeds. It starts at the 1565 foot elevation and finishes 70 turns and 7.4 miles later at an 6120 foot elevation, an average 12 % grade. The longest straight is only 0.3 miles long. Just 65 % of the road is paved. The weather at the top of the mountain is notorious for high winds and cold all year 'round.

The Mt. Washington Auto Road has been chartered since 1853, and runners, bicycles, and automobiles have been racing up the hill since 1903. Automobile racing was discontinued in 1962, but revived in 1990 by the volunteers of the New England Region of the Sports Car Club of America. 1995 was the sixth year of the reinstated hillclimb and its most successful year.

The Sports Car Club of America organizes numerous motorsports events around the United States. All of the officials and contestants are volunteers, but events are run with a professional attitude toward safety and administration. Most of the professional drivers in the high-profile NASCAR and IMSA tours got their start with SCCA races.The SCCA's primary concern is with safety for the contestants and workers. An event cannot start unless it has been judged to be safe by one of the licensed race officials. This is true at Mt. Washington, just as is at any race track. Competitors are required to make many modifications to their cars to make them safe for racing. One of the requirements is a full roll cage made of 2 inch steel tubing installed surrounding the passenger compartment. The drivers must wear fireproof driving suits and helmets.

One of the difficulties that the SCCA encountered when reviving the race up Mt. Washington was the length of the course. Most of the races the SCCA sponsors are at racetracks where you can see the entire course from a high vantage point. This wasn't true for Mt. Washington. The road twists around numerous turns and winds its way back and forth up the mountain. With the longest straightaway only 0.3 mile, visibility is limited at any point along the road. If a competitor stalls or gets into trouble partway up the mountain there has to be a way to get this information back to headquarters immediately.

Enter amateur radio. A group of hams, (including the author) here in New England has been helping the SCCA with its automobile rally series, a high-speed competition over a series of unpaved roads in northern New England. In the early part of 1990 we were asked to examine the possibility of setting up a radio net to cover the entire length of the Mt. Washington Auto Road. In late April, 1990, three of us met at the base of the auto road to conduct radio tests on 2M. I volunteered to drive to the top, stopping at every one of the 40 observation stations that had been marked on the road by the mountain officials. To our surprise, every one of the 40 stations had hand-held coverage to the start of the auto road.

The competitors don't actually race each other up the mountain. The road is barely wide enough for two vehicles. Instead, each of the contestants is started at 1 minute intervals. The contestants race the clock up the mountain. The average contestant takes over 8 minutes to reach the top. If they were to wait until each competitor reached the top before releasing the next vehicle, it would take almost 7 hours to send up a 50 car field. Instead each vehicle is started 1 minute behind the vehicle in front of it. This creates a problem if a vehicle stalls or otherwise blocks the road partway up the mountain. There will be several vehicles behind it, all of them driving as fast as possible expecting a clear course.

This is where amateur radio makes this event work. Each one of the 40 observation stations is staffed with a ham and SCCA flagger. In the event of an emergency situation, such as a stalled car blocking the road, the ham radios the headquarters at the start. Headquarters then calls all the stations below the station with the emergency to put out a red flag which the drivers must stop for. Sometimes a wrecker is required, and all of the drivers who did not get a complete run are allowed to turn around, go back down to the bottom and restart.

1995 proved to be the best year for the hillclimb for weather, contestants, and for amateur radio operation. The weather on the top of the mountain proved to be nothing short of fantastic for all

(Continued on page 8)

1996 Flea Market Went Well.....

This year's Flea Market came off without a hitch. While the turnout was again somewhat disappointing, all the vendors who were present were pleased with their results. Lentini Communications had a good day, and Julie Hoffer,W1DL, away from the flea market scene since the unfortunate passing of his wife, got back in the saddle.

Thanks to all the people who came out and helped; we'll do it again next year — we will lock down a date soon. The list of those who helped is below — thanks again....if we missed anyone, please accept apologies, and let us know — we'll make it right in the next Minuteman issue.

Walter, N1HBR	Ed, N1NOM	Al, KA1AKD
Tony, W1QFD	Clark, N1NVK	Reed,
Bob, KD1GG	Bob, WA1ZJE	Tom, WB1GMA
Barry, K3BUZ	John, N1OWA	Dave, KT1X
Lynne, KA1NLD	Chris, N1NVL	Frank, W1JDO
Dottie, N1BHA	Bill, N1QPR	Bryan, KA1YQB
Dick, KA1TUZ	Shellie, N1VJE	

You might be a ham if:

- If you window shop at Radio Shack
- If you introduce your wife as "mylady@home.wife"
- If you want an 8X CD-ROM for Christmas
- If the only jokes you receive are through e-mail
- If you use a CAD package to design your son's Pine Wood Derby car
- If you have used coat hangers and duct tape for something other than hanging coats and taping ducts
- If, at Christmas, it goes without saying that you will be the one to find the burnt-out bulb in the string
- If your ideal evening consists of fast-forwarding through the latest sci-fi movie looking for technical inaccuracies
- If you carry on a one-hour debate over the expected results of a test that actually takes five minutes to run
- If you have modified your can opener to be microprocessor driven
- If you know the direction the water swirls when you flush
- If you have ever taken the back off your TV just to see what's inside
- If a team of you and your coworkers have set out to modify the antenna on the radio in your work area for better reception
- If you thought the concoction ET used to phone home was stupid
- If you have never backed-up your hard drive
- If you have ever saved the power cord from a broken appliance
- If you have ever purchased an electronic appliance "as-is"
- If you see a good design and still have to change it
- If the salespeople at Circuit City can't answer any of your questions
- If you still own a slide rule and you know how to work it
- If you have more toys than your kids
- If you have a habit of destroying things in order to see how they work
- If the microphone at a meeting doesn't work and you rush up to fix it.
- If you can remember 7 computer passwords but not your anniversary
- If you have ever owned a calculator without an equal key
- If you did the sound system for your senior prom
- If your girlfriend says the way you dress is no reflection on her
- If your wristwatch has more buttons than a telephone
- If you have more friends on the Internet than in real life
- If you thought the real heroes of "Apollo 13" were the mission controllers
- If you think your computer looks better without the cover
- If your wife hasn't the foggiest idea what you do at work
- If you know what http:/ stands for
- If you've ever tried to repair a $5.00 radio
- If your favorite part of the 6 o clock news is comparing their latest satellite weather picture with yours
- If your three year old son asks why the sky is blue and you try to explain atmospheric absorption theory

And if that isn't enough...Here's some more:

WANTED !

WARNING! Dangerous Character at Large!

A reward is offered for Information leading to the arrest of Eddy Current, charged with the induction of an 18 year old coil, named Milly Henry (found choked), and with stealing valuable Joules. This unrectified criminal, armed with a carbon rod, escaped from a Weston cadmium cell, where he had been clasped in ions. This escape was planned in three phases:

First, he fused the electrolytes. He then climbed through the grid, despite the impedance of the wardens, and finally ran to earth in a nearby magnetic field.

He has been missing since Faraday. Watt seems most likely is that he stole an A.C. motor of low capacity, and he is likely to exchange it for a megacycle rather than return ohm by a short circuit.

He may offer series resistance and is a potential killer.

Many thant to Bill Dunn, NIKUG, and Walter Ching, NIHBR, for bringing these items to our attention. Internet really does have significant value in that matters of importance can be disseminated throughout our little community. We thought this material should be brought to your attention.

Minuteman Articles — Solicitation

If you have ever built anything, fixed something, or have an experience that you want to share, then you should submit at 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!

Items of Interest...

Section Manager's Letter — Phil Temples, K9HI

Barnstable ARC Lauded by Town Official

Peter G. Welch, who is Director, Department of Civil Defense for the Town of Harwich may not know what hams are talking about, but he is nevertheless appreciative of the efforts of Barnstable Amateur Radio Club members.

In a February 26, 1996 letter to BARC members, Mr. Welch said, "I just want you to know how much I appreciate the newsletter. I frequently have little understanding of what you are talking about, but I do know how much you people care about being of service to the community."

"All of you are truly dedicated to the science/art of communications and I am thankful that we have citizens such as you..."

[Ed. note: Kudos to the Barnstable ARC for involving local town officials through its newsletter. Is YOUR radio club sending a newsletter to your local town manager or emergency management agency director?]

International Marconi Day

International Marconi Day is coming soon! Look for thirty special event stations representing historical Marconi station locations to operate on April 20 from 0001Z-2359Z.

In Eastern Massachusetts, K1VV/IMD will operate four separate stations representing the 1903 Marconi station on Cape Cod. (The group will not operate from the So. Wellfleet site, but instead, will set up at the homes of K1VV, NR1J and NO1J.) Frequencies and QSL information can be found in April QST under "Special Events." Thanks, K1VV.

S.E. Mass. Coastal ARES Organizational Meeting

Persons interested in public service and Amateur Radio Emergency Service activity in Southeastern Massachusetts are invited to attend an organizational meeting of the Southeast Massachusetts Coastal ARES Association, to be held at 7:30 at the South Eastern Massachusetts ARA club house in So. Dartmouth. This initiative seeks to increase ARES activity in the region. Thanks, KD1CY.

"Focus On..." Series

The Framingham Amateur Radio Association has initiated an innovative "FARA Focus On..." series of programs to entertain and inform its club members. Held each Wednesday evening, the programs cover such diverse topics as learning to use the "CT" contest software program, and discovering "How the Internet Can Enhance Your Ham Radio Hobby."

FARA holds its Focus On programs at its club shack at the Danforth Museum in Framingham Center. For further information, contact club president Bev Lees, N1LOO, at 508-626-2012 evenings (before 9 p.m.). Thanks, "The Framingham Circuit"

North East TCP Association Meeting

The North East TCP Association will hold its monthly board meeting on Saturday, April 28 in Newington, NH at the IFO building. (The building is used for disaster purposes by the Seabrook Nuclear Power Plant.) The public is invited. Talk-in is on 147.00 (plus or minus; there are receivers on both frequencies) or on 146.805 (-600).

A special TNC "clinic" will be held at the meeting. A service monitor will be made available to let you know if your TNC and radio are set up for effective packet operation. Thanks, AA1ES

Whitman Hams Interviewed on Radio Show

One of the many "blizzards of '96" failed to stop Whitman Amateur Radio Club members from their appointed rounds on March 7: they were the focus of a recent talk show on WMSX-AM (1410 kHz, Brockton). WARC Secretary Bill Hayden, N1FRE, coordinated the activity which also featured Ted, N1WAI, Lenny, N1MII, Evelyn, AA1NJ and Ray, N1KXJ during the 60 minute program. In addition, Bob, KA1PGU, phoned into the show.

The Whitman hams explained Amateur Radio to the listening audience, and entertained questions from the show's host about such diverse topics as satellite communications and emergency communications.

The Whitman ARC started off the year by helping a local reporter write a general coverage "lifestyle" article about Amateur Radio, followed by the local radio talk show. WARC is now scheduling a cable TV appearance to promote the hobby. Thanks, NI1X. *Continued on Page 7*

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.....continued

(Continued from page 6)

VP2E/Anguilla Vacation

Many of you know that my XYL, Ariel and I went on a recent vacation to the island of Anguilla in the British West Indies. We had a fabulous time. It was a vacation of "firsts": our first stay in a luxury resort, our first trip to the Caribbean, my first bad sun burn in winter, and my first experience operating (albeit briefly) as DX.

For an hour or so, I operated from the shack of VP2EE and VP2EHF as VP2E/K9HI. I kept the rig on 20 cw, and discouraged any "599 QSL" type contacts. I insisted on ragchewing for a few minutes with every station. Also, I didn't stay on any given frequency. The moment was too special to waste by running a pileup. Besides, I was too scared of having that happen!

I wanted to say a few words about Dorothea and Dave Mann, VP2EE and VP2EHF, respectively. They are an American couple, both ex-Army types, who retired a few years ago and moved to Anguilla. You may have seen their names and calls mentioned in a recent W1AW bulletin. You'll also see a story in the May, 1996 QST mentioning them repeatedly. They received a prestigious ARRL Humanitarian award for their communications efforts during Hurricane Luis last year.

Incredibly, until last year, only foreigners could obtain permits to operate from VP2E. There was no mechanism in place for the government to administer exams or issue licenses. A lot of big-gun DXers and contesters from Europe and the U.S. wanted it to stay that way, too. Their attitude was, "Don't let the 'natives' get licenses or Anguilla will cease to become rare."

Dave and Dorothea are personally combatting this attitude. Dave gives regular ham classes; Dorothea took it upon herself to author an amateur radio question pool and examination that the government now uses in amateur radio testing. (It's a lot like the U.S. General class license, with a 10 wpm code element.) Additionally, Dave has set up (with very modest funds) a well-functioning Emergency Operations Center that played a key role during the hurricane.

Sometimes it's easy to become discouraged in my thinking about this hobby-service, and to wonder whether we really make a difference in the world. But each of us can make a difference. My visit with Dave and Dorothea helped to renew my faith in what this hobby is all about.

What Makes a Good Radio Club?

I recently spoke at an EMA amateur radio club. This particular club is very successful--its meetings are well-attended, and it has lots of activities, both on-air as well as in-person.

I wanted the audience to tell me what they felt made for a successful amateur radio club. Here is some of the feedback I received which I share with you (in no particular order):

"Participation; having a club shack, having it open regularly; family involvement; activities for youth; being "general purpose" as opposed to focussed on one activity; meeting year-round; having a wide variety of activities for members; good leadership; good mentoring; keeping a "low burnout" rate among the active members; a regular, good-quality newsletter; an active repeater; new Members, and also a good continuity of the existing members; a good pool of technically qualified people; an "international" focus, members in other countries."

Six Meter Repeater Project Moves Ahead.....

Byan Cerqua, KA1YQB; reports that the MMRA now has a six meter repeater frequency pair! He has ordered crystals to put the GE Master II on 53.81(output)/52.81(input) Mhz. They should be here in about 3 weeks.

While Bryan works on the repeater itself, we need someone to take on the job of setting up the 432 Mhz remote link. This will involve getting a frequency (there are plenty of link frequencies available), acquiring/building a receiver and transmitter, and setting up the interface to the system working with Bryan.

Here's an opportunity to get in on the ground floor of building a repeater....it would be great if a two or three guys would combine to work this aspect of the system out; if you are interested, contact Andy Morrison, N1BHI, or Bryan, KA1YQB. If you are on the internet, send a message to mmra@mmra.org, or leave a message on the MMRA hotline. This is going to be a fun project, but to get it done in a reasonable time, we need more help! There are several higher priority projects that have to be done this summer, so added resources are necessary to make this one happen as well. Jump in...we really need the help.

Climb To The Clouds...continued

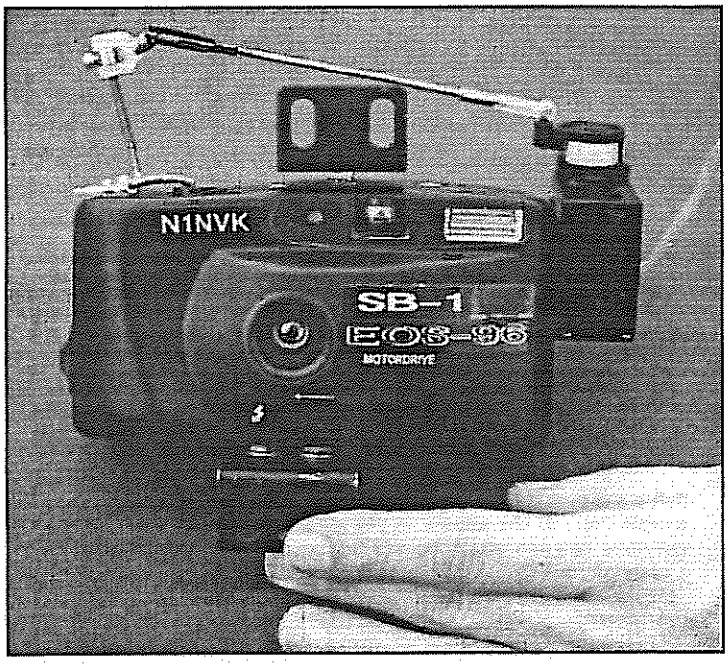
(Continued from page 4)

three days of the hillclimb. Usually in June the top of the mountain is 40 degrees with winds gusting to 40 MPH. During Friday morning practice I heard the hams on the top of the mountain mention that the air was calm and that they were being surrounded by hundreds of bugs! The weather can change rapidly at the summit, so none of us expected that Saturday (another practice session) would be a repeat of Friday. Instead, Saturday at the summit was even hotter than Friday and almost set a new record for a high temperature in the mid 70s! Sunday (the official day of the race) weather turned out to be a carbon copy of Saturday's weather with only a few wispy clouds that blew over the summit to obscure the 20 mile visibility. Even the locals commented that they had never before seen such a long stretch of clear, calm weather on the summit.

This year we used three frequency bands to cover the operation of the hillclimb. A 2M frequency was used to establish a safety communications net, a 440 frequency was used to set up a status net, which provided reports on the progress of the race cars up the mountain, and 900 MHz ATV (fast scan Amateur Television) provided live television coverage from a position near the halfway point and at the finish. At the base it was spectacular to watch on ATV the same cars sliding around the turns that had just started minutes earlier.

Amateur radio has become a vital part of the Mt. Washington Auto Road Hillclimb. The manager of the auto road and the SCCA organization offer tremendous thanks to the hams who are dedicated enough to travel to northern NH and spend their entire weekend around the mountain. If you are interested in helping out for this year's event give me a call at 617-449-1227 and I'll see that you get on the mailing list.

Editor's Note: Too bad this happens Field Day weekend!!



Vacation Photos From A Space Cadet

Clark Conti, N1NVK

Can you imagine going on a trip to an exotic locale like the grassy plains of Africa or a tropical island paradise and not taking your camera along? I sure can't. I was surprised when Phil, KA1NHZ, said he was launching his STRATO-BEACON with a radio aboard, but no camera. It was a situation I was compelled to rectify, after all what could be more exotic than a balloon trip to the edge of space? I persuaded him to allow me a few ounces of precious payload mass in exchange for my time and efforts on the project, and *voila*, we have SPACE-CAM!

I started with an inexpensive auto-wind camera for $29.95. About 5 minutes after purchase I had the thing in pieces all over my desk. I removed the aperture mechanism, disconnected the flash electronics, and used my soldering iron to short all the switches in the ON position. The trickiest function was getting the shutter to operate electrically.

The camera was designed with a mechanical shutter assembly and what I needed was a mechanical finger to press the shutter button. I tried several variations on a solenoid, and failed miserably. I finally happened to try modifying a steering servo from an old RC car to work like a windshield wiper. The motor turns exactly one revolution, pulling an arm, which presses the shutter button, then stops. I drilled holes in the camera, screwed the motor on, and wired it to the battery. After minor adjustments in my freezer, the thing worked splendidly at all temperatures.

At the time of this writing I am testing light levels and working out the details of mounting it firmly inside the payload pod with a proper window to look through. I also need to calculate the angle to the horizon at 100,000 feet, so that the edge view of the atmosphere will be visible in the photo. I also want to design a timer circuit to take the pictures. Although I could operate the shutter by radio remote, I want the whole camera project to be self contained and simply attached to the balloon payload pod. (K.I.S.S. rule applies)

Temperature is a major problem.... At 100,000 feet it gets darned cold. The pod will be insulated, and will not reach the extremes of space, but it will get very cold on the way up, and toasty warm on the way back down. We are planning to use lithium batteries to power everything. They do lose some capacity in the cold, but alkaline batteries explode, and that would be very, very bad for the electronics and film. I had to remove oil based lubricants from everything, and will replace them with lithium grease that maintains viscosity. I am also in search of a window material capable of keeping out the cold, without fogging up. If anyone has any suggestions on either topic, I'm all ears... call me on the repeaters during normal drive times, write to me c/o the club, or blast me an E-mail at MMRA@MMRA.ORG.

Left: The camera in the picture would have made Rube Goldberg proud. Note the cam assembly....Clark says he modeled it after a windshield wiper transmission. The hand is Clark's.... A. Morrison Photo

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: _____
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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
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VHF	_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
UHF	_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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

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☐ Legal Aid
☐ Education:
☐ Technical Documentation
☐ Shelters
☐ Medical Aid
☐ Equipment Construction
☐ Meeting Set-up
☐ Equipment Transportation
☐ Social Events
☐ Technical Documentation
☐ Refreshment
☐ Schematic Drawing
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☐ Teach Code
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☐ Association Officer
☐ Board of Directors
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☐ Emergency Communications
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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:	David Croll, KT1X
	Lynne Ausman, KA1NLD
Treasurer:	Ian MacLennon, AF1R
Clerk:	Ed Mulhern, N1NOM
Directors:	Tom Qualtieri, WB1GMA
	Al Kunian, KA1AL
	Chris Conti, N1NVL
	Bob Feltmate, WA1ZJE
Newsletter Editor:	Andy Morrison, N1BHI

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

Election Slate - May, 1996

President:	**Andy Morrison, N1BHI** Incumbent
Vice-Pres.	**Clark Conti, N1NVK** Incumbent
Secretary:	**Dave Croll ,KT1X and Lynne Ausman, KA1NLD** First Term
Treasurer:	**Ian MacLennon, AF1R** Incumbent
Clerk:	**Ed Mulhern, N1NOM** Incumbent
Board :	**Al Kunian - KA1AL** Incumbent
Board	**Tom Qualtieri - WB1GMA** First Term

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 1995-96 Season: September 20, November 15, January 17, March 20, & May 15.

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.

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

Newsletter Information	September issue	November issue	January Issue	March Issue	May issue
Mailing Date	Sept 14, 1995!	Nov 9, 1995	Jan 11, 1996	Mar 8, 1996	May 10, 1996
Submission Deadline	Sept 1, 1995	Oct 26, 1995	Dec 28, 1995	Feb 22, 1996	Apr 26, 1996

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: