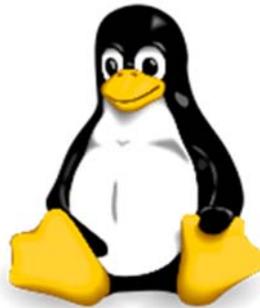


LINUX SHOULD'VE BEEN A HAM

GARY SKUSE, KA1NJL—RARA VICE PRESIDENT

That's Linus Torvalds, the ingenious Finn who wrote Linux, the operating system that has gained enormous popularity since it was introduced in 1991. Several RARA members have requested that we have a program focused on Linux and that is exactly what we'll have in January. I can't think of a better way to start the New Year.

My experience with operating systems has taught me that each one has its own strengths and weaknesses and therefore it is best to use whichever one can get the job done. For example, at work I use MS Windows because MS Office is an integral and necessary part of what I do. At home I use OSX for photo, video and audio editing and I use Linux for network monitoring, network security, ham radio applications, voice over IP, e-mail, web serving, audio editing, NAS management and a host of other things. There is nothing magical about Linux but it is certainly the most flexible and capable of any operating system I am aware of.



Linux was written to be a substitute for Unix, the very popular operating system that remains proprietary. The very name of Unix refers simultaneously to the orchidectimized guards of old (good bike riders I'm told) and an earlier shared operating system from MIT called Multics. Linux was designed to be used, hacked and enhanced by its users. Whenever I use Linux I get this warm and fuzzy feeling. It's like Dorothy once famously said, "there is no place like 127.0.0.1". The level of flexibility and customizability is both astounding and daunting at the same time. However, the obscurity of some of the commands, for example `df -hai`, can be mitigated by the extensive built in documentation. One simply has to remember to RTFM.

A very attractive feature of Linux is that it can run on almost any hardware and that makes it a great thing to experiment with. If you have an old computer you can probably install Linux on it and learn how it works with little risk to the things you normally use your computer for. Just for fun try installing Windows 8.1 on an Atari 800 or a Raspberry Pi, I'll bet it won't work but I know Linux will. And did I say it's stable? As I write this my Linux box has been running for 525 days without a reboot, I rebooted my Windows machine this morning.

Please join us for an interesting look at Linux at the January RARA meeting to be held on Friday January 2, 2015. As usual we will meet at the Henrietta Fire Company #1, located at 3129 East Henrietta Road near Lehigh Station Road. I can guarantee that you will learn something.

JANUARY 2015
VOLUME 67, ISSUE 5

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PREZ SEZ

FRANK SCHRAMM, WB2PYD—RARA PRESIDENT

For anyone who missed our “Town Hall” meeting, I will share some of the highlights with you. First, and foremost we are working on producing the Rochester Hamfest on Saturday June 6th at the Barnard Fireman’s Carnival Grounds; which is where we had it in 2009-2011. It should be much as it was back then; no frills, a great flea market, and a lot of fun with great food prepared by the firemen. Nothing is cast in stone (or ink) yet but it looks very promising at this point. More details will be reported here as they develop. If you hear anything that was not printed here in the RAG – assume it’s a falsehood. Rumors abound; some individuals derive great satisfaction playing “Tokyo Rose” and disseminating misinformation, but all the facts will be printed here in the RAG.

We also announced that we are actively seeking a new meeting place – one with ample parking would be nice. No? No place has been identified yet, while some have been eliminated from consideration due to location or cost. We want to find a place that is conveniently located for the greatest number of people, with ample parking, and... the ability to have a physical club station! Even if we identify two separate venues, we feel very strongly about providing our membership with access to a physical HF club station. The last time I looked we were an Amateur RADIO Club... I think we’ve become distracted and forgot our fundamental, mutual, interest! A physical station would serve the membership who cannot, or do not, for any number of reasons have an HF station of their own. It will also be an invaluable teaching tool to the dozens of newly minted General class operators our education department turns out every year. If you have any location ideas, please let us know. We’ll report more as progress is made...

Whether executed in conjunction with a venue change, or not, there has been a strong outpouring of interest to change our meeting night from Friday to Thursday. Ever since we were forced to convene on Thursday in November due to availability of the fire hall, numerous people have approached the BoD to consider moving meetings to Thursdays. This concept was posed to the members at the December meeting and the overwhelming majority approved of meeting on a Thursday. We will continue meeting on Fridays through May; so don’t change your calendar just yet... we’ll tell you when. You spoke, we listened! So don’t hesitate to bring ideas to the attention of the BoD; there may be others interested in your ideas.

By the time you read this Santa will be gassing up his sleigh, or Rudolph; I never did comprehend the mechanics of that whole propulsion system. So have a safe and happy Holiday – whichever one you choose to celebrate. And I wish each and every one of you, and your families, the most extraordinary New Year!

73, and prosperous DXing!

Frank

WB2PYD

CALENDAR OF EVENTS

JANUARY 2ND - RARA General Meeting
7:00 PM at Henrietta Fire Co. #1, 3129 East Henrietta Rd

JANUARY 8TH - RARA Board of Directors
5:30 PM RIT Engineering Hall, Room 2110

JANUARY 17TH - RARA VE Testing
10:00 AM RIT Gleason Hall, Room 9-3139

February 21ST - RARA Winterfest
Stewart Lodge in Mendon Ponds Park

December Town (Fire) Hall Meeting

Photos from Van, N2BNE



RARA Winterfest 2012

Gary Skuse, KA1NJL

It's time to start planning for the RARA Winterfest that is scheduled for Saturday February 21, 2015. This year we are bringing back the Crockpot Cook Off first introduced in 2012. That event is bound to provide lots of great food to keep us warm and well fed. We will also have several operating positions set up so you can operate on HF or VHF/UHF.



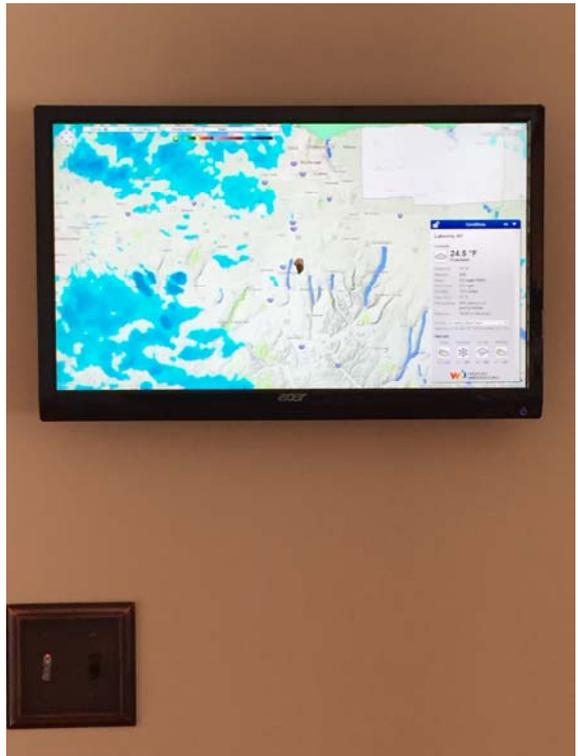
If anyone is interested in bringing a station or their favorite operating mode to share with the others please contact me by e-mail at ka1njl@arrl.net or by telephone at 585.223.1511 and let me know what you have in mind. Of course the magnitude of the fun at this event will be directly proportional to participation. Within reason and within the bounds of electromagnetics, I anticipate that more participation will equal more fun for all. This event should be enjoyable whether you operate with us, watch us operate or simply join us for the food and the warmth.

Of course, more details will be provided as the time gets nearer but for now please mark your calendar and dig out that great crockpot recipe you plan to serve to your ham radio friends.

\$10 Weather Station

Jim Stephano, W2COP

A few years back I was pricing out personal weather stations and found that a decent one with a good assortment of gauges was about \$350. Unfortunately they typically came with a very small desktop display that you had to be sitting at the desk to read and I would then have to tie up a decent PC and load software for more functionality. If I wanted a large dedicated wall display I could buy an analog wall display but add another \$350. None of this provided comprehensive Weather Radar or Storm Alerts, so before I took the plunge and purchased anything I decided to look at some alternatives.



I was aware of the 'CWOP' Citizen Weather Observer Program, a nation-wide network of now 8000 personal wx stations feeding-in their data with a large number here in NYS <http://wxqa.com/states/NY.html>. Reporting into this network is a generous mix of Amateur Radio Weather Stations via APRS and non-amateur stations via the Internet. There is a station just about one every 10 miles so I thought, why re-invent the wheel here?

What impressed me were the commercial services taking advantage of this data, the largest being WeatherUnderground, <http://www.wunderground.com> with some very nice graphics of both live and historical data. Many also provide a live webcam feed. This got me thinking, how simple could I make a wall display to provide me with live storm track radar, forecast and current conditions? Lets face it, in the era of the modern PC and the Internet, no longer is dedicated hardware always necessary just to perform simple tasks, so what did I have in my junk pile? I found an old laptop still running WinXP and I had an old 15" flat screen monitor that was really too small for today's desktops. I was now thinking of a dedicated full color weather radar display that mounted on the wall. I then spent \$5 on Amazon for a small LCD VESA wall mount and another \$5 for an VGA extension cable.

To put all this together I started by fastening the LCD mount to the wall at eye level about 66" off the floor. Next to the mount (behind the display) I cut a hole in the drywall just large enough to put a VGA connector and power cord through. I

dropped this down to the basement where the laptop running on wi-fi sets on top of a heat plenum. That completed my weather station hardware.

Here is the hands-off software I installed on the laptop to make it all work:

- Set the power profile so that the screen and laptop never sleep;
- Disable Windows Updates (moot on XP but stops the warnings);
- Install VNC server in order to remote in and make any changes; Install Chrome or Firefox web browser: Set the homepage to <http://www.wunderground.com/cgi-bin/findweather/getForecast?brand=wxmap&zoom=10.5&query=14480> (enter your own zipcode at the end)
- On the Wunderground page, go to Settings, Radar Options, check "Storm Tracks" and Across the top Select the view to "Radar";- Install Adblock to get rid of the ads;
- Install Revolver-Tabs plug-in from the Chrome Webstore or Tab SlideShow add-on for Firefox, set the refresh rate to 30 mins.or less for condition updates;
- Start the Revolver/Tab Slideshow and hit F11 to go full screen!

The parts and the \$10 cost to put this project together were mine so your mileage may vary. About 6 mos. later I was out biking one Saturday morning and happened to spot a widescreen 20" LCD at a garage sale ... \$10! That display showing the above URL is what you see in the accompanying photo. This type of wall display has a lot of potential for all types of media, not just weather data and additional pages/tabs can be rotated in the browser. My display runs most of the day showing live radar and storm alerts, I just hit power-off at night but the low power laptop runs 24/7, out of sight. Someday I may add my own weather station and rotate between that and the radar/forecast, but for what I spent I think it serves the purpose quite nicely.

Jamboree On The Air, JOTA

Steve Fell, K2SRF and William Kasperkoski WB2SXY

This year's Jamboree on the Air (JOTA) -- the 57th, so you do the math when it started -- occupied the third full weekend of October at Camp Babcock-Hovey on Seneca Lake, where over 1700 scouts and scouters attended the camporee.

RARA Hams have participated in this Amateur Radio Scouting event for as long as I can remember -- setting up with wires, J-Poles, over-the-roof inverted Vees, satellite beams, potato guns, and gutter hooks (and ladders that I am sure would not pass safety muster!)

Operation on many bands and modes was accomplished by the crew:

Dave KB2KBY, Steve KT2I, John KC2TNO, Zach KC2VCM, Walter N2ZVP, Russell N2IZV, Glen KC2YGH, and David KC2DQS. Stephen K2SRF headed up the team this year.



I would like to thank all nine Hams that helped out with the JOTA event during the Challenge Camporee at Babcock Hovey. There were over 1700 registered scouters at the camp. We covered many bands and modes and I have several ideas to make it better next year.



Ham Tech - Getting On D-Star

Duane Fregoe, K2SI

Many hams have thought about getting on the D-Star network but looked at the cost of Icom radios with the D-Star capability and put the purchase on hold. An option for many years was to buy a DV Dongle (<http://www.dvdongle.com>) which plugs into a USB port on your computer. A new option surfaced at the 2014 Dayton Hamvention from NW Digital Radio. It is the DV3000 Digital Vocoder Card (<http://nwdigitalradio.com/wp-content/uploads/2012/04/DV3000DS.pdf>) that plugs into a Raspberry Pi Model B.



Raspberry Pi with DV3000 Card

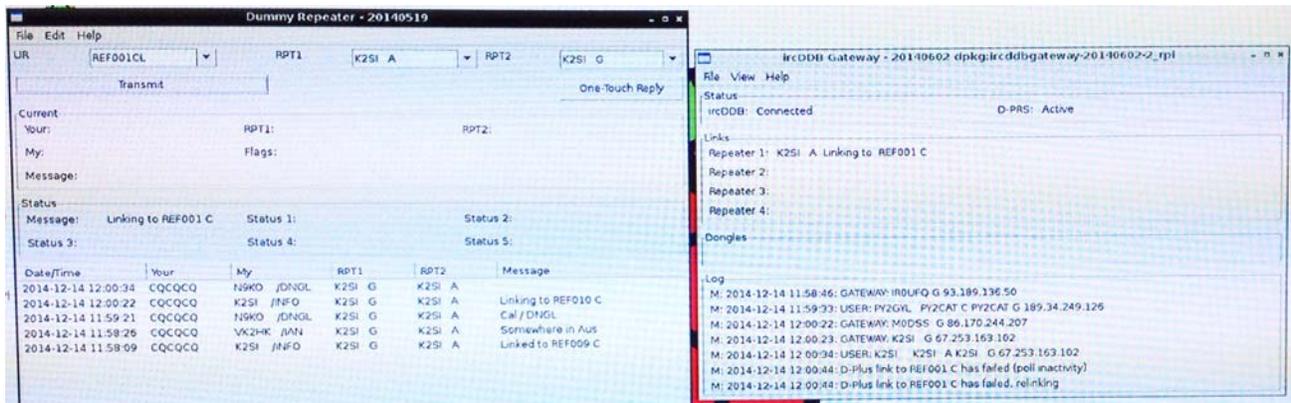
Besides a Raspberry Pi Model B you will need a SD card to hold the software and the DV3000 card will need a sound card. I used a very inexpensive USB dongle sound card with two 1/8" jacks for a computer headset. I also had a wireless combination keyboard and mouse with a tiny USB receiver. The last piece is a monitor. The Pi has HDMI out so a small LCD TV with an HDMI port works great.



USB Sound Card

The standard Raspbian image is required on the Raspberry Pi. In the Blog section of the NW Digital Radio website you will find the instructions for configuring your Pi. I would also suggest you watch the 3 part YouTube video by Budd Churchward titled "DV3000 D-Star on the Raspberry Pi for the Linux Challenged Radio Amateur" (<https://www.youtube.com/watch?v=XdLPN51TOBE>).

The two pieces of software that are required to make this all work are the "ircDDB Gateway" and the "Dummy Repeater". Both are free from the web. The blog post and the video will walk you through the installation. Once you get everything up



Dummy Repeater & ircDDB Gateway Linked to REF001C

and running you will get the two screens shown in the previous picture. With this setup you can link to the REF, XRF, DCS reflectors and any repeaters linked into the D-Star system.

The only issues I have had with the system were a USB headset and a USB sound card that needed drivers that were not in the Raspbian software. I had an extra USB sound card that did work. I was also using a USB extension cable that was creating a lot of noise in my signal and had to troubleshoot that out. The USB sound cards are fat and will block the second USB slot on the Pi so a short extension cable is needed. You also may have to reboot the Pi a few times along with the ircDDB Gateway and the Dummy Repeater to get everything to settle in. Once it locks in it is pretty solid. I have heard of similar startup issues from other Pi users.

If Linux and Raspberry Pi's is not your thing there is another option for getting on D-Star. On December 8th NW Digital Radio just released the "Thumb DV" (<http://nwdigitalradio.com/wp-content/uploads/2012/04/DV3000UDS.pdf>). It looks like a USB thumb drive and will work on Linux and Windows. It will use the sound card already in your computer.

The DV3000 board for the Raspberry Pi sells for \$99.95 plus \$1.93 for shipping. The ThumbDV sells for \$119.95 plus the \$1.93 for shipping. Both of these units have the potential to work with Yaesu Fusion if and when a third party develops the software. The cost of entry into the D-Star world has been reduced substantially. If you dive in I would like know how your NW Digital board is working.



ThumbDV™

Peak The Grid

Forest Shick, WA2MZG

SURVEY

Thank you to everyone that responded to one or both surveys. We had 50+ responses to the November survey and 70+ responses to the December survey. Here is a summary for November: 67% are Extras, 89% have been licensed for more than 5 years, 81% are members of RARA and 96% read every issue of the RAG. The best liked articles were: Prez Sez, Going Once, Going Twice, Make Your Own Circuit Boards and Mini Maker Faire. The top 2 ham radio activities are Rag chewing at 46% and Building / Experimenting at 41%. There were respondents from Vermont, Florida, North Carolina and Turkey.

The summary for December is: 68% are Extras, 72% have been a ham for more than 10 years, 79% are members of RARA, 94% like the calendar, 24% have 3 antennas and 19% have 1 antenna at their QTH. The best liked articles were: Prez Sez, Here Ye, Here Ye, RARA Calendar, Build It, Fourth Annual Winterfest and Peak the Grid. There were respondents from North Carolina, Florida, Texas, Colorado and Arizona. There were 29 other radio clubs that were mentioned in the survey including all of our local favorites such as RDXA and AWA.

CW

At our December meeting the topic of learning Morse Code (CW) came up again. This has happened a few times such as at the picnic this summer. It appears that we have a small but patient group of amateurs that would like to learn Morse Code and have someone to practice with, on the air. Let's get started by gathering a list of names to determine how big this group is. If you would send an email to editor@rochesterham.org stating your name, call sign and that you are interested in learning CW or becoming more proficient, I will work to organize some form of practice group as I would like to improve my skills. There is nothing better than having a goal to encourage you (me) to make progress.

For those who do not know where to start, listening to the W1AW code practice sessions is a perfect starting point. Of course that means you have to memorize the numbers and letters. Here is a link to the [W1AW Operating Schedule](#). The page gives you all the details such as frequency, time and code speed.

RAG Articles for Upcoming Events

As the survey pointed out, our members enjoy seeing information for upcoming events: Hamfests, public service opportunities, events like Maker Faire or JOTA. It would be especially helpful if the people that write the "advertising" article would also write a "wrap up" article and include pictures of the event. It is a perfect opportunity to share the fun and encourage participation next time.

Club Newsletters

Over the past few months I received emails from 2 other amateur radio club newsletters and I would like to share the club info with you.

The [Denver Radio Club](#), W0TX. The newsletter is the Roundtable. The link is in the left column of their web site.
The [Associazione Radioamatori Italiani](#).

Request

I have a growing interest in operating RTTY and PSK31. When you start at the beginning, there is a learning curve to discover the frequencies and times that are best to operate. If you have experience operating these modes regularly, I would appreciate any information you pass along. In return I will share this with others in the RAG.

Winter / Spring License Classes

Pam Kasperkoski, W2PHK

If you are looking for a fun and challenging activity to fill those long winter evenings ahead, RARA will be offering license classes again in late February or early March. We hope to provide classes at all levels. Further information will be available after the first of the year on the RARA website and in the next issue of the Rag. There will be sign-up sheets at the January RARA meeting.

Military RTTY in the Twentieth Century - Part 1

Randy Rezabek, K2REZ

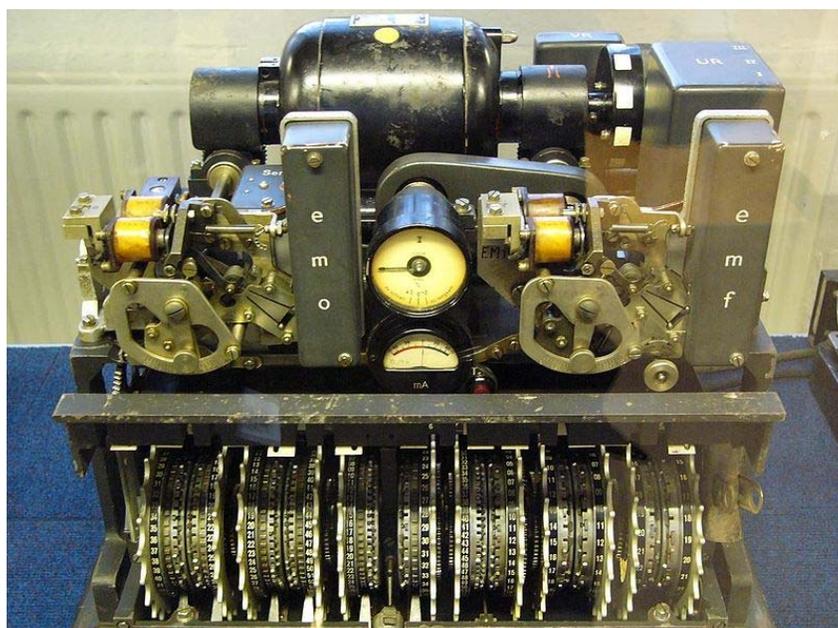
Communications technology advances at a rapid pace. In the last two decades Morse code and radioteletype, once the major modes of the world's long range communications, have largely disappeared from the airways, relegated to us amateurs who practice the archaic craft with a passion similar to Civil War reenactors. RTTY stays alive among amateurs largely due to computer sound cards and freely available software. But how many amateurs are aware of the rich history of the technology, especially its military use in peace, war and cold war?

The technology behind teletype can be traced back to 1874 and the efforts of the French telegraph engineer Jean-Maurice-Émile Baudot. In a desire to increase the speed, amount and accuracy of transmitted text, Baudot adapted principles of the Hughes telegraphic printer and a five-unit code devised by Gauss and Weber to invent what would now be described as a synchronous time division multiplex system.

The heart of his system was a distributor, which rotated brushes over a set of contacts, which connected a series of transmitter and receiver circuits into a single line. This allowed up to four channels to operate simultaneously. The transmitted characters were interleaved so that the signal occurred in different time slots. Further development of multiplexing by Western Union allowed for the simultaneous transmission of eight channels by 1913. By 1936, further Western Union development of a system called the Varioplex increased capacity to 72 channels of transmission.

The code Baudot devised for this system represented letters of the alphabet with five electrical impulses, the unit representing either a pulse (mark) or its absence (space). This resulted in 32 combinations, 26 representing the letters of the alphabet and 6 that could be assigned as control characters, such as a shift to a number or a page feed. This was the first digital code, in which the units of meaning were either the presence or absence of an electrical pulse. In contemporary terms, it can be described as a five-bit code.

The transmission was generated by a skilled operator manipulating a series of five piano like keys in the proper pattern to



Lorenz SZ42 - interior view of the rotors which encrypted the German Army's RTTY signals. This device was code named "Tunny" by the British

generate the character signal, which could be printed out at the receiving end. In 1902, Charles Krum, a cold storage engineer, devised a “start – stop” code sequence to add to the Bardot code that allowed automation of the transmission. Both the transmitter and the receiver were now cued as to the start of the next 5-bit sequence, allowing a standard typewriter device to become the keyer. In 1908, the Morkrum Company developed the first commercial printing machine, and by the First World War this technology was being adopted by cable companies, railroads, and other corporations that had a need to communicate large amounts of textual data. By this time, paper tape readers had been devised which allowed the message to be punched out ahead of transmission and then run through a reader.

The communication demands of the war led to military interest in teletype, but they also had to contend with the additional difficulty of security. Gilbert Vernam, an AT&T engineer, developed an automatic means to encrypt the Bardot code punched onto the paper tapes. By creating another tape of randomly generated letters (a key), and running it in step with the plain text, the two message streams could be added together with Boolean “exclusive or” (XOR) function to create a cipher of the original message. Thus, a space + space = mark; a mark + space = mark; a space + mark = mark; and a mark + mark = space. By reversing the logic at the receiving end with an identical key, it would automatically recover the original plain text message.

However, this system had a weakness, as identified by US Army Signal Corps officer Major Joseph Mauborgne in 1918. The key tape had been formed into a loop and run continuously through the reader. If the message was long enough, this key sequence was repeated, creating a critical clue that would be exploited by a cryptanalyst. Mauborgne’s solution to this problem was to utilize a key sequence that was as long as the message, thus never repeating. This created an unbreakable one-time pad system. However, this system was logistically difficult to manage, it required that two copies be produced of the key tape for each message and could only be used once.

Landline teletype systems continued to develop throughout the 1920’s and came into common use by both commercial and military users and experiments were soon conducted to transmit teletype signals via radio. The US Navy successfully tested printing telegraphy between an airplane and ground radio station in 1922, followed within a few months with RCA successfully tested printing telegraphy via their Chatham, Massachusetts, radio station WCC to the R.M.S. Majestic. Early systems were problematic due to the noisy conditions of HF interfering with the amplitude modulation. Development of Frequency Shift keying in the late 1920s minimized most of these problems and RTTY systems became more reliable. By the early 1930s commercial RTTY links had been established between Hawaii and San Francisco and onward to New York City. The US Navy began to adopt the use of RTTY for its many land based radio stations, especially across the Pacific. Thereafter, Vernam encryption and multiplexing of teletype signals became a common practice among the major powers. The ability of RTTY to cover long distances without the need for landlines, and the capability to transmit vast amounts of encrypted detailed texts without the need for highly trained Morse code operators or code clerks were ideal for various military services.



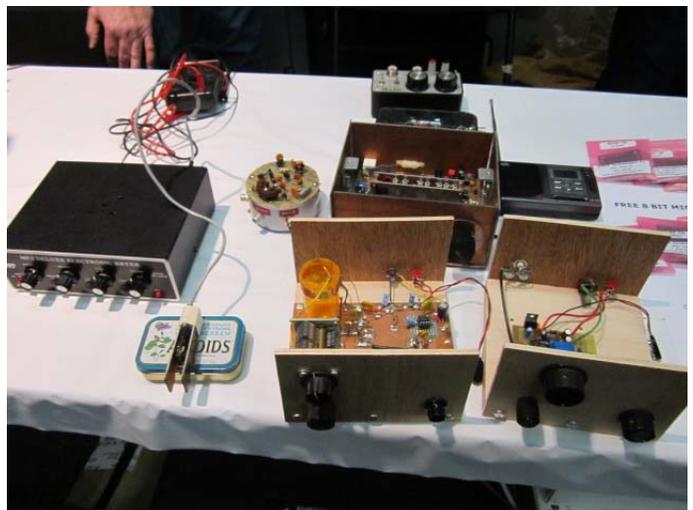
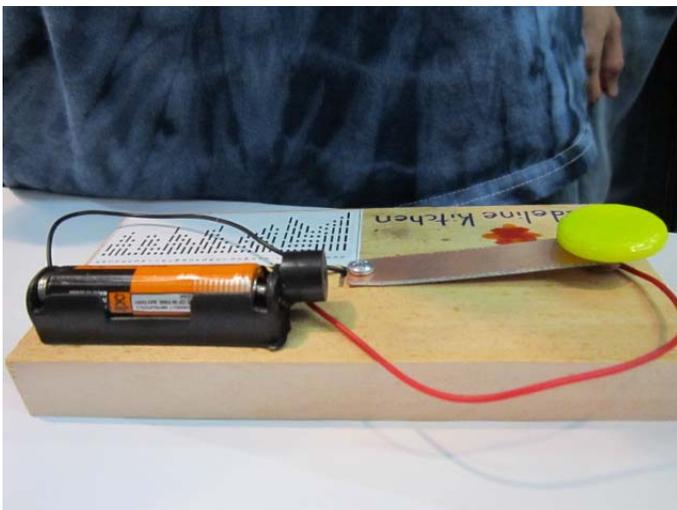
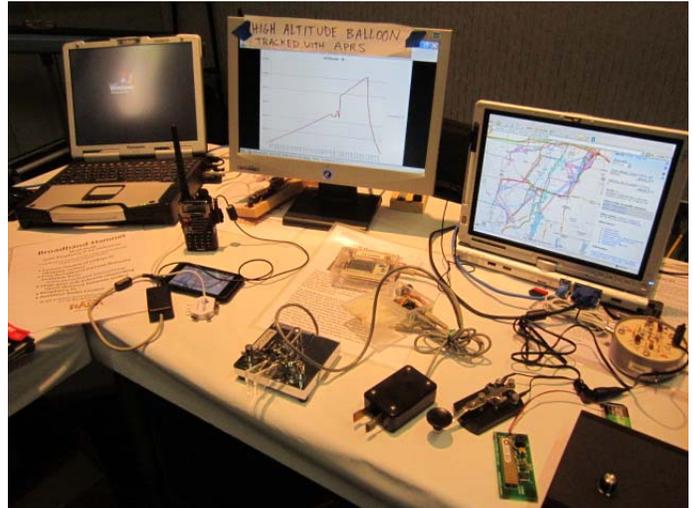
US Navy TTY - one of the teletype machines used by the Navy at their intercept site in Chatham, MA, the former RCA radio station WCC.

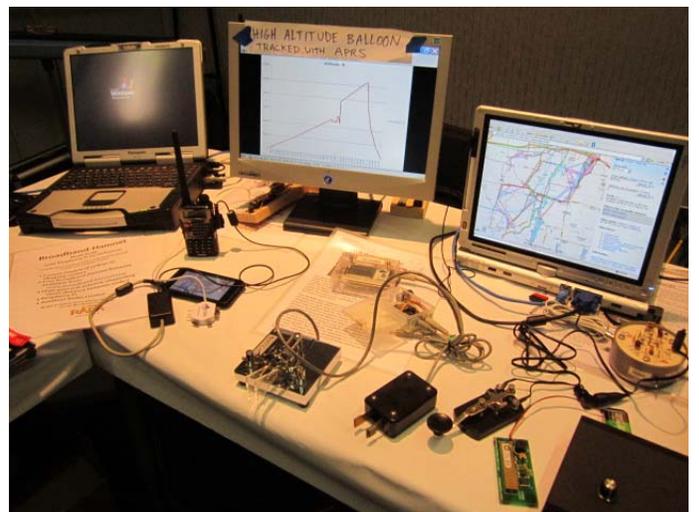
Rochester Mini Maker Faire

Jon Dickason, N2JAC

The Rochester mini maker faire in November had over 2000 attendees and we had about 60 boys and girls build code keys at our booth, and countless others who came to see our gadgets and hear our ham DIY stories. The faire organizers told me they saw lots of excited kids walking around the convention center showing off their code keys to everyone. Thanks to Bill AA2YV, Vince W2VAB and Bob K2OID, our code keys worked almost perfectly the first time, which made many boys and girls happy. Many of the kids seemed to enjoy decorating their keys with markers and stickers more than sending code, but I'm sure we made a good impression on them, and the parents liked seeing their kids assemble a working code key. Thanks to RARA and some donations from generous hams, we were able to provide the code key for free.

Since we've never done this type of event before, I wasn't sure what to expect, so I chose hams with interesting skills that I thought visitors would like to see. From the crowds at our booth, I'd say it was a success, and I owe it to you hams who gave up your Saturday to spend it at the maker faire. Duane K2SI showed a DIY digital TV antenna. Bill AA2YV showed some kits and homemade radios. Forest WA2MZG showed some microcontroller projects, and kit and homebrew radios. Vince, W2VAB was a code key building machine, barely taking a break over 6 hours while helping 60 kids build their keys. Ross KC2LOC brought his ARES/MARS go-kit HF/VHF/UHF station-in-a-suitcase, a smartphone APRS tracker, and broadband hamnet mesh nodes with camera and raspberry pi web server. I had my suitcase mesh node, APRS tracker, raspberry pi foxhunt transmitter and tape measure antenna, and way too many other gadgets when it came time to pack up. Steve KA1CNF had his mesh running at the makerspace booth for their telepresence robot, and Stephen K2STF showed his ten-tec kit radio. Thank You to all you hams for making such a great first impression to these young makers.





RARA Calendar

A BIG **THANKS** to Tim Barrett, K9VB for volunteering to edit the Calendar for the RAG.

~ January 2015 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 SARTG New Year RTTY Contest (Sweden) AGCW Happy New Year Contest (Germany)	2 RARA Meeting 7:00pm QRP Fox Hunt (80M) NCCC Sprint Ladder	3 ARRL RTTY Rnd Up European CW 160M Contest
4	5	6	7	8 RARA Board of Directors Meeting 5:30pm	9 RVHFG 7:30pm NCCC Sprint Ladder	10 NAQP - North American QSO Party, CW
11 North American QSO Party, CW Nordic-Baltic Contest CW	12	13	14 SIARC 7:00pm	15	16 RARA 7:30pm NCCC Sprint Ladder	17 RARA VE Testing 10:00am LZ Open Contest (Bulgaria) Hungarian DX Contest NA QSO Party, SSB
18	19	20 RDXA 7:30pm	21 DARC 7:30pm	22 ARES/RACES 7:00pm	23 NCCC Sprint Ladder CQ World-Wide 160-Meter Contest	24 ARRL VHF Contest
25	26	27	28	29	30 NCCC Sprint Ladder	31 LARA Hamfest

Is There A Hamfest In Your Future?

Check out the Lockport Amateur Radio Association's 54th Annual Winter Hamfest on January 31st.

<http://www.lockportara.us/club-events/2015-events/lara-hamfest-2015>

And

KA2LIM Winter Hamfest, February 28th at the Big Flats American Legion

<http://www.ka2lim.com/index.html>

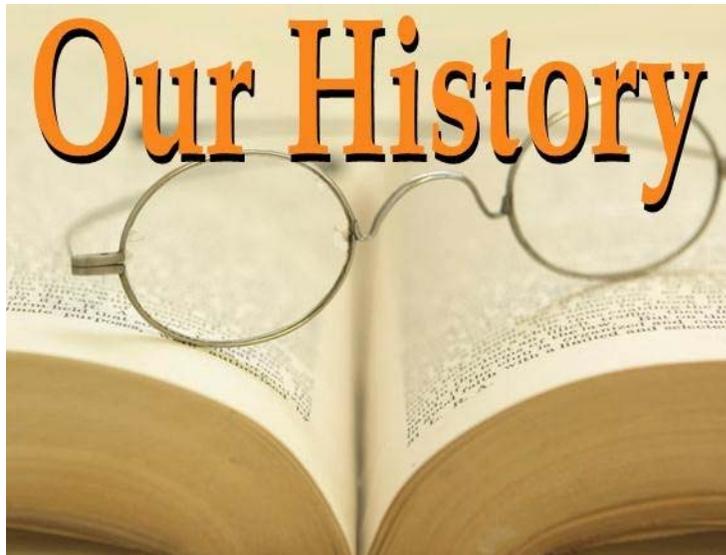
RARA RAGS OF THE PAST

Ed Gable, K2MP – RARA Club Historian

AMATEUR RADIO HAPPENINGS - 1995

This month we take a different approach to past Amateur Radio history. Here we will paint a historical picture with a broad brush covering not only Rochester based happenings, but country and world-wide events as well. 1995 first saw the advent of the now popular Vanity Call letter processing. It initially started with three gates where the first one allowed previous holders, or family members, to apply for their old call sign. That was followed by gate 2 where holders of Extra Class licenses, some 66,000 at that time, were eligible and followed later by the 112,000 Advanced Class licensees. One thing that made all of this possible was the FCC's introduction of electronic license handling that reduced typical applications from three months to two weeks.

Looking to buy a top of the line transceiver back then ? If money was no object the Yaesu FT-1000D and Kenwood TS-950SDX were the one to drool over. If they did not include the latest buzz word in optional features; Digital Signal Processing (DSP) then look further.



Although well understood today and well utilized by EMCOMM people, the concept of NVIS was introduced in a five page QST article. CQ Magazine celebrated 50 years of publication. A very popular ARRL sponsored operating event, not at all unlike 2014's ARRL Centennial on-air QSO parties, had amateurs signing their calls /125 to celebrate ARRL co-founder Hiram Maxim's, W1AW, birthday.

40 YEARS AGO, JANUARY, 1975

The opening meeting for the new year brought exciting news of a technical challenge for many of us - the emerging availability of OSCAR's, aka Orbiting Satellite Carrying Amateur Radio. Our speakers for the evening were Fred Becker (sk) W2GV and Bob Crumrine WB2DNN. Pictured on the front page were local Amateurs who were watching the signing of the Amateur Radio Week Proclamation by Rochester Vice-Mayor Midge Costanza. Shown were: David Holtz, WB2HTH, RaRa's Public Relations Director and the person who made this all possible, along with Jim Collinsworth WB2EDT, Bob Phelps WB2DPT, Bill Landon K2CBD and Joe Hood K2YAH. This article was blessed with one of the great stories told by my historical Elmer, Bruce Kelly (sk) W2ICE, who wrote about early RaRa meetings and their venues. Local users of WR2AEI, the 28/88 repeater, were introduced to the just announced "AREAS" system (aka Fuzz Buzz). This system allowed 28/88 users, by using a confidential touch-tone sequence, to have direct access to the Cobbs Hill Police/Fire dispatcher and provided a means for immediate reporting of accidents and other emergencies. Amateurs involved in the design and installation were Len Gessin WA2ZNC, Alan Komenski WB2ZFM and Joe Hood K2YAH. From the Want Ads you could buy a Johnson Viking kW antenna tuner from Chuck Brelsford (sk) K2WW. Adirondack Radio Supply of Amsterdam, NY, remained a long time commercial advertiser.

VE Team Input

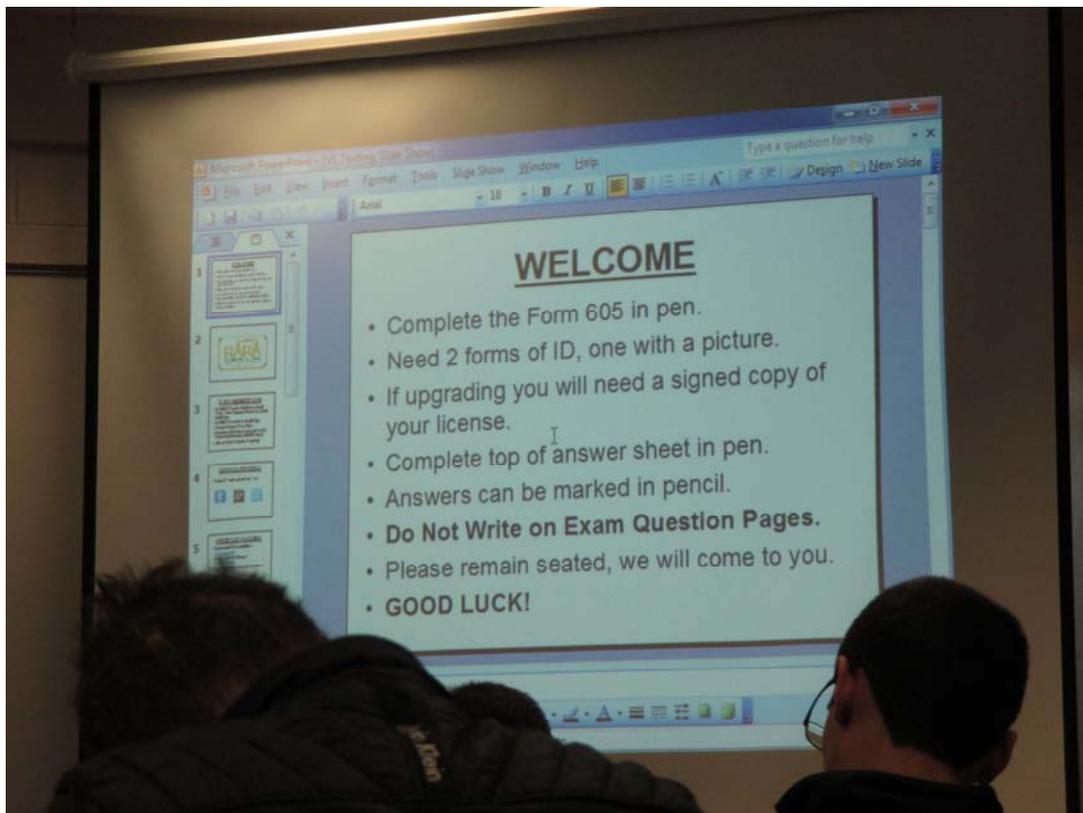
Ken Hall, W2KRH

For the Nov 15th VE session, we had 15 successful candidates: 7 Technicians, 4 General and 4 Extra, which included a husband and wife, the McCuskers (James W2ELF and Rachele KD2HNP). James also volunteered to be a VE.

Many thanks to Bob Horner KB2YEM for the photographs.

The December session will be on the 20th and the January session will be on the 17th, hope to see you there.

Alex Belcher	KD2HNM	T	Rachele McCusker	KD2HNP	T
Ralph Dutcher	KD2BDZ	G	James Mitchell	KC2OIX	G
Samuel Feine	KF5ZSV	E	Richard Rolland	KD2HNP	T
Tina Gibney	KD2HNN	T	Richard Savory	KD2ECF	E
John Greenslade	KD2HNO	T	Christopher Stennie	KD2HNR	T
Michael Lawrence	N2HFO	E	Robert Speciale	KD2GNE	G
Coleman Link	KC3DWQ	T	Joseph Straszynski	W2JZS	G
James McCusker	W2ELF	E			



NEWS FROM AREA CLUBS

MONROE COUNTY ARES / RACES NEWS

The Monroe County Amateur Radio Emergency Service, Inc. holds its meetings on the fourth Thursday of each month. Anyone interested, members and non-members, are welcome to attend. The next ARES Meeting will be held on: **Thursday, January 22, 2015, at 7:00pm.**

Meetings are held at the **Greater Rochester Chapter of the American Red Cross HQ, 50 Prince Street, Rochester, NY 14607.** (Located behind the Rochester Auditorium Theatre, 885 Main St. E.)

ARES NET: Monroe County ARES/RACES meets on the air every Thursday of the month at 8:00 pm, on the 146.61 MHz (-) 110.9 Hz PL repeater. The only exception to that are nights when we hold our regular meeting, generally on the 4th Thursday of the month.

WEB: www.monroecountyemcomm.org

NBEMS: Want to learn about Narrow Band Emergency Messaging System (NBEMS)? It's the latest and easiest way to "Go Digital!" Bring your laptop computer and 2-M handheld transceiver. We will conduct an NBEMS clinic after every meeting through June 2015.



ROCHESTER RADIO REPEATER ASSOCIATION, RRRRA

The Rochester Radio Repeater Association, RRRRA, invites you to attend its January meeting. Meetings are held on the 3rd Friday of the Month. Meetings are held in the Pittsford Town Hall Basement starting at 7:30 pm. The 2014 officers are Bob Shewell, N2HJD President, Rob Bruno, KD2GCG Vice President, Ed Wilkonski, KC2WM Secretary, and Joel Rossbach, N2EZV Treasurer. The next meeting is January 16, 2015. Hope to see you there.

SQUAW ISLAND AMATEUR RADIO CLUB, SIARC

The Squaw Island Amateur Radio Club (SIARC) meets every second Wednesday of the month at 7:00PM at the Ontario County Safety Training Facility, 2914 County Road 48, Town of Hopewell. We have License Exam Testing every other month which begins at 6:30PM. There will not be testing in January. The next testing will be in February.

GENESEE VALLEY AMATEUR RADIO ASSN.



DRUMLINS AMATEUR RADIO CLUB

Our meetings are held the third Wednesday of each month. Doors open at 7:00pm, meeting starts at 7:30pm at the Wayne County EOC, 7376 Route 31, Lyons. VE sessions held before the meeting on even months. Talk-in before meeting on 146.685-.

ROCHESTER VHF GROUP

The Rochester VHF Group holds monthly meetings on the second Friday of the month between September and June. Meetings begin at 7:30 PM and are held at the Spencerport Wesleyan Church, 2653 Nichols St. (NY Route 31) in Spencerport. Visit our website www.rvhfg.org for details.

The Rochester VHF Group sponsors an informal On-Air Net every Monday at 2100 local time on 144.260 MHz USB and a 6 Meter Net every Thursday at 2100 local on 50.200 MHz USB.

More club information can be found by visiting www.rvhfg.org or just calling in any Monday or Thursday night. All are welcome to check in to these nets.

ROCHESTER DX ASSOCIATION, RDXA

January Meeting: Tuesday, January 20, 2015
 Time: 7:30pm
 Location: Monroe County EOC Building, upstairs
 1190 Scottsville Road, Rochester, NY 14624



December Puzzle Solution

A	B
1127	ft/sec - Speed of Sound
120π	Resistance of Free Space
$(120 \pi P)^{1/2}$	V/M - Field Strength of an Isotropic Radiator
12756	km - Diameter of the Earth at the Equator
1.38×10^{-23}	Boltzmann's Constant
2.15	Gain of a Dipole in dbi
238857	Average Distance to the Moon in Miles
2.54	cm / in
299,792,458	M/S - Speed of Light
3.141592653589	PI (π)
$32.45 + 20 \log d + 20 \log f$	db - Path Loss of Free Space
3476	km - Diameter of the Moon
$4 \pi r^2$	Surface of a Sphere
5280	Feet in a Mile
6.25×10^{18}	Electrons in 1 Coulomb
745.7	Watts / HP

THE AMATEUR'S CODE

Originally written by Paul M. Segal, W9EEA (1928)

THE RADIO AMATEUR IS:

- CONSIDERATE** Never knowingly operating in such a way as to lessen the pleasure of others.
- LOYAL** Offering loyalty, encouragement and support to other amateurs, local club, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.
- PROGRESSIVE** With knowledge abreast of science, a well built and efficient station and operation beyond reproach.
- FRIENDLY** With slow and patient operation when requested, friendly advice and counsel to the beginner, kindly assistance, co-operation and consideration for the interests of others. These are the hallmarks of the amateur spirit.
- BALANCED** Radio is an avocation, never interfering with duties owed to family, job, school or community.
- PATRIOTIC** With station and skill always ready for service to country and community.

VISIT THE RARA WEBSITE!

Did you know that your club's website (www.rochesterham.org) offers these features and more?

- Photos of meetings & events (you might be in there!)
- Info on upcoming meetings/programs
- Rochester Hamfest information!
- Online membership & renewal
- Track and redeem your Reward Points
- Public service info & sign-up
- VE testing info
- Back issues of the *Rag* in PDF
- Officer contact
- List of past presidents
- Online membership directory
- Order RARA logo products
- Useful Internet links
- Ham Radio 101 – tons of tutorial info, plus net & repeater listings



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OFFICERS

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FENRUARY RAG DEADLINE

JANUARY 15, 2015



**RARA meets at 7PM on the
first Friday of each month;
come join us at:**

Henrietta Fire Co. #1
3129 East Henrietta Road
Henrietta, NY 14467

[Get Directions](#)

[Rochester Area Repeater Listing](#)

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Fisherman's Net Amateur Radio Club
Jim Sutton, N2OPS: jim@otrym.org

Genesee Valley Amateur Radio Assn.
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Rochester Radio Repeater Association (RRRA)
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THE RARA RAG

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