

F.C.A.R.C. Inc.
P.O. Box 773
Greenfield, MA 01302



FIRST CLASS MAIL



THE COMMUNICATOR THE COMMUNICATOR

April 2014

Upcoming Events

- Club Breakfast: Saturday Apr 19, 8 a.m.: Denny's, Greenfield
- E-Board meeting: Monday Apr 28, 6 p.m.: Greenfield High School cafeteria
- Meeting & Program: Monday Apr 28, 7:15 p.m.: Greenfield High School: Program - Barry Baines, WD4ASW, President AMSAT
- Club Breakfast: Saturday May 17, 8 a.m.: Denny's, Greenfield
- E-Board meeting: Monday May 19, 6 p.m.: Greenfield High School cafeteria
- Meeting & Program: Monday May 19, 7:15 p.m.: Greenfield High School: Program
- VE License Tests: Monday May 26, 7:00 p.m.: Northfield Unitarian Church
- FCARC Picnic: Saturday May 31: Leyden Recreation Department's pavilion at the Pearl Rhodes Elementary School, Leyden

April 2014

Calendar

APRIL MEETING: BARRY BAINES, WD4ASW, PRESIDENT AMSAT

Barry Baines, WD4ASW, president of AMSAT will talk about AMSAT and amateur satellites at the April meeting on Monday April 28 at 7:15 p.m. at the Greenfield High School.

AMSAT is a name for amateur radio satellite organizations worldwide, but in particular the Radio Amateur Satellite Corporation (AMSAT-NA) with headquarters at Silver Spring, Maryland, near Washington DC. AMSAT organizations design, build, arrange launches for, and then operate (command) satellites carrying amateur radio payloads, including the OSCAR series of satellites.

FCARC MAY PICNIC, SATURDAY MAY 31

In past years a May picnic was always a feature of the FCARC calendar. Fred and Jan Smead hosted us at their home in Hadley for many years, but they have been unable to do so in recent years. We are going to revive the tradition this year at a new site. We have reserved the Leyden Recreation Department's pavilion at the Pearl Rhodes Elementary School for Saturday May 31. We will have the use of the site for the whole day if we wish. There is a spacious pavilion where a large crowd could still have plenty of room if it should rain (which it will not, of course). There is a charcoal pit, a propane grill, and restrooms. There is electrical power and space and two conveniently placed trees where we could set up the antenna for a Get-On-The-Air radio station (why do that only on Field Day?). We can also have a mini- swap fest if anyone wants to sell, swap, or give away anything. There is a large Field where children could play or we could have a softball game. As the final approach has been the most difficult part of our recent fox hunts we are planning a short-range practice fox hunt as part of the day's activities. A guided excursion to Frizzell Hill to see the site of the FCARC's KB1BSS 2 meter repeater is another possible activity.

The picnic will be a potluck with hamburgers and hot dogs and other basics provided by designated volunteers.

The Google Maps view shows the site. It's only a few miles past where Leyden Road in Greenfield becomes Greenfield Road in Leyden, so if you can make it to Greenfield you'll find it accessible. We will publish more detailed directions in the May Communicator, and of course we will have someone listening on the repeater to give directions if needed.



Secretary's Report

E-BOARD MEETING MONDAY, MARCH 17, 2014 – BOB DICKERMAN WA1QKT

1. Field Day (FD) planning
 - 1.1. HF SSB station: Carter WA1TVS again graciously offered the use of his RV for the HF SSB station again. Bob WA1QKT will bring HF radio, Yaesu FT-450AT, same as last few years.
 - 1.2. HF CW station: We'll use large, rugged tent from Al N1AW or Chris KB1NEK. Radio may be TS-890, FT-897D, or FT-817.
 - 1.3. We will be using newer laptops and logging software this year. Al and Bob will bring laptops loaded with N1MM logging software. Probably should have a backup laptop (as Scott N1LYW always used to have on hand).

- 1.4. Chet N1XPT suggested that it would be good to have some digital modes present, which might interest younger people. Packet, Winlink, Echolink mentioned.
- 1.5. Bob WA1QKT is pretty sure that when we used Fldigi (software for digital modes) for PSK31 contacts in 2013 FD, logging was done by Fldigi (not CT).
- 1.6. Bob W1SRB said we should mention "digital modes" in press release, if we are going to use them, again to interest younger folks. We could also try advertising at GHS with posters. Jeanne Dodge suggested asking if any Civil Air Patrol might be interested, maybe through Julie KB1WTP or Maj. Gary Longley. Bruce KB1TLX suggested maybe advertising on the GHS website.
- 1.7. Poet's Seat location is still best choice; if we want to try another location someday, will have to start planning that earlier. Poet's seat is good for line-of-sight VHF/UHF, also.
- 1.8. Phil N1YPS will bring his 6m/VHF station again.
2. Barry Baines WD4ASW, president of AMSAT, will be speaking at our April 28 meeting. Anyone curious about amateur satellite operation should attend, as Barry should provide a good presentation and be able to answer any questions you might have about satellites and satellite operation (AI N1AW arranged this).
3. Matt Wilhelm W1MSW will be presenting a demo of the logging program N1MM at our June 16 meeting. This is the "new" logging program we will use at Field Day this year, so folks who think they might operate or log at FD might want to come to the June meeting to become familiar with it (AI N1AW arranged this).
4. AI N1AW said that he is still trying to arrange a club picnic, probably at Leyden grounds of Pearl Rose Elementary School, rentable for \$50.00. May include tour of Leyden repeater site? Perhaps include foxhunt? (AI has been querying e-board members for preferences recently - WA1QKT)
5. Scott N1LYW would like to pass FCARC Clerk position to another member. Clerk needs to have permanent residential address, and file brief annual report with state once per year. We may consider changing this position from "appointed by e-board" to elected; would require changing bylaws. If anyone is interested in this position, please contact any e-board member.

FCARC PROGRAM MEETING, MARCH 17, 2014 – BOB DICKERMAN WA1QKT

Before the meeting we had refreshments in the GHS cafeteria. AI N1AW, Bob WA1QKT and Ron K8HSF brought coffee, and Belle KB1NOG brought blueberry muffins. The meeting was brought to order at 7:15 PM by Chris KB1NEK in the small auditorium.

(Note that construction has begun at GHS, so we now have to park on the north end of the school, which is the side closest to Silver Street.)

Since most of the attendees had been at the E-board meeting, again no business was discussed at the general meeting.

The theme of the meeting was "Antique Radios". Five hams spoke: Scott N1LYW, Bob N1KRR, Phill N1YPS, AI N1AW, and Bruce KB1TLX.

All of the presenters brought some of their radios to the meeting, and a few also showed photographs of their collections. All of the radios shown were antiques, and some were quite well preserved and very ornate and unique looking. Most used vacuum tubes and capable of receiving the AM broadcast band. Some were also able to receive AM shortwave signals. Several of them were made for portable operation; the portables typically used separate so-called "A", "B", and "C" batteries for the vacuum tubes' filament (e.g., 1.5V), plate (e.g., +90V), and grid voltages (e.g. -4.5V), and so had substantial compartments for the batteries.

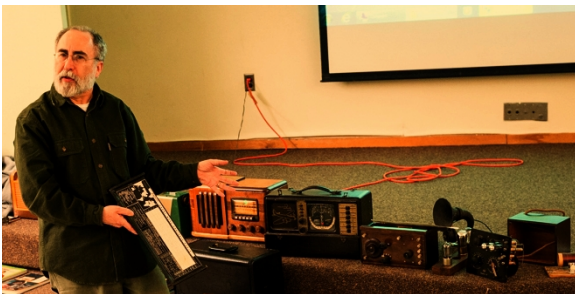


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Scott N1LYW brought a Zenith Transoceanic receiver with a round dial, which he demonstrated by using a miniature broadcast band transmitter, together with a music player with a set of vintage music recordings. The music from the Transoceanic sounded surprisingly good, especially considering it's WWII vintage. This radio will receive on both the AM broadcast band and AM shortwave. He also showed a Silvertone AM

broadcast and shortwave radio that came from a \$5.00 table at an antique radio flea market. It has a green, glowing Magic Eye, or "cat's eye", tuning aid, which is essentially a wide-range signal strength meter. The Magic eye comprises a special-purpose vacuum tube connected to a radio's Automatic Gain Control (AGC) voltage so that the visibly glowing area on the face of the tube narrows as the signal strength increases. This is a useful aid in radios with AGC, since the volume of the signal doesn't change much as the signal is tuned in and out. In addition, Scott showed us the copy of a Zenith S-7000 AM broadcast band record player radio transmitter to create the 1300 KHz AM radio signal for his demonstration. He said that the first thing you should do if you acquire an antique radio is to replace all the vacuum tubes; if you intend to keep it for a while, you replace all the capacitors, which tend to dry out and short or open over time. He also said that he knows a repairman in Acton, MA who can help get a radio working, if you should get stuck in a repair.



Bob N1KRR also brought a Transoceanic. He explained that it was popular with our troops during WWII, because, while abroad, they could use it to get news from home. It has a detachable Wave Magnet antenna that has rubber suction cups that allow the antenna to be mounted to a window of a car or home to get better reception. He said that a

modern replacement battery pack is available for the radio that uses ten 9V batteries in series to make up the 90V plate voltage. Bob and Scott said that such a battery could last for weeks in normal use. Bob also brought another Zenith radio, colored green, and a radio shaped like a globe that has a built-in AM radio. He showed pictures of some of the other radios he has at home, including an Emerson, a Crosley, a Motorola, an American Bosch that was made in Springfield, MA, and a large, very nice-looking RCA AM/FM/ and shortwave console radio with elaborate wooden cabinetry.

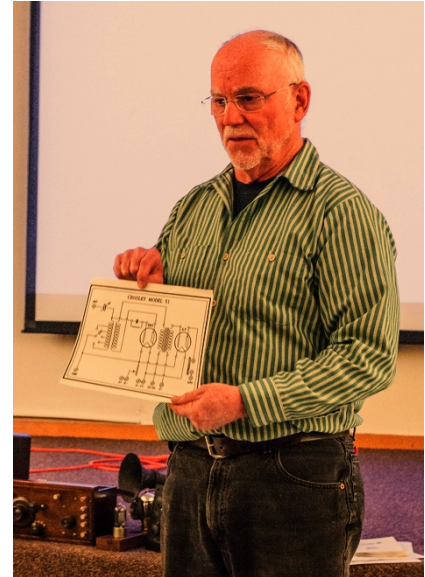


Phill N1YPS showed us a Crosley 51 regenerative receiver, together with its schematic diagram, that was built in the 1920's. It is a two-tube design that has a unique "book capacitor" (a variable capacitor for tuning, in which the plates "open and close" like pages in a book) as well as spider coils (that look like spider webs, and whose construction produces low inter-winding capacitance and, consequently,



a high Q) for controlling the regeneration. Regeneration employs positive feedback from an amplifier's output circuit to its input circuit that effectively increases the gain of the amplifier, thereby allowing the use of fewer vacuum tubes in a radio. Phill explained that one notable disadvantage of regenerative radios is that they may unintentionally radiate R.F. power at the operating frequency, depending on their adjustment by the operator. For AM reception, the regeneration is typically increased to just below the point of oscillation, but for CW reception, one typically will further increase the regeneration, so that the amplifier will oscillate, and so that one can then hear the "beeping" sound of Morse code. That oscillation will, however, also be inadvertently coupled to the antenna and be broadcast over the air. Thus, when there were multiple regenerative receiver users within a neighborhood,

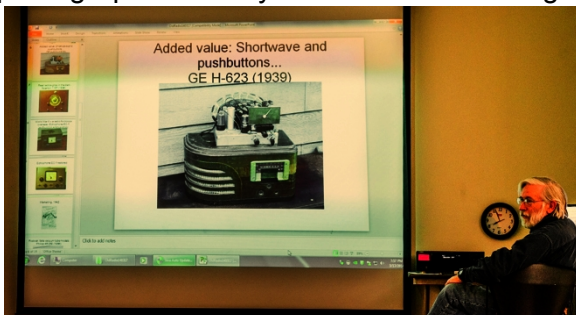
they often unintentionally interfered with each other's reception. The Crosley 51 also employed "grid leak" circuits for biasing the grids of the tubes. The "grid leak" creates a negative grid voltage by siphoning off, with the grid, some of the electrons that are enroute to the plate. This negative current flows into a resistor connected to "ground", thereby producing a negative voltage at the grid end of the resistor. The advantage of the "grid leak" circuit is that it eliminates the need for a "C" (grid) battery. Phill also showed an RCA Victor Radiola 3 that used a "variometer," a type of variable-coupling inductor that operates by rotating a smaller inductor (using a "hand crank" adjustment handle) inside another larger inductor, and a Philmore crystal radio.



AI N1AW also brought another Zenith Transoceanic. He said his interest in amateur radio was sparked by listening to a radio that, like the Transoceanic, was able to receive shortwaves. When he tuned to the shortwave bands, he was able to hear hams on AM, and hearing them inspired him to get his license and get on the air. He also showed a Philco radio with a unique wooden "roll top" cover, much like those seen in "roll top" desks, and a 1926 Atwater Kent TRF (Tuned Radio Frequency) model that had 3 tubes tuned to the radio frequency. He showed photographs of many other radios including a



1935 American Bosch TRF, a 1939 Emerson, a GE H-623, a 1936 Spartan with a Magic Eye tuning aid, a 1942 Echophone EC-1 with AM broadcast band and two shortwave bands, a Zenith L-505, which AI still uses for AM broadcast band reception, an RCA 28X5 that has shortwave bands up to 15 MHz, and Air Champ AC100, which was a simple 1-tube AM



broadcast band receiver associated with the Boy Scouts, a Heath AR-2 general-coverage receiver, and a homebrew crystal-controlled novice transmitter. Al also briefly discussed test equipment and restoration of antique radios. Lad WA3EEC noted that an inexpensive isolation transformer may be made by taking two 120 VAC to 12 VAC transformers and connecting them back-to-back.

Bruce KB1TLX also brought up a Knight Ocean Hopper regenerative receiver, which is a 3-tube unit with plug-in coils that covers the AM broadcast band through 35.0 MHz, and asked if anyone knew anything about it. Ron K8HSF immediately recognized it and said that he owned one when he was starting out in radio, and that it was a good radio.

We thank Scott, Bob, Phill, Al, and Bruce for their lively and enlightening presentations.

After the antique radio presentations, Bruce KB1TLX announced that a large 24-hour Emergency Shelter Drill will be held at UMASS Amherst on Thursday and Friday, April 10 & 11. The most intense activity will occur on Thursday from 2:00 PM to 9:00 PM. Ham radio operation will primarily involve shadowing different officials within the Mullins Center using 440 MHz FM simplex, although a link may be made to the Mount Tom 146.94 MHz repeater also. If anyone would like to volunteer to operate, even for just a 2 or 4 hour shift, that would be helpful. See the signup link on www.fcarc.org, or contact Bruce KB1TLX or Chris KB1NEK.

16 people attended the meeting.



News, Activities & Articles

MUCH IS HAPPENING ON HF BANDS, AL WOODHULL, N1AW

Have you been on the air on the high frequencies recently? Sunspot numbers and solar flux have been high recently, despite the predictions that the current sunspot cycle would be waning by now. On the air on the 10 meters you can hear all kinds of DX during daylight hours. It is particularly easy to work DX with low power on 10 meters, because that is normally the highest frequency band supporting long distance communication. That means these frequencies do not support shorter-distance communication so well - so if you can hear a distant station he or she can probably hear you, and neither of you will be interfered with by stations in between. In addition, absorption of radio wave energy is usually lower at the highest usable frequencies.

The 10 meter band is also, of course, the only HF band where Technician licensees can operate with voice as well as Morse code. An antenna for this band is small and easy to erect. N1AW has an old Radio Shack 10 meters-only radio he would be happy to lend to a Tech licensee who wants to try it.

To learn what frequencies to use at what times of day to have the best chances of communicating with distant stations, see the Radio Propagation Charts available on the ARRL website at <http://arrl.org/propagation>.

Would you like to try your hand at working every state in the US? The ARRL's W1AW callsign can be heard in portable operation from every state and many US territories this year as part of the ARRL's 100th anniversary celebration. Every week two states will be represented. For instance from April 2 to April 9 W1AW/3 in Pennsylvania and W1AW/7 in Oregon will be on the air. The next week it will be W1AW/1 in Massachusetts and W1AW/4 in Virginia. Each of these operations will take place on multiple bands at well-equipped sites, with typically at least one station on the air on one of the HF bands (160 through 10 meters) at any time. Every state will get two one-week sessions before the end of the year. So if, for instance, you would like to claim you have worked every state and receive a WAS certificate, you can do it this year entirely through contacting W1AW. Paper QSL cards are not required! You can get more information, including a schedule of the portable operations, at <http://www.arrl.org/centennial-qso-party>.

“GETTING YOUR FIRST HF STATION STARTED!” BOB SOLOSKO W1SRB

I noticed that the latest issue of QST has an ad for a new ARRL book Your First Amateur Radio HF Station From Antennas to Amplifiers – Everything You Need to Know! by Steve Ford, WB8IMY.

The list of subjects that the book covers is a valuable reminder of equipment issues we should think about regardless of whether we are new to ham radio or have had an HF station for many years. Of course, an alternative to buying this book is to ask any experienced FCARC club member – asking several club members would probably get you several completely different answers.

Here is the list of issues covered:

“Setting up your first HF Amateur Radio station can be a complicated task. From selecting your first radio to putting up your first antenna, there are a number of important choices you'll need to make. Your First Amateur Radio HF Station is the most complete guide to setting up your station and getting started in HF communications. It's filled with practical advice you can put to use right away. Whether you're new to Amateur Radio or HF operating, live on acres of open property or in a tiny apartment, this book will show you how to get on the air and enjoy all that Amateur Radio has to offer.

- What kind of antenna should you use? Your antenna is by far the most important part of your new station. The type of antenna you choose will determine how well your station will function for years to come. Learn not only the technical advantages and disadvantages, but the economics of choosing one type of antenna over another. Includes antenna designs you can build yourself!

- What radio should you buy? Get the most radio for your money. Should you buy new or used? What features are most important? You'll find the answers here!
- Do You Need an Amplifier? Amplifiers are handy, but they can also be expensive. Find out if you really need an amplifier and, if so, how much you may need to invest.
- What About a Computer? Computers and software are important components of modern Amateur Radio stations. Save trouble and money when shopping for one.
- What Types of Accessories Do You Need? An HF station is more than just a radio and antenna. Find out which accessories will add the most operating pleasure and convenience.
- Electricity – Good and Bad. Learn how to supply proper power for your equipment, and how to keep Mother Nature's power – lightning! – away from your gear. “

THE COMMUNICATOR is an informational publication for members of the Franklin County Amateur Radio Club. Officers: President: Chris Myers, KB1NEK (camyers1@verizon.net), Vice President: Al Woodhull, N1AW (n1aw@arrl.net), Treasurer: Howard Field, N1LUP (howfield@comcast.net), Secretary: Bob Dickerman, WA1QKT (rld@dickermanelectronics.com), Director: Belle Dyer, KB1NOG (bdyer58@mtdata.com), Director: Ron Niswander, K8HSF (reniswander@gmail.com)

This is your newsletter! Amateur radio information of general interest, club member project descriptions and doings, radio applications to other activities, corrections, or suggestions are all welcome. Individual submissions make for variety! We need more writers! Send submissions to Bob Solosko at w1srb@arrl.net.