

October 2020

President Emeritus - Tom Scorson, KC2FCP    President - Bryan Jackson, W2RBJ    Vice-President - Nick Field, KD2JCR  
Secretary - Steve VanSickle, WB2HPR    Treasurer, Don Mayotte, KB2CDX  
Board Members:    David Jaegar, Jr., K2DEJ    Russ Greenman, WB2LXC    Dave Gillette, KC2RPU

## 220 Repeater Project Moving Again



**WRGB's former analog transmitter site atop the Helderberg Mountains in New Scotland**

The club's plan to put its 220 mhz repeater atop the Helderberg Mountains in New Scotland is underway again, thanks to assistance from WRGB-TV and its Chief Engineer, Terry Beacham. EGARA President Bryan Jackson, W2RBJ, and Secretary Steve VanSickle, WB2HPR, made a site visit on September 23rd to scout the location and check space for the equipment and antenna.

"We've been offered space on the building's second floor mezzanine for the repeater, with the antenna to be mounted on a nearby communications tower adjacent to the building," said Jackson. "Fortunately, the proximity of the tower will mean a fairly short coax run, both aiding installation and keeping RF power losses from the repeater to a minimum."

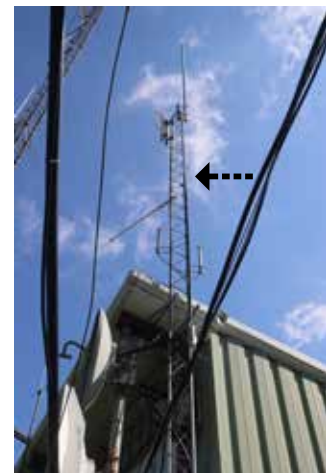
The installation will also allow the repeater to be powered by the site's backup generator, providing constant power in the event commercial power is lost. This is especially key since the club provides backup communications to the Rensselaer County Sheriff's Department and other public safety organizations. In addition, the location provides superior coverage of the Greater Capital District offering an antenna height that is 1,286 feet above average terrain.

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The club's 220 mhz repeater will operate using a new BridgeCom system and a matching, custom built antenna constructed by Steve VanSickle.

The site, which has been in use since the early 1930s, was the former home to Channel 6's analog television transmitter. Today, it is the station's digital transmitter backup site, as well as home to WRVE 99.5 FM, and a 2 meter repeater operated by the Albany Amateur Radio Association.



**Proposed antenna location**

Under terms of the agreement, EGARA would be allowed to use the space for an initial five year period with the anticipation of renewal at the end of the period.

**Next Membership Meeting - October 14, 2020 - via Zoom @ 7 pm**

# Show Your Colors with an EGARA Hat!

EGARA is now offering embroidered baseball caps with the club's name and call sign!

These custom hats are hunter green with white stitching, featuring a mesh weave to keep you cool. An adjustable strap ensures they fit any size.

Each hat is just \$15, with \$5 going to the club treasury.

This special deal is courtesy of club member Joe Ostering, N2CJF, who is providing the caps at cost through his business.

To order, email the quantity you want to Bryan Jackson, W2RBJ, at:

[W2RBJ@outlook.com](mailto:W2RBJ@outlook.com)

Your payment can be made at the time of delivery.



## EGARA 2021 Hamfest Sponsors



## Pandemic Continues to Place Hold on In-Person Club Meetings

EGARA will continue to hold “virtual” meetings for the foreseeable future because of the Covid-19 pandemic. The decision comes following consultations with officers of the East Greenbush Masonic Lodge and medical professionals.

“Many of our members have heightened risk factors that include age and underlying health issues that potentially make them more susceptible to the virus,” said club President Bryan Jackson, W2RBJ. “These health concerns and the related liability issues make it necessary to err on the side of caution.”

Despite the Masonic Lodge remaining unavailable for use, club members have continued to maintain the grounds and building.

Monthly club meetings to date have used both the 147.270 repeater and Zoom meetings via the Internet, but so far they have not included any program presentations. The club plans to begin offering virtual presentations with its October 14th meeting using Zoom to host a program by ARRL Hudson Division Director Ria Jairam, N2RJ.



ARRL Hudson Division  
Director Ria Jairam, N2RJ

The Zoom meeting will be available at this link beginning at 6:45pm on Wednesday, October 14th:

<https://us02web.zoom.us/j/88127929774?pwd=Yk1DTmlrUmgzQ3dBM2w1eno4eE1CUT09>

Meeting ID: 881 2792 9774  
Passcode: 808392

For those without Internet access, the meeting can be accessed by phone using one of the following numbers:

Dial by your location

- +1 646 876 9923 US (New York)
- +1 301 715 8592 US (Germantown)
- +1 312 626 6799 US (Chicago)
- +1 408 638 0968 US (San Jose)
- +1 669 900 6833 US (San Jose)
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)

Meeting ID: 881 2792 9774  
Passcode: 808392

## Want to Take a General Class?

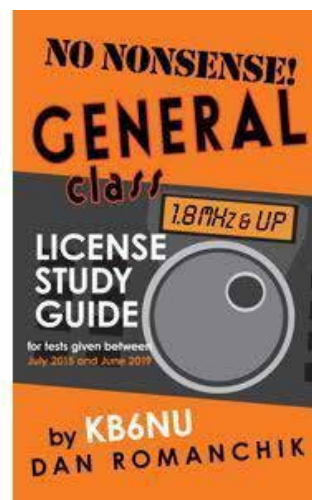
EGARA Hamfest sponsor Dan Romanchik, KB6NU is holding an online class for those who want to upgrade to a General class ticket.

The class will start on Monday, October 5, 2020 and consist of eight, two-hour sessions starting at 9 pm EDT (6pm PDT) and running until 11 pm EDT (8pm PDT). The eight sessions will take place on the following dates:

Monday, October 5  
Thursday, October 8  
Monday, October 12  
Thursday, October 15  
Monday, October 19  
Thursday, October 22  
Monday, October 26  
Thursday, October 29

The No-Nonsense series of amateur radio license study guides has become famous for helping people pass the tests. Written in a simple, easy-to-understand style, this study guide will help you upgrade to General Class in no time. This study guide covers every single question that you'll find on the test and includes the following chapters:

Electrical Principles  
Circuit Components  
Practical Circuits  
Signals and Emissions  
Antennas and Feedlines  
Radio Wave Propagation  
Amateur Radio Practices  
Operating Procedures  
Electrical and RF Safety  
Commission's Rules



The cost for the online General class course is \$25 for adults. High school and college students can attend for free. If you're a student, all you have to do to register is send an email to [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com) stating that you want to take the class. All others can register using PayPal or Amazon Pay using the link below.

I'll be using my No-Nonsense General-Class License Study Guide (for tests given between July 2019 and June 2023). It's available as an ebook, paperback book, or audiobook.

More information and the registration link is at:

<https://www.kb6nu.com/product/online-general-class-starting-monday-october-5-2020/>



## On the Beam

### News & Notes

### MARS Communications Exercise to Involve Amateur Radio Community

Military Auxiliary Radio System (MARS) volunteers will take part in the Department of Defense (DOD) Communications Exercise 20-4, starting on October 3 and concluding on October 26. The MARS focus is interoperability with ARRL and the amateur radio community.

“Throughout the month of October, MARS members will inter-operate with various amateur radio organizations that will be conducting their annual simulated emergency tests with state, county, and local emergency management personnel,” said MARS Chief Paul English, WD8DBY. “MARS members will send a DOD-approved message to the amateur radio organizations recognizing this cooperative interoperability effort.”

MARS members will also train with the ARRL National Traffic System (NTS) and Radio Relay International (RRI) to send ICS 213 general messages to numerous amateur radio leaders across the US.

“This exercise will culminate with MARS Auxiliaries sending a number of summary messages in support of a larger DOD communications exercise taking place October 20 - 26,” English added. Throughout the month of October, MARS stations will operate on 60 meters, and WWV/WWVH will broadcast messages to the amateur radio community. English assures no disruption to communications throughout the month-long series of training events.



### Alarm on Wireless Power Transfer for Electric Vehicles

The International Amateur Radio Union (IARU) is raising awareness about the potential for RF interference from electric vehicle recharging stations. IARU member-societies are being urged to contact national regulators to make them aware of the technology's potential for "RF pollution." The chargers can run as much as 20 kW.

Union (ITU) Radiocommunication Sector (ITU-R) conducted studies to assess the impact of charging stations on radiocommunications and suitable harmonized frequency ranges. Those studies identified the 19 - 25 kHz band, as well as bands in the 50 kHz and 60 kHz range, for high-power chargers, and the 79 - 90 kHz band for medium-power systems.

The IARU members are being urged to contact lawmakers in their countries to bring the issue to their attention, citing that the technology is on the verge of becoming widespread. The request is to contact national regulators, preferably in person, to explain why radio amateurs are so concerned. Of particular concern is long charging times in populated areas that could generate harmonics that make radio communication very difficult. Models show that this also applies to the wider environment of Broadcasters, stationary, and mobile services.

The wireless charging of electric cars is done with large coils, with one of them on the ground under the vehicle, the second in the car. Typically, about 22 kW is transferred wirelessly through those coils. This is done using frequencies between 79 and 90 kHz. Developers are seeking noise level limits that are some 30 - 45 dB above current noise levels, according to the IARU, which could have a serious negative effect on the radio spectrum.

"In the interests of the future of amateur radio, we need to get the attention of national regulators," said IARU Region 1 President Don Beattie, G3BJ, Beattie. "This is about the future of amateur radio!"

## EGARA Roundtable Meeting Minutes

EGARA held two virtual meetings during September, the first serving as the club's regular monthly meeting and the second as the Roundtable meeting that is held the fourth Wednesday of the month. Items that were discussed included:

- President Bryan Jackson, W2RBJ, provided an update on the status of the Masonic Lodge for meetings. Lodge officers have requested that it not be used for in-person meetings due to the continuing health issues involving the Covid-19 pandemic. The officers were informed that the club has continued to maintain the grounds and the building;
- Some members asked for an update on the installation of the club's 220mhz repeater and were told efforts were continuing to secure a site in the Helderberg Mountains. Since that time, a site visit has been made and preliminary approval has been given by Channel 6 to use a building and tower it owns in the Town of New Scotland. See story on page one;
- Treasurer Don Mayott, KB2CDX, reminded members that dues for the coming year can be paid on the club's website and several responded, with a substantial number taking advantage of multi-year discounts;
- The club is working on holding a VE exam session this Fall. The Search and Rescue Squad has offered use of its building, which offers social distancing for up to ten test applicant. Details will hopefully be firmed up soon.

## Thanks for Your Support!

EGARA recognizes with grateful appreciation the following members who have paid their 2021 dues!

- Dave Williams, N2VLQ
- Bob & Claudia Stark, KA2EXK / KC2VWO
- Russ & Carl Greenman, WB2LXC/ KC2UTC
  - Lee Hatfield, K2HAT
- Ridge Macdonald, KB2HWL
  - Bill Leue, K2WML
  - Nick Field, KD2JCR
  - Dave Smith, WA2WAP
- Warren "Bud" Shepard, W2BUD
  - Don Mayotte, KB2CDX
  - Bryan Jackson, W2RBJ
  - Matt Saplin, KD2CGE
  - Chris Linck, N2NEH
  - Didier Paris, F5MNH
- Jean-Claude Angebaud, F1AKE
  - Martyn Griffiths, G6IVC
  - Bob Stanley, W2RBS
  - Tom Woodson, N4PXB
  - Walt Snyder, N4PXB

# Hams Help Find Kids by Monitoring FRS Channel

Late on the afternoon of September 16, the police department in Post Falls, Idaho, received a 911 call that two juveniles -- ages 9 and 11 -- were missing from a Post Falls residence for about an hour. According to the report, the pair had left home intending to play in the neighborhood with some Family Radio Service (FRS) radios. Several patrol cars were dispatched to the area to conduct a visual search, and detective Neil Uhrig, K7NJK, responded as officer in charge due to his training and experience with missing persons investigations. The initial search focused on a 2-mile radius from the missing kids' residence.



One officer received information from witnesses that the pair was probably using FRS Channel 1 (462.5625 MHz). An officer returned to police headquarters to retrieve some FRS radios for distribution to the patrol officers, in the event they might be able to hear the youngsters talking.

Uhrig, meanwhile, pulled out his VHF/UHF handheld with the thought of setting up FRS Channel 1 as an auxiliary frequency, but without the manual at hand, he wasn't able to execute the channel setup. But Uhrig did hear the Northwest Traffic Net (NWTN) that had begun at 6:30 PM on the local 2-meter repeater.

Checking into the net at about 6:45 PM, Uhrig explained the missing persons situation to net control station Shannon Riley, KJ7MUA, and asked if net participants in the Post Falls area with FRS capability could listen for the youngsters talking.

A number of stations promptly checked in to say they had FRS radios and were monitoring FRS Channel 1. It was assumed that only stations located near the missing youngsters would hear them, given the limited range of FRS radios.

Not long after 7 PM, Jim Hager, KJ7OTD, reported hearing children talking on FRS Channel 1. Uhrig went to Hager's home to confirm his observation, and the patrol units were redirected to the new search vicinity. A short time later, the missing pair was found safe and returned home.

Uhrig said the most remarkable thing about the incident was that the missing youngsters turned out to be some distance from the original search area, and in the opposite direction from where they were thought to have been headed.

Net Manager Gabbee Perry, KE7ADN, said, "I'm so proud of what a superior job NWTN NCS Shannon [KJ7MUA] and all the operators did last Wednesday. It was a very unusual situation, but everyone had excellent focus and used their resourcefulness to help quickly find the missing kids."

## Paying Club Dues Has Never Been Easier!

Let's face it, you always feel better when you've done your part to help the team. So take a moment right now to support EGARA by sending along your annual dues for 2021.

Pay quickly and easily online at: <https://www.egara.club/pay-dues>

or mail your check to: EGARA, c/o Jackson, 983 Sterling Ridge Drive  
Rensselaer, NY 12144.

\$15 / individual - \$25 / family  
Multi-year rates also available

## The History of Ham Radio: Radiotelephone

Chris Codella, W2PA, author, John Pelham, W1JA, editor, Phil Johnson, W2SQ, editor

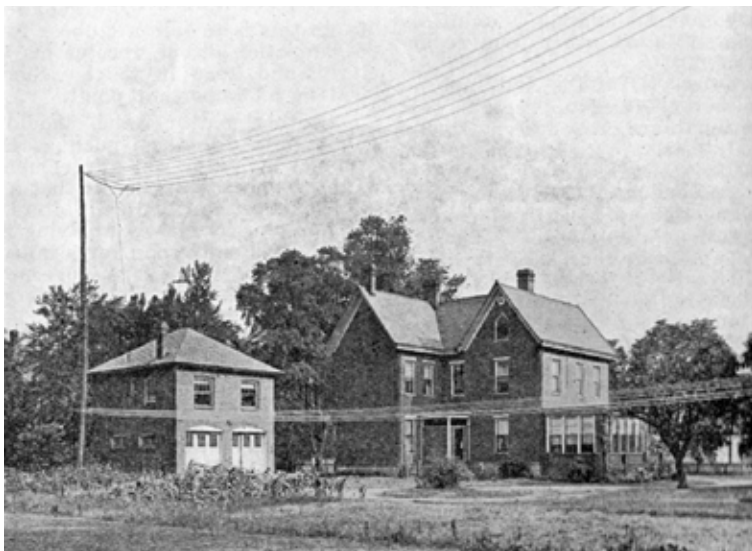
(Editor's note: By special arrangement with the authors, Sidebands is pleased to present this multi-part series on the history of ham radio. Subsequent chapters will be published in future monthly editions of the newsletter)

As vacuum tubes were making CW practical, they were also making voice transmissions possible. Experimental broadcasts using radiotelephone—or just “phone” to hams—began as experiments by amateurs and some of the wireless telegraph companies, including Marconi and DeForest. In these early years of radio, just having a receiver to listen to the limited number of phone broadcasts was sufficient to be regarded as a radio amateur.

The Marconi Wireless Telephone was demonstrated publicly for the first time on 12 June 1916. Aboard a ship making its way out of Long Island Sound en route to Boston, an audience heard conversation and music via a two-hour broadcast from Marconi's station in Aldine, New Jersey. David Sarnoff, then Marconi's Communications Manager, demonstrated the new technology to members of the New York Technology Club who were on their way to attend dedication ceremonies for new buildings at MIT. Among the distinguished group were Orville Wright and Alexander Graham Bell.

That same year, thousands of amateurs listened to the DeForest company's radiotelephone test broadcast of opera music from a phonograph in their lab at Highbridge in New York City. The company planned to continue the tests with a news format scheduled for every weekday at 8:00 p.m. on 800 meters. With so many hams in the audience, their request for reception reports was answered quickly as the mail poured in just before the war closing took effect.

After the war, some of the first regular broadcasts came from Frank Conrad's station, 8XK in Pittsburgh, playing music. Westinghouse, his employer, began manufacturing simple receivers so that people who were not amateurs could also listen—establishing a new and different category of radio users. Several thousand Westinghouse receivers were sold in the Pittsburgh area in 1920, perhaps the first such sale specifically aimed at the general public rather than hams. Anticipating a business opportunity broader than just Pittsburgh, the company proceeded to erect broadcasting transmitters in several other cities. Conrad's station, 8XK, later became KDKA.



8XK

This was the beginning of the radio broadcasting boom, which would put wireless technology into almost every home and revolutionize both commercial and amateur radio.

One of the first in-depth technical treatises to cover radiotelephone for radio amateurs was delivered by engineer Walter S. Lemmon at an R.C.A. meeting in the spring of 1920 and published in QST. Describing basic amplitude modulation (AM), Lemmon emphasized the necessity of using only undamped waves, since any form of damped oscillation would not be capable of faithfully reproducing the modulating audio. With spark, for example, any audio that occurred between sparks would be lost. This fact had not kept people from trying.

-- continued on page 9 --



# History of Ham Radio...

One early method of modulation simply involved inserting a microphone in the antenna or ground lead. “However, the limited current carrying capacity and resultant heating of the microphone makes this scheme very wasteful of energy and it has long since been abandoned,” wrote Lemmon—without mentioning the likely uncomfortable effects on the operator.

With vacuum-tube sets you instead could modulate the grid or plate current by various means (basically the same ways practiced today). The plate, or Heising, system was preferred, in which a modulator tube’s plate circuit was placed in parallel with the oscillator tube’s plate circuit, both supplied with DC via a choke bypassed for RF by a capacitor. When the modulator tube conducted, it decreased the current in the oscillator tube, thus modulating its signal.

Raymond A. Heising, for whom the method was named, was an Engineer at the Research Laboratories of AT&T and Western Electric. He presented the idea himself to an amateur radio audience in another R.C.A.-to-QST relay—a seminar at Columbia University in February 1921 followed by a two-part QST article. It was yet another example of a radio pioneer, well published in professional journals, adapting his work to be understood and used by amateurs and describing it in a seminal paper.

Heising explained the theory of amplitude modulation, but called it simply radio telephony. His comprehensive treatment first warned against applying modulation techniques used in telegraphy, pointing out the fundamental distinctions that are obvious today. For example, in telegraphy, any old noise applied to the transmitted signal would suffice to make it audible in the receiver, whereas in telephony, the object was to have the receiver exactly replicate only the applied noise (he actually called it noise, meant in a generic way to mean useful sound, not a thing to be avoided). He proceeded to explain the basic mathematics, the origin of sidebands, which he called side frequencies, and the problem of over-modulation, describing its sound as “tinny.” Part two presented all the information amateurs needed to build an up-to-date radio telephone transmitter, including circuit designs, and advice on which circuits and component values to choose for various kinds of vacuum tubes.

In the summer of 1921 it was all there—the complete, basic blueprint for sending sounds over radio. Many others would build upon this foundation for decades to come. Heising’s article was just in time for, or perhaps one of the causes of, the coming explosion in radio telephony.



# Stuck at Home? Try a Webinar!



Two well-known ham radio authors and speakers will share their expertise with members in October during ARRL Learning Network webinars.

ARRL Contributing Editor Ward Silver, N0AX, will present “Grounding & Bonding for Home HF Stations” on Tuesday, October 6, at 10 AM PDT/1 PM EDT/0500 UTC.

Popular ARRL author Glen Popiel, KW5GP, will present “Welcome to the World of Arduino” on Thursday, October 15, at 5 PM PDT/8 PM EDT (0000 UTC on Friday, October 16).

The webinars are available to ARRL members who can log in to the ARRL website to register for each webinar.

Silver authored the ARRL book *Grounding and Bonding for the Radio Amateur* in 2017 as a practical guide to building a station that incorporates effective grounding and bonding techniques for electrical safety, lightning protection, and RF management. Radio amateurs often cite the title for demystifying an often misunderstood or intimidating topic.

During his webinar, Silver will define grounding and bonding, cover the benefits and requirements, and share useful references and guides for hams to apply these techniques in their home HF stations.

In his presentation, Popiel — the author of several ARRL books, including *Arduino for Ham Radio*, *More Arduino Projects for Ham Radio*, and *High Speed Multimedia for Amateur Radio* — will cover the open-source, electronic-prototyping Arduino platform, which is widely popular among electronics hobbyists and radio amateurs. The webinar will include examples of how to put Arduinos to use in building ham radio projects and practical station gear.

Live question-and-answer periods will follow each 30-minute presentation.

The ARRL Learning Network webinar series was introduced as a new membership benefit in July. Presentations are by members, for members, as part of ARRL’s Lifelong Learning initiative. Topics cover three primary interest areas among radio amateurs, including electronics and technology, personal communications and operating, and emergency communications and public service.

All webinars are recorded, so members and radio clubs can view previous presentations.

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**(But you can help fill it by writing an article for Sidebands)**

# CALENDAR

**October 14, 2020 - 7 pm** - Monthly club meeting by Zoom teleconference. Guest program by Ria Jairam, ARRL Hudson Division Director.

**October 28, 2020 - 7 pm** - EGARA Roundtable on 147.270 repeater

## Pro Tip: When You're Mobile



Long ago, FCC rules required mobile hams to not only say their call sign, but to say where they were operating -- giving both the city and the call sign area.

You may hear some hams saying, "...mobile 6" or "...mobile 3" after their call sign. This means that they are operating "mobile, in call sign area 6" or "mobile, in call sign area 3."

This is no longer required but it is sometimes good to know.

When leaving their home state, some hams will keep track of what call sign area they are in, and say, "...mobile 7," or "...mobile 1," or whatever.

**Recommendation:** it's not necessary, but it's not wrong.



## For Sale

- **Arrow Model 52-S4** - 4-Element 6 Meter Yagi antenna in good condition. \$75.00  
Contact Steve at: [svansick@nycap.rr.com](mailto:svansick@nycap.rr.com)

- **IFR-1100S Service Monitor. With Spectrum Analyzer and Oscilloscope.** Tested, Preventive Maintenance and Calibrated (\$895) last year. AM - FM, CTCSS Generator, In very good condition. 900.00 or make reasonable offer.
- **Military Watt Meter AN/URM-120 B/U 2 to 1000 MHZ** Complete and with Carrying Case. In excellent condition. Never abused or used on the road. Great Shack / Bench Watt Meter. Picture available. \$100.00 or make reasonable offer.
- **Yaesu FT-2900 Programing Software by RT Systems** Cable included. used once. Registered and includes password. \$35.00
- **UHF RX preamp.** one input, three outputs with SO-239s. Runs on 12 V. Good Shape. \$8.00

For above, contact John WB2HZT at:  
[Radiowizz@aol.com](mailto:Radiowizz@aol.com)

Gear to Sell, Swap or Buy?  
Send your listing to [W2RBJ@Outlook.com](mailto:W2RBJ@Outlook.com)

**Join the Roundtable!**  
Every 4th Wednesday of the month at  
7 pm on the 147.270 Repeater  
(PL 94.8)

### The East Greenbush Amateur Radio Association

Organized in 1998, by Bert Bruins, N2FPJ, (SK) and Chris Linck, N2NEH, the East Greenbush Amateur Radio Association, an ARRL affiliate, is committed to providing emergency services, educational programs, and operating resources to amateur radio operators and residents of the Capital Region of New York State. The club station is W2EGB. The club also has several VHF and UHF repeaters open to club members and the public.