



**CQ**  
de WA2LQO

VOL 82, NO. 8

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## **Grumman Amateur Radio Club Picnic August 19th**

*See President's message for details.*

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### **Who Invented Radio? (Continued from the May CQ de WA2LQO)**

**By Bob Wexelbaum, W2ILP**

We last considered Marconi's success at trans Atlantic radio communication in 1901, but if radio communication technology had not succeeded in going beyond the crude hardware which Marconi used, which was only capable of sending and receiving telegraph signals, radio would not have evolved to its present form. It was not simply a matter of perfecting radio; it was a matter of entirely reinventing radio so that radio receivers could become more sensitive, selective, and reliable and so that thousands of radio transmitters could be used to transmit thousands of separate signals at the same time by telephony (not just telegraphy).

The receiving detector that Marconi used was a coherer. This device is electro-mechanical and can only receive telegraph signals. Various other detectors were developed that were great improvements. A radio detector is often a diode, which can rectify a modulated radio signal. Modulated radio signals are double sided and detectors must output a single side which contains the audio modulation. In its simplest theoretical form, a diode must have as low as possible forward electrical resistance and as high as possible reverse resistance. Low forward resistance enables a diode radio detector to have increased sensitivity to weak signals. Various semiconductor materials were tried in a quest for obtaining best sensitivity. Galena or iron pyrite minerals worked well, but could not be relied on since they are not homogenous (pure). In order to find a sensitive spot on the surface of a galena crystal, a wire called a cat's whisker would have to hunt by trial and error to find a point of contact that worked. Experimenters tried other available objects. A rusty razor blade edge (iron oxide) contacted by a cat's whisker could also produce reasonable results! The U.S. Navy was not going to use such finicky devices and they settled for carborundum detectors, which were less sensitive but more stable. The galena diode crystal receiver was patented by Greenleaf Whittier Picard on November 20, 1906, but it was used by experimenters much earlier. Today we have diodes which have much more predictable specifications. The germanium junction diode can be used as a radio detector, although it has a forward voltage drop of about 0.35 Volts. The silicon diode is better used for computer logic switching, since its forward voltage drop is 0.7 Volts. This is advantageous in digital systems, where we don't want to detect noise.

The early radio experimenters used spark gap transmitters, which were limited to Morse Code. As radio technology progressed it became desirable to transmit a continuous wave (CW) carrier of one coherent radio frequency rather than random spark excitation. This together with radio frequency tuning at both the receivers and transmitters made it possible to separate signals and improve selectivity.

Higher power transmitters would be needed to reliably cover longer ranges at low and medium radio frequencies. The spark transmitters were limited as to how high a power they could generate.

(continued on page 2)

## WHO INVENTED RADIO (continued from page 1)

An alternator is a device which can convert rotational mechanical energy into alternating current (AC). The alternators used to generate electrical power for household use in the U.S. produce 60 Hertz AC. Alternators can also generate AC at VLF or LF radio frequencies. This is accomplished by increasing the number or poles (individual coils) in the rotors of the alternators and also increasing the speed of rotation. Such techniques were used to build the first high power commercial communication systems.

Reginald Aubrey Fessenden (1866-1932), was born in Canada, but he did his work in the U.S. He invented amplitude modulated radiotelephony. He worked for Edison for a short time, starting in 1886 and consulted with Westinghouse while he was a professor at the University of Pittsburgh (1890-1900), and then he founded his own company, NESCO, to develop alternators. All of the other inventors still believed that spark gaps were the only way to transmit wireless signals. That is probably because they realized that lightning was a natural source of electromagnetic energy, which could be artificially copied. Fessenden at first worked on improving synchronous rotary spark transmitters that were not keyed on and off by Morse code, but could produce a continuous wave at a radio frequency. He managed to modulate them with audio, using the carbon microphones that Alexander Bell had developed for land line telephones. Fessenden then proved that he could use alternators to produce higher power stable carrier signals without spark coils and that he could modulate the RF carriers with audio signals. Unfortunately Fessenden's alternator project at GE was supervised by a man named Alexanderson, who is sometimes credited for inventing the alternator that Fessenden had designed.

(To be continued next month)

<p style="text-align: center;"><b>PRESIDENT'S NOTE by ED GELLENDER, WB2EAV</b> <b>August 2009</b></p>
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### COME TO THE PICNIC AUGUST 19<sup>th</sup>

First I must point out that the club's August meeting is the annual picnic. It will start at 5:00 PM on Wednesday, August 19, 2009. This year we are holding it at a different place than we have in the past. Recent picnics have been very pleasant, and I expect that this year's will be the same. As usual guests are welcome. The usual hot dogs and hamburgers will be served.

Syosset-Woodbury Park is convenient to major highways. Take the LIE to exit 44 North onto the Seaford Oyster Bay Expressway (NY 135). Go about a mile to the next exit for Jericho Turnpike (NY 25) East. (Note: Avoid the sharp right turn from the off-ramp. It goes into an industrial park.) Merge onto NY 25 East and go ¼ mile to the park entrance at the second traffic light and turn right into the park. You quickly come to a fork in the road. Turn right to the road for the rear parking area and you will pass a picnic grove to your left, where we will be. (If you go left at the fork, that's OK – park and walk to the right of the rink and pool.)

Alternately, you can get to NY 135 North from the Northern State westbound at exit 37A by transferring to the LIE, or east bound use 36A-N. Also you can use Southern State exit 28A-N and go north about 7 miles.

In other news this month, the club's Special Event 40<sup>th</sup> Anniversary commemoration of the Apollo 11 Lunar Landing in the Grumman Lunar Excursion Module (LEM) is now completed and it was a great success. Eight club members participated, contacting 1466 stations, from which we have so far received over 220 requests for the commemorative certificate. Everyone did a great job, and had a lot of fun doing it. My congratulations to all: Especially to Ray W2DKM for organizing it.

I'm looking forward to seeing you at the picnic.

Ed, WB2EAV

**GRUMMAN AMATEUR RADIO CLUB  
MINUTES OF GENERAL MEETING 7/15/09**

By Karen, W2ABK, secretary.

**The meeting was called to order by Ed at 5:40 PM.**

**TREASURERS REPORT – Ed, WB2EAV**

Finances continue to be in good shape.

**REPEATER REPORT - Gordon, KB2UB**

745 repeater had weak signal. Needs to be checked

**VE REPORT – Bob, W2ILP**

There were 3 applicants; one passed a Technician exam, one failed a Technician exam, one passed commercial Elements 1 to earn a MROL. VEs were W2QUV, WB2IKT, AB2ZW and W2ILP.

**NET REPORT- Zack, WB2PUE**

Thursday night nets were good on 745 and 330. Starting at 7:15 AM, a few people checked in to the Sunday morning net. 7.255 was troubled by splatter.

**OLD BUSINESS**

Field Day worked out well. Our total score was 3,396 points with 441 SSB contacts and 431 CW contacts. Thanks to all who made it happen!

**NEW BUSINESS**

Our next meeting will be a picnic at Syosset Woodbury Park.

**PROGRAM**

Ray discussed the Special Event Apollo 11 40<sup>th</sup> Anniversary operation. Eight members signed up to use the WA2LQO/ call sign. Ray set instructions and scripts to all who signed up.

**The meeting was adjourned at 6:35 PM**

**GARC NETS:**

**40 Meters: 7.255 MHz at 7:30 AM EST Sundays.** *Note: Frequency has changed.*

**2 Meters (via repeaters): 146.745 MHz (-.600 kHz) at 8:15 PM EST Thursdays.**

**145.330 MHz (-600 kHz) at 8:30 PM EST Thursdays**

**[Tone for both repeaters is 136.5 Hz]**

**(ARES/RACES) Mondays**

**MEETINGS**

General Meetings of the GARC are held on the third Wednesday of each month, starting at 5:30 PM. The meetings are usually held at the Ellsworth Allen Park in Farmingdale. Driving directions and maps can be obtained from <http://www.mapquest.com> It is suggested that the GARC Web Site be checked to be certain of meeting location, which may change after this newsletter is distributed. Board meetings are held eight days before the General Meeting.

**GARC WEB SITE**

The web site of the GARC can be found at <http://www.qsl.net/wa2lqo/> Webmaster is Pat Masterson, KE2LJ. Pictures of GARC activities, archives of newsletters, roster of members, and other information about the GARC may be found there.

## INTERNET LINK OF THE MONTH FOR INTERNERDS

Some time ago I recommended a weather Internet site called "Weather Bug". That site turned out to be parasitic and I deleted it from my computer. It was supposed to be free but it carried a lot of local commercials, which were targeted to the user who had to enter his or her postal Zip code, in order to get the local weather reports. It finally started to ask for a payment if one did not participate as a customer of the stores or services that it advertised. I have now found another weather website that offers all the features of "Weather Bug" plus many more. So far this site is free of advertising commercials and pop ups. So far it asks for no payment. It is called "Weather Watcher" and may be downloaded by going to:-

[http://download.cnet.com/Weather-Watcher-Live/3000-2381\\_4-10049378.html](http://download.cnet.com/Weather-Watcher-Live/3000-2381_4-10049378.html)

That is a long address. It would be better to Goggle up "Weather Watcher free download" and get it from there.

Automatic weather alerts can remind us to turn off our computers, ham transceivers, and TV sets when lightning storms are approaching. This may help to prevent damage from power surges.

Once you have Weather Watcher you can tell the hams that you work all about your local weather. This is always a safe thing to do. Actually, I could care less about the weather that is local to stations that I QSO with, unless it is bad enough to be declared a national emergency by FEMA. Regardless of this fact, after signal reports, the most popular topic for ham radio communicators is weather reporting. This stems back to the time before there was any real-time coverage of weather...before the Internet...before TV cables... and even before networks tied the AM broadcasting stations across our nation to each other...and NYC hams could be unique in knowing when or if it ever rained in sunny California. It is always safer to talk about the weather than about sex, politics or religion. In spite of the fact that accurate current weather information is readily available on Internet home pages, some hams make a secondary hobby of operating their own amateur weather reporting instrumentation. This proves only what I have always known... Ham radio means different things to different people.

### PUZZLE

**Here is another Cryptogram:**

**KPXF AHLTPXH JEPW OESLH WHTLVHX VTBUDTJ TWEPZM FVH DEWBM**

**MEHXZ'F NHTZ JEP TWH DSXHW FVTZ DVHZ SF WHTLVHM EZBJ FE FVH**

**HZM EU FVH ATW. -HMDTWM W. NPWWED--**

### **Solution to the July Cryptogram:**

**WE ARE LIVING IN A WORLD TODAY WHERE LEMONADE IS MADE FROM ARTIFICIAL FLAVORS AND FURNITURE POLISH IS MADE FROM REAL LEMONS.**

**--ALFRED E. NEWMAN--**

CQ de WA2LQO

August 2009

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**EDITOR**

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**CONTRIBUTING WRITERS**

All the members of GARC (we hope!)

CQ de WA2LQO is published monthly by the Grumman Amateur Radio Club for its members and friends. Send articles and amateur equipment advertisements to: W2ILP. Articles may be sent by e-mail or postal mail. They can be in MS Word format or simply in plain text. Articles will only be edited when permission is granted by the author.

**ELECTRONIC SUBMISSIONS**

For insertion to the WA2LQO website, information may be sent to Pat Masterson.

Pat Masterson's e-mail address: Pat-Masterson@tampabay.rr.com  
Ed Gellender's e-mail address:

Edward.Gellender@ngc.com or wb2eav@yahoo.com

## EDITORIAL

At each GARC meeting we learn that some of our members are ill. Hank, W2ZZE is recovering from a stroke, Dave, AB2EF has had serious problems with a recurring dental infection, and Zak, WB2PUE has undergone several stages of eye surgery. All of our best wishes go out for speedy recoveries.

In spite of this we had managed to get eight member stations on the air in July for the Apollo 11 Special Event!

Yep - We still do have some active members.

I want to give special thanks to Karen Cefalo, who is the GARC secretary. She started as a member, without a ham license and passed a CW test at 5 wpm. After CW tests were no longer required, Karen advanced to Technician, General and Extra Class. Her initial call sign was KC2OPX, but she was able to get it changed to W2ABK, which was the call sign of her grand uncle. Karen is an active VE and a regular on the 2-Meter Thursday night nets. She was also active at Field Days and as a Special Event station. Her hubby is not a ham, nor does he plan to become one, but he is very supportive of Karen's initiatives.

I won't talk about the weather, either local or globally warming. You can read that on the Internet.

73,  
Bob w2ilp (I Like Picnics)

## GARC VE EXAMS

We are continuing to proctor exams for all classes of ham licenses on the second Tuesday of each month, starting at 5:00 PM.

The present exams are:-

*The Element 1 CW exam is no longer required.*

Element 2: Technician

Element 3: General

Element 4: Amateur Extra Class

The fee for 2009 is \$14.00 for all exams taken in one sitting. The ARRL-VEC now charges \$15 but W5YI-VEC has decided not to change the required fee.

Applicants for upgrades should bring their present license and a photocopy of it and know their FRN number.

New, first time applicants should be aware that their Social Security number will be required on their application form, unless they register with the FCC for an FRN.

All applicants should bring picture ID such as driver's licenses.

Until further notice exams will be given at:-

Briarcliffe College  
1055 Stewart Avenue  
Room: Long Beach #5  
Bethpage, NY

Briarcliffe, Bethpage is located in a building that was formerly part of the Grumman complex.

All applicants should contact W2ILP to register, so as to confirm location. If no applicants apply, the exam session will be cancelled.

For any information e-mail w2ilp@optonline.net or phone- (631) 499-2214

Study material is available at the web sites of the ARRL

<http://www.arrl.org>

or W5YI

<http://www.w5yi.org>

All VECs use the same Q & A pools.

Since the beginning of the VE program the GARC has provided opportunities to take the ham exams monthly, during all 12 months of every year.

Bob Wexelbaum, W2ILP and the GARC VE team.

### GRUMMAN AMATEUR RADIO CLUB OFFICERS FOR 2008

President	Ed Gellender	WA2EAV	X02-14	516-575-0013
Vice President	Gordon Sammis	KB2UB	Retiree	631-666-7463
Secretary	Karen Cefalo	W2ABK		631-754-0974
Treasurer	Ed Gellender	WB2EAV	X02-14	516-575-0013
2Yr Board Member	Zack Zilavy	WB2PUE	Retiree	631-667-4628
2Yr Board Member	Dave Ledo	AB2EF		
2Yr Board Member	Bob Christen	W2FPF		
1 Yr Board Member	Bob Wexelbaum	W2ILP	Retiree	631-499-2214
1 Yr Board Member	Jack Cottrell	WA2PYK	Retiree	516-249-0979
Trustee WA2LQO	Ray Schubnel	W2DKM	Retiree	

### STANDING COMMITTEE CHAIRMEN

Contact VE:	Bob Wexelbaum	W2ILP	Retiree	631-499-2214
Webmaster	Pat Masterson	KE2LJ	Retiree	813-938-4614

**GRUMMAN AMATEUR RADIO CLUB**  
**Sixty Five Years 1944 -2009**  
**P.O. Box 0644**  
**Bethpage, NY 11714-0644**

<b>FIRST CLASS</b>
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**DO NOT DELAY**

**Apollo 11 40<sup>th</sup>  
Anniversary Special  
Event Summary**

By Ray Schubnel, W2DKM

The Grumman Amateur Radio Club Special Event operation commemorating the 40<sup>th</sup> Anniversary of Apollo 11 went well. Eight stations participated. They were:- K2IFB, K2MC, K2MFY, KB2UB, N2SFT, W2ABK, W2DKM and W2ILP. In total our operation made 1554 contacts during the event. After removing duplicate calls from the multiple logs, we ended up with 1466 separate calls being contacted. Eventually the full list of calls contacted will be posted on our website.

**PICNIC**

The Grumman Amateur Radio Club is going to hold its annual picnic at Syosset – Woodbury Park, on August 19<sup>th</sup> starting at 5:30 PM, which is our usual meeting time. Directions to the park are in the president's message in this newsletter. All members of the GARC are invited and each may bring a guest.

**WHO INVENTED  
RADIO?**

I hope that you are continuing to read my serial story about the inventors of radio, which I hope to continue in monthly installments. If you are not interested in who invented radio, perhaps you might be interested in who didn't invent radio, but got credit for doing so. I have not come to the most ironic parts of the rest of the story yet.

--w2ilp--