



**CQ**  
de WA2LQO

VOL 82, NO. 5

## **Who Invented Radio?** **By Bob Wexelbaum, W2ILP**

We can not give any one man credit for “inventing” radio. Radio reception and transmission, or radio communication as we now know it, was developed in fits and starts. You will see that many who were given credit for radio development were but minor players or actually contributed nothing to the science or “state of the art” of radio.

Without knowledge of electricity, wireless communication could not have been conceived. Michael Faraday, an Englishman, is credited with realizing that light and electromagnetism were related and that both traveled at the same speed. He thought that they must travel in some medium, such as water waves do, and he used the term “aether” for the medium by which they could travel through space. James Clark Maxwell, a Scotsman, expanded on the theory that electromagnetic motion could be explained mathematically by wave theory in a book that he published in 1873. In 1886 Heinrich Hertz, a German, proved Maxwell’s theory by discovering that when a spark was generated across an air gap between two conductive ends, it could cause another spark to occur across the gap of a resonant inductor several feet away from the spark generator. From the size of the inductors involved we now know that his experimental model was radiating at a microwave frequency! The importance of Hertz’s experiment was that it predicted that signals could be sent by radiation as well as by induction. In 1865 a group of men in West Virginia, headed by Dr. Mahlon Loomis, who was a dentist, flew two kites, each of which were connected to the earth by copper wires which he called aersials, and each of which was covered with fine copper braiding. One kite had a galvanometer connected in series with its earth connection. When the connection to earth was opened and closed at the other kite, the galvanometer, which was 18 miles away, quivered!

Before there was spark transmission or CW, many men experimented with “radio telegraphy” using induction. The induction method simply uses an electromechanical transducer to drive an induction coil. The coil acted as the primary of an audio transformer. The secondary coil was the receiver; some distance away from the primary, which drove a telephone receiver. The trick was to see how far the secondary could be located away from the primary. It is not clear as to who first conceived of induction communication. Professor Trowbridge of Harvard may have started the idea going, but Alexander Graham Bell, Professor Oliver Lodge, Sir William H. Preece, A.W. Heaviside, and others experimented with this concept. It was Professor Amos E. Dolbear who actually built a somewhat practical working system. He claimed that his induction system enabled the sending of telephone signals to railroad trains while they were near a railroad station. The primary to secondary inductance method worked well, even for sending music, but not for much further than a mile!

It was Marconi, whose father was Italian and whose mother was English, who conceived of putting the theories of all who came before him to practical use. He started experimenting with spark transmission in 1894, when he was 20 years old. His first experiments were made on his father’s large estate, near Bologna, Italy. He moved to England, where in 1896 he succeeded in sending a radio signal across the Salisbury Plains, for a distance of two miles. For this he obtained a patent from the British Patent Office, in spite of the fact that Marconi did not invent anything that was new. All of the theories and all of the actual hardware that he used had been developed by others. With the exception of William Preece, all of the other early experimenters branded Marconi a thief. The Russians claimed that radio was invented by Popov, who had achieved similar results and had debatably developed a superior radio detector. Marconi’s work had applications such as ship to shore communication for maritime Safety. The physicists of his day had not considered any practical or commercial use for radio.

*[Continued on page 2]*

## Who Invented Radio? (continued from page 1)

If nothing else, Marconi deserves credit for publicizing radio. Some newspapers of Marconi's day were very skeptical about the capabilities of radio. They had been accused of publishing hoaxes in order to sell papers and were therefore careful about reporting dubious claims. Even the "Scientific American" magazine took a neutral stance. In 1899 Marconi succeeded in sending telegraph signals across the English Channel, a distance of 32 miles, using a receiving coherer and a tuned RF transformer that was invented by Sir Oliver Lodge. On December 1901, after several failures, he succeeded in receiving a signal (the letter "S") at St. Johns, Newfoundland across the Atlantic Ocean from Podhu, Cornwall, England!

There have been many more inventors who contributed to the advancement of radio technology. Without their efforts the radio transmitters and receivers which are now used, would be impossible. There has also been a famous man whose only contributions were hoaxes. Unfortunately some historians and even the U.S. government have given him credit for inventing radio. I'll tell you about him and the rest of the story next month.

### PRESIDENT'S NOTE by ED GELLENDER, WB2EAV May 2009

I am pleased to report that we have two events in the planning stage. We will be operating Field Day on June 27 – 28 at the same location as last year. It worked out really well and I am glad that we can do it again. It will be at the Dix Hills Golf Course (North side of Vanderbilt Parkway, 0.8 miles east of NY 231; first building on the left). We will have more details at the meeting and in the newsletters.

The second activity commemorates the 40<sup>th</sup> anniversary of the moon landing on July 20, 1969. In honor of the Grumman Lunar Module being built here in Bethpage, the Grumman Amateur Club is participating in an activity from July 17 – 21. More Details to follow at upcoming newsletters and meetings

We are saddened by the passing of several of our own, Mike Swass KJ6XE, John O'Brien W2KFG and Connie Falsetta, XYL of Andy W2RNC. Our thoughts are with their families. They will all be missed.

A couple of days after I wrote last month's column, we were able to put the Ringo Ranger and mast up on the roof over the Bethpage 146.745 repeater. It now has nice coverage for its height....Try it. Because the eastern part of the building is almost as high as the antenna and right in line with the Huntington hills, coverage to the northeast is not quite as good as coverage to the southeast and west.

While troubleshooting a slow power output variation, I put a wattmeter in the line where the repeater puts 10 Watts into the 10-100W amplifier. I found that on the 10 Watt scale the meter was pinned. I put a 3dB pad that was lying around in the line to lower the reading for a better look...Suddenly all of the power variations went away completely. Apparently the amplifier's 10 W input spec doesn't include 11 or 12 Watts. Obviously I left the attenuator in there. Now I should see if I can get some lower dB attenuators to see if I can optimize things. I also have to see why we occasionally get a crackling noise. It never ends, does it?

#### WITH SADNESS AND SYMPATHY WE REPORT THE FOLLOWING SILENT KEYS

**John P. O'Brien, W2KFG** was a member of the Grumman ARC and a retired Grumman employee who had worked both in Bethpage and in Calverton. He had retired to Clarks Summit, PA.

**Michael C. Swass, KJ6XE** was a well known member of the Grumman ARC. Mike was the owner of the Lakeview Antenna Company, whose products include Hamstick antennas. He lived in Islip NY, and was a prominent hamfest vendor in our area, until he relocated to Anderson, SC in 2000 and continued to attend many of the regional ham fests on the east coast, as well as the Dayton Hamventions. Mike had remained active on the Sunday morning 40-Meter WAG net.

**Connie Falsetta, XYL of Andy Falsetta, W2RNC** of Massapequa Park, NY passed away last Wednesday.

**GRUMMAN AMATEUR RADIO CLUB  
MINUTES OF GENERAL MEETING 4/15/09  
By Karen, W2ABK (formerly KC2OPX), secretary.**

**The meeting was called to order by Gordon at 5:35 PM.**

**TREASURERS REPORT – Ed, WB2EAV**

Finances continue to be in good shape.

**VE REPORT – Bob, W2ILP**

Because of a last minute lack of a 3rd VE, the April VE session had to be aborted.

**REPEATER REPORT - Gordon, KB2UB**

The Ringo Ranger is up and the Bethpage repeater is usable, but Ed will continue to improve its operation.

**NET REPORT- Zack, WB2PUE**

The Thursday night net on 330 had a good turnout. The Sunday Morning 40-Meter net was very noisy.

**OLD BUSINESS**

Ray, W2DKM has confirmed that our Field Day 2009 will be at the Dix Hills Golf Course. We will also again get help from cherry pickers to erect our antennas.

**NEW BUSINESS**

We received sad news that Mike Swass, KJ6XE and John P. O'Briann, had passed away.

**PROGRAM**

Ray, W2DKM gave a presentation about E-Bay and its use for Ham Radio buying or selling. He told how he started using E-Bay. He explained about strategies involving bidding. He warned us of some dangers.

**The meeting was adjourned at 7:00 PM**

**GARC NETS:**

**40 Meters: 7.289 MHz at 7:30 AM EST Sundays.**

**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.

## NOISE ON THE SUNDAY MORNING 40 METER WAG NET!

Don, W2III sent an E-mail to Gene, W4JMX complaining that he was unable to hear anyone in weeks. Gene replied with the following message: The QRM on 7289 has made it impossible to hold the Sunday WAG net there. I have been scanning 7255 and down to 7225 to see if any frequency is clear.. I spoke to Tony yesterday and he is now off the air permanently. He sold his rig and is moving to a 'continued living' place which is one or two steps above assisted living. I nominated you for net control because you have the strongest signal down here. I spoke to Stan, N4MLA, and he had the same story as you – no contact for several weeks. Sorry for all the bad news but we'll keep trying to salvage the net.  
73, Gene

Same trouble or worse here at W2ILP. I can't even hear Zak, Dave or Bill on the Sunday Net. Seems that all of 40 is nothing but QRM at this QTH.

INTERNET LINK OF THE MONTH FOR INTERNERDS
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I recently received an E-mail message that informed me that I had four electronic QSL cards waiting for me at eQSL.cc I suppose that any of you who are actively working DX, know about eQSL For those who may not I'll make it the website of this month. I was able to see and print the QSLs that were sent to me by registering on eQSL and I was able to give them enough information about myself to generate my own QSL card. The information required is similar to the information that can be seen by using QRZ. The registration required is basically free, but you must go through it to get a password and to see the cards that were sent to you. It is a two step process that verifies your call sign as well as your e-mail address. Serious DXers might want to make a monetary contribution to eQRZ. Electronic eQSLing is cheaper than sending cards through the bureau (ARRL), and it is obviously much cheaper than sending cards by direct postal mail. The cards that you receive can be printed out on any weight paper that you have, in full color, if your printer is so capable. If you haven't heard from this site yet, you can go to it and register by addressing: <http://www.eQSL.cc> Perhaps they will first contact you if your E-mail address is OK on QRZ and they have some QSLs for you..

### PUZZLE

Here is another Cryptogram: DSUIU SUCNUI NR REWHWBU HCU OETU KUHUI NW H

IDCWQ - PSUW NWU IOEXI NRR, HOO DSU CUID RNOONP .

--SUWCET EKIUIW--

**Solution to the April Cryptogram: I MEAN WHO WOULD WANT TO LIVE IN A PLACE WHERE THE ONLY CULTURAL ADVANTAGE IS THAT YOU CAN TURN RIGHT ON A RED LIGHT?**

**--WOODY ALLEN—**

CQ de WA2LQO

May 2009

Volume 82, Number 5

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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

The operation of a VE session requires that at least three VEs must be present to proctor, grade and witness the exams. At the April VE session only two were present, and so the session had to be aborted, and I had to turn away 4 applicants. This is the first time that this has happened in all of the years that the GARC has run VE sessions. It is at least partly my fault, because I had assumed that some of our regular VEs would be there...but it was also partly the fault of several VEs because they did not inform me that they could not make the session and did not give me time to scout up others. At any rate I don't want this situation to occur again and I am calling on all Extra Class members who can, to become certified VEs and to register with me including a telephone number and an e-mail address where they can be reached. I had been relying on some non-GARC members, but if this is to be a GARC operation; I would like to see more GARC members on my list.

73.

W2ILP (I License People), with the help of at least two other VEs, (preferably from the GARC) a VEC, and the FCC.

## 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

**GRUMMAN AMATEUR RADIO  
CLUB to COMMEMORATE  
APOLLO 11's 40<sup>th</sup>  
ANNIVERSARY**

Members of the Grumman Amateur Radio Club are being invited to assist in commemorating the Apollo 11 40<sup>th</sup> Anniversary recognition via a special event operation. Plans are being finalized to include opportunities for each and every GARC member to participate in this on-the-air operating event over the 5-day period corresponding to the significant Lunar Module (LM) events of the Apollo 11 mission. The operation is planned to start on July 17<sup>th</sup> at 0930 EDST (1430 UTC), corresponding to preparation for the Apollo 11 midcourse correction later that day. Operations will be encouraged throughout the 5-day period while noting major events, such as the midcourse correction, LM checkout and activation, lunar

orbit insertion, descent and landing of the LM (Eagle), lunar surface exploration from Tranquility Base, launch from the lunar surface, rendezvous and docking with the orbiting Command Module, to the jettisoning of the LM ascent stage at 2342 UTC on July 21<sup>st</sup>. Operation will end at 2345 UTC on July 21<sup>st</sup>.

Additional details will be presented at the May GARC meeting.

--w2dkm--

**GARC FIELD DAY 2009  
June 27 -28th**

June is not just busting out all over. It is the traditional Field Day month. We hope to have a Field Day this year that will be even bigger and better than last year. Field Day usually includes a picnic. That is OK; but Field Day is not meant to only be a picnic. All those who can should operate. There are too few GARC members who are willing to operate through the night. We need more people to man the stations once they are on the air. We will again be operating from the inside of an air conditioned room, where the only bugs will be keyers. Please be there.

Additional details will be in the June Newsletter.

--w2ilp--