# *CQ de WA2LQO*

**Seventy Years: 1944 -2014**

***The official voice of the Grumman Amateur Radio Club***

**April 2014 VOLUME 87 NUMBER 4**

## HOW I BECAME A HAM (continued from March 2014)

**By Bob Wexelbaum, W2ILP**

*Synopsis: I will continue to discuss inputs from my friends and teachers during my high school years. Not all were hams, but all were my Elmers.*

When I left you last month, I was about to enter the home of Jose Vidal W2JYH and Dolores, his XYL. Upon entering their top floor apartment, I was immediately le d in to what was more like a commercial radio studio than a ham shack. The walls were covered with white sound absorbing tiles. There was a commercial broadcasting microphone on an operating desk, that wasn't the usual D-104 mike that advanced hams used. Also on the operating desk there was an audio mixer-amplifier, which had a VU meter on it, and a ham band VFO and frequency calibrator. The station receiver was a National HRO. It looked very professional. In the corner of the room there was a large white cylinder, which looked like a water heater. I soon learned that it was a pole line transformer. The Vidals told me that their transmitter was designed with the help of Julio Fernandez, W2OGX, who was an electrical engineer who had worked for General Electric in Schenectady, NY and now lived in the Bronx. I had heard his signal on the air. It was 'OGX who had set up the pole line transformer and tapped it to work as a step-up rather than a step-down transformer in order to provide high AC voltages for the RF and modulator power supplies of the transmitter. The line transformer, the audio amplifier and VFO were connected to a tall standard 19" panel relay rack which housed the transmitter's power supplies, modulator and RF amplifier sections. A screened window on the power supply, which was at the bottom of the relay rack, allowed viewing of four 866 rectifier tubes. The transmitter was designed for continuous commercial service, not the usual intermittent amateur service that ham transmitters were usually built for. I guess that was what was required for the long winded QSOs that Dolores transmitted every day. Jose, however, rarely spoke on the air. He was, as required by the FCC, the station licensee and thus the "studio manager". Jose worked for the US post office. He told me that his job included following up on lost letters, postal money orders and packages that were mailed to nations where Spanish was spoken. I don't know if ham communication was used to investigate claims or if it would be legal to do so but I do know that W2JYH did help Spanish speaking US Hams and their friends by giving them information about US postal regulations, which were needed to mail and to receive stuff to and from Spain or Latin American countries. The Vidals were impressed with my interest and knowledge of ham radio. (I was 15 years old). I visited the Vidals many times and they kept me trying to talk to them in Spanish. My vocabulary was good enough for conversation but my grammar and pronunciation was horrible. They couldn't help rolling in laughter at my primitive efforts to speak Spanish. They did however encourage me to continue trying. In listening to their rapid speech, I found them using reflexive verb forms and gerunds more often than my school teacher ever did. I knew the numbers and letters in Spanish and the international Q Code, thus I understood hams when they gave and received signal reports in Spanish. I also learned a standard Spanish phonetic alphabet which was used by DXers to clarify call-signs. The first question I posed to the Vidals was: Why do Spanish Hams say "Cambio cambio" for "Over"? Why two Cambios, when one would do? Jose said that he was not sure about the double cambios, but they probably stemmed from one cambio meaning "I am turning off my transmitter", and the second cambio meaning "I am turning on my receiver." Cambio generally means change. The next question I posed to Jose was "Why is Nueva York {New York} feminine? The Duke of York was masculine, wasn't he? Jose replied that New York is a city and thus *La cuidad de* Nueva York is feminine because *cuidad* {City} is a feminine noun. Why then is *El estado de*

*Nueva York* {New York State} not masculine? Why isn't New York State Nuevo York? This required some thought from Jose, but he answered the question by explaining that Nueva York became a name as a city. A name is like the name of a person, the name of a book, etc. Names do not change gender once they become recognized names; thus NYC and NYS are both Nueva York and you can't change the logic of first impression…even with two cambios. The United States of America in Spanish is *Los estadios unidas de norte america.* Plural masculine for sure but not capitalized! Mexican natives recognized my regional Spanish accent, when I visited Mexico many years later. They recognized from my accent that I was "un americano norte del Bronx."

Now let me tell about my high school math classes. I was in the math honor classes, but arithmetic was not my best subject. When I was in third grade I missed a lot of school time because of various illnesses and never completely memorized the multiplication tables. This was no problem because I could always add numbers multiple times instead, and convinced myself that I didn't need to remember the tables to pass tests where time was not limited. [There were no pocket calculators at that time.] As an academic student I took four years of high school math which included: Algebra, Geometry, Trigonometry, Advanced Algebra and Solid Geometry. Except for the Trig class, where the teacher was Mrs. Klinkerfuss, my math teacher was always Dr. Saul Landau. Dr. Landau would put a word problem on the blackboard before each class started. He would ask the students who finished the problem to line up at his desk. He would look at each student's work, if it was correct he would give the first 3 students extra credit. I seldom got on the line; not because I couldn't solve the problem correctly but because I was slower than others in figuring arithmetic. The problems were interesting and demanded lots of logical interpretation, as they sometimes consisted of setting up simultaneous equations with two unknowns that required first constructing other simultaneous equations with another two unknowns. I was, however, much better doing proofs in geometry. As I studied for the ham tests I knew that I would have to learn trigonometry to master phrase relationship problems, to convert rectangular to polar coordinates, and as W.S. Gilbert said, to learn "many cheerful facts about the square of the hypotenuse." This often took me to the front of the extra credit line. I was also expert on calculating volumes when I studied solid geometry. As a result years later I was able to successfully guess how many beans were in a jar at a Grumman picnic as well as how large a box it would take to house a random digital stress test generator.

I had joined the surveyors club which had only 6 other members. At each meeting the teacher loaded us into his station wagon and we made topographical maps in Van Cortland Park. I learned to use the level, the transit, and the Philadelphia rod. Each member made a cardboard version of the transit. The transit was especially interesting because it could be used to measure the heights of tall trees, buildings and *Antenna Towers* without climbing them, by solving right triangles when only one side and one angle is known. The teacher who ran the Surveyor Club was Mr. Plotkin, (if I remember correctly). Although he wasn't my math teacher and he wasn't a ham, next month I'll tell you how he became one of my best Elmers. (continued next month).

**PRESIDENT'S NOTE by ED GELLENDER, WB2EAV**

The theme for this month is "Save the date" as I discuss two upcoming events of note.

First on the calendar is Field Day, which this year comes out on Saturday, June 28th and Sunday June 29th. After a one-year hiatus, we will be back at Haypath Road Park in Plainview – where we were two years ago. Field Day is always the highest of the high points in the club calendar. Driving directions will be provided next month.

The other event to save the dates for is July 17th thru 19th in Hartford Connecticut, when the ARRL celebrates its 100th birthday with the one-time "National Centennial Convention." It is unusual just for the ARRL annual convention to simply be within a reasonable driving distance. The Centennial Convention is of course a special one-time deal and they are playing it up big time. Those of you familiar with Ham Radio University, held every January, are used to the seminar motif. Those of you who have gone to Dayton Hamventions are familiar with conventions that are national in scope. Well the ARRL Centennial Convention will bring all such motifs to an entirely new level.

We are checking to see if anyone is interested in attending the convention, either alone or as part of a group we might put together. Let me know if you have thoughts along those lines. Ed, WB2EAV 

**GRUMMAN AMATEUR RADIO CLUB**
**MINUTES OF GENERAL MEETING 3/19/2014**
**By Karen, W2ABK**

The meeting was opened by Gordon, KB2UB at 5:30 PM

**TREASURER'S REPORT – Ed, WB2EAV**

Finances continue to be in good shape.

**REPEATER REPORT – Gordon, KB2UB**

The 145.330 repeater is still doswn.

**NET REPORT – Karen, W2ABK**

Thursday night net at 8:15 PM on 146.745 MHz had 3 check-ins.
Thursday night net at 8;30 PM on 145.330 MHz is waiting for repairs.
Sunday morning net at 7:30 AM on 7.289 MHz had 0 check-ins.

**VE REPORT – Ed, WB2EAV**

1 applicants applied for Amateur Extra Class and passed.
3 VEs were present: Ed, WB2EAV, Gheorghe AB2ZW and Karen, W2ABK.

**OLD BUSINESS**

We need programs for our meetings.

**NEW BUSINESS**

Discussing the summer picnic gala.

**PROGRAM**

Discussing the ARRL 100th Anniversary Contest.

**GARC NETS: 40 Meters: 7.289 MHz at 7:30 AM EST Sundays**
Net Controller: Eugene, W4JMX
**2 Meters (repeaters) Thursdays: 146.745 MHz (-600 kHz) at 8:15 PM**
**145.330 MHz (-600 kHz) at 8:30 PM. Tone for both repeaters: 136.5 Hz.**
GARC Net Controller Karen, W2ABkK **ARES/RACES NETS: Mondays.**

**MEETINGS**

General Meetings of the GARC are held on the 3rd Wednesday of each month, starting at 5:30 PM, at the Ellsworth Allen Park in Farmingdale. Driving directions and map 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 a week before the General Meeting at the Bethpage Skating Rink. *Meetings may be cancelled or relocated. Check the website.*

**WEB SITE**

The GARC web site 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.

**TRIP REPORT – Bob, W2ILP**

I had been contacted by Bill Wilkes, a member of the IEEE, about attending a meeting of the Larkfield Amateur Radio Club of Huntington. He is quite interested in becoming a ham and/or communicating with hams using computer routers. Bill offered to drive me to and from the meeting because I no longer drive at night. I couldn't resist, so I went. The meeting was well attended, not only by members of the Larkfield Club, but by members of other Long Island ham clubs. I recognized many familiar faces. The only other GARC member I saw there was Mel, K2MC.

There was a presentation given by Paul Beemam, W2PB, about High Speed Mode Media – Mesh (HSMM-MESH), [There is software by that name] which is a system that uses computer routers to create Local Area Networks. Jonm Blosky, KB2SCS, assisted by demonstrating the system for all to observe. Read what I learned on next page.

**HSMM-MESH communication.**

The WiFi routers that ISPs provide are channelized with 12 channels. Channels 1 thru 6 fall into the Amateur Radio 2.4 GHz Band. Hams can use them but, as hams, they must follow FCC Part 97 regulations (no music, no commercial business, etc) when they do. Anyone can use all channels as FCC Part 15 computer users (without parental guidance?). This might lead to hidden conflicts of interest that can only be imagined by those whose recent incantations of the Affordable Health Care Act were not considered when it was first made law! At any rate if we like our 2-Meter local nets we can keep them! Local Cablevision WiFi is most active on Channel 6. Each channel is broad-banded enough to provide for full duplex (telephone protocol) telephone, digital HD TV, high speed data, remote video cameras, etc.; Just as we can expect when linking to all cable services via WiFi "hot spots". The routers that the hams are using now are only the models that they have tested, so they are not certain as to what specific models will work with the present software. Most use an obsolete surplus model that is said to be available for only $15. The PEP power output of the router itself is less than 1 Watt, so the range is limited, even when an antenna offering +6 db of non-directional gain can produce 4 Watts EIRP. Hams are buying expensive RF power amplifiers and antenna arrays that can increase the range. There are safety hazard limitations that must be observed when radiating significant microwave energy, so that the antennas should not be in the ham shack. At 2.4 GHz we cannot use coax as a transmission line because of its loss. This is solved by using two routers: one on the roof with the antenna and another in the ham shack itself. The ham software makes ham usage unique in that hams must enter their own call-signs and passwords to gain access. Each router acts as a node. For best results all must remain powered on permanently. This all seems possible but do we need it? We now have 2-Meter transceivers and repeaters for our nets. Do we need to use routers that must share channels with non-ham users? There are two "T"s to Ham Radio: Technology and Tradition. This is again the debate of telegraphy enthusiasts against promoters of more modern modes. Is using systems that were developed for commercial purposes, largely without any ham experimentation, Ham Radio? I think not…I think it is just plug-and-play. Some hams will be using Morse for a long time. Some will be using 2-Meter NBFM for many more years. Do we need to use routers just because they are available? Mobile routers could provide an emergency communications backup near a disaster area. Will the ARRL promote them?

**INTERNET LINK OF THE MONTH FOR INTERNERDS**

The internet link for this month is www.linkedin/com

I know that some of you are already using linked in. Those who have not may want to join up. Once you post your profile on linkedin you can join various special interest groups that discuss topics which may interest you. I joined a group called "Amateur Radio (Ham) Operators." There is a thread on that group which has been discussing the use of Microwave Data Systems by Amateur Radio. I brought up the use of routers using HMM-MESH that are described above.

**PUZZLE**

*Last month's question was:-*

What was Fermat's last theorem? Why was it never believed to be proved satisfactorily?

**FERMAT'S LAST THEOREM**

Pierre de Fermat was a famous French mathematician who had proposed a theorem which remained unsolved for 329 years. Fermat had written in the margin of a manuscript that the solution would be simple. However Fermat died in 1665 without ever solving it. It was solved in 1994 by Andrew Wiles, but there are some who remain skeptical of his method; perhaps because they can't understand it. At the time I was studying high school algebra it had not been solved. The mystery intrigued me so, that I attempted a solution of my own in 1949 (ignorant of my own limitations). The theorem states that:

No three positive integers a,b,c can satisfy the equation $a^n$, $b^n = c^n$ for any integer where n is greater than 2. We know that the equation can be solved when n = 2 because of the possibility of 3,4,5 right triangles which may be drawn on a plane. A plane is defined as a surface that can have two dimensional constructions upon it.

Please read my attempt to prove Fermat's theorem which begins on Page 6.

*This month's question is:*

Luca Pacioli was a mathematician. He was a contemporary of Fibonacci. What did he become famous for?

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**GARC 2013 Officers**

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**Newsletter**

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**GARC Webmaster**

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**GARC VE Exams**

We normally proctor exams for all classes of ham licenses on the second Tuesday of each month, starting at 5:30 PM. The exams may be given at various locations. Ham Exams are: Element 2 – Technician, Element 3 - General, Element 4 – Amateur Extra Class. All applicants must pre-register to determine the location of a VE session by contacting Ed Gellender WB2EAV. Time and location of exams are subject to change. If there are no applicants VE sessions will be canceled. The fee for 2014 is $14 for all exams taken at one sitting. New first time applicants should be aware that their Social Security Number will be required on the application form unless they register with the FCC for an FRN. Applicants for an upgrade should bring their present license and a photocopy of it. All applicants should bring picture ID such as a driver's license. Study material may be bought from the ARRL-VEC or W5YI-VEC http://www.arrl.org or http://www.w5yi.org. All VECs use the same Q & A pools.

**Editorial**

I have had serious computer problems this past month and have had to reinstall my operating system and drivers. I had to get help from Dell technicians who were probably in India. I also found out that my mouse was defective. Luckily I had another Dell optical mouse from a previous Dell computer. That is why I save everything.

All Northrop Grumman retirees over 65 are mandated to change their health insurance plans by July 31 when our present plans will expire. The transition will be managed by a third party. I don't like this change. An annual contract is being broken. I do not know what options I will have yet. My wife and I have a scheduled a phone call where my options will be explained in detail. When selecting options we do not have to explain any sickness that we have. Insurance companies are not supposed to deny insurance to anyone who has any sickness according to the Affordable Health Care Act laws. Obama promised that if we like our present health plan we can keep it. Apparently NG no longer wants to administer health insurance plans for people over 65. I liked what I had and am looking forward to what I may get. If costs, deductibles and co-pays make it more expensive than it was I might try sending my bills to Obama. Maybe all who have to change should do so. I don't know yet. I wrote this on April first and that's the truth…No fooling.
73. Bob, w2ilp (Ignoring Little Problems) … (Insuring Larger Problems)

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FIRST CLASS MAIL
*Do Not Delay*

**SOLVING FERMAT'S LAST THEOREM**
**By Bob Wexelbaum. W2ILP**

My solution depends on Power Series increments which define the dimensions that exist in the world of plane and solid geometry. We know that the given equation can be satisfied when n = 2 because of the possibility of the 3, 4, 5 and other right triangles which may be constructed in a plane (a surface that can have a two dimensional construction upon it). So let me now define a Power Series (with exponents of 2) as:
$0^2$, $1^2$, $2^2$, $3^2$, $4^2$, $5^2$, $6^2$, $7^2$, $8^2$, $9^2$, $10^2$, $11^2$, $12^2$, $13^2$, $14^2$, $15^2$, $16^2$, ….to infinity
Which gives us the number series:
0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, ….to infinity
Taking the difference between each count we get:
1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31,…..to infinity
When we again take the difference between these counts we get:
2, 2, 2, 2 ,2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,….to infinity
Number 2 defines a PLANE, since a plane has two sides. [just as this piece of paper has 2 pages printed on it].
We know that the theorem is satisfied in a plane where right triangles may be constructed. Now let us try n =3.
$0^3$,$1^3$,$2^3$, $3^3$,$4^3$, $5^3$,$6^3$,$7^3$,$8^3$,$9^3$,$10^3$,$11^3$,$12^3$,$13^3$, $14^3$,$15^3$, …to infinity
Which gives us the number series:
0, 1, 8, 27, 64, 125, 216, 343, 512, 729, 1000, 1331, 1728, 2197, 2744, 3375…to infinity
Taking the difference between each count again we get:
1, 7, 12, 19, 37, 61, 91, 129, 169, 291, 331, 397, 440, 469, 547, 631…..to infinity
Again taking the difference we get:
6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84…to infinity
Again we take the difference (until converging on a single number) and we get:
6, 6, 6, 6, 6, 6, 6….to infinity
Why do we get 6? That is because 6 defines a CUBE which has 6 SIDES. We can agree that $X^3$ = X CUBE
Next month I will continue my solution by trying n = 4. Can we show four dimensions?
You can perform my next step yourself, if you can't wait, remembering to find the differences between each count until you converge on a single number.