

CQ de WA2LQO

Seventy Years: 1944 -2014

The official voice of the Grumman Amateur Radio Club

May 2014 VOLUME 87 NUMBER 5

HOW I BECAME A HAM (continued from April 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.

I had obtained a free cardboard slide rule from the Ohmite Manufacturing Company of Skokie, Illinois. On the way back from a surveyor's club field trip, I mentioned it to Mr. Plotkin, who ran the surveyors club. He was a math teacher, but not officially my math teacher. I thought that he would know all about cardboard slide rules since he had taught us to make a crude surveyor's transit out of cardboard. Mr. Plotkin then offered to meet with me, one-on-one to discuss my Ohmite slide rule. This was a surprise, because I knew that there was no way that he could get paid for the time he would be spending with me. Of course I accepted his offer. I had to give up a meeting with the stamp club to meet with Mr. Plotkin, but that was no big loss. Now you must realize that at that time, I had not gotten any instructions about using slide rules (which were to come later in an advanced algebra class), and of course there were no digital pocket calculators in 1948.

When I met with Mr. Plotkin, we started to discuss Ham Radio. He said that he always wanted to be a ham but he could not pass the 13 wpm code test. He said that he held a BS degree and his specialty was Civil Engineering. He said he was sorry that he did not study electrical engineering, because he realized that there would be more opportunities in the newer field of "vacuum tube electronics". Civil engineering work was not steady year round work, according to Mr. Plotkin. That is why he became a high school teacher, so that he could earn a steady pay check and still manage to do some seasonable surveying work during the summer. He then began to discuss the Ohmite slide rule. On the front of the rule there is an Ohm's Law calculator. This was designed to calculate the simple algebra of Ohm's Law. That is: $E = IR$, and $W = EI$ and all of the algebraic solution to problems where you know any two of those factors and want to find the third. Any student of basic algebra should be able to solve Ohm's Law formulas without the slide rule, but the slide rule makes it easy to get quick answers. In most cases we expect answers to be only 5 or 10 % accurate. Resistors are normally only that accurate, and so are most meters which are used to measure voltages or currents. Reading the slide rule is thus good enough for most practical work. Now we go to the back of the slide rule where there is a Parallel Resistance Calculator. It can be used to calculate total resistance when any two resistors are connected in parallel. I told Mr. Plotkin that my Uncle Louis Feldman had taught me how to solve such problems by the formulae: $R_t = (R_1 \times R_2) / (R_1 + R_2)$ and if you needed to solve for 3 resistors in parallel you could solve for two of them and then solve using the value found for two as one with the third value. The slide rule made it easier to solve such problems quickly. If you wanted to find a specific resistive value, and you had a number of resistors of different ohmage, you could quickly find which resistance value combinations might be usable, when using resistors that you had at hand. And now we came to my greatest puzzle, because on the back of the Ohmite slide rule, aside from the parallel resistance calculator, there was what was labeled "Standard Slide Rule"; with scales A, B, C and D. Mr. Plotkin explained that these scales could be used for doing simple arithmetic such as multiplying, dividing, finding squares, or finding square roots. If you used this small slide rule, in most cases you couldn't expect to get accurate answers to more than two or three significant decimal places. You would also have to determine where to put the decimal point in your result. You would have to figure that out by roughly estimating what the answer would be if you were using similar numbers that

could result in answers of similar magnitudes. If I wanted to get a better slide rule, Mr. Plotkin suggested that I buy a Kauffel & Esser wooden Beginner's Slide Rule. In addition to the A,B,C and D scales the K & E basic slide rule has a C1 scale that could be used for finding cubes and cube roots. It also had an L scale for finding Logarithms. The L scale is linear like a tape measure or rule. Other scales are actually logarithmic, thus it takes a linear scale to recognize a part of the logarithm that is called the mantissa. The other part, called the characteristic, must be determined mentally according to the number of digits involved. At that point I must admit I was getting lost. I would have to wait until Dr. Landau would teach about Logs. I only could initially understand that the standard slide-rules worked because they used the principles of Log transformation that were not yet understood by me, although Mr. Plotkin attempted to explain the subject at that time as best he could. Mr. Plotkin then laughed at the engineering college students who bought expensive slide rules with magnifying cursors, and trig and multi-log scales. Many students who weren't college level engineering students also bought such slide rules. They all carried them around in belt holsters in order to impress the liberal artists. A slide rule was supposed to be the insignia of a serious engineer...but many who wore one, couldn't, according to, in Mr. Plotkin's opinion, even use the Ohmite Rule.

I was not at any loss of motivation for becoming an engineer. Monroe High School was visited by a member of the IRE and a member of the AIEE who told us about the engineering profession. They explained what engineers were responsible for and how they worked. Most importantly they explained what high school and college courses would have to be passed successfully in order to earn an engineering degree. Aside from that there was a "Magic Show" put on in the school auditorium by General Electric. My friend Al Miller was chosen to assist the with GE demonstration. We both were assistants in the Physics Lab, so I was disappointed because I had not been chosen. I don't remember all the things that were demonstrated except for a static electric generating machine which made my friend Al's hair stand up. Al had the strange ability, that few people have, of being able to wiggle his ears. It is mechanical and has nothing to do with electrical charges. As his hair stood up, Al wiggled his large ears and the audience roared with laughter because they thought it was part of the act. I was then glad that Al was selected because I could never wiggle my ears. In addition to the static electricity demonstration I can only remember a demonstration of induction cooking. An egg was cooked in a frying pan that was placed on a handkerchief and then on an electromagnetic generating device. The egg fried but the handkerchief did not burn. It is only in relatively recent times that induction cooking ranges have become popular but we saw an early demonstration of that cool cooking technique in 1948! Next month I'll tell you how Al Miller earned a ham license before I could because he passed the 13 wpm code test (I don't think wiggling his ears helped) and how we worked together to set up Al's (W2ESU's) ham station. (To be continued.)

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

We have three upcoming events I want to bring to your attention.

First LIMARC is having an outdoor hamfest at Briarcliffe College on Sunday June 1st, starting at 9 AM. They are always a lot of fun for the \$6 admission fee.

Next 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 are back at Haypath Road Park in Plainview. Field Day is always the high point of the club calendar. To get there, take NY135 to exit 9 and head east. The road immediately turns north, becomes Plainview Road, and goes 0.4 mile to Haypath Road. Turn right onto Haypath and proceed 0.8 mile to the park on the right (a bit before Old Bethpage Road).

The third event is from July 17th thru 19th, in Hartford, Connecticut, where the ARRL plans to celebrate its 100th birthday with the National Centennial Convention. It should be quite an experience. I am hearing that all the hotels in the immediate area are pretty much booked up, but there are plenty of places to stay a few miles away, and it is close enough to make it a reasonable day trip. We have been checking to see if anyone is interested in attending as a group, but so far only one or two people have expressed interest. If you have any interest, let me know now while we still have time to set things up.

Ed, WB2EAV

Page 2

**GRUMMAN AMATEUR RADIO CLUB
MINUTES OF GENERAL MEETING 4/16/2014
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 working. Bill, M2NF noticed a split antenna element, which was hanging at a strange angle. He put the remaining antenna on a duplexer in order to get the repeater to work. He is researching the site to see if any abandoned antennas may be used as our receiver antenna. A tower climb is very expensive.

NET REPORT – Karen, W2ABK

Thursday night net at 8:15 PM on 146.745 MHz had 4 check-ins.

Thursday night net at 8:30 PM on 145.330 MHz had 3 check-ins and was good copy.

Sunday morning net at 7:30 AM on 7.289 MHz had 0 check-ins.

VE REPORT – Ed, WB2EAV

Four applicants applied: 2 for Technician, 1 for General, and 1 for Extra. All passed. 1 tried to upgrade to General and 1 tried to upgrade to Extra; both failed.

3 VEs were present: Ed, WB2EAV, Bill, WB2QGZ, and Karen, W2ABK.

OLD BUSINESS

Discussing the Grumman Retiree Insurance Plan.

NEW BUSINESS

Discussing Field Day. We need to repair the 40 Meter dipole, which was damaged last year.

PROGRAM

Karen discussed hotel information for the ARRL National Centennial Convention in Hartford, Connecticut July 17 – 19. She made a reservation at the Holliday Inn at Est Hartford, a 20 minute walk to the Convention Center. Prices are: Holiday Inn at East Hartford: \$120, Hartford Marriot: \$319 Residence: \$215 Radisson: \$158 Homewood Suites: \$215 Hilton Hartford: \$159

GARC NETS: 40 Meters: 7.289 MHz at 7:30 AM EST Sundays

GARC Net Controller Karen, W2ABK

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, W2ABK **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.

INTERNET LINK OF THE MONTH FOR INTERNERDS

The internet link for this month is:- <http://www.wa2hom.org>

This is the website of Dan Romanchik, WA6HOM. Dan tells here about a ham radio hands-on museum, as well as his training courses for new and upgrading hams. Dan always has a positive attitude about ham radio's past and future. He has accomplished much by encouraging and motivating hams of all ages.

PUZZLE

Last month's question was:-

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

Answer:-

Luca Pacioli (1445 – 1515?) was not a contemporary of Fibonacci (1170 -1250?). He was, however, a contemporary of Leonardo Di Vinci, who he taught arithmetic. Pacioli is most famous for what is known as the double entry accounting system. This method was described by Pacioli during the Renaissance and is still taught and used today. There is popular accounting software called "Pacioli 2000" that is used for accounting, inventory control, billing, purchasing, budgeting, etc. Pacioli's manuscript, as well as Fibonacci's earlier manuscript, *Liber Abaci*, were among the earliest arithmetic texts. Before the printing press was invented manuscripts had to be copied by hand. Only teachers could afford to own or borrow such manuscripts. Most students could not.

Pacioli wrote in his manuscript, *Summa de Arithmetica, Geometrica, Proportioni et Proportionalira*, "...a merchant must be a good bookkeeper and keep his affairs in an orderly way because where there is no order there is confusion. Affairs could be arranged in order, if all business transactions were recorded in a systematic way consisting of the debit (debito – owed to) and the credit (credito – owed by) method. Unless merchants follow this method they can have no rest in their minds and they will always be troubled. The important thing is to know the rules and apply them in particular cases..." It is unbelievable that 500 years after Pacioli wrote about the importance of the double entry system there are still some accounting software packages that use a single entry method! [I file my income tax jointly but have never found a software method that doesn't confuse me in my own particular cases.]

This month's question is:-

In a recent article in the IEEE Spectrum a world famous mathematical genius was the subject of an article.. The article told how the genius, "*who knew infinity*", had recognized something about the Fibonacci number series that apparently had gone unnoticed for many years. Who was the math genius?

CQ de WA2LQO
April 2014 **Volume 87** **Number 5**

GARC 2013 Officers

President: Ed Gellender, WB2EAV M/S:X08-14 516-575-0013 edward.gellender@ngc.com
or wb2eav@yahoo.com

Vice President: Gordon Sammis, KB2UB Retiree 631-666-7463

Secretary: Karen Cefalo, W2ABK 631-754-0974

Treasurer: Ed Gellender, WB2EAV (see above)

WA2LQO Trustee: Ray Schubnel, W2DKM Retiree

2 Yr. Board Member: Jack Cottrell, WA2PYK Retiree 516-249-0979

1 Yr. Board Member: Dave Ledo, AB2EF

1 Yr. Board Member: Jack Hayne, WB2BED

1 Yr. Board Member: George Sullivan, WB2IKT

Newsletter

CQ de WA2LQO is published monthly by the Grumman Amateur Radio Club for its members and friends.

Editor: W2ILP 631-499-2214 W2ILP.RADIO@gmail.com

Contributing writers: All GARC members (we hope). To submit articles or ham equipment advertisements contact the editor. Articles will only be edited when permission is granted by the author.

GARC Webmaster

Pat Masterson, KE2LJ Retiree 813-938-4614 Pat-Masterson@tampabay.rr.com

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 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

On Page 6 I have continued to write my attempted solution to Fermat's Last Theorem. I promise to finish with my attempted solution next month. Next month I will tie it all together with what can be derived from yet another path using geometric definitions and factorials {!} ! Some of you may be getting tired of reading about mathematicians and number theory. Next month I will write about the last and debatably the greatest math genius ever to have lived on Earth. I have to cut this newsletter short now and send it out to Ed as is.

VY 73, Bob w2ilp (I Like Pacioli)...Double entries can make errors half as hard to discover...I think...

Grumman Amateur Radio Club
215 Birchwood Park Drive
Jericho, NY 11753

FIRST CLASS MAIL

Do Not Delay

SOLVING FERMAT'S LAST THEOREM (continued from April 2014) By Bob Wexelbaum. W2ILP

Fermat's Last Theorem states that: No 3 positive integers: a, b, and c can satisfy the equation; $a^n + b^n = c^n$, for any integer where n is greater than 2. We had shown that n = 2 defines a geometric plane and that n = 3 defines a geometric cube. We now continue by trying n = 4.

$0^4, 1^4, 2^4, 3^4, 4^4, 5^4, 6^4, 7^4, 8^4, 9^4, 10^4, 11^4, 12^4, \dots$ to infinity. Which is the numeric series:-
0, 1, 16, 81, 256, 625, 1296, 2401, 4096, 6551, 10000, 14641, 20736,to infinity

Taking the difference between each count we get:

1, 15, 65, 175, 369, 671, 1105, 1695, 2465, 3439, 4641, 6095, ...to infinity

When we again take the difference between these counts we get:

14, 50, 110, 194, 302, 434, 590, 770, 974, 1202, 1454,to infinity

Taking the difference between each count again we get:

36, 60, 84, 108, 132, 156, 180, 204, 228, 252,to infinity

Again we take the difference (until converging on a single number) and we get:

24, 24, 24, 24, 24, 24, 24, 24, 24, 24,to infinity

Why do we get 24? We are now dealing with 4 dimensions. We cannot visualize the 4th dimension, as we have been able to visualize for 1, 2 or 3 dimensions. If TIME is the 4th dimension then perhaps we may imagine that there are 4 dice; each die having 6 sides and each die being {spacially moved?} in TIME from the others. This debatable abstract observation is not necessary for the solution of Fermat's Last Theorem. What is relevant is that when n = 4 we converge on 24, which should define a geometric figure of 24 sides. Thus if we try n = 3 or larger we define a cube or some geometric figures which have more sides than a cube. It is not necessary to work out all counts of larger exponentials and differences to prove that all would converge on higher numeric integers than the n = 4 trial produced. Let us sum up by concluding the following:-

When n = 0 we converge on 0, which defines a geometric POINT. $0 + 0 = 0$ is a possible solution.

When n = 1 we converge on 1, which defines a geometric LINE. $1 + 1 = 2$ is a possible solution.

When n = 2 we converge on 2, which defines a geometric PLANE. $3^2 + 4^2 = 5^2$ is a possible solution.

When n = 3 we converge on 6, which defines a geometric CUBE which offers NO POSSIBLE SOLUTION.

When n = 4 we converge on 24, which is UNDEFINED geometrically (because of having 4 dimensions?).

When n > 4 we converge on integers that are > 24 and are thus are all UNDEFINED geometrically and can offer NO POSSIBLE SOLUTIONS because 3 points cannot all touch the 6 sides of a cube or any larger construction. Now comes my final solution: $a^2 + b^2 = c^2$ involves three points, which determine a triangle. A triangle can be inscribed in a point (of no dimensions), on a line (of one dimension), or on a plane (of two dimensions) but cannot be inscribed on a cube (of three dimensions), or on any geometric construction of greater than three dimensions. More verification next month.