CQ de WA2LQO

Seventy Three Years: 1944 -2017

The official independent voice of the Grumman Amateur Radio Club.

APRIL 2017 VOLUME 90 NUMBER 4

MEETINGS ARE HELD ON THE 3RD WEDNESDAY OF EACH MONTH
STARTING AT 5:30 PM AT THE ELLSWORTH ALLEN PARK IN FARMINGDALE
The April 2017 meeting will be held on April 19th.

How Ham Radio prepared me to be an Engineer
by Bob Wexelbaum, W2ILP

(Continued from March 2017)

I finally arrived at the Radio Repair Shop that I was assigned to. I had asked to work my MOS as a Field Radio Repairman at the highest echelon shop that repaired and modified military radio communication units down to their basic components. The 181st Signal Co. did that and more. The technical compound consisted of the Radio Repair building attached to a Camera and Projector Building and a large training film library, a Radar Repair building, a Test Equipment Repair and Mechanical Repair Shop. Each of the buildings was made of cinder blocks. Each had a front office where government work could officially be documented. I learned that the buildings had formerly been Japanese factories. The radio building had been an automotive battery factory. In addition there was a Crystal Grinding Detachment building which was officially not a part of the 181st Co. because its location was supposed to be secret at that time. Parked outside the Radio Shop there were a number of Radio/RTTY huts and outside of the Radar Shop a number of mobile microwave Anti-Aircraft Radar units.

The men in the shops were not exactly what I had expected. Some had never gone to a military technical school but had experience as radio TV repairmen or industrial lab technicians. A few were licensed hams. Many were guys who had reenlisted voluntarily for more than one tour of duty. I reported to Capt. Cooke who was the technical CO and got introduced to the honchos who were directly responsible for the actual work in the repair shops. There was a Warrant Officer who was supposed to serve as liaison between officers and enlisted men when there was a need to do so. There were two civilian technical representatives, specifically assigned to the Radio Shop: One from RCA and one from Philco. BTW do you know that the term "TecRep" was copywriten by the Philco Corp? The reps weren't needed much to help with technical problems but they took a great interest in the activities in the shop so that they could write about them in their trip reports. I became friends with them. It is a good thing that they remembered me because when I used them on my resumes years later and they gave me great references. There was a Korean Signal Officer also assigned to the repair shops. He was not only fluent in English but fairly up-to-date about radio technology as of that time.

Most interesting were the KATUSAs. These were Korean Soldiers who were learning English and had been given the honor of working with us. They were supposed to be replacements for regular US Army GIs and thus also had the privilege of eating and living with us. Regular Korean Army Soldiers, called ROKS also worked in our shops from time to time, when there was repetitive modification work to be done which they could easily be trained to do by the KATUSAs. ROKS were not allowed to enter our living compound. In the Radio Shop there was one civilian Korean. Unlike everyone else, he was dressed in black rather than green work clothes. He was crippled and used a crutch to walk. When in the Korean Army he had fallen from a guard tower when its base had exploded during the fighting war and his leg had never been set correctly. As a civilian he had been a wristwatch repairman (in the days before there were quartz watches). He became a friend of mine and that is how I found out about his history, as well as how to repair clocks and watches and evaluate their quality.

In the office there was a Korean woman secretary. I think that she was the only female assigned to work in the 181st shops. I mention her because she used a Military RD-74 reel-to-reel magnetic tape recorder as a Dictaphone, which I later repaired. Mailed tapes were used by some GIs to send and receive messages at the time when telephone calls were too expensive to make unless aided by the Red Cross or MARS. It could also

be used to copy music and audio entertainment from radios and live sources.

The 181st Company was a large Signal Corp Depot. There was another similar Signal Company in Pusan. They were the only large depots in Korea. A larger Signal Depot existed in Yokohama, Japan.

Surprisingly the work at the radio shop was not limited to US Military Radio repairs. Unofficially the company repaired civilian radios, tape recorders and phonographs that were owned by individual soldiers. The Corp of Engineers was supposed to maintain Mine Detectors and Geiger Counters but was unable to do so. Thus they too came in for urgent repairs. There was a close unofficial connection to the avionics shop at the Kimpo Air Force base in Seoul. We also repaired medical equipment and Polygraph recorders (lie detectors). Any parts that were not stored at our depot got shipped to by air via the Air Force base. Unofficially the Air Force borrowed or swapped parts with the Army Signal Corps when needed to get work expedited. Off- the-books swapping was called "Scrounging". I mention this because we seemed to have sufficient priority to obtain whatever we needed from the catalogs of Mil approved parts with Federal Part Numbers, as well as non Mil parts that were specified in Allied Radio of Chicago's catalog.

The hardest part of troubleshooting military equipment was getting into components with test probes because most of the components were covered with thick layers of moisture fungus proofing. Once the trouble was diagnosed it was usually possible to get Koreans to do the actual repair work. This was before printed circuits had been invented. It was at a time when octal or loctal based vacuum tubes with 8 pin bases were used, and 7 and 12 pin peanut tubes were becoming common. There were solid state diodes but no transistors yet. Military versions of some civilian tube types were developed because they had to have lower RF loss or were better mechanically designed for reducing audio stage microphonic effects or mobile vibration conditions.

Captain Crawley had said that I was not to tell the men about my message from the Chief Signal Officer. I avoided doing so because I was never asked. I understood why now because it would seem like a lot of bragging or like I was expecting favoritism from men who were just as qualified as I was. In short, I was not unique at all and would get along better if I acted humbly. In spite of this the arrival of the General's message was leaked out by the company's mail clerk. That is because he brought the message from the 8th Army mail center in Seoul, along with the regular mail and delivered it, unopened, to the First Sergeant. Thus he started a rumor that I might be working for the IG (Inspector General), so as to see what unofficial business and scrounging might be happening every day at the 181st that GIs might be guilty of. (to be continued)

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

Let me tell you a rambling story. For those who don't know me, I am nominally retired, but I have always enjoyed my work and want to continue working, especially if I get to play with some nice toys. A subcontracting outfit in the city has been tossing some short-term contract work my way, so I alternate between working and retirement. In October I started an unusually long (2 year) assignment at the Queens Midtown Tunnel, monitoring progress on the updating of the ventilating system motors and controls. (BTW you CAN inhale in the tunnel.)

A month ago I got a phone call from a fellow in North Carolina who saw my resume online (once you post a resume online it is there forever) and he wanted to talk to me about a possible 4 month contracting job. They wanted someone with military qualification testing experience to be the on-site-guy honchoing a piece of avionics gear through an environmental and electromagnetic testing program at the Dayton T. Brown lab in Bohemia. I told them that the job sounds quite interesting, as I have often done just that on equipment I had designed over the years, but the 4 month time frame was a non-starter compared to the two year assignment that I already had.

Since then things have changed. First the work on the tunnel is running behind schedule, and updating the financial picture showed that progress tracking had to cut back. Bottom line is that as last-in-first-out, there was not enough budget to keep me. They made it clear that I will be sorely missed, but there was nothing that they could do about it.

Then the fellow from North Carolina called back…and I said, "Let's talk." Bottom line is that I will soon be starting a four month gig working on a propeller shaft vibration cancelling system for C-130s. Sounds more like what I normally do, and should be a lot more fun than babysitting electricians. I am hoping that it may lead to something long term. If not, I told the subcontracting outfit that I was taking a few months off, and I'll check back with them. Ed, WB2EAV

GRUMMAN AMATEUR RADIO CLUB
MINUTES OF EXECUTIVE BOARD/GENERAL MEETING 3/15/2017

The meeting was cancelled due to Storm Stella.

TREASURER'S REPORT – Ed, WB2EAV

Finances continue to be in good shape.

REPEATER REPORT – Gordon, KB2UB

Repeaters are working.

NET REPORT – Karen, W2ABK

Sunday Net at 7:30 AM on 7.289 had no check ins.
Thursday night net at 8:15 PM on 146.745 MHz had no check in
Thursday night net at 8:30 PM on 145.330 MHz had 3 check ins.

VE REPORT – Ed, WB2EAV

No applicants applied.

GARC NETS: Net Controller Karen W2ABK **40 Meters: 7.289 MHz at 7:30 AM EST Sundays**
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.
ARES/RACES NETS: Mondays.

WEBSITE

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. The membership roster has not been updated to delete Silent Keys and to enter new e-mail addresses for remaining members and friends. Please inform Pat Masterson if you need to delete, update or edit your roster information.

MEETINGS

Board and General Meetings are now combined. Unless otherwise notified they start at 5:30 PM at the Ellsworth Allen Park in Farmingdale.

PUZZLE ***Last month's puzzle was:***

When working in a lab provided by Westinghouse, what did Nicola Tesla try to accomplish?

A. Make an AM modulated radio telephone transmitter
B. Make an electric car that could accelerate as fast as a gasoline powered car
C. Make and electric fan that could safely run continuously in a coal mine
D. Contact amateurs in NY by radio from the lab in Pittsburg

Answer: The correct answer is C. Tesla failed to produce an electric fan that could safely be used in coal mines. Although he used an AC motor (which sparked less than a DC motor) it had to be enclosed so that brush sparks could not ignite coal dust or gas. The enclosed motor itself could not be continuously cooled by the fan and it overheated and burned. To show how great the electric spark hazard is; Flashlights that are approved for use in mines must have their on-off switches (which only switch low battery voltages) completely enclosed. Robotic coal miners and machines must have their motors approved as well, but eventually all mines will be mined by robots and human coal miners will become obsolete. Synchronous servo motors and other rotating devices have been designed to be spark-less. I don't think that human miners will ever evolve to a state where it will be relatively safe for them to inhale the polluted air in mines and have any affordable health care insurance!

February's puzzle was:

What is an optocoupler?

A. A resistor and a capacitor
B. A FM helium-neon laser
C. An AM helium-neon laser
D. An LED and a phototransistor

Answer; The correct answer is D.

ERRATA

There was an error in the explanation to January's puzzle. …when conductivity increases ohmic resistance DECREASES (not increases).

Numbers? Constants? Atoms? Waves? Quantum? (Continued from March 2017)

I again continue the chronology of significant physics discoveries, now starting in the year of 1964 when John Bell published his inequitably prediction.

1964 Charles Hard Townes, Nicolay Gennadiyevich Basov and Aleksandr Mikhailovich Prokhorov are awarded the Nobel Prize for work in the field of quantum mechanics which had led to the construction of oscillators and amplifiers based on maser-laser principles.

1965 Sin-Itiro Tomonaga, Julian Schwinger and Richard P. Feynman are awarded the Nobel Prize for fundamental work in quantum electrodynamics, with deep-ploughing consequences for the physics of elementary particles. Lev Landau dies at age 60.

1966 John Bell shows conclusively that von Neumann's proof eliminating hidden variable theories, published in his book *The Mathematical Foundations of Quantum Mechanics*, is flawed. Bell had submitted his papers to the journal *Review of Modern Physics* in 1964, but unfortunately its publication was delayed. Alfred Kastler is awarded the Nobel Prize for the discovery of optical methods for studying Hertzian resonance in atoms.

1967 Hans Albrecht Bethe is awarded the Nobel Prize for his discoveries of the energy production of stars.

1968 Luis Walter Alverez is awarded the Nobel Prize for his contributions to elementary particle physics, in particular to a large number of resonance states, made possible by his development of a technique of using a hydrogen bubble chamber and data analysis.

1969 Murry Gell-Mann is awarded the Nobel Prize for his collaboration of elementary particles and their interactions.

1970 Max Born dies in Gottingen at the age of 87. Hannes Olaf Gosta Alfven is awarded the Nobel Prize for fundamental work and discoveries in magneto-hydro-dynamics with applications in different parts of plasma physics. Louis Eugene Felix Neel is also awarded the Nobel Prize for his contributions and discoveries concerning the classification of elementary particles and their interactions.

1971 Dennis Gabor is awarded the Nobel Prize for his invention and development of the hydrographic method.

1972 John Clauser and Stuart Freedman at the University of California, Berkley, having conducted the first test of Bell's Inequitability, report that it is violated and that any local hidden variables can't reproduce the predictions of quantum mechanics. There are however doubts about the accuracy of their results.

John Bardeen, Leon Neil Cooper and John Robert Schieffer are awarded the Nobel Prize for their jointly developed theory of superconductivity.

1973 Leo Esaki and Ivar Giaever are awarded the Nobel Prize for their experimental discoveries regarding the tunneling phenomena in semiconductors (Tunnel Diodes) and superconductors, respectively.

1974 Sir Martin Ryle and Anthony Hewish are awarded the Nobel Prize for their research in radio astrophysics: Ryle for his invention of the aperture synthesis technique and Hewish for his role in the discovery of pulsars.

1975 Aage Niels Bohr, Ben Roy Mottelson and Leo James Rainwater are awarded the Nobel Prize for the discovery of the link between collective motion and particle motion in atomic nuclei and the development of the theory of the structure of the atomic nucleus, known as the Bohr atomic configuration..

1976 Heisenberg dies in Munich at the age of 75. Burton Richter and Samuel Chao Chung Ting are awarded the Nobel Prize for the discovery of a new kind of heavy elementary particle.

1977 Philip Warren Anders, Sir Nevill Francis Mott and John Hasbrouck von Vleck are awarded the Nobel Prize for their fundamental investigation of the structure of magnetic disordered systems (such as magnetic tape recorder background noise).

1978 Pyotr Leonidovich Kapitsa is awarded the Nobel Prize for basis inventions and discoveries at low temperatures. Arno Allen Penzias and Robert Woodrow Wilson are awarded the Nobel Prize for the discovery of cosmic background radiation.

1979 Sheldon Lee Glashow, Abdus Salam and Steven Weinberg are awarded the Nobel Prize for their contributions for the theory of unified weak and electromagnetic interaction between elementary particles, including inter alia, the prediction of the weak neutral current. Dennis Gabor dies in London at the age of 69.

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GARC Officers

President: Ed Gellender, WB2EAV Retiree 516-507-8969 wb2eav@yahoo.com
Vice President: Gordon Sammis, KB2UB Retiree 631-666-7463 sammigo@verizon.net
Secretary: Karen Cefalo, W2ABK 631-754-0974 w2abk@aol.com
Treasurer: Ed Gellender, WB2EAV (see above)
WA2LQO Trustee: Ray Schubnel, W2DKM Retiree schubnel@optonline.net
Board Member: Jack Cottrell, WA2PYK Retiree 516-249-0979 jjcottrell2@verizon.net
Board Member: Dave Ledo, AB2EF ab2efdl@gmail.com
Board Member: Jack Hayne, WB2BED wb2bed@arrl.net
Board Member: George Sullivan, WB2IKT

Newsletter

CQ de WA2LQO is published monthly by the Grumman Amateur Radio Club for its members and friends. Editor: Bob Wexelbaum, Retiree 631-499-2214 rwexelbaum@verizon.net Contributing writers: All GARC members (we hope). To submit articles or ham equipment advertisements contact the editor.

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 – Technician: Element 2, General: Element 3, and Amateur Extra Class: Element 4. Time and location may be changed, and sessions may be cancelled if no applicants make appointments. The fee for 2017 is $14. All applicants must pre-register with Ed Gellender wb2eav@yahoo.com All new applicants should be aware that they must write their Social Security number on the application form if they have not gotten an FRN number. Applicants for an upgrade must bring both their present license and a photo copy of it. All applicants should bring picture ID such as a driver's license. Study material may be obtained from ARRL-VEC at http://www.arrl.org, W5YI-VEC at http//www.W5YI.org or other VECs. All VECs use and update the same Q&A pools.

Editorial Last month I promised to tell more about my cat Rusty, who died in February. The first 2 cats that we owned were gassed to death by vets. The vets gave us the sad news that operating on old cats might only prolong their misery for a short time and surgery would be costly. Thus we took the option of ending their lives. We didn't want to bring Rusty to a vet because we were sure that we would be confronted with the same type of decision. We knew that she was suffering. She had reached a time when it became very difficult for her to come up the stairs to our bedroom and bathroom. For several months she stopped trying. This was hard for us to take because when she was a kitten she could jump many times her height to a window sill and avoid knocking off anything that was on it. She followed me everywhere in those days. One day when I was taking a bath she purposely knocked a bottle of shampoo that was on the rim of the bathtub into it with her right paw and ran away. I swear that she smiled as see did it…but they say that cats can't smile or understand practical jokes. The next day my wife Ethel and I were in the bathroom and Rusty again knocked the shampoo bottle into the tub which was then empty. We both laughed and I suppose that it reinforced the cat's reaction. In February, Ethel told the cat to look at the snow outside and the sick cat parted the vertical blinds in the den so that she could see the snowfall that was occurring. She seemed to understand what my wife had suggested and she looked at the falling snow for a long time maybe realizing that it was her last chance to ever see such a snow storm. I went upstairs to use my computer and when I went to the bathroom Rusty was there. Somehow she had managed to drag herself up the stairs. When she saw me enter the bathroom she schlepped herself near to the empty tub. There was no shampoo bottle there now but she took a swipe at the place where bottles once were and looked up at me to see if I was laughing. This effort had tired her out so much that I had to carry her downstairs to her bed. I believe that she knew that she would die that night. Cats are allowed to be pets in some nursing homes and hospitals. There have been reports about cats that seemed to know when patients would die before the doctors had any idea. Did they also know when they would die?

Anyway I think some of you are getting tired of reading about Physicists, Generals and me here so I wanted to write about cats. I also want to say that the word Trumpanic is my invention: (Trump+Panic).

73 Bob w2ilp (Ignore Lawless Panics)…They say that a cat has 9 lives but the Ever-ready bunny lasts longer.

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

FIRST CLASS MAIL
Do Not Delay

Numbers?, Constants?, Atoms?, Waves?, Quantum? (Continued from Page 4)

1980 James Watson Cronin and Val Logsdon Fitch are awarded the Nobel Prize for the discoveries of violations of fundamental symmetry principles in the decay of neutral K-Mesons.

1981 Nicolaas Bloembergen and Arthur Leonard Schawlow are awarded the Nobel Prize for their contribution to the development of laser spectroscopy. Kal M. Siegbahn is awarded a Nobel Prize for development of high-resolution electron spectroscopy.

1982 After years of preliminary work, Alvin Aspect and his collaborators at the Institute of Theoretical Optics, University of South Paris subject Bell's Inequity to the most vigorous test possible, which shows that the inequity is violated. Bell accepts the results as do most physicists. Kenneth G. Wilson is awarded the Nobel Prize for his theoretical and experimental studies of the nuclear reactions of importance in the formation of the chemical elements in the universe.

1983 Subramanian Chandrasekhar is awarded the Nobel Prize for his theoretical studies of the physical processes of importance to the structure and evolution of the stars. William Alfred Fowler is awarded the Nobel Prize for his theoretical and experimental studies of bthe nuclear importance in the formation of the universe.

1984 Paul Dirac dies in Tallassee Florida at the age of 82. Carlo Rubbia and Simon van der Meer and awarded the Nobel Prize for contributions to a project which led to the discovery of the field particles W and Z, communicators of weak inter action.

1985 Klaus von Klitzing is awarded the Nobel Prize for the discovery of the quantized Hall effect.

1986 Ernst Ruska is awarded the Nobel Prize for work in electron optics, and for design of the first electron microscope. Gerd Binning and Heinrich Rohrer are awarded the Nobel Prize for their design of the scanning tunneling microscope.

1987 Louis de Broglie dies in France at the age of 94. I. Georg Bednorz and K. Alexander Muller are awarded the Nobel Prize for their important break-through in the discovery of superconductivity in ceramic materials.

1988 Richard Feynman dies at the UCLA Medical Center at the age of 70 from a rare form of cancer. Leon M. Lederman, Melvin Schwartz and Jack Steinberger are awarded the Nobel Prize for the neutrino beam method and the demonstration of the doublet structure of the leptons through the discovery of the muon neutrino.

1989 Norman F. Ramsey is awarded the Nobel Prize for the invention of atomic clocks by the separated oscillatory fields' method and their use in the hydrogen maser. (continued next month)