

CQ de WA2LQO

Seventy Three Years: 1944 -2017

The official independent voice of the Grumman Amateur Radio Club.

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Happy New Year

MY MENTOR

by Ed Whitman, K2MFY

In January 1961, after graduating CCNY–School of engineering a few weeks earlier, I started my first real job as a Junior Engineer at Servo Corporation of America on New South Rd., Hicksville. I could not have been happier because I was making good money, really enjoyed my work, going steady with my girlfriend and felt that marriage would be in the future. While driving my dad’s car on the LIE from Forest Hills, I figured that it was time to buy my own car. My opportunities looked hopeful and I recalled the expression “The future belongs to those who prepare for it”- and after almost five years working my tail off at CCNY – I had prepared.

The work at Servo Corp was really interesting. It was a relatively small company with only about 100 employees; mostly production people with about a dozen engineers. Servo’s main products were sensor detectors used in railroad control systems. At that time the company won an FAA contract for a new direction finding system and transferred some of their engineers to that project. A few were seasoned engineers; some were like me, straight out of college. After spending a week reviewing the companies winning proposal, I was assigned to work on the R&D of one of the very selective filters used in the unit. I was to work directly with an experienced engineer, George Shaler, about 20 years my senior, who had years of experience in filter design, microwaves and radio communications. George and I went over the filter specs. George suggested that I review some design books and articles along with my applicable college books. I spent more time analyzing the literature than I did for studying for my finals! “Mother nature”, an unexpected visitor, delayed my work.

In early February of 1961 the New York area had a record 2–3 foot snow storm. This resulted in massive highway jams because thousands of cars were abandoned. The LIE was closed except for emergency vehicles. How was I to get to work? As a new employee I could not afford to take time off. Many local Servo employees were able to get to work after a few days by driving along alternate routes. I decided to take the subway from Forest Hills to the Jamaica Ave. station and to walk to the LIRR for transportation to Hicksville. Back in 1961 the Hicksville station was not the massive structure you see today. This old Hicksville station was demolished in 1962 to build the present concrete structure elevated station that opened in 1964. In 1961 it was a low wooden street level platform. I plodded through the snowy streets until I reached Old Country Road, passing rustic homes and LILCO property and continued a couple of miles to Servo on New South Rd. I was able to get a lift back to the Hicksville station at the end of the work day. I was exhausted when I arrived home and had little time to work on filter design. After a week the expressway was opened and my normal motor ride was resumed.

After my filter design developed on paper George reviewed my paper design and commented on my choice of components. He advised me to pick readily available components to deal with the real world, compromising whenever necessary when they were not exactly what my design had specified. Then he told me to prepare a bill of materials which would be sent to the Purchasing Dept. While waiting for the parts to arrive George familiarized me about the use of test equipment, most of which I had never seen in college. When the parts arrived I spent a week or two laying out the hardware, wiring and soldering the parts according to my schematic diagram. During this labor-intensive time I realized that wearing my necktie was not a desirable requisite for engineering work. After burning pieces of my tie with a soldering iron I removed this apparel from my wardrobe. At this phase in the development of the filter circuitry I also stopped wearing my college class ring. My ringed finger kept on touching the high voltage power supply leads, shocking me with jolts of electricity

that almost toppled me off my bench! When the filter was completed George showed me how to align it with the use of a sweep generator and an oscilloscope. At the first try the response was close to my design values but needed to be tweaked to specs with variable components. George complimented me on my work. I felt very proud! We documented the design and sent a data package to the Manufacturing Dept. for final production. George was then given an R&D task to test a VHF/UHF (225-400 MHz) receiver as part of a new Air Force contract. Although some of the design was completed we worked side-by-side in a RF screen room which was impervious to outside signals and noise. I was like a sponge absorbing all the information that George imparted to me and the related information I would gather from various technical sources.

But these times would not last. In late summer of 1961 management changes at Servo resulted in George being transferred to another program. My work wound down and I felt it was time to move on. In April 1962 I was able to get a position with Hazeltine Research Corp. in Plainview.

Several years later when I was working at Grumman, I noticed in the company telephone directory that there was a listing for a George Shaler. Calling him on the phone I verified that he was indeed the man who had been my mentor at Servo Corp. We reminisced for a while and promised to meet for lunch. We never did have that lunch meeting but the mentoring that George had provided remains with me forever.

How Ham Radio prepared me to be an Engineer

by Bob Wexelbaum, W2ILP

(Continued from December 2016)

The voyage to Korea was becoming boring. When we were out on deck there was nothing much to see but the sea itself; occasionally broken by the spouts of whales and once we spotted flying fish. I dreamed of visiting Hawaii and seeing hula dancers but that was not to happen. We were informed that we were taking a northern route and would not be near any islands. We would not be seeing any land on the horizon until we would reach Japan. We would stop at Sasebo, Japan to refuel but would not be allowed to disembark there. From there we would sail directly on to our final destination: Incheon, Korea.

There were activities that were meant to raise the morale of the troops. When we crossed the International Date Line we had a traditional party. We got a special treat of ice cream and cake and everyone, who had never crossed the date line before, received a certificate and card to verify their crossing. I don't know how they managed to get their musical instruments aboard, but a Hill Billy band formed on deck and played lots of requested popular and country music. Another time five tall Black soldiers played one-hoop exhibition basketball on deck, while the PA system blared the tune of "Sweet Georgia Brown". They were imitating the famous Harlem Globetrotters. In spite of having to contend with the rocking ship they sunk most of their shots successfully! Twice during our journey we were treated to first run movies. This was accomplished by setting up a very large movie screen on the fantail of the ship so that it could be seen by both officers and men on both decks. I don't remember what movies were shown but they were the best that Hollywood had to offer at that time. We had to attend some Troop Orientation and Information (TO&E) lectures. This was done in the area where we ate by lowering the tables to floor level. Groups of about 60 soldiers at a time sat on the floor and were informed about patriotism and duty in a combat zone. We were told about working and dealing with Korean nationals in an official manner that was to be our guide. I had remembered what King Yee, who had worked with me at Emerson, had told me and what Sgt. Le Duc had more recently told me. They had provided a much more accurate picture of the prevailing conditions. The Korean people had been freed from Japanese domination. Most were very glad to have been freed but most were in extreme poverty; poverty which no Americans had ever witnessed at home. Because of that Koreans would do anything to get anything from the US troops. In spite of this we were told that the worst thing that could occur would be if the Koreans turned to Communism as they had in North Korea. "Communism" was a dirty word at that time. One soldier asked, "What does Communism mean?" He was read the text book definition of Marxist Communism and the fact that we were ordered to prevent its spread even if it would cost us our lives. That didn't quite answer his query. So the lecturer added, "We can't exactly explain why communist governments are bad... It's all political and above our level."

Next month I'll explain how I and my overweight duffle bag physically arrived in Incheon.

Page 2

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

All my life I have been a Boy Scout. Long after my son aged out I am still active. One of many things I do for the scouts is teach several unusual merit badges, including radio. One Friday afternoon a few weeks ago, I got a call from someone I know at the Boy Scouts telling me that they were in a bind. They had 15 boys signed up for a 4-hour session in the AM to complete the Radio Merit Badge...but no instructor. Not having anything specific scheduled, and being a soft touch, I said I would do it. While the Merit Badge course touches on many aspects of radio, ham radio is a large part, so obviously I packed some ham gear. We would be in a classroom, with no opportunity for a decent HF antenna, so I left the heavy transceiver home. I brought a portable receiver (Grundig YachtBoy 400) that receives AM, SSB and CW, to at least listen in. I also was sure to bring my 2-Meter mobile setup, so we could talk on the air. The class went very well, considering the audience was mostly 12-13 year-old boys.

I have kept 2-meter rigs in my car for most of the last 40 years, but I had taken it out over a year ago and never put it back, more due to laziness and inertia than any identifiable reason. After the class, I decided to just leave it in the car, so now I'm back on 2M mobile.

I told this story on a repeater to two hams I know who are also active in scouting (K2KNB and W2OSR); both had received the same phone call that I did. Not surprising when you think about it...Who else signs up as a Radio Merit Badge counselor?

Remember we are collecting 2017 club dues (\$20; \$25 for multiple members at one mailing address; \$10 for retirees living out of our area). Mail checks to me at 215 Birchwood Park Drive, Jericho, NY 11753.
Ed, WB2EAV

GRUMMAN AMATEUR RADIO CLUB MINUTES OF GENERAL/BOARD MEETING 12/21/2016

TREASURER'S REPORT – Ed, WB2EAV

Finances are in good shape.

REPEATER REPORT – Gordon, KB2UB

Technical problems remain at Hauppauge repeater.

NET REPORT – Karen, W2ASK

Sunday Net at 7:30 AM had 0 check ins.

Thursday night net at 8:15 PM on 146.745 MHz had 0 check in.

Thursday night net at 8:30 PM on 145.330 MHz had 2 check ins.

VE REPORT – Ed, WB2EAV

One applicant applied for General and passed 3 applicants applied for Technician.; 2 passed, 1 failed.

Three VEs were present: Ed, WB2EAV, Bill Fastenau, WB2QGZ, and Ken Maltz, KC2YRJ.

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

NEW BUSINESS

Our January 2017 meeting will be at the usual place at Ellsworth Allen Park in Farmingdale.

PROGRAM

Our December meeting was the Holiday Party at the Applebee restaurant. It was one of the biggest turnouts we've recently had, with 18 people. It was good to see Pat Masterson, KE2LJ who was visiting from Florida.

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 want to update or edit roster information.

PUZZLE

Last month's question was:

A loop antenna is:

- A. bi-directional
- B. usually mounted vertically
- C. most often used for receiving
- D. any of the above

Answer: The correct answer is D.

This month's question is:

What happens to photoconductive material when light shines on it?

- A. The conductivity of the material increases
- B. The conductivity of the material decreases
- C. The conductivity of the material stays the same
- D. The conductivity of the material becomes temperature dependent

Numbers? Constants? Atoms? Waves? Quantum?

(Continued from December 2016)

I will now continue the chronology of significant physics discoveries that was started last month.

1914 WW1 begins. Bohr returns to work at Manchester University. Planck and Roentgen are among the signatories of the *Manifesto of Ninety-Three*, asserting that Germany had no responsibility for the war, had not violated Belgium neutrality, and committed no atrocities.

1915 Einstein completes his general theory of relativity.

1916 Arnold Sommerfeld proposes a theory to explain the fine structure of the spectral lines of hydrogen and introduces a second quantum number and replace Bohr's circular orbits with elliptical ones. Einstein returns to work on quantum theory and discovers spontaneous and induced emission of a photon from an atom.

Sommerfeld adds the magnetic quantum number to Bohr's original atomic model.

1918 Pauli leaves Vienna to work with Sommerfeld at Munich University. WW1 ends.

1919 Planck is awarded the Nobel Prize for Physics. At a meeting of the Royal Astronomical Society of London an announcement is made that Einstein's prediction that light is deflected by a gravitational field was confirmed by measurements made by two British expeditions during a solar eclipse. Einstein becomes a global celebrity overnight.

1920 Sommerfeld introduces a forth quantum number. Bohr meets Planck and Einstein for the first time while visiting Berlin. A public rally is held in Berlin against "Jewish" relativity theory. An angry Einstein replies to his critics in a newspaper article and visits Bohr in Copenhagen for the first time. Heisenberg enrolls in Munich University and meets fellow student Pauli.

1921 With Bohr as its founder the Institute for Theoretical Physics is opened in Copenhagen. Born arrives in Gottingen from Frankfurt as director of a theoretical institute that can compete with Sommerfeld's Munich institute. Pauli obtains a PhD from Munich University and becomes Born's assistant in Gottingen.

1922 Pauli leaves Gottingen to take an assistant's position at Hamburg University. Bohr presents lectures in Gottingen on atomic theory and the periodic table. Heisenberg and Pauli meet at Bohr's lectures for the first time and Bohr is favorably impressed by them. Heisenberg becomes a 6-month assistant to Bohr and Pauli becomes a one year assistant to Bohr. Einstein wins the 1921 Nobel Prize and Bohr the 1922 Nobel Prize.

1923 Arthur Compton publishes a report about his discovery of the scattering of X-ray photons by atomic electrons. This becomes known as the "Compton effect" and is taken as further evidence of Einstein's 1905 light quanta hypothesis. Einstein visits Bohr in Copenhagen for the second time. Heisenberg fails to get a PhD from Munich University after poorly answering experimental physics question on an oral examination.

De Broglie links waves with electrons as he extends wave particle duality...

(continued on page 6)

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 ab2efd@gmail.com
Board Member: Jack Hayne, WB2BED wb2bed@arrl.net
Board Member: George Sullivan, WB2IKT

Newsletter

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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 2016 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

My XYL, Ethel developed a severe case of Bronchitis last Friday. My two sons were here to celebrate New Years with us but Ethel was coughing too much to do any cooking, as well as too tired to do any toasting. My son Dave took Ethel to the doctor and she was given antibiotics. She is now entirely OK. This did cause me to have to do all of the cooking myself and it put a damper on our celebration. Ethel slept through most of my cooking. Yep many who aren't sick sleep through most of my writing and talking. Tomorrow I have an appointment to see the doctor for my yearly physical. I could fill many pages discussing my health issues. I am trying to gather up stuff that would be of interest to Mike, N2YBB for a Hudson Division museum. I have promised to get it ready this month, but I am still a long way behind in doing so and it remains a work in progress. I don't want to just contribute stuff about W2ILP. I want to write about stuff that is generally about NY-LI-NJ. When I look for that I get slowed down by reading it and the nostalgia takes over as I read about concepts and inventions that I was wrong about and those that I was correct about as well as history that conforms little to the present opinions of historians who can't separate science fiction from facts and science prophesies from practical reality. If you want to read science predictions and good fiction I suggest reading Hugo Gernsbach. He was a New Yorker who sold radio parts on "radio row", and booklets that showed how to build vacuum tube short wave radios. He detailed how to build a TV set using a Nipcow scanning disc at a time when nobody was transmitting any TV signals like that in NY. He did say that TV screens were too small to compete with film projected movies and Hugo may have predicted the big flat screens of today long before the technology was ripe. He never claimed to have communicated with Mars electrostatically or to have transmitted kilowatt-hours of electrical energy by radio. There is a picture of Hugo with a virtual reality blinder over his eyes and rabbit ears poking out from it in a recent "IEEE Spectrum". There is a Hugo Award for Science Fiction and there is a story by Hugo that is entitled "Ralph124C41+" which predicts universal people codes but not UPC scanners.

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)

I stopped the physics chronology at 1923, but plan to continue in it in future issues of this newsletter. I stopped here because I want to tell you about de Broglie. He was an amateur radio operator before he became recognized as a theoretical quantum physicist. His full name was Prince Louis Victor Raymond de Broglie. The de Broglie family had served French Kings as soldiers, statesmen and diplomats since 1742 when an ancestor was given the title of Duc by King Louis XV. The Duc's son was given the title of Prinz for defeating an enemy of the Holy Roman Empire. De Broglie was born in 1892, the youngest of four siblings. He had an elder brother who also became a physicist and had a similar title and name, which only differed by having Maurice instead of Louis in it. When their father died in 1906 Louis de Broglie was 14 years old and was predicted to become a great statesman because he could recite the names of all the ministers of the 3rd Republic. Maurice de Broglie became the family head. He had pursued a military career in the Navy rather than the Army and became interested in early 20th century ship-to-ship radio communication. He wrote a paper about radio electric waves, and in spite of opposition from his father, had left the navy in 1904 to devote himself to scientific research. Maurice sent Louis to school. Louis did well in French, history, physics and philosophy but not so well in math and chemistry. He managed to graduate in 1909 at the age of 17 with BSs in math and philosophy. A year earlier Maurice earned a PhD under Paul Langevin at the College de France. Maurice then set up a lab in Chateaubriand. At that time, unlike Maurice, Louis was set for a traditional career of medieval history at the University of Paris. Louis became bored with the study of old documents and sources. He became interested in Maurice's lab and in experimenting with wave propagation as an early radio amateur. Maurice became a respected scientist specializing in X-ray physics. Louis was interested in new radio wave physics. He decided to become a physicist and earned the License es Science degree in 1913. A year of military service beckoned. Despite three Marshals of France that the de Broglies could boast, Louis entered the army as a Private because he wanted to continue to study radio propagation as a hand's-on-key radio operator. With Maurice's help Louis was transferred to the Service of Wireless Communication (equivalent to what became the US Army Signal Corps). When WW1 broke out he was stationed in Paris and spent 4 years as a radio engineer underneath the Eifel tower. I'll tell you the rest of the story about Louis de Broglie, next month and how he developed the reality concept of wave-particle duality that earned him the blessings of Einstein.
(to be continued) --w2ilp—(Introducing Louis' Particles)..that rode the waves like skate boards.