W7LR Turning Points

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TURNING POINTS

by Robert Leo, W7LR

Each of us have had turning points or events that shaped or changed our lives. A few that I have had include joining the Naval Reserve at age 16 which led to interesting Naval duty before and during WW-II; receiving a letter from Simon Ramo of an offer to be an engineer as he formed Hughes Aircraft with a handful of engineers – but turning that down; soon afterwards writing an application to be the radio operator on an expedition to British East Africa in 1948 – which resulted in that adventure; of taking a train to NY for that trip and meeting my wife to be on the train; and more pertinent to this story – discovering radio in 1933. The rest of this story will follow the trail that began then.

Sometime in 1933 when I was age 12, my father brought home some magazines for me to read. One was a radio magazine by Hugo Gernsback which contained plans for building a simple radio. The radio was intended to pick up signals from the broadcast band AM stations, as your kitchen radio does today.

It was a simple design – it had one tube operated from batteries, a coil of wire wound on an oatmeal box, and a tuning condenser made from pieces of tin can and cellophane insulation between the plates. With just a piece of wire for an antenna it picked up stations and my venture into radio began.

I didn't know anything about radio then, that there was a short wave band further up the dial from the broadcast band, or about other bands beyond that that now contain radar, tv, fm, and satellite signals. I didn't know that a radio should be made with short leads or wires – but with the long wires I had to the tuning condenser I discovered that I could tune beyond the broadcast band, and soon heard an amateur radio station signal. That was my discovery of short wave.

Somehow I found out how to locate the station that I had heard and paid a visit there. The operators of the station, two brothers, showed me their equipment and demonstrated how short wave contacts were made. I was hooked. All of these

things started me on the path of radio and engineering, and 70 years later I'm still at it.

As I modified my little receiver I began to pick up code signals. These were with dots and dashes of Morse code, sent by commercial radio stations or ships at sea. Of course I didn't know the code either. I listened and listened and finally I could distinguish between a V and an H (a V is dot dot dot dash, and an H has four dots). I kept at it and soon knew the entire code alphabet and could copy call signs and other information.

By the time I was 16, in 1937, I had learned a lot more about radio and was ready to take an examination of radio theory and code in order to obtain a license to operate an amateur radio station. The examination was conducted by the Federal Communications Commission (FCC) in San Francisco. The exam procedure was different than that used today. Then the questions and answers were in long hand, and both sending and receiving code were required. Today the exam is multiple choice, and only copying code is required. Code speed requirements are less today than previously. I soon received my license and the call sign W6PBV. Since that time I have moved many times and had different call signs. My call today is W7LR.

At the exam in SF another young man, Bud, took the exam and received the call sign W6PBI. He has kept that call all these years and now lives in Nevada. A few years ago Bud and I met at a radio convention and talked about our exam long ago. Any hobby or field or profession has its own set of jargon. Amateur radio is no exception. Some of the shorthand evolved from the code used by telegraphers on early railroads. Communication was by code only since voice transmission hadn't been developed yet. Other shorthand came from ships at sea, such as the well known SOS, shorthand for save our ship, and as used by the Titanic. In ham radio (ham is shorthand for Amateur) the two characters 73 mean best regards. Some shorthand is by international agreement. One set are known as Q signals, three

letters starting with the letter Q. A QSO is a radio contact. A QSL card is a postcard sent by mail to confirm a contact.

Other shorthand has to do with call signs. For example broadcast stations in the east begin with W, such as WLW in Cincinnati. Broadcast stations in the west begin with K, such as KSL Salt Lake City, KBOZ Bozeman, etc. These prefixes are assigned to each country by international treaty. The United States has so many radio stations, commercial, television, amateur, government, military, etc that our country is also assigned A and N prefixes. The British Empire used the prefix V, such as VE for Canada, VK for Australia, VU for India, VQ for British East Africa, etc. Numbers in the call signs have meaning too, such as W6PBV meant that station was in California, and W7LR is assigned to states in the northwest. W1 would be in the New England states. Another shorthand are the letters, sk. These stand for silent key. An amateur who dies can't of course send code any longer on his key, and so becomes a silent key, or sk.

Back to the story. Once I had my license I needed some equipment for sending and receiving in order to make contacts with distant stations – even in far off countries. By this time my receiver had expanded to having three tubes and better parts. I didn't have a transmitter to send out signals but found a used one for sale in San Mateo CA where we lived at the time. My folks and I were not well off and so I needed to work to earn money to buy the transmitter. I worked in a grocery store for $2 a day and saved up $50 for that first transmitter. My folks could not afford this amount, but they encouraged me to take up ham radio as they thought that it would lead to something even better – and they were right. I always appreciated their support.

The big day arrived in September 1937 to try and make my first QSO (contact). I sent out a CQ (a general request for a contact) followed by my call sign W6PBV. An experienced ham was there and said there are several stations calling you – I

was nervous and didn't pick them out at first. I finally got one, W2JKG in New Jersey for my first contact. It is general practice to keep a log book of your contacts, and so I wrote down this first one. Over the next 66 years I have continued doing this, and having been very active over these years in ham radio, I now am using logbook #78.

After that first contact I went on to make many more. Eventually I was able to contact stations in other countries. These might have been Japan, Korea, Australia, England, etc. One early contact was with MX2B in Manchuria in 1938.

For radio purposes there are now 335 countries, and I have succeeded in contacting them all. Some were difficult due to lack of operators in those countries, or no activity at all due to their governments restrictions. North Korea is a good example, and mainly their permission for a UN worker there to operate recently has allowed contacts with that country. Only voice communications were allowed so that the government could better monitor that activity. Other countries having former restrictions have been China, Burma, Albania and Yemen.

During my highschool years I had some difficulty in operating during the night when signals were loud. My dad thought that I should be sleeping instead of radioing. We then lived right by railroad tracks and in the 30's big steam engines often went by the house. I would wait for a train to go by so that I could get out of bed and head for the radio and not wake my dad from creaking floors but that noise was masked by the train noise. Later on another problem arose. The transmitter used mercury vapor rectifier tubes in the power supply and these gave off a purplish glow when I would press the key. Eventually the glow had the same effect on my dad as the creaking floors and I'd have to head back to bed. Before that I could make some pretty good contacts.

Maybe we should digress here and define Amateur Radio. You have seen that it provides a means of making radio contacts with other hams. This was by code

only, but now can be by voice, or by digital/computer means, or pictures can be sent, etc. A license is needed to be able to operate. The FCC and by International Treaties, amateurs are assigned certain segments or band of frequencies mostly in the short wave spectrum. Long wave was used by ships at sea before amateurs discovered short wave. Short wave succeeds by having transmitted signals reflect back to earth from ionospheric layers above the earth. Amateurs are also allowed certain transmitter power (up to 1500 watts output) and have to follow other regulations. The word Amateur is not quite the opposite of Commercial, although we are not allowed to accept any payment for sending messages for others. Amateurs have greater technical and operating skills than the word Amateur implies. We take great umbrage at being thought of as CB'ers, although some CB operators graduate to become good hams.

Let's continue the rest of the story. How did the ham radio hobby lead to other opportunities in life? First of all it made me want to be in a technical field and probably electrical engineering, which is what occurred. Then being good at typing and good at code and being in the Naval Reserve all led to being called up by the Navy in early 1941. With those capabilities and training I was sent to the naval radio station NPG in San Francisco as a code operator. There were times that I would handle 180 messages in an eight hour shift, either sending messages in code or receiving and typing them on a typewriter. Soon after that I was sent to a school to learn the Japanese radio code, to transcribe that in Katakana characters or typed on a special typewriter. This led to copying transmissions from Japanese warships during the battle of Midway. Other navy assignments were making recordings for our state department and teaching radio at Army and Navy military bases.

The Navy also sent me to Cal Tech to obtain a BS EE degree, and to midshipmans school to become a naval officer.
In 1946 after leaving the Navy, I worked for the FAA at their California radio stations. It was pretty boring work for a young fellow and so I answered an ad in a radio magazine which advertised for a radio operator for an expedition to British

Africa. I was chosen along with another ham to go on that trek. Besides the wonderful experiences of being in Tanganyika, Kenya and Uganda for several months in 1948 the main consequence of that journey was meeting my wife to be on the train trip from SF to NY. We were subsequently married in Florence Italy in October 1949. Once again ham radio came to the rescue. We didn't know anyone in Florence but I had contacted a ham, Fortunato Grossi, I1KN, both from my home in San Mateo, and as the first contact from the expedition in Africa. So he wound up as best man at our wedding.
After leaving Africa on a tanker to the Persian Gulf I began working for the oil company ARAMCO in Saudi Arabia, both as their radio station supervisor, and as an engineer in the geology department in the great Arabian dessert. Again there were benefits from ham radio. My wife could not enter Saudi Arabia so we talked by ham radio from the US Airforce radio station HZ1AB at Dhahran Saudi Arabia to a lady ham in Holland where my wife was staying. I also set up my own station on Bahrein Island with the main benefit being able to observe the Arab villages and way of life there.

Back in the USA, I worked as an engineer at Stanford Research Institute, helping to design communication equipment for the Navy, and working on one of the first computers designed for commercial work, for the Bank of America. That led to working for the General Electric Computer Company and helping to design and build the check sorting machines that sort and read the magnetic characters on your bank checks.

Next we finally get to a University situation! I was hired to teach Electrical Engineering at Montana State University, in Bozeman MT. I believe that all of my previous engineering experiences was a factor in that. I believe that I was able to offer something different and important by having that background and by blending that into course work. I think that is a better situation than being an Ivory Tower Professor who has never gone beyond the class room or engineering

department. Ham radio was a factor in being in a position to offer something different.

I was at MSU for twenty years, between 1961 and 1981, and became a full Professor without having a PhD. I had a MS EE degree from Stanford, obtained when working at Stanford Research Institute. In the those years at MSU the EE Department conducted many sponsored electronic research projects, and for several years I was Director of Research in the department. One of our projects was with the Stanford Research Institute Communications Lab in Bangkok Thailand. I was offered a position there as research director and so took a leave of absence from MSU between 1963 and 1965 when our family moved to Bangkok. We traveled there via Europe, Egypt and Pakistan. At the lab we conducted many communication research projects for several military and government agencies.

Some of our lab personnel rode to work in the jungle on elephants.

It was a wonderful experience living in Thailand, as we could travel to see jungles, elephant roundups, Thai villages near Burma, kite flying contests, and weekends by the Gulf of Thailand on nice white sandy beaches and in the days without many tourists or highrises. A highlight was the trip to Angkor Wat temples in Cambodia.

I had the opportunity to travel to many other countries in SE Asia and often the research personnel visited were also hams, which eased relationships. Some of those countries were: India, Macau, Hong Kong, Japan, Malaya, Singapore, Cambodia, Laos, Vietnam. In Bangkok I was able to operate a ham station, HS1L. There is no FCC in Thailand, but the military allowed me to operate and select my own callsign.

To improve ham radio operation in Thailand I was one of the founders and first president of an organization called RAST – Radio Amateur Society of Thailand.

Because of this and subsequent efforts by others, ham radio operation in Thailand is now much improved. I look back on this as one of my most important accomplishments or contributions.

One other contribution that I made which I think was important was engineering the establishment of a PBS fm radio station for Bozeman. At the time the nearest one was in Billings which couldn't be picked up in Bozeman. John Fisher and I scouted out a mountain top location for translator equipment which could pick up the Billings PBS signal and then rebroadcast it to the Bozeman area. We had many wintertime adventures on snowmobiles or snow shoes to keep the equipment going before the PBS organization took over the maintenance duties.

I retired from MSU in 1981, but I often tell myself to retire again, as I'm as busy as ever or maybe more so. One activity is consulting. I work with insurance companies and law firms to investigate and report on or do trial work on electrical accident and fire cases. I enjoy this kind of work because of the challenge and the opportunity to learn new things, even at age 82. Over the years I've worked on about 200 cases.

So being a retired college professor I have a hobby that keeps me busy and provides very interesting experiences. It keeps one from being or becoming dull – there is a saying that you need to be fanatic about something. There a number of qualities that help make ham radio, or other pursuits, more successful or enjoyable.

It may take months or even years to make a contact with a certain country – it takes patience, knowledge, a good station, some skill and some luck.

I'm not sure you learn a lot about philosophy in ham radio – maybe that comes from other pursuits. This may not fit the ham radio story but one lesson that I learned is that a new part is not necessarily a good one. It is a long story but I went though four new Jeep thermostats and three water pump foot valves before getting a good one – so don't give up after the first one, and wonder about our great US manufacturing talent (unless they were made in Mexico or Taiwan?).

What else do you learn from ham radio? You get good at geography and know where Kazakhstan, Peter I Island, Botswana and so forth are located.

You learn how countries change as they become independent. You learn a lot from talking with hams in different countries. I have a number of examples of the latter and may add those to this story.

What are some contributions of hams? Their first one was discovery of the ionosphere and short wave, and later several technical electronic firsts. They have a pool of talent and experience very useful to our country in time of war or crisis or natural disasters. They can communicate when other means fail – overloaded or failed cell phones, satellites that fail, telephone circuits that are damaged or disrupted, etc. We don't do much anymore to develop equipment, and most of our gear are "rice boxes" from Japan.

We are not all technical geeks either. We have campouts to test gear but maybe more a social event; radio conventions or hamfests; club meetings; Christmas dinners, etc.

Now we come to a fascinating aspect of ham radio – recollection of contacts with interesting people in distant countries which led to great friendships and in some cases visits with them in person.

The first one that comes to mind are radio contacts with Santos, CT1DVV, in Coimbra Portugal. My wife, Cobi, and I had decided to visit Portugal and in one radio contact with Santos he invited us to visit him on that trip. After visiting Lisbon, the capital of Portugal, we drove northward to meet Santos. He was just as friendly in person as over the radio. He spent a day and a half away from his work to show us old Roman ruins, old Monestaries, and then invite us to his home to visit with his family and have dinner with them. This was the highlight of our trip to Portugal.
Another contact resulted from a phone call from Peter Fonda. He wondered if I could contact his yacht in the Pacific by ham radio, which I did. It was not possible to make contact with all famous hams, such as King Husein of Jordan, King Carlos of Spain or the minister of India. There are hundreds of thousands of hams and so the competition for such rare and infrequent contacts is huge, and the chances of success are slim.

I’ve had several contacts with Tom Christian on Pitcairn Island who is one of the decendents from the crew of Mutiny on the Bounty. I’ve had contacts with both the US and Russian spaceships.

Recent contacts have included those with Doug ZP6CW in Paraguay. I’ve learned about his life there and how inexpensive living is there. When we were in New Zealand we visited Dave ZL1AV in Rotarua and could meet his family and have dinner with them. Another visit took place here at our home in Bozeman when Leif LA2PA a vice president of Shell Oil Co. came to see us. We hope to visit them in Norway some day. We have visited Wino PA0ABM in Holland and he has been here too. He and I are working on writing the story of my adventures on the expedition to British East Africa in 1948. That is a another long story but may be seen on a web site.
The list of interesting contacts and their follow up is endless. It is one of the joys of ham radio as many contacts are random and so you never know what to expect but are often surprised and pleased.

It is time to wind down this story. You can see the result of a turning point in someones life.
Bob Leo July 25 2003