

***I am forced to wonder a little about Destiny—and I achieve no progress whatever toward explaining anything. It seems remarkable to me at least that if I had not gone to Molo, I might never have seen New York, nor learned to fly a plane, nor learned to hunt elephant, nor, in fact, done anything except wait for one year to follow another.***

Beryl Markham

*West with the Night*

My experiences growing up on the family farm were undoubtedly similar in many ways to those of most farm kids during the Depression years. There were differences, however, that would ultimately lead to my leaving the farm, and seeking a career that would greatly alter my journey through life. Most important were the opportunities I was given to see beyond the horizons of the farm community in which I was raised. These included the magazines and books that were brought into our home and the far-reaching interests of my immediate and extended family, interests that included education, engineering, business, and politics. Furthermore, World War II and the world of radio gave real meaning to places such as Pearl Harbor, Guam, Anzio, Dunkirk, Tonga Island, Hiroshima, Potsdam, Shemya, and dozens of others. When you talk to an amateur radio operator on Tonga Island, find Tonga on a map, and receive a card confirming your contact, the place takes up permanent residence in your memory bank. The war and amateur radio probably did more for my understanding of world geography than all of the classes I took in school.

In addition to seeing the opportunities that beckoned to me from distant horizons, the ready availability of post secondary education made it easy for me to pursue those opportunities. Furthermore, the communication demands of World War II led to rapid advancements in that field and an expanding electronics industry offering some of the first high-tech jobs. Some of those jobs would be close at hand, at the National Bureau of Standards Central Radio Propagation Laboratory in Boulder, Colorado.

As I continued to search for new vistas that offered challenging opportunities for research and travel to distant lands, I never forgot the lessons learned along the way. Every job taught me things I could use on the next job and allowed me to see over more distant horizons. This part of my story begins with World War II and continues with my entry into the world of radio.



Courtesy U.S. Naval Historical Center

**U.S.S. Tarawa – CV40**

My brother Stuart served on the Tarawa during the summer of 1945 on her shakedown cruise to Guantanamo Bay, Cuba.

# Chapter 11

## WORLD WAR II



Courtesy U.S. Air Force

**The Flying Fortress B-17 Bomber**

**O**n the afternoon of December 7, 1941, the family was at Chrisman field waiting for the arrival of some National Guard airplanes that were going to put on an air show. We were all shocked when an announcement was made to tell us why the planes were not coming. Our nation was at war.

This brief account of World War II is told only with respect to the war's affect on me and my family. For the most part, the impact on my immediate family was relatively minor. Robert was drafted into the Army and Stuart joined the Navy, but neither of them was involved in any of the fighting. Of course, I was too young to serve in the military and Willard was exempt because he was actively engaged in the production of food.

In our extended family, Uncle Parke's son Lynn served in the Navy Seabees in the Pacific, where they built runways, bridges, and buildings after the fighting was mostly over. The Seabees did come under fire at times because their work often began before all of the enemy's resistance had been put down. However, they usually did not see action on the front line.

Uncle George Hawley's son, Bruce, was the only casualty from our family. He served in the Army Air Force in Europe as a waist-gunner on a B-17 bomber. He was killed when his B-17 was shot up and crashed on the English coast as they were returning from a raid over Germany. A local English girl went to the crash site and was holding him when he died. She wrote a letter to the family to tell them what had happened.

### **Stuart's Service**

Stuart joined the Navy in 1944. The following excerpts from the final pages of his memoirs tell us a little bit about his experiences:

I gave Shirley an engagement ring before I left for the Great Lakes Training Center for boot camp. Shirley was the first and only girl I ever dated. It [boot camp] was quite a change in climate for me. The camp sets right on the edge of Lake Michigan [north of Chicago] and even with long underwear and heavy wool Navy Blues that humid cold went right through. We graduated in time to get a leave to go home for Christmas. I rode the Rock Island Rocket home and back. What a train it was. In those days our trains were the best in the world. It was really great to get home for Christmas.

I was unlucky when I got back and found out I was going to school at Great Lakes for Fire Control for a Gunners Mate rating [I assume he considered this unlucky because he had to spend the winter in that climate.] It was better than going straight out to a ship and swabbing decks though.

From Great Lakes we were sent to Ft. Lauderdale, Florida to finish our training. We got there just in time for the hot weather. It wasn't too bad though because we were in a big hotel right on the beach. We could go swimming anytime we were out of class and off duty. From there we were sent to Newport, Rhode Island because our ship the Tarawa, a new aircraft carrier, wasn't ready. In about two months we were sent on down to Norfolk, [Virginia] even though the ship wasn't quite ready.

After the ship was commissioned, we went on a short cruise up in the North Atlantic where we lost three planes on takeoffs. They said it was ice forming in the carburetors. Then we went back to Norfolk for some repairs and from there we went on our shakedown cruise down to Guantanamo Bay, Cuba. That was the best time I had in the service. The weather was nice and a lot of time was spent in gunnery practice or watching the flight maneuvers of the planes. We only had one bad wreck when a plane missed the [arresting] cable that stops them when they land and he crashed into the superstructure and was killed.

We didn't get to see much of Cuba—a time or two of guard duty at the beer hall on the base. There was excitement one day when the planes bombed the observation tower instead of the target on the base. No one was killed but it sure shook them up.

By the time we finished our shakedown cruise and got back to Norfolk the war was over and after a short time we were discharged and sent home.

Stuart didn't mention that the aircraft carrier, Tarawa, was named for the Battle of Tarawa, one of the bloodiest battles in Marine history. Tarawa is a series of islets (very small islands) some 2500 miles southwest of Hawaii, just south of the Marshall Islands. The airstrip the Japanese had built on Betio, the largest of the islets, made this a strategic objective in the United States' campaign to gain control of the South Pacific. The Marines suffered nearly 3,000 casualties in the three-day battle that began on November 20, 1943. The price was great, but so were the

benefits. Within days, Betio became the forward base for the assault on the Marshall Islands.

Fortunately, the mobile namesake of the islets, a floating steel islet, was spared the deadly fighting that took place on Betio. This was due in large part to the Manhattan Project, which brought a speedy end to the war in the Pacific, just three months after the Tarawa was launched. Manhattan was the code name for the project to develop the atomic bomb. Because Robert became involved in that project, we can say that his contribution to the war effort, though small in and of itself, helped to keep his brother, Stuart, out of the fighting.

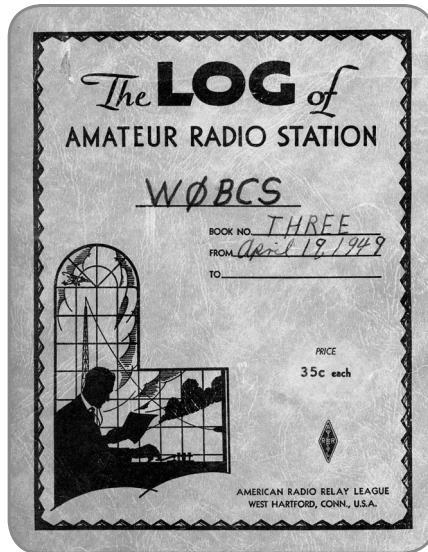
### **Robert's Service**

Robert enrolled at Colorado State University for the Fall Quarter of 1940, over a year before the United States became involved in the war. Students who had already started their degree programs were exempt from the draft as long as they stayed in school. While he was in college he was a member of the Reserve Officer's Training Corps (ROTC) and was the honor freshman in recognition of his performance as a gunner on truck drawn artillery. This was likely more in recognition of his skill at calculating shell trajectories than skill at manipulating the controls of the guns. He was a good mathematician. I enjoyed watching the ROTC squads practice their maneuvers on the vacant land on the southeast corner of Prospect and Overland Trail. Although I couldn't identify Robert specifically, I knew he was out there.

In order to stay in school during the summer of 1943, Rob had to borrow \$70 to pay for his tuition and books. Granddad co-signed on the loan from the First National Bank because Dad's credit still wasn't good enough to satisfy the bank. Tuition was about \$30 per quarter.

Rob received his B.S. Degree in Electrical Engineering in December 1943 and went to work for Westinghouse at Pittsburgh, Pennsylvania. Mom and I took him to LaSalle, south of Greeley, on a cold, dreary winter day to catch the train to Pittsburgh. As I recall, the scene was much like that in *Fiddler on the Roof* when Tevya and Daughter No. 2 were waiting for the train to take her to Siberia. I'm sure it was a day of mixed emotions for both Robert and Mom.

Comparing Pittsburgh with Siberia may not be altogether fair, but at that time the air pollution from the steel mills in the region made it a grim and unhealthy place to live. Rob was much relieved when he



The equipment and log book of amateur radio station WØBCS.

# Chapter 12

## THE WORLD OF RADIO

FCC Form 758 A

The United States of America
NUMBER  
FL-15-1409

FEDERAL COMMUNICATIONS COMMISSION

RADIO TELEPHONE OPERATOR LICENSE

FIRST CLASS

(General Radiotelephone Certificate)

SERVICE RECORD

*This certifies that* \*\*\* EUGENE L. MAXWELL \*\*\*

IS A LICENSED RADIO OPERATOR, AUTHORIZED, SUBJECT TO ANY SPECIAL ENDORSEMENT PLACED HEREON, TO OPERATE THE CLASSES OF LICENSED RADIO STATIONS FOR WHICH THIS CLASS OF LICENSE IS VALID UNDER THE ORDERS, RULES AND REGULATIONS OF THE FEDERAL COMMUNICATIONS COMMISSION, ANY STATUTE OF THE UNITED STATES AND ANY TREATY TO WHICH THE UNITED STATES IS A PARTY.

THIS LICENSE IS GRANTED UNDER THE AUTHORITY OF THE COMMUNICATIONS ACT OF 1934, AS AMENDED, AND THE TERMS AND CONDITIONS THEREOF AND OF ALL LEGISLATIVE ACTS, EXECUTIVE ORDERS, AND TREATIES TO WHICH THE UNITED STATES IS SIGNATORY, AND ALL ORDERS, RULES AND REGULATIONS OF THE FEDERAL COMMUNICATIONS COMMISSION, WHICH ARE BINDING UPON RADIO OPERATORS, ARE MADE A PART HEREOF AS THOUGH SPECIFICALLY SET OUT IN FULL HEREIN.

NEITHER THIS LICENSE NOR THE RIGHTS CERTIFIED TO HEREIN SHALL BE ASSIGNED OR OTHERWISE TRANSFERRED TO ANY OTHER PERSON.

PLACE AND DATE OF ISSUANCE: DENVER, COLORADO AUGUST 31, 1955

DATE AND TIME OF EXPIRATION: AUGUST 31, 1960 AT THREE O'CLOCK A. M., EASTERN STANDARD TIME.

SPECIAL ENDORSEMENT: Issued Verification Card, FCC Form 758-F.

*Federal Communications Commission.*

*Eugene L. Maxwell*

(Licensee)

*R. E. Hastings*

(Issuing Officer)

*Mary Jane Morris*

(Secretary)

NOT VALID UNTIL SIGNED

O. Form 2040 A

This license authorized me to work as an  
engineer at AM broadcast stations.

I was introduced to radio communications during World War II. Helen's husband, Ray Rawlins, took a course on radio communications, but dropped out before completing it, so he gave me the textbook. I was 13 at the time. I found the subject quite interesting and learned some of the more practical aspects from the helpful proprietor of a radio repair shop. He gave me instructions and sold me the parts to build a crystal radio set.

Crystal radios use the radiation received from an AM broadcast station to produce an audio signal that can be heard on headphones. Hence, they don't require the use of batteries or any other source of external power. They do require the use of a long length of copper wire, as an antenna, so as to pick up enough energy from the station. It was exciting when I was able to receive the three large Denver stations, KOA, KLZ, and KVOD. Fort Collins didn't have a radio station until after WW-II. If you are interested in these radios, you can get more information from The Xtal Set Society, [www.midnightscience.com](http://www.midnightscience.com).

There was an unfortunate downside to my radio hobby. I scrounged parts for the radios I built from a beautiful old radio that might have become a valuable antique. Years later, Robert asked what had become of that old radio, and he was disappointed to learn that I had torn it up. I am too now, but at the time I wasn't thinking about its future value as an historic object of interest.

My interest in radio was further heightened when a professor from Colorado A&M College (now CSU) gave a demonstration at a Grange meeting of the new radio detecting and ranging (radar) system that had been developed by England at the start of WW-II. He asked for someone to help him set up his equipment, and I quickly volunteered. His demonstration was quite simple. He used a microwave generator (a magnetron like those in microwave ovens) to direct radiation toward a curved sheet of copper. In front of the copper sheet, he placed a length of copper wire with a flashlight bulb in the middle. When he turned on the magnetron the light bulb lit up. This demonstrated that metallic objects reflect microwave radiation back toward the source, which is the defining principle that makes radar work.

## **Amateur Radio**

After the war was over, I became interested in amateur radio. During the war, all amateur radio operations were shut down for fear that spies

might use them to send information to our enemies. At the time, amateur radio consisted of only two modes of operation: continuous wave (CW) and amplitude modulated (AM) voice communications. CW used the dots and dashes of the Morse code and AM operated just like an AM broadcast station. Not being a person who enjoyed chatting with strangers, my interest was long distance CW communications, especially to amateurs in foreign countries. This became my first means of overseas travel.

To become a licensed amateur radio operator, I had to learn enough about the principles of radio communications to pass a written test. In addition, I had to become sufficiently skilled at using the Morse code to send and receive at a speed of 13 words per minute (WPM). A word was defined as any sequence of five letters or numerals. Mom helped me learn the code by calling out a letter or number, then listening as I tapped out the dots and dashes as given below:

A(· -)      B(- · · ·)      C(- · - ·)      D(- · ·)      E(·)      F(· · - ·)

G(- - ·)      H(· · · ·)      I(· ·)      J(· - - -)      K(- · -)      L(· - · ·)

M(- -)      N(- ·)      O(- - -)      P(· - - ·)      Q(- - · -)      R(· - ·)

R(· - ·)      S(· · ·)      T(-)      U(· · -)      V(· · · -)      W(· - -)

X(- · · -)      Y(- · - -)      Z(- - · ·)

1(· - - - -)      2(· · - - -)      3(· · · - -)      4(· · · · -)      5(· · · · ·)

5(· · · · ·)      7(- - · · ·)      8(- - - · ·)      9(- - - - ·)      0(- - - - -)

In addition to the Morse code, CW operators use a Q code and other abbreviations to simplify and speed up communications. For example:

PLS = please, TKS = thanks, WX = weather, QRS = send slower

PLS QSL = please send a card confirming our communications

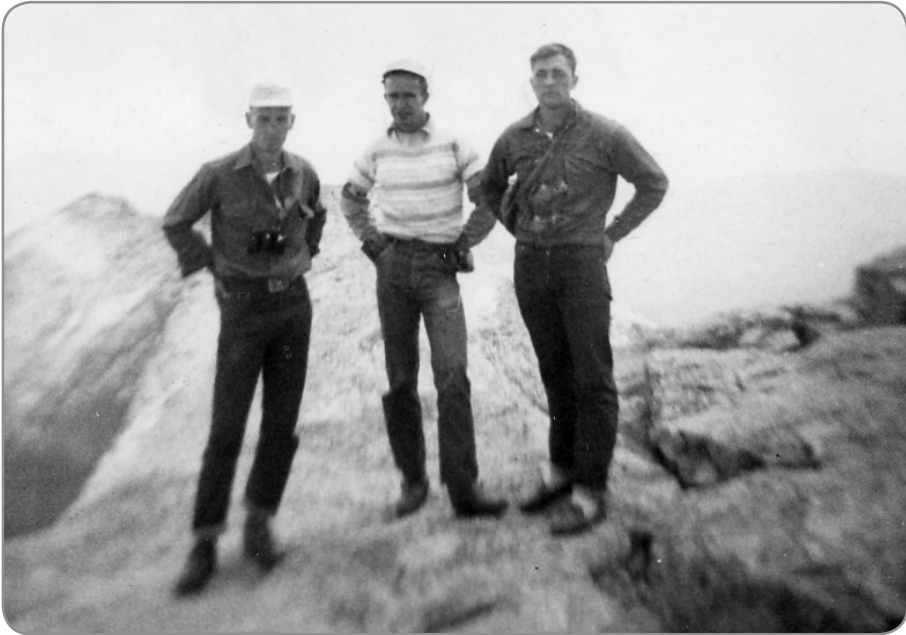
QTH = my location is .....

RST followed by three numbers gave the readability, strength, and purity of the signal received, and

CQ CQ CQ DE WØBCS means station WØBCS (my call letters) would like to communicate with anyone who hears my call.

## Chapter 13

### CLIMBING LONG'S PEAK



#### **On top of Long's Peak**

*From the left: Jack Sohrbeck, me, Bill Webster*

Climbing Long's Peak quite literally expanded the geographic horizon that bounded my world, and presented physical and mental challenges that exceeded any I had faced on the farm or in school. Bill Webster (Barbara Moore's cousin), Jack Sohrbeck, and I made two attempts at climbing the peak during the summer of 1950. Our first attempt was made mid-July. Distance wise we made it most of the way, but when we got to the Boulder Field, just below the final steep ascent, we found there was still lots of snow on the mountain. We had neither the equipment nor the experience to climb through snow on steep slopes, so we had to turn back.

Except for the East Face, Long's Peak is not considered to be an especially difficult climb. Although people have fallen to their death, children and seniors have safely completed the climb. For me, it was just one of those things I wanted to do sometime in my life. The summer of 1950 seemed like a good time to accomplish that goal.

We made our next attempt on August 13. We camped out the night before at the Long's Peak Trail Head, a few miles south of Estes Park on Colorado Highway 7. Knowing that we faced a 16-mile round trip hike, we got up at first light the next morning and headed up the trail. The climb is gradual all the way to the Boulder Field, so we made good time,



**Bill Webster on the North Face Cable.**



**Jack Sohrbeck took this picture looking down from the North Face**

arriving there before noon. The scenery is spectacular, and we suffered no ill effects from the high altitude, undoubtedly because we were in good condition and living at the mile-high elevation of the Front Range. People coming from much lower altitudes often suffer from altitude sickness, which causes headaches and nausea.

We decided to go up the North Face of the peak, which is quite steep and includes a section of nearly vertical rock, on which the Park Service had installed a cable to assist non-technical climbers such as us. Years later the Park Service

removed the cable because too many inexperienced climbers were getting part way up and then mentally freezing, unable to go up or down. The rescue efforts were both dangerous and time consuming, so they took it out. I made it up the cable with just one momentary hesitation.

When I reached the top of the cable, I was faced with a four to five foot vertical wall that required me to let go of the cable, place my hands on top of the ledge, and hoist myself up. It required no more effort than it would take to hoist myself onto any stonewall of the same height. There was just this little difference—if I failed to make it onto the ledge and lost my grip, I would likely fall several hundred feet. I rather imagine this is where many climbers froze. I quickly made my decision—it would have been disastrous to start thinking about the possible consequences—and succeeded in making it safely onto the ledge as did my companions who were coming up behind me.

From there we worked our way to a position where we could look down over the nearly vertical East Face and see Chasm Lake some 2,000 feet below. I took a picture, but without objects of known size in the

scene, the photograph didn't capture the empty space between me and the lake at the bottom. The picture Jack took of Bill and me, looking down toward the Boulder Field, does a better job of capturing the height and experience of climbing the North Face. It was an exhilarating, although daunting, experience.

We ate lunch at the summit and enjoyed watching a group of technical climbers coming up the East Face. This quickly revealed how amateurish our own climb had been. Although ropes are used on part of that ascent, as the climbers near the top they complete the climb by just walking up the last few

hundred feet. There is no way I would have had the confidence or courage to do that. Of course, none of us had the equipment or experience required to safely do that sort of climbing, but it was exciting just watching them.



**Coming down the west side of Long's Peak**

After finishing our lunch, we started down the west side of the peak. This is a steep but smooth trail that is relatively safe as long as you are in good condition. However, people do freeze on that route sometimes. When my son, Tim, made the climb, he came across a man who was just standing

still and would not respond to questions. It is likely the park rangers had to help him down. The thing that gets to people on that route is the long, steep, bare rock slope on which they are walking. If you should slip, there would be nothing to stop your fall for several hundred feet. Good physical and mental conditions are both important for climbing Long's Peak, regardless of which route you choose.

We hiked at a steady pace and arrived at the trailhead about 5 PM that afternoon. By that time, our hiking was reduced to a mechanical process