



# THE CHINA LAKER

Vol. 14, No. 3

Newsletter of the China Lake Museum Foundation

Fall 2008

## THE LIFE AND EXCITING TIMES OF GUY CHARLES THRONER, JR. AT THE NAVAL ORDNANCE TEST STATION

1945-1953

by

Guy C. Throner

### PROJECT CAMEL AND THE PUMPKIN BOMB

(An Excerpt)

Editors Note: Guy C. Throner recently contacted the China Lake Museum foundation and offered his autobiography. He had finished his book in 2001, which was written for his children and grand children. As one the pioneers at China Lake and having served here for eight years, he consolidated several chapters into one presentation, titled as shown in the above introduction. We will publish excerpts in the China Laker from time to time.

Mr. Throner's cover letter to his biography states:

"I will cover a bit of my experience prior to my arriving in China Lake. I received my Navy commission in August of 1943. I volunteered for bomb disposal duty and was sent to Bomb Disposal School at the American University in Washington, D.C., graduating in January 1944. I was sent to eight Navy Technical ordnance schools including Under Water Demolition (Frog Man School), and then to Africa, Sicily, Sardinia, Italy, and made the invasion of southern France. I ended in Marseilles doing bomb and mine disposal work. We disposed of 600 tons of unexploded ordnance including 261 tons of magnetic/acoustic underwater mines in three months. By December our job was done. The port was cleared of dangerous material and it was operating in support of General Patton's Army. We were ordered back to Washington in mid-December. In the end of February, I had received my orders to report for duty at NOTS Inyo-kern.....And now on to the story."

Shortly after arriving and getting settled into quarters, Lt. Dave Carnahan, my boss, was asked by the Experimental Officer, Commander "Chick" Hayward (Chick later made Vice Admiral, the Commander of the Atlantic Fleet, and eventually Vice Chief of Naval Operations) to assign a bomb disposal officer to a very secret program. I, being the junior officer present, was given the job. The project involved the development of a large free-fall bomb, a strange looking device that wasn't anything like the bomb one was used to seeing. The project was different in several ways. First, no station aircraft were involved in dropping the bomb. Secondly, no one could tell you anything about the project. Third, the planes that dropped the bombs were bigger than any we had ever seen. They left the station after dropping the bombs, to where, no knew or would say. These were what we would later get to know as the Manhattan Project's "Fat Man" practice bombs that were dropped.

The development of the implosion version of the atomic bomb, code named "Fat Man," was assigned to California Institute of Technology by General Leslie Groves and Dr. Robert Oppenheimer. Los Alamos had proven that the implosion concept would work in the detonation of a prototype design in the Alamogordo test, but Los Alamos was very busy with the development of the gun bombs called the "Thin Man," and "Little Boy" – the bomb dropped on Heroshima. They gave the task of making a implosion type design to Caltech and NOTS. The team was given the complete job of making the weapon except for the Plutonium pit which would be provided by the nuclear reactors at the Hanford Nuclear Facility at Richland, Washington. {We knew that something went inside the bomb but had no idea what it was until after the war had ended}.

The job involved the design of the explosive lenses, the molds in which to cast the explosive blocks (pentagons), the design of the bomb casing and tail fins, the high voltage "Pot Switch" that would fire the 32 detonators as simultaneously as possible, the radar and barometric fuze that would detonate the bomb at the correct altitude, and the development of the bombing tables (the ballistics of the bomb). The design and construction of the high-explosive casting facility (Salt Wells Pilot Plant) was also assigned to the team. The assembly buildings were located quite near our Area R shop. The explosive casting facility and the explosive ballistic facility were located about four miles from the assembly complex.

The actual testing of the bomb was done on the NOTS ranges. They were dropped from modified B-29s from the Army Air Corps' Wendover, Nevada Air Facility W-47. The bomb was so large that the B-29 bomb bays had to be enlarged. We didn't learn where the planes were based until after the end of the war when the Smyth Report was issued. We learned that W-47 had an overseas mailing address, but one of the officers let it be known that W-47 was not overseas. His mail was intercepted, and as a result he was sent to Alaska, never to return until the War was over. Security on the project was really important, expected and enforced. From April through July 1945, there were a number of drops made on the NOTS ranges. Most of the bombs exploded in air as they were supposed to, several on impact with the ground, and two failed to detonate at all. It is obvious that these tests did not contain fissionable material, but they did have a polished steel pit in its stead. In a properly operating bomb the imploding explosive left a discernible pattern imprinted on the steel pit so it was possible to determine that the explosive charge had performed as required.

Everyone on the range crew had the task of locating the pit and delivering it to the project engineers as soon as possible after the test. The engineers and physicists tried to ascertain if the implosion performed properly from the impressions made by the shock waves from the explosive pentagons. The imprints were uniform if all of the detonators fired simultaneously; if they didn't, the pit would be distorted or broken into small pieces. If a bomb failed to detonate it called for First Class Petty Officer Rooney and me to dig out the 32 large detonators, each about the size of a hand grenade, from the 3,500 pounds of Composition B (an explosive type), and assorted metal parts. If I remember correctly there were only two duds in the test series (there may have been more but my memory fails me on this).

We still did not know what we were working on, but we certainly knew it was different – bombs blow outward, this one blew inward. It was not until the early part of July that word went around we were working on a Buck Rogers bomb...an atomic bomb, whatever that was. The only people that had any idea of what an atomic bomb was were the people who had witnessed the detonation of the prototype "Fat Man" at the Alamogordo Trinity site shot; and there were very few people who had witnessed the detonation the Trinity explosion. Maybe Charlie Lauritsen had been at Alamogordo, of that I am not sure, but no one else working on the bomb knew what the bomb could do.

When every thing came together in the final design the engineers found that the explosive components would not go together properly. The Composition B blocks were too large. An estimate had been made on how much the explosive would shrink on cooling when taken out of the production molds. It did not shrink as much as they thought it would. The explosive pentagons would have to be machined but no one knew if the Composition B could be machined without detonating. If not, new molds would have to be made and new charges cast. This would cause a long delay in the program because the molds were very complicated and had to be made very accurately. I got a call from Caltech asking if it was Okay to machine Composition B. I told them I was not sure it could be done but I would find out. They said it was imperative that they have the answer within an hour or the whole project would come to a screeching halt if the molds had to be modified, a four – to – six- week task. I had been disposing of rejected pentagons and risers from the Salt Wells Pilot Plant casting facility to the tune of about 1500 pounds a week and handling the stuff roughly. Rooney and I had dug up two unexploded bombs on the range without a problem so I was pretty sure the stuff could be machined, but it remained to be proven. The process used to demonstrate Composition B could be machined was straightforward and simple. I used a brace and bit to drill a hole in a Composition B block while Lt (jg) Phil Barry, also bomb disposal, flooded the drill bit

(Cont'd Page 5)

Continued from page 2—PROJECT CAMEL AND THE PUMPKIN BOMB

with water from a garden hose. Composition B could indeed be machined and it was. Project Camel, the atomic bomb's so called project name, would produce a Fat Man on schedule and be used to bring the Japanese to her knees at Nagasaki.

My wife, Jean, was also working on the project as secretary to Dr. Emory Ellis, one of the senior members of the team. We had learned at about the same time that we were working on an atomic bomb but we had no idea what an atomic bomb was, or more importantly, what it would do. We finally learned what the beast was as we listened to the radio on the front steps of the Bishop Housing when it was announced that an atomic bomb had been dropped on Japan. We, of course, could surmise it was the bomb we had been working on for the last six months, but this turned out not to be true. At that time, we did not know that there was a second bomb design, one that employed enriched Uranium, the "Little Boy" that had been dropped on Heroshima. Within a couple of days we were told that the second bomb, the Nagasaki bomb, was the one that we had a hand in. This one employed Plutonium instead of Uranium 235. The Plutonium design had a higher yield (equivalent tons of TNT explosive) than the Uranium design. The "Little Boy" produced approximately 15 kilotons (Kt) of equivalent energy, while the "Fat Man" produced a 20 Kt yield.

### **THE PUMPKIN BOMB**

The second part of this story involves the "Pumpkin". Almost everyone in our generation and the "boomer" generation knows the story of "Fat Man" and "Little Boy", but few have ever heard of the "Pumpkin". There were two types of "Pumpkin" bombs, one type was a high explosive aerial bomb used by the U.S. Army Air Forces against Japan. The name "pumpkin bomb" resulted from the large ellipsoidal shape of the munitions and was the actual reference term used in official documents. In total, 486 of the bombs were built and 49 were dropped on Japanese targets by the 509th Composite Group. This was a means of providing realistic training for the B-29 crews assigned to drop the atomic bomb after their deployment to the Western Pacific. The bomb was a close but non-nuclear replication of the "Fat Man" plutonium with the same ballistic and handling characteristics. "Pumpkins" were externally similar to the "Fat Man" bomb in size and shape. The bomb had three fuze wells on the nose into which three Navy MK-219 contact nose fuzes could be screwed. These were arranged in an equilateral triangle around the nose of the bomb while the atomic bomb had four fuze housings.

### **MAKING OUR OWN DUDS**

There was a second type of "Pumpkin", one that is not mentioned in the published accounts of the atomic bomb. Dr. Oppenheimer had come to the conclusion that the "Fat Man" might fail to detonate because of problems with the fuze or the high-voltage initiation system. To take care of this possibility, it was decided that some of the high explosive "Pumpkins" that looked like a "Fat Man" would be dropped on Japan and that some of them would be rigged to fail so that the Japanese would think that a "Fat Man" "dud" would be just another of the large bombs they had found and the Japanese would place a charge on it and detonate it. At least, Dr. Oppenheimer hoped they would. I was instructed to obtain 36 MK-219 Navy bomb fuzes and make them inoperable, but done so that if the Japanese disassembled them they would think they failed because of manufacturing problems. Here was a bomb disposal "type" given the job of making his own UXBs (unexploded bombs, actually 4 of them). This was certainly a unique and unexpected job and of which very few people knew. Of the total 49 "Pumpkins" dropped on Japanese cities, I do not know how many, if any, were the four "duds" that I made. Maybe some Navy Bomb Disposal crew recovered one or more of the intentionally incapacitated "Pumpkins" after the Japanese surrendered. If so, I never heard about it, but I'd sure like to hear about any. In a nut shell, Rooney and I recovered the first "Fat Man" dud, and we were the first to make our own UXBs.