

Bob Ellingson remembers — Part 2

Last week Bob Ellingson recalled his early years at Y-12. How he was trained and then trained others. How he solved problems with the calutrons and helped to run them most efficiently. He spoke of the time of heavy production that lasted several months and each week that went by brought improvements and more product being made.

Bob clearly recalls in July 1945, when he was told to identify all the calutrons that had more than 20 hours "innage." You will recall from last week that "innage" meant the time the ion beam current had been high enough to indicate a good flow of material into the receiving pocket. Normally the calutrons would run for 70 – 100 hours depending on when the charge ran low, but this time he was being told to shut down units that had only 20 hours "innage."

This made Bob realize something big was going on. Right before taking the calutrons down, readings were being taken every 10 minutes to assure each unit was functioning at its peak, again getting all the material that could possibly be gotten before being told to shut them down and get the material out and processed.

Obviously this all out effort by Y-12 to get all the uranium 235 that could be gotten from the Beta calutrons was to assure Los Alamos had enough material to fabricate Little Boy. And when all Y-12's product was shipped from that shutdown of all calutrons with over 20 hours "innage," that was the case.

There was not enough for a test and still have enough for the actual use of the weapon. A test was not needed as everyone was sure Little Boy would explode. After all, it was a simple gun-barrel type weapon that relied on the critical mass being reached when one piece of uranium 235 was pushed into close proximity with another.

After the war ended, Y-12 continued to run the Beta calutrons. The Alpha calutrons were shut down as first S-50 and then K-25 began producing the feed material for the Beta calutrons at greater concentrations than the Alpha calutrons could provide.

S-50 was also shut down soon after K-25 came online. Success was so great there that within months it was obvious that Y-12 was not going to be needed any longer. As early as September 1945, Y-12 began to reduce and shutdown calutron operations.

Y-12 had served its purpose. Little Boy was a huge accomplishment, but was almost immediately overshadowed by Fat Man and within months other even more powerful weapons were being designed and discussed.

Edward Teller immediately began pushing for the thermonuclear weapon. Robert Oppenheimer did not agree. He was promoting international control over nuclear weapons and wanting to stop the spread of nuclear weapons by quickly controlling the technology.

In December 1946, after Christmas, the order was given to shut down all the calutrons in Y-12, with the exception of those in Beta 3. The other Beta buildings were told to pick out their two best operators and to offer them jobs in Beta 3.

Bob recalls this as a time when confusion reigned and employment dropped from 22,000 to 1,600. That is the lowest number I have ever heard for the employee level at Y-12.

His job was to help the scientists try and figure out a way to get more production from the Beta 3 calutrons to compete with K-25. Try as they might, nothing could be done to bring enough improvement to cause the calutrons to be able to compete with K-25's gaseous diffusion process. He said they actually achieved a 10 fold increase in productivity, but they were told that at least another 10 fold increase would be needed just to stay close to K-25's production levels. So they gave up.

Bob said that Building 9766 was the first machine shop to machine uranium. That was to create shielding blocks for a reactor. He said that would have been in 1948. (I would like to know more about that, if readers care to contribute information).

About this same time additions started to be made to Building 9212. The area between the wings was filled in with additional production space.

Y-12 was picking up the pace again. Jack Case and others had been to Los Alamos and brought the machining of uranium to Y-12. It took a while for the transition to be made. Bob talked about going to Albuquerque to get some of the "melon type" nuclear weapons manufactured.

There was a company there named American Car and Foundry that had the equipment to work uranium. They were also working on an "atomic rocket" even then.

I asked Bob why the uranium work was being done in Albuquerque and what took so long to get it to Y-12. He said the scientists at Los Alamos were near to Albuquerque and did not want to travel to Tennessee. Can't you just see the fighting going on to bring this work to Y-12. I'll bet there are numerous stories about that, if only they had been captured years ago!

Bob also worked in Building 9201-4 (Alpha 4) where the colex process separated the lithium 6 isotope from lithium 7 for the thermonuclear weapon. How Y-12 got that mission is yet another story. He also recalled when the rolling mills came to Y-12 and the huge press in Beta 4.

Changes were coming fast. Y-12 was moving ahead after the first mission had ended. Bob and others were well on their way to a lasting mission for Y-12 by the early 1950's, in fact more than one mission. Y-12 has been a multiple mission facility ever since.

I look forward to talking with others who were a part of this era at Y-12 as there is much to learn about the transition from Manhattan Project to the Cold War. Next week we will look more closely at some of the aspects of that transition.