

## **Colonel Nichols comes on board**

Over the last few weeks this series has introduced the Y-12 National Security Complex, noted what was Bear Creek valley and New Hope community prior to 1942 and told the story of the Prophet John Hendrix. Additionally, the Senator McKellar stories of the selection of the Manhattan Project site in East Tennessee and the early notification of the home owners who had to leave their homes to contribute to the successful effort to win World War II have been highlighted.

Also some of the unusual details of the several and often convoluted events leading up to the Manhattan Project have been included. And we've seen the numerous organizational changes and some of the leadership changes that took place in the United States while the collaboration with Great Britain was unfolding. Finally, many of the key individuals have been introduced whose decisions and actions led to the construction of Y-12

Even though gaseous diffusion and centrifuge technology were the original front running choices to separate uranium 235 for an atomic bomb, Ernest O. Lawrence and his Calutrons at the University of California Radiation Lab at Berkley took the lead and became the first process equipment installed. The Y-12 calutrons, eventually 1152 of them, were the primary source of uranium 235 for Little Boy, the first atomic bomb used in warfare.

The Manhattan Project portion of Y-12's history was filled with unique events and is a story of enormous importance in our nation's history. Some crucial decisions were made and some unusual events occurred as Y-12 was coming into existence. Bear Creek valley was changed drastically and the New Hope community all but disappeared.

The steps taken to get to the point of actually breaking ground in Bear Creek valley were still quite difficult and seemed to flow through a maze of directions before culminating in a final decision to build a production plant. Vannevar Bush kept revising the various committees and boards with organizational changes attempting to find the best methods to approach the most challenging industrial and military project in the world's history. It was not simple and those involved did not always agree on the most direct path forward.

While gaseous diffusion and centrifuges were still thought to be the methods to be used, a site to build the plant to house the processes was being sought. In April 1942, the Planning Board, led by Egar V. Murphree, discussed the need for a production site. The planners knew the production plant would need large amounts of electricity, so a suitable location would be close to a source of electricity. The War Production Board was approached by Murphree to recommend such sites.

A team that included representatives from Standard Oil Development Company and Stone & Webster as well as others visited a number of sites including Tennessee. The location they liked most was one dubbed "Elza Site" that was bordered on the south by the Clinch River and had several other advantages including railroad access and nearby electrical power.

This may well have been the first mention of the Tennessee Valley Association's dam at Norris, Tennessee, near Knoxville as an influence in site location. Other factors included the ridges and valleys that allowed the industrial buildings to be located in the valley floors and the rural nature of the area.

Meanwhile, James B. Conant was working on the practical requirements of the nuclear reactor approach to producing plutonium as a second bomb material. This would ultimately result in the Graphite Reactor being built in Tennessee and a larger production reactor being placed in Hanford, Washington. Remember, the race with Germany for the first atomic bomb was so much on the minds and such a fearful outcome that all possible options to build an atomic bomb were pursued. The key was speed of getting the needed materials; the process to produce a bomb once the material was available was quite simple by comparison.

One of the more significant changes resulting from Vannevar Bush's efforts to get control of all uranium related research and to actually get something tangible accomplished was the appointment of Colonel James C. Marshall on June 17, 1942, to head what was first called the "DSM project" which stood for Development of Substitute Materials project. James Conant was in charge of the S-1 Section or Committee with overall responsibility for the Army's efforts under Colonel Marshall.

Among Marshall's first actions was one that may well have been the most significant decision he made. He appointed Lieutenant Colonel Kenneth D. Nichols as his second in command. Nichols turned out to be one of the most valuable members of the entire Manhattan Project. Marshall also brought Stone & Webster into the project immediately although at the time he could not tell them exactly what they would be needed to do.

Throughout the summer of 1942, more visits were made to Tennessee to explore the potential site. On June 25, 1942, a decision was made to acquire the Tennessee site. However, Marshall delayed action on the decision by asking Stone & Webster to do an extensive study and report on the site selection.

Another thing that happened while Colonel Marshall was assigned to lead the project was the office was moved into the Manhattan section of New York City. This move resulted in a change in the office designation to the "Manhattan Engineer District," the forerunner of the now famous name - Manhattan Project.

Priorities for material needs of several war efforts being implemented simultaneously made it hard for a new project to start up. The DSM Project had difficulties getting any attention because of its lack of a formal priority. This posed a significant problem that was not actually solved until later when Marshall was replaced by Groves as the Army's leader of the Manhattan Project.

The uranium ore needed to support the enormous effort was already in New York because Edgar Sengier of the African Metals Corporation had, in 1939, brought a huge supply of 1,200 tons of Belgian ore to the United States to keep Germany from getting it. However, little interest had been shown in the ore by Colonel Marshall and his DSM Project. Again, this was not recognized as important until Groves came on as the leader.

Next week will see General Groves come on board and, among other things he accomplished almost immediately, he completed the Tennessee site selection that led to Y-12 being constructed in Bear Creek valley.

PHOTO CAPTION: Colonel Kenneth D. Nichols