

## **Dr. Googin and his early days at Y-12, part 7**

As John Googin began to settle into his routine at Y-12, working in what he called “an impromptu laboratory on a storage balcony that overlooked the operating floor from the top of the highest reactor floor” in Building 9202, he soon was very literally immersed in the process. He stated in his biography that “yellow uranium oxide dust” was abundant because the very fine oxide powder made from the peroxide was hard to hold in the calciner.

In addition to the dust there was the corrosion. In the last article I described the corrosion John found in the stainless steel portions of the operating facility, especially at the welds. He also found corrosion problems where the aluminum pipe of the peroxide storage tanks joined the stainless steel of the piping.

This problem was solved with electrically insulated joints. As John became more familiar with the operations, he noted these issues that had been longstanding problems and provided remedies for each one as he ran into them. This must have caused him to be quickly accepted by the workers as they were undoubtedly frustrated by the continuing problems.

He saw the operations from a chemist's eye and a highly trained one at that. Remember that he had already been working on uranium experimentation before coming to Oak Ridge and was very familiar with the properties of materials and chemicals used to process uranium ore. This gave him an advantage over many at Y-12 who were seeing these processes for the very first time ever.

John noted that the uranium throughput in the facility was hundreds of pounds per day and the need was soon to be in the thousands of pounds per day. The race was on! It was thought by those driving the decisions to build additional calutron facilities at Y-12 and to build K-25 as well as the plutonium facilities at X-10 and then Hanford Washington that Germany would have an atomic bomb just about anytime now.

John knew the chemistry. He quickly grasped the urgency. Almost immediately he began to contribute to improvements in the process. Access to information was restricted at first. As you might expect, John had something to say about his observations of how secrecy was implemented.

John said, “The clearance level of this junior chemist working for 95 cents an hour was not too high. A weekly progress report was required; this was combined with progress reports from other parts of the chemical operation.” John was allowed to write and hand in his report, but could not get the combined report back to read. Don't you know this frustrated John.

He also said that he could not easily get reports from other parts of the system that were working on similar problems and it was hard to even find out the existence of other efforts. Again, frustrating for John, as he wanted to make significant productivity improvements and here he was being restricted from information that he felt would have been helpful in solving problems he faced in his portion of the operation.

John also observed that Mellor's Handbook of Inorganic Chemistry, which he located at the University of Tennessee's library, literally fell open to the chapter on uranium and that the page edges around that section were quite dirty from being handled by many hands. This was an obvious result of other inquiring minds seeking to learn much the same lessons that John was seeking. Oak Ridger's were resourceful.

He soon learned that taking notes or reading too long was not wise and a quick and detailed memory such as John naturally had was most helpful. John soon made contact with some key people who also sought to learn more and who would share technical problem solving with him outside the normal channels of communication.

These interactions had to be carefully handled as one of the ways security was managed during the Manhattan Project era was to limit access to any areas of Y-12 where you did not have work to do. The badges had codes on them indicating just how much information a person was entitled to know and what

areas of the site they could frequent. Only those with badges displaying the proper codes could even hold discussions about calutrons and their processes.

John would have been limited to those individuals working in Bulk Treatment. I am sure he desired to interact with others, but it was not permitted. This put John in a tough spot, but he soon figured out how to learn what he needed to know for the process improvements he needed to make. He sought other sources of information.

In addition, the laboratory where John began his career in Y-12 was well supplied with necessary reagents, other standard laboratory supplies and of course he had a huge supply of uranium. With those tools and his inquisitive mind along with the knowledge he could pick up at the University of Tennessee library, John soon had made some significant productivity improvements in Bulk Treatment.