

More on the term “Fission” continued

To continue the details of the origin of the term “fission,” here is more of the William (Bill) Arnold story. Bill was someone who came to live and work in Oak Ridge after having already achieved significant accomplishments in his chosen field.

He is fondly remembered by Elias Greenbaum, Ph.D., Oak Ridge National Laboratory Corporate Fellow and UT-Battelle Distinguished Inventor, who continues to work in the same field that Bill Arnold worked in for so many years, photosynthesis. Eli said that, “Bill discovered the electronic nature of energy transfer in photosynthesis. He also coined the term ‘fission’ as it applies to the splitting of a nucleus.”

Eli also referred me to a book by Richard Rhodes, *The Making of the Atomic Bomb*, to find mention of Bill Arnold. Rhodes says, “Frisch spent the day (Jan. 14) [1939] repeating the experiment for anyone who cared to see. One who came down in the morning to the basement laboratory was a black-haired, blue-eyed American biologist of Irish heritage named William A. Arnold who was studying on a Rockefeller Fellowship with George de Hevesy.”

Rhodes continued, “Arnold was thirty-four, Frisch’s age, on leave from the Hopkins Marine Station at Pacific Grove, California. He had made his way to Europe from San Francisco by freighter with his wife and young daughter. He could have gone to Berkeley to pick up radioisotope technique, but would have missed living in Copenhagen, learning from de Hevesy, and would have missed contributing coinage to the gamble that is history. “

“Frisch showed the American the experiment and pointed out the pulses on the oscilloscope, ‘From the size of the spikes,’ Arnold recalls, ‘it was clear that they must represent 100-200 MeV, very much larger than the spikes from alpha particles.’”

Rhodes quotes Arnold as saying, “Later that day Frisch looked me up and said, ‘You work in a microbiology lab. What do you call the process in which one bacterium divides into two?’ And I answered, ‘binary fission.’ He wanted to know if you could call it ‘fission’ alone and I said you could.”

Murray Rosenthal, who started me down this path, also sent me an article written by Dick Smyser, founding editor of *The Oak Ridger*. In 2001, the following is stated by Smyser, “Bill Arnold was seldom seen without his pipe, always stuffed with London Doc brand tobacco, a rich walnut essence. He and his wife, Jean, were pioneer Oak Ridgers, coming here in the city’s very earliest months in the early 1940s, soon after their time in Copenhagen, and occupying a cemento home on Tabor Road where they lived until her death in 1997.”

Smyser continued, “There was a hammock in the yard where William A. Arnold often reclined, likely with his pipe. And, one can take license and assume, smoked while seeking that elusive understanding of the wellspring of what he knew, so much of it adding new understanding of the new science to which he had contributed much more than a name.”

So, one of our own, before he came to Oak Ridge, gave name to the basic process of splitting the uranium atom. But, as we see from Eli, who knew him well and shared a passion for science with Bill, and from Dick Smyser who wrote about so many of Oak Ridge’s early pioneers, Bill Arnold was one of the many great scientists who have called Oak Ridge home and who have gained world renown.

Thanks Murray for that contact reminding me to dig deeper in my research. I am continually amazed at the people who live and/or work in Oak Ridge and who have made discoveries that impact the world. Even more amazing is the manner in which they just continue on with their lives in quiet and humble silence and may well be your neighbor.

A side note to the research on Bill Arnold found in the Oak Ridge Associated Universities' extensive web pages on the history of things nuclear, is the following page titled, "Autographed Biography of Marie Curie:" <http://www.ornl.gov/PTP/collection/Miscellaneous/curiebioautographed.htm>

There is a photo of the book, a first English edition (1937), written by Marie Curie's daughter, Eve, opened to a page that has been autographed by Walter Zinn, Eugene Wigner, Hans Bethe, Glenn Seaborg, Edward Teller, Robley Evans, Marshall Brucer, Lauriston Taylor, Alvin Weinberg (faded), William Arnold, Rosalyn Yalow, Carl Gamertsfelder, Newell Stannard, Waldo Cohn, Clifford Shull and the author, Eve Curie-Labouisse. What a list of famous names with our subject, Bill Arnold, right in the midst of them!

This website is a part of the Health Physics Historical Instrumentation Collection Museum, created by Paul Frame of ORAU and located at their South Campus. <http://www.ornl.gov/PTP/museumdirectory.htm>

This museum, while it is not available for access by the public, is featured extremely well in this website. It has photographs and descriptions of a whole host of really unusual items ranging from atomic toys to atomic movie posters to a whole range of early dosimeters. There are medals and mementos that include the irradiated dimes from the American Museum of Science and Energy to the Manhattan Project pin or "A-pin."