

Manhattan Project Spies and Oak Ridge, part 1

(As published in *The Oak Ridger's Historically Speaking* column on December 1, 2014)

This is the first in a series of four *Historically Speaking* columns on Manhattan Project spies with connections to Oak Ridge. For many years, I was not sure that any spies were actually in Oak Ridge. Bill Wilcox and I discussed this at length and he too was doubtful at that time. Even though some names were mentioned, evidence seemed lacking.

However, of late, so much additional information has been declassified and made available to the public regarding those activities of some 65 – 70 years ago. Much more is now known regarding the detailed activities of those who passed sensitive classified information to the Russians during the Manhattan Project.

We will look first at George Koval, next at Klaus Fuchs and finally at Al Slack.

Recently there seems to be more and more information coming available about spies during the Manhattan Project. *The Spy Who Stole The Urchin: George Koval's Infiltration of the Manhattan Project* by Owen N. Pagano, an Atomic Heritage Foundation intern, posted on the Atomic Heritage Foundation's web site: <http://www.atomicheritage.org/> is the most recent information I have seen about George Koval.

Koval is the ONLY official Soviet spy known to have infiltrated the Manhattan Project and the early Cold War era developments. His deep penetration only came to light in the recent past after over 50 years of obscurity.

Some of the most notable spies were: George Koval; Theodore "Ted" Hall who was never caught; David Greenglass; Ethel and Julius Rosenberg; Harry Gold; and Klaus Fuchs. These are among those most familiar to me.

Lesser known to me are John Cairncross, Lona Cohen and Al Slack who I first read about in an account by Dr. John Googin, Y-12's renowned scientist. John began his career in the Clinton Engineer Works' Y-12 electromagnetic separation plant as a chemist in May of 1944. His career at Y-12 was extraordinary and he was undoubtedly the smartest man I ever met.

An interesting side note on Dr. Googin is that he identified that Y-12 was working on uranium to make a bomb before he had been in the plant a full day. He was told that was the quickest anyone had figured it out.

Dr. Googin also spoke of a shift supervisor, Alfred Dean "Al" Slack, who he later learned was a Russian spy...only the second one ever identified as having been at Oak Ridge. We will look at Slack in the third installment of this series.

The other spy who is known to have been in Oak Ridge is George Koval, who was in 2007 posthumously awarded a *Hero of the Russian Federation*, the highest honorary title that can be bestowed on a Russian citizen, by Russian President Vladimir Putin.

This award was provided when Putin learned of Zhorzh Abramovich Koval when he saw Koval's portrait at a Soviet spy museum opening and inquired "who is that?" Koval's identity may have had been such a closely held secret that even Putin himself did not know of him...or maybe just as Delmar, Koval's code name.

Another source of information that brought Koval out of obscurity in 2002, was when Russian historian Vladimir Lota published *The GRU and the Atom Bomb*. A Smithsonian article by Michael Walsh published in 2009, includes, "The book, which has yet to be translated into English, recounts the exploits of a GRU spy code-named Delmar, who, with the possible exception of the British scientist Klaus Fuchs, may have done more than anyone to help the Soviet Union achieve its sudden, shocking nuclear parity with the United States in 1949."

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George Koval was born an American citizen on December 25, 1913, in Sioux City, Iowa. He travelled with his family to Russia in the 1932 and obtained advanced degrees from the Mendeleev Institute of Chemical Technology in Moscow. He married Lyudmila Ivanova in 1938, received Soviet citizenship in 1939 and was then recruited by the GRU as a Soviet spy.

He spied on the Manhattan Project in two locations: Oak Ridge, TN, where the uranium 235 for Little Boy was separated and where the production of plutonium from a uranium reactor was first demonstrated in the Graphite Reactor, and where polonium was produced by inserting bismuth in the Graphite Reactor; and Dayton, OH, where the polonium was first purified and later produced and purified for use as neutron initiators for both Little Boy and Fat Man.

An interesting side note is that when the book, *Atomic Energy for Military Purposes*, by Henry D. Smyth, was published in 1945, the Dayton, OH, polonium work was NOT included. General Groves told the people there that the information was still too much of a secret to be told.

Koval was in the Special Engineer Detachment and worked as a radiation safety technician which tended to give him access to all areas of each of the sites where the various materials for the atomic bombs were being worked. He first saw polonium at the Graphite Reactor. He later was transferred to Dayton, OH, where he learned the rest of the story regarding the purification and use of polonium.

A person who knew Koval when he worked at Oak Ridge was Arnold Kramish. Kramish was ultimately a nuclear physicist, but when he knew Koval, he was a private in the Special Engineer Detachment working at Oak Ridge. He was sent on a special assignment where he was injured in an accident working on thermal diffusion.

The accident occurred when a steam line ruptured in the Philadelphia Navy Yard spraying him and several others with uranium hexafluoride and hydrofluoric acid. Two chemists were killed immediately and two soldiers received severe burns in the accident. Kramish was thought to be dying and an attempt was made to give him last rites, but he refused, being Jewish.

Kramish is quoted in the New York times article, "A Spy's Path: Iowa to A-Bomb to Kremlin Honor," as saying, "He had access to everything," said Dr. Kramish, who worked with Dr. Koval at Oak Ridge and lived in Reston, VA at the time of this interview. "He had his own Jeep. Very few of us had our own Jeeps. He was clever. He was a trained G.R.U. [the Main Intelligence Directorate of the General Staff of the Armed Forces of the Russian Federation] spy." That status, he added, made Dr. Koval unique in the history of atomic espionage...

Kramish reestablished contact with Koval in 2000 by phone and continued a dialog with him for the remaining five years of his life through letters and email. George Koval died at age 92 in 2006.

Koval is credited with providing the information to the Soviet Union that convinced them to pursue a plutonium based atomic bomb rather than a uranium based one. His report from Oak Ridge on the large industrial complex at Site "X" consisting of three main installations for separating uranium 235, enriching uranium 235 and producing plutonium made them realize the enormous resources required to obtain a sufficient quantity of uranium 235. They considered using a reactor to produce plutonium was the easier and faster route.

In the 1950's the FBI created a 1,000 page, six volume, report on Koval's activities but that information was not widely published. Since he fled the United States in 1949 the facts about what was learned about his espionage has been kept secret, if much was learned at all at the time.

Speculation as to the exact reason for the continued secrecy abounds. For example, Robert Stan Norris, author of "Racing for the Bomb" and who has written a paper on George Koval said, "It would have been highly embarrassing for the U.S. government."

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George Koval was surely one of the most effective spies for the Soviet Union and had an even broader access than Klaus Fuchs, a spy that I have known about for some time and likely the most famous of the spies for Russia. Fuchs was privileged to the plans for Fat Man and provided them to Russia before it was used on Japan.

We will look at Klaus Fuchs next.



George Koval, Russian father and mother, U.S. citizen, Russia's highest decorated spy was in Oak Ridge where he released information about uranium separation and enrichment, plutonium production as well as information about Polonium from Oak Ridge and Dayton, OH.



George Koval in later years expressed frustration to Arnold Kramish regarding the lack of recognition he received for spying on the U. S. Manhattan Project and assisting the Soviet Union in their efforts to build their atomic bomb