SECRET//COMINT//X1

(U) Cryptologic Almanac 50th Anniversary Series

(U) The Good Looking Engineer: Ray Bowman

(U//FOUO) Some people enter the cryptologic business because they are brilliant mathematicians or scientists. Others because they show aptitude during a government examination. According to Ray Bowman, he entered the cryptologic business because he was good looking. According to a story that Bowman heard later, a Major Gammel and a WAC Lieutenant Flandrow went down to the Pentagon to select a dozen or so soldiers to join the effort at Arlington Hall. Sifting through personnel folders, which contained, among other things, name, background, and a photograph, they selected the men they wanted. When Flandrow flipped through the remaining folders, she saw Bowman's picture and said " Hey, he's a good looking guy; let's get him too!" And, as they say, the rest is history.

(U//FOUO) Ray L. Bowman was born in Green County, Tennessee, in February 1921. He attended local Tusculum College, majoring in physics and graduating in 1942. A school friend told Bowman about the wartime work he was doing in the Signal Corps and suggested that Bowman write the Office of the Chief Signal Corps expressing interest. Bowman wrote a letter before college graduation, but received no response. A second letter, written shortly after his graduation from college provided better results: orders to report to Fort Monmouth, NJ, and a direct commission, thanks to his physics training.

(U//FOUO) After completing the Company Officers Course, Bowman was sent to England for radar training, both classroom work and on the job experience with British units. He returned to the U.S. in September 1943 for extensive training in U.S. radar systems. Although his unit was sent to the Pacific, Bowman was on leave when the call came and missed the trip. Instead, he received orders to Arlington Hall Station, where the Army's cryptologic organization was based.

(U//FOUO) Although he never used his radar training after arriving at Arlington Hall, it gave him a good foundation in electronics. At first, not having a clearance, he worked on small, unclassified portions of larger projects. For example, his first project was to build a device that would create six evenly spaced pulses every time it received a single pulse as input. While he successfully built the device, he never found out what the six pulses were used for. Once cleared, he spent the remainder of the war assisting in the development of a variety of COMINT and COMSEC devices and did some experimental work with vacuum tubes.

(S) Although a great many of the engineers left after the war, Bowman stayed on and became involved in the effort to build the Army cryptologic organization's first multipurpose computer. Initially a computer was to be purchased from Raytheon, but because of the high cost and the three (or more) years until delivery, other options were explored. After the alternatives were exhausted, the Army decided to build its own computer. Bowman was one of the principal engineers on this team. The result, completed in April 1952, was named ABNER, after the comic strip character "L'il Abner," who was big in size but small in intellect. ABNER proved more expensive than originally anticipated and was frequently temperamental. However, it was programmed to assist in an impressive number of cryptanalytic tasks including diarization and wired rotor analysis.

(U//FOUO) Bowman recalled in 1986 that some creative engineering solved communication roadblocks between the engineers and software developers on the ABNER project. "After World War II there was some captured German equipment that was brought back to the States, and dismantled [to discover] ... how did they do this, or that sort of function. {Some] of the things that [were] brought back [were] German field phones. Mount it on a tree or someplace and have a crank there, and crank the things to generate the ringing current for the other end." He went on to recall that one part of the ABNER team was seated on one floor at Arlington Hall Station and the rest on another. Instead of using the gray phone, which always seemed to be busy, to talk securely the engineers put a German field telephone in each office and strung wires out the window, down the side of the building, and in the other window. It provided a secure link between the two halves of the team and left the gray phone for other matters.

(S//SI) He continued to be a leader in computer development at NSA for the remainder of his career. He worked on a variety of conceptual and actual computer devices including FARMER. According to Bowman, "[FARMER] was based on the general idea that some ... analytic functions could be done in a self-contained box, and not necessarily be part of a computer or another machine, and perhaps ...we ought to look at the idea of a family of machines that could be interconnected, depending upon what functions were required for a given set of problems." Although FARMER was never actually built, the concepts put forward by Bowman were very influential in later NSA computers, including HARVEST.

(S//SI) By the mid-1950s, Bowman was more involved with project and organizational management and not hands-on development, something he appears to have regretted. He was the chair of a small panel looking into how to improve the quality of signal recording in the field. Ironically, he was later in charge of developing a strategy to dispose of thousands and thousands of used magnetic tapes piling up in a storage area at Nebraska Avenue. Toward the end of his career, he managed divisions connected with signals processing and support to the field, finally drifting into software support, as a result of an Agency reorganization. He retired in 1980 after 38 years of federal service.

(U//FOUO) Bowman found the transition to post-NSA life difficult. As he later recalled,

"when you walk out of this building, and essentially hear the door slam, it is kind of a strange feeling, because now I can't get back in, I don't have a ... badge any more." Consequently, he became very active in the Phoenix Society, serving as president for four years and on the board of directors for another four. He saw the Phoenix Society as important because it bridged the gap between past and present employees, helping the retirees feel as if they were not "completely locked out."

(U//FOUO) Ray Bowman died of a heart attack in December 1994.

[(U//FOUO) Jill Frahm, Center for Cryptologic History, 972-2893s, jefrahm@nsa]

Almanac 50th Anniversary Series

Content Owner: Feedback

Web POC: Feedback

Last Modified: by nsr
Last Reviewed: May 27, 2003
Next Review: 365 days

SECRET//COMINT//X1

DERIVED FROM: NSA/CSS MANUAL 123-2
DATED: 24 FEB 1998
DECLASSIFY ON: X1