The Codebreaker

Public Broadcasting System, *The American Experience*, Season 33, Episode 1 (2021).

Reviewed by Randy Burkett

The PBS documentary *The Codebreaker* on American cryptanalyst Elizebeth Friedman is one of the latest efforts to bring long-overdue attention to a woman who played a key role in US history but whose contributions have either been overlooked or were pushed out of the spotlight by others. Elizebeth Friedman meets both these criteria, and her story is worthy of a larger movie than this concise PBS effort. Looking back on her life, it is clear she was determined to forge her own path. She was born in Huntington, Indiana, on August 26, 1892, to John and Sopha Smith. Her father did not want Elizebeth to go to college, but she was determined and convinced him to lend her the money for her tuition, which he did at 6-percent interest.

Elizebeth first attended college in Ohio and then transferred to Hillsdale College in Michigan as an English literature major. She enjoyed studying languages, including Greek, Latin, and German, a relevant fact left out of the documentary. After graduating in 1915, she spent a year teaching but then traveled to Chicago in search of more challenging work. Although the film depicts her introduction to eccentric, wealthy industrialist George Fabyan through a Newberry librarian as luck, other sources say she was fully aware of Fabyan's obsession with the theory that William Shakespeare's works were written by Sir Francis Bacon. Rather than luck, she cultivated a friendship with the librarian to get an introduction to Fabyan.

Once they met, Fabyan immediately invited Elizebeth to join him in a trip to his home at Riverbank Laboratories in Geneva, Illinois. Elizebeth did not hesitate to accept—she already had her bags packed—and she traveled alone with her new employer to live and work at his estate—a decision that would have raised eyebrows in the late 1900s if she was just responding to a spur of the moment proposition.[a]

Fabyan, and to a much lesser extent Elizebeth, believed codes hidden inside Shakespeare's plays would prove Bacon was the real author. While the film credits Elizebeth with teaching herself the basics of cryptanalysis, other authors report that she began learning that art and science from Elizabeth Wells Gallup, who ran the laboratory's cipher school and had published a book in 1899 on the *Bilateral Cipher of Francis Bacon*.

Gallup's assistant William Friedman was both a plant geneticist and a photographer. William and Elizebeth soon agreed that Gallup's and Fabyan's theories of hidden codes and patterns were nonsense, although they were both fascinated by codes and ciphers. Their mutual attraction and interests resulted in their marriage in 1917, less than a year after they met. They became a life-long team, although William became the more famous of the two, often called "the greatest codebreaker of his time" for his work in World War II. However, William would have failed if Elizebeth had not been there to support and care for him while he went through multiple mental breakdowns and heart issues later in life, while she simultaneously building her own career.[b]

Elizebeth Friedman's work for the Coast Guard in the 1920s, solving codes used by smugglers and helping to put criminals in jail, is inspiring, and the story of her teaching a class in cryptology to a jury in a courtroom would certainly be a good scene in a movie. *Codebreaker* acknowledges that she was featured in *Look* magazine and *Reader's Digest* and appeared in articles in the *San Francisco Chronicle* and other newspapers. She was definitely a celebrity at the time, even though the reports often wrote about how she looked or what she wore, more than what she had accomplished. Add in all the ways NSA has honored her, from awards to naming part of its headquarters after her, and she becomes less a hidden figure and more a trailblazer whose name the general public might not currently recognize but who was certainly famous for a time and still remembered at the intelligence agency she helped create.

a. See the NSA 1999 Hall of Honor Inductee citation, https://www.nsa.gov/About-Us/Current-Leadership/Article-View/Article/1623028/elizebeth-s-friedman/

b. David A. Hatch, "Release of the Friedman Papers," *Cryptologic Quarterly* 34, no. 1 (2015): 2.

Elizebeth Friedman also holds a special place among CIA pioneers. Although she was assigned to William Donovan's Coordinator of Information (COI) office, which later became the Office of Strategic Services (OSS), for less than a month, she and her team were responsible for establishing an operational cryptographic unit for COI's communication net. They assembled the special locking envelopes for secret messages, cross-section paper needed for encoding and decoding, and the frames used by strip-cipher code systems. She obtained two Hagelin cipher machines destined for other agencies. The Hagelin was known as "lug and pin," a portable machine that could also print.

Donovan wanted the unit up and running in an impossibly short amount of time, so Elizebeth and her team worked around the clock and within a few weeks had produced systems customized for COI operations that included double transpositions and strip ciphers. She called in favors from other professional colleagues and acquired two highly valued automatic encryption machines, after which she spent most of that December 1941 encoding and decoding COI's first messages. Donovan considered her presence at COI invaluable and attempted to have her permanently shifted to his organization. However, at the end of December she returned to the Coast Guard, leaving Lt. Leonard T. Jones to assume responsibility for COI's nascent crypto unit.[a] Her work was praised in the *War Report of the OSS*.[b]

At war's end, the government combined cryptographic activities from several agencies and eliminated Friedman's code-breaking position in the Coast Guard. She moved on to the International Monetary Fund (IMF) in 1946–49, working as a "consultant in communications."[c] The details of her work there are sketchy, but brief references in her papers suggest she continued her quiet role as "fixer" helping the IMF secure and protect its communication resources.

Elizebeth Friedman died in a New Jersey nursing home on October 31, 1980, having never shared the details of her own wartime contributions, beyond oblique references to "spy stuff." She spent the last years of her life compiling her husband's papers and her own, and began her memoirs. While bringing her valuable story to life, *Codebreaker* also tends to exaggerate some aspects of her role in history, first with the dramatic claim that Friedman "lived a double life" during the war, when it would be more accurate to say that like many in wartime she balanced her life at home with a classified job. Second, the movie inflates her work against Nazi agents in South America during World War II to give the appearance that Friedman solved codes that saved many ships from German submarine attacks. The enemy spy networks she was working against were focused internally on South American countries and rarely were in possession of sensitive shipping information.[d]

Elizebeth Friedman is already enough of a hero; she does not need the additional hype. Although she may have been forgotten for a time, *Codebreaker* and the books published about her have certainly restored her fame. Cryptographers have long regarded her as a legend in her own time. It is fitting that the next US Coast Guard "Legend" Class National Security Cutter (WMSL-760) will be named in her honor.[e] (See also Hayden Peake's review of a biography of Friedman, *The Woman All Spies Fear,* beginning on page 63.)

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a. G. Stuart Smith, *A Life in Code: Pioneer Cryptanalyst Elizebeth Smith Friedman*, (McFarland and Company, 2017), 15–21.
b. Kermit Roosevelt, *War Report of the OSS*, (Walker and Co., 1976), 90.
c. Jason Fagone, *The Woman Who Smashed Codes*, (Harper Collins, 2017), 165.
d. David P. Mowry, *Cryptologic Aspects of German Intelligence Activities in South America during World War II*, United States Cryptologic History, Series IV, World War II, Vol. 11, (Center for Cryptologic History, 2011), 85–88.
e. "Eleventh Coast Guard National Security Cutter Named for Elizebeth Smith Friedman," *Coast Guard News*, July 2020.