

LIEUTENANT COLONEL WILLIAM F. FRIEDMAN US Army, Retired (Deceased)



William Frederick Friedman was born in 1891 to Russian-Jewish parents who fled to the United States to escape growing anti-Semitism when William was an infant. When the family's hometown was destroyed and the hundreds of Jews that remained there were killed in 1902, the news of the atrocity haunted Friedman for the rest of his life. However, William grew up in Pennsylvania and graduated from Cornell University in 1914 with a degree in genetics. After graduate school, Friedman was hired to be a geneticist at Riverbank Laboratories in Geneva, Illinois near Chicago.

While at Riverbank, William met and married Elizebeth Smith, an English major who was working in the new field of code-breaking. Not surprisingly, William also became interested in cryptology and by 1917 he and Elizabeth were married and began studying codes exclusively. Together, they spent the better part of a year deciphering messages from unfriendly nations that had been intercepted by the US

government but could not be solved. Until the creation of the Army Cipher Bureau in late 1917, Riverbank was the only organization in the country capable of working out these secret messages.

When America entered World War I, the intercepted messages stopped arriving at Riverbank, so Friedman began teaching Army officers the basics of cryptography. He personally conducted three six-week courses in cryptanalysis at Riverbank before receiving a commission and joining those officers in France. During the war, Friedman worked on breaking German codebooks as a member of GEN John Pershing's staff. Afterwards, he returned to Riverbank, where he completed a publication entitled "The Index of Coincidence and its Applications in Cryptography." David Kahn, author of The Codebreakers, called this booklet "the most important single publication in cryptology. It took the science into a new world."

In 1921, the Army's Chief Signal Officer offered Friedman a trial six-month government contract as a civilian cryptographer. This began William Friedman's 34-year career as an Army employee. By the end of 1921 he was named the Cryptanalyst of the Signal Service, accepting a salary of \$4,500 per year. His duties ranged from teaching a course on military codes and ciphers, to writing the Army's first training manual on the

topic, called Elements of Cryptanalysis. Friedman published numerous other works throughout the 1920s.

In April 1930, following the closure of the Black Chamber, the Army Signal Corps established the Signal Intelligence Service (SIS) with Friedman as its first head. When the Japanese replaced their old cipher machine with a much more secure system in 1939, Friedman and his team worked tirelessly to solve the code, labeled "Purple" by the SIS. The Japanese Foreign Office in Tokyo used the cipher system for its most secret communications with its ambassadors abroad. The team spent 18 months struggling with Purple and trying to figure out the machine that created the code. Then, in 1940, with \$684.65 worth of parts, they built a reconstruction of a machine they had never seen, solved the Purple code, and were able to provide plain-text, translated transmissions to the War Department. These intercepts, codenamed "Magic," proved extremely valuable during the war, but the strain of the effort nearly killed Friedman. He retired from the service as a Lieutenant Colonel.

Mr. Friedman continued to work as the Chief Cryptanalyst of the War Department. He also served as Director of Communications Research for the SIS, which later became the Signal Security Agency, throughout World War II. He retained this directorship when the agency was separated from the Signal Corps and placed under G2 as the Army Security Agency in September 1945.

With the creation of the Armed Forces Security Agency in 1949, Friedman became the Chief of the Technical Division. In 1952, when the National Security Agency replaced this organization, Friedman became Chief Technical Consultant and, in 1954, he was appointed special assistant to the Director. He retired in 1955.

For his inventions and many achievements in cryptology, Mr. Friedman received numerous awards and the reputation as one of the world's leading cryptologists. In 1944, he was presented the War Department's Exceptional Civilian Service Award; in 1946 he received the Presidential Award for Merit; and in 1955, Mr. Allen Dulles, the Director of Central Intelligence, presented him with the National Security Medal, the country's highest award for contributions to national security. He was the author of many classified publications, training texts, and articles in scholarly journals. With his wife, he wrote the book, The Shakespearean Ciphers Examined, for which they won the Folger Shakespeare Literary Prize.

LTC Friedman passed away in November 1969. He was inducted into the Hall of Fame posthumously in 1988. In 1993, the Intelligence Center named its new electronic warfare training building at Fort Huachuca in his honor.

