

# **(U) Cryptologic Almanac 50<sup>th</sup> Anniversary Series**

## **(U) Cecil Phillips: Cryptologic Pioneer**

(U) Cecil James Phillips, a pioneer in cryptanalysis and machine processing, was a wartime hire of the Army's crypto-logic organization. By 1944, when he was only 20, his place in cryptologic history had already been secured with his immeasurable contributions to the Venona Project.

(U) Phillips grew up in Asheville, North Carolina, and attended the University of North Carolina, majoring in chemistry. He had completed only two years when he tried, at the age of 18, to enlist in the Army. His flat feet made him 4-F, but an Army recruiter convinced him to go to Washington and work for the obscure Signal Security Agency (SSA). At that time, SSA was working to break Japanese and German cipher systems, so Phillips worked on Japanese codes for about a year, and then transferred to a new section working on Soviet diplomatic and consular ciphers.

(U) The effort was highly compartmented, because the Soviet Union was a wartime ally. It was also dismal, because the Soviets appeared to be using one-time pads, which were theoretically unbreakable. And anyway, the underlying traffic was presumed to relate to commercial trade and would thus not be very interesting. It would probably have been dropped altogether had it not been for the genius of Cecil Phillips.

(U) Phillips had a gift for remembering random numbers and letters. One day he looked at a string that he thought he had seen before. He located the original string in a different cipher message, thus identifying for the first time the presumed re-use of a one-time pad. This launched SSA into a more strenuous effort to break the system. SSA eventually discovered that the messages were actually sent by KGB elements and related to spy networks the Soviets had put in place in the United States. It was the beginning of the Venona Project, which resulted in breaking many of the networks and the conviction of many spies.

(S//COMINT//X1) Phillips advanced rapidly. Beginning as a GS-2 in 1943, he was a GS-7 in 1945 and headed a section of 50 people working the Soviet problem -- all this by the age of 20. In 1946 he embarked for England to become an Army representative to GCHQ. The two countries were just beginning their postwar alliance, based mainly on a mutual interest in the Soviet problem, on which Phillips was already an expert. Returning to the United States six months later, he married an analyst whom he had worked with at Arlington Hall - he and Nancy remained married for over 50 years.

~~(S)~~ Phillips continued with the successors to SSA -- first, Army Security Agency, then Armed Forces Security Agency (AFSA), and, finally, NSA. He quickly became associated with data automation. In 1950 he moved to a new job in AFSA's machine section, and quickly became associated with data automation. It was there that he made additional lasting contributions to American cryptology.

~~(S//COMINT//X1)~~ His section worked with one of the world's earliest computers, called Atlas. He continued to advance in positions associated with cryptanalysis on the Soviet problem, and in 1956 became chief of ADVA-2, with responsibility for all [redacted]

[redacted] Later he helped set up GENS 22, which introduced data automation techniques to the [redacted]

~~(S//COMINT//X1)~~ In the 1960s Phillips headed a series of organizations instrumental in the automation of cryptanalysis and traffic analysis. He moved in a circle of about half a dozen people who planned the ultimately successful system to electrically forward raw traffic from field sites to NSA. When he was finished, the era of forwarding raw traffic by courier (usually ship) back to NSA for analysis took weeks, and sometimes months, after intercept was over. The modern system of analysis and reporting was under way.

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~~(S//COMINT//X1)~~ [redacted]

[redacted] Returning from Germany, he became the chief of C03, which was planning the acquisition of the next generation of central computers. Phillips was instrumental in pushing a new system, called Platform, that would tie computers together into a central network. [redacted]

(U) In 1977 he became chief of T4, which was involved in both computers and communications. His understanding of computers was important in NSA's effort to tie the two together into a seamless web of communications and computer systems.

(U) He retired from NSA in 1980, but continued to work as a consultant. In the early 1990s he teamed with counter-intelligence expert Lou Benson to write the history of the Venona project, and he continued to lecture widely on Venona and the breaking of the Soviet espionage network. At the time of his death in November 1998, he was still doing volunteer work for NSA in cryptologic history. His oral history tapes documented the groundbreaking work that was done at NSA on data automation and the application of computers to almost every aspect of cryptology imaginable.

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