Navajo Windtalkers

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Complexity of the Navajo Language

Using Navajo for cryptography is a very powerful tool due to the complex nature of the language. Up until the 1930's The Navajo Languages had remained unwritten. It was not until 1939 that a standardized alphabet was created. The language also did not have any symbols. In Navajo, only four vowels exist: A, E, I, O, but each of these can have up to 10 different intonations. A word could change if the intonation in any of the vowels was changed. There are also variations of other letters. An intonation is shown by marks on the vowels. A sample of some intonations is shown in figure 1.

Other Advantages of using Navajo for Cryptography

At the beginning of the Second World War, there were estimates that only about 30 non-Navajos had control of the language. Many of whom were missionaries that lived in the reservation. Navajo was also only spoken in the American Southwest. All these factors made it very likely that the Japanese would not be able to understand the Navajo language and would be a great way for Americans to transmit messages. Phillip Johnson, a retired WWI veteran, who grew up on a Navajo reservation, was the first to make these observations and propose it to the Marine Corps.

Johnson's arguments along with the fact that the Choctaw Language had been used to encode messages in WWI convinced the Marines to recruit Navajo code talkers.
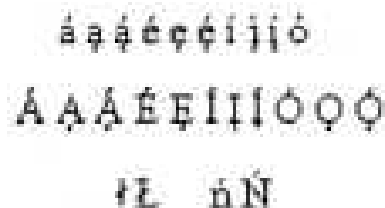

Figure 1: Sample Navajo Letters with various intonations

Development of the Navajo Code

All the Navajo recruits had to go through the same basic training that any other recruit went through. The initial recruits completed their basic training at Camp Pendleton, Oceanside, California in 1942 and were then sent to Camp Elliott. There they received courses in the transmission of messages and instruction in radio operation. Since the Navajo language did not contain certain military terms, the initial 29 Navajo recruits developed the first Navajo code. These military words did not have literal Navajo translations. Certain Navajo terms with similar connotation were designated to be the equivalent military term. For example, the Navajo word "besh- lo," which means,

iron fish, was determined to mean submarine. Initially there were 211 words in the Navajo Code but the list eventually grew to 411. A partial list of these terms can be found in Table 1.

The code talkers also developed a Navajo alphabet. Here, the letter 'A' would be represented by the Navajo word, 'Wol-la-chee,' which means Ant. The alphabet used can be found in Table 2.

English Word	Navajo word	Meaning
Dive Bomber	Gini	Chicken Hawk
Torpedo Plane	Tas-chizzie	Swallow
Fighter Plane	Da-he-tih-hi	Humming Bird
Bomber	Jay-sho	Buzzard
America	Ne-he-Mah	Our Mother
Germany	Besh-be-cha-he	Iron Hat
Philippines	Ke-yah-da-na-hlhe	Floating Land

Table 1: Partial list of Navajo Code for military words

The Navajo Code

To decrypt a Navajo message into English, one would first have to convert the Navajo word into the English word equivalent. Then the first letter in that word would form part of the message. For example, the encoded message: Dibeh Lin Ne-ahs-jah Ne-ahs-jah Than-zi, would mean, "shoot."

Since letter/word frequency is one of the very first things a cryptanalysts looks at in breaking a code, there were more than one Navajo words to signify a letter. Obviously, it was the most frequently used letters: E, T, A, O, N, S, H, R, D, L, U, and I that had more than one word representing them. The

code breaker alphabet thus grew from 26 to 44. Certain military words (of which there was no Navajo equivalent) were represented by Navajo terms.

Letter	Navajo Word	Meaning
A	Wol-la-chee	Ant
B	Shush	Bear
C	Moasi	cat
D	Be	Deer
E	Dzeh	Elk
F	Ma-e	Fox
G	Klizzie	Goat
H	Lin	Horse
I	Tkin	Ice
J	Tkele-cho-gi	Jackass
K	Klizzie-yazzie	Kid
L	Dibeh-yazzie	Lamb
M	Na-as-tso-si	Mouse
N	Nesh-chee	Nut
O	Ne-ahs-jah	Owl
P	Bi-so-dih	Pig
Q	Ca-yeilth	Quiver
R	Gah	Rabbit
S	Dibeh	Sheep
T	Than-zie	Turkey
U	No-da-ih	Ute
V	A-keh-di-glini	Victor
W	Gloe-ih	Weasel
X	Al-an-as-dzoh	Cross
Y	Tsah-as-zih	Yucca
Z	Besh-do-gliz	Zinc

Table 2: Navajo Code Alphabet

Historical Importance and Success of Navajo Code

Thought the Japanese were very skilled in code breaking (they were able to break the U.S. Army and Army Air Corps codes) they were never able to break the Navajo Code. Over a thousand messages were successfully sent and received without being broken by the Japanese. Not even Navajo prisoners of War were able to decipher the Navajo Code. One of the Navajo solders later said, "I

never figured out what you guys who got me into all that trouble were saying."

It is quite logical to say that were it not for the Navajo Code talkers, the US Marine Corps would not have crossed the Pacific, and would have made it difficult to win the war against the Japanese. The Navajo Code was used at every US battle in the Pacific: Guadalcanal, Tarawa, Peleliu, Iwo Jima. Major Howard Connor spoke on the value of the Code talkers at Iwo Jima, "Were it not for the Navajos, the Marines would never have taken Iwo Jima."

Much Deserved Recognition

Despite their critical role in WWII, it has not been until recently that the Navajo Code talkers have received recognition by the public. The Navajo Code had remained highly classified until 1968.

In 1992, the Navajo code talkers were honored by the Pentagon with an exhibit documenting the history of the code. In 2000, the "Honoring the Code Talkers Act," was passed. This act called for the President to award a gold metal to each of the original 29 Navajo code talkers. In 2002, the film, *Windtalkers*, with Nicolas Cage, was released. This film introduced the Navajo code military program to Mainstream America.

References

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