Navajo Code used by United States in World War II

One issue with the American's encryption techniques during WWII was that they were slow. (We believe they were reasonably secure.) In fact, in the battlefield, when things were going too fast, to speed up transmission of urgent messages, regular English with some slang was used. (Naturally, too many Japanese had some education in the west and these messages were generally deciphered.) Thus, what was needed was a faster encryption method for certain battlefield situations that still had some security.

Philip Johnston, a retired military man, had grown up on a Navajo reservation and was one of the few men outside of the tribe fluent in the language. He knew how different it was than standard Western or Eastern languages and argued to Lieutenant Colonel James E Jones that the language could be used as a cipher for the battlefield. Ultimately, the US military decided to give the general idea (picking a Native American language as the basis for an encryption system) a shot. The criteria they used were as follows:

1) Needed a lack of evidence showing that Japanese had been exposed to the language.
2) Needed the tribe to have enough young men that could be used as translators. (Thus, they also needed to know English along with their native tongue and be fit enough to go to the battlefield.)

Based on these two criteria, the Navajo language was the choice the US military made. The Navajo tribe was large, and of all the choices that passed this criteria, it was the only one for which there was no evidence that some Japanese had learned it.

Once this choice was made, the military went to schools Navajo attended, attempting to recruit a group of Navajo for the mission. Many students were interviewed and assessed. The men chosen needed to be fluent in both English and Navajo, and also pass some physical tests. Originally 30 students were chosen and one, soon after being chosen, decided not to continue with the mission. The other 29 were sent to a training base in San Diego, where they did the basic military boot camp (fitness conditioning, discipline, learning how to use a gun and other military equipment, etc.) and were introduced to their mission.

In particular, since the work was top secret, the 29 Navajo men were locked in a secure room all day and asked to devise a code. One issue with using a Native American language for military communications is that none of the Native American languages had words that translated to specific military terms. Since some military concepts were completely foreign to these 29 individuals, three more individuals who were fluent in Navajo but had previously joined the Marines and knew about how the U. S. military was organized joined the group, so that the other 29 could get descriptions about various military terms. In the timespan of less than three months, these group of 32 men devised the initial version of the Navajo code that was used in WWII by the United States.

Words that had natural translations into Navajo were simply communicated in Navajo. However, many words necessary for communication didn't have a direct translation in Navajo. Thus, a method to spell out words was created. Each letter was given a Navajo word associated with it. For example, A was substituted by the Navajo word for ant, "wol-la-che". Similarly, each of the other 25 letters had a Navajo word associated with it. Thus, if there was some word that needed to be conveyed that didn't have a Navajo translation, then the word could just be spelled out, letter by letter with these substituted Navajo words. Unfortunately, there are quite a few words in this category, and spelling ALL of them out would be slow and make the code subject to frequency analysis. Thus, the code talkers came up with an original set of 274 code words was created (substitute Navajo word with a different original meaning to refer to specific military terms) that they would memorize in their training. Since Navajo isn't written, most of the Navajo had excellent memories and had no trouble memorizing these code words.

Of this original group of 32, 30 were sent to the Pacific theater in late 1942 while two stayed back in San Diego to train future Navajo code talkers. As future code talkers were trained, it was seen that the 274 code words weren't enough. Thus, over time, more words were added. In addition, to better thwart frequency analysis with the few words that were getting spelled out, extra code words were added for each letter. Thus, instead of always using "wol-la-che" for the letter 'A', the Navajo words for apple ("be-la-sana") and axe ("tse-nill") were later added.

Initially, due to poor communication and many units not knowing that the Navajo were being used, their radio calls caused confusion (many thought that Japanese had infiltrated their radio system). But, the system was brought back after a race was done between Navajo code talkers and the typical machine encryption system. The former was simply much faster than the latter, something to the tune of 40 seconds (Navajo) to 30 minutes (old system).

One notable success in the middle of the war was the Allied forces taking the key port of Rabaul from the Japanese. It was a key port of Papua New Guinea, which the Japanese had taken control of and used as a base for many activities in 1942. Most navy flight missions aimed at taking back control ended up in failure because the Japanese were reading the US Navy communications. On November 5, 1943, the Navy decided to enlist 11 Navajo Code Talkers (who usually did communications for the Marines), and were able to take back Rabaul from the Japanese in 6 days.

The greatest success of the Navajo Code Talkers was during the battle of Iwo Jima, which took place from February 19 - March 16, 1945, towards the end of WWII. Iwo Jima (also nicknames Sulfer Island) is a relatively small island in a very strategic position between Japan and other islands. Japan had defended Iwo Jima during most of the war and used it as a base to notify the mainland of US bombing attacks. In addition, Japanese jets took off from Iwo Jima to shoot down US planes after they had completed their bombing missions. If the US could take Iwo Jima, they would have this small intermediate piece of land to use as a temporary landing space for planes and the Japanese would not be able to warn the mainland of attacks as easily. The fighting on Iwo Jima was rough. It's a small island which quickly slopes upwards with many volcano line caverns to hide in. Though the US bombed the island for 74 days straight, when the US finally decided to invade the beach on February 19th, the Japanese defenses were quite strong. General Tadamichi Kuribayashi decided to let the Americans get on the beach initially and hide in foxholes, instead of attacking right away.

Once many Americans were on the beach, the Japanese started shooting when the Americans had few places to go and hide. All of the communications between multiple groups on the ground and the ships in the water were handled by the Navajo. Over the course of the first 48 hours of the attack, the Navajo sent over 800 messages without error. These messages were relayed from the ground to the ships telling the US planes where Japanese were hiding. Similarly, US planes, upon seeing critical issues from the sky radioed that information back down to the ground to save lives. A couple key stories include the description by Navajo on the ground of a platoon to be rescued, and every single person in the platoon was saved due to the pinpoint accuracy of the description of the location of the platoon. Another code talker continued to translate messages even after his foot was blown off, until he passed out from shock. Ultimately, the US took Iwo Jima after a month of heavy fighting (probably about 6,800 American lives lost and 20,000 Japanese lives lost), and having that base saved US lives in the last months of the war. Major Howard Conner from the Fifth Marine Division said, "Were it not for the Navajo code talkers, the Marines would have never taken Iwo Jima."

Sources
This write-up is simply a summary of the information provided in the three following sources:

The Code Book by Simon Singh (ISBN: 0-385-49532-3) ppg 191-201

Navajo Code Talkers by Nathan Aaseng (ISBN: 978-0-8027-7627-3) ppg 49-51, 88 – 99

Code Talker by Chester Nez (ISBN: 978-0-425-24423-4)