

Navajo Code Talkers

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4 avril 2018

Introduction

How to secretly send a message ?

- steganography

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- cryptography

How to secretly send a message ?

- steganography
- cryptography

But also..

- translation of the message into an obscure language



Code talkers appeared in the first half of 20th century

Meeting of two conditions :

- The existence of the radio and the phone
- By that time, most of the cipher machines were too slow and fragile to be used for tactical field communications



Figure 1 – The SIGABA

Plan :

- relation between the Navajos and the US in the late of the 19th century
- how Navajo code talkers have been recruited
- study of the Navajo code

Navajos and US in the late of the 19th century

- The long walk
- Boarding schools

The long walk

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- forced trek over 480km into the Bosque Redondo camp

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- how long it would take to get there

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- The journey lasted 18 days
 - Nearly 2000 Navajos died

Boarding schools

around 1900 : many American Indian children were in church-operated boarding schools



They were forced to

- speak in English
- give up their traditional clothing
- drop their traditional native names
- become Christian

Navajos as code talkers : how they have been recruited

- Preliminary : the code talkers during the WWI
- Pacific war and the idea of Philip Johnston
- The demonstration
- Efficiency of the Navajos code talkers

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- First use of native American code talkers : Cherokee

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- After WWI, Germany sent students and anthropologists in America in order to study the various tribal dialects of American Indians

Pacific war and the idea of Philip Johnston

Philip Jonhston



- 1942 : he proposed to the Marine Corps that Navajos and other tribes could be recruited as code talkers
- The major general Clayton Barney Vogel accepted to try the idea

The demonstration

Johnston recruited four bilingual Navajos and they went to Camp Elliott for a demonstration.

- Two of the Navajos translated in Navajo typical military field orders and sent it by radio to their companions
- The companions translated the message in English

Example,

*"Enemy expected to make tank and dive bomber attack
at dawn."*

becomes...

Example,

"Enemy expected to make tank and dive bomber attack at dawn."

becomes...

"Enemy tank dive bomber expected to attack this morning."

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"Enemy tank dive bomber expected to attack this morning."

Translation was done in 20 second instead of the 30 minutes needed by machines at that time.

- May 1942 : 29 Navajos code talkers are recruited
- Altogether, between 375 to 420 Navajos participated to the program.

Navajo and Navajo code

- Why the Navajo language was a good choice
- How the code works
- Some flaws of the code
- Some evolutions of the code

Why the Navajo language was a good choice?

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Why the Navajo language was a good choice?

- faster than any machine at this time
- The largest population of Native American
- Only a handful of non Navajo were able to speak this language
- It remained mostly "unwritten"
- Complex grammar
- Extremely difficult to distinguish the language
- Imposture aren't easy to make

A lack of military terms

Because of a lack of military terms, a code was needed.

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- Dictionary for common military words



The graphic features a stylized illustration of a ship's silhouette on the right side, set against a background of radiating lines. The title 'NAVAJO CODES' is in green and 'NAME OF SHIPS' is in dark brown. Below the title is a table with three columns of ship names and their Navajo codes.

NAVAJO CODES NAME OF SHIPS		
SHIPS	TOH-DINEH-IH	SEA FORCE
BATTLESHIP	LO-TSO	WHALE
AIRCRAFT	TSIDI-MOFFA-YE-HI	BIRD CARRIER
SUBMARINE	BESH-LO	IRON FISH
MINE SWEEPER	CHA	BEAVER
DESTROYER	CA-LO	SHARK
TRANSPORT	DINEH-NAY-YE-HI	MAN CARRIER
CRUISER	LO-TSO-YAZZIE	SMALL WHALE
MOSQUITO BOAT	TSE-E	MOSQUITO

<https://www.cia.gov/news-information/featured-story-archive/2008-featured-story-archive/navajo-code-talkers/>

How it works

- A phonetic alphabet table

A	WOL-LA-CHEE	Ant
B	NA-HASH-CHID	Badger
C	MOASI	Cat
D	CHINDI	Devil
E	AH-JAH	Ear
F	MA-E	Fox

Figure 2 – correspondance for some letters

<https://www.cia.gov/news-information/featured-story-archive/2008-featured-story-archive/navajo-code-talkers/>

Evolution of the code

- The original dictionary of 211 terms has been progressively expanded to 411
- Multiple words to spell one letter

A	WOL-LA-CHEE	Ant
A	BE-LA-SANA	Apple
A	TSE-NILL	Axe

Figure 3 – multiple correspondances for one letter

<https://www.cia.gov/news-information/featured-story-archive/2008-featured-story-archive/navajo-code-talkers/>

Some flaws of the code

About the code itself :

- Kerckhoffs's principles aren't observed

In practice :

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About the code itself :

- Kerckhoffs's principles aren't observed
- Non uniqueness of the translations of a message

In practice :

- On the field, different evolutions of the code appeared
- Some battalions didn't have code talkers

Conclusion :

What happen after to the Navajo

Vietnam War : End of the use of Navajo code talkers

- The program is declassified (1968)
- A possible cause was that cipher machines had become more efficient

Beginning of recognition of code talkers

- 1982 : Certificate of Recognition
- 2000 : they received medals from the US Congree
- 2008 : signature of the Code talkers recognition

But :

- Poor conditions life
 - Unemployment
 - Health problems
 - Infrastructures problems
- There is still some lack of respect



https://warriorpublications.files.wordpress.com/2017/11/trump_navajo.jpg?w=604

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