Navajo Code Talkers

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Introduction

How to secretly send a message?

steganography

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- steganography
- 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

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

In 1864:

- deportation of approximately 8000 Navajo people by the government of the United States of America
- 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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- why they were being relocated
- how long it would take to get there
- 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...

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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

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- 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

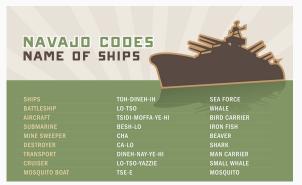
A lack of military terms

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• Dictionary for common military words



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

How it works

• A phonetic alphabet table

Α	WOL-LA-CHEE	Ant
В	NA-HASH-CHID	Badger
С	MOASI	Cat
D	CHINDI	Devil
Е	AH-JAH	Ear
F	MA-E	Fox

 $\textbf{Figure 2} - \mathsf{correspondance} \ \mathsf{for} \ \mathsf{some} \ \mathsf{letters}$

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

Α	WOL-LA-CHEE	Ant
Α	BE-LA-SANA	Apple
Α	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/

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• Kerckhoffs's principles aren't observed

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- Kerckhoffs's principles aren't observed
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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



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