

"C"

## LECTURE I - SECTION 2

Revolutionary War Period - Systems used by Americans and by British:

CiphersAmericans:

- a. Simple monoalphabetic substitution
- b. Monoalphabetic with variants by use of long key sentence ala Franklin
- c. Vigenere with repeating key.

British.

- a. Monoalphabetic substitution.
- b. Vigenere with repeating key.
- c. Grilles

Codes

- a. Dictionaries.
- b. Keybook using words
- c. Syllabaries.

- a. Dictionaries
  - 1. Entick's
  - 2. Bailey's
- b. Small alphabetic 1-part codes of 600-700 items and code names
- c. Ordinary book such as Blackstone page, line, no of words in line.

- a Secret inks
- b Grilles

Misc  
c. Various concealment methods

In addition, code or conventional words <sup>were</sup> used to represent <sup>the</sup> names of persons and

places. <sup>The</sup> British used code names: In Clinton Papers following are found:

American Generals - <sup>Names of the</sup> Apostles { Washington = James.  
Sullivan = Matthew.  
etc

Philadelphia - Jerusalem  
 Detroit - Alexandria  
 Delaware - Red Sea  
 Susquehanna - Jordan  
 Indians - Pharisees  
 Congress - Synagogue

6 31

Jefferson Syllabary

(Encoding) (enciphering)  
encrypting

Typical of the small codes and syllabaries used at the time.

6 3

The syllabary used by Thomas Jefferson (Extract from decoding section).

(That all 'round genius also may be regarded as being the first American inventor of cryptographic devices -- as will be discussed later.)

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The New Spelling Dictionary by Rev. John Entick, London, 1782

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British Cipher Message using title page of the Army List. Message dated 13 September 1781

Applies to 232.1

LINE 22

THE GOVERNORS LIEUTENANT GOVERNORS & C OF HIS  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

MAJESTY'S  
39 40 41 42 43 44 45 46

Line 23

GARRISONS AT HOME AND ABROAD, WITH THEIR ALLOW -  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

ANCES  
38 39 40 41 42 43

"No 6"  
22.

6 7 8 39 5 8 17 20 12 31 26 39 23 20 35 22 45 14 12 22 10 39 26 15 17.  
V E R M O N T A S S E M B L E Y I S T O M E E T  
Line Line

232.1

The key for the preceding message. (Finding the key after solution)

- - - - -

Before showing the next slides explain about British cryptanalysts working on American ciphers

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Franklin (Dumas) Cipher-Key Text. 1786-1798

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Franklin (Dumas) Cipher-Encipher Table

Beale Papers.

Benedict Arnold - "James Moore, Edward Fox, Gustavus" Major Andre - "Joseph Andrews, John Anderson".

Arnold, disgruntled with injustices of Congress, starts off anonymous correspondence, giving information showing he is well-placed. Arnold gets command of West Point. They used secret inks, Bailey's dictionary, word cipher with words out of Blackstone and songbooks; grilles, slips of paper enclosed in specially constructed hollow bullets. Andre captured September 1788, writes out full confession and was hanged. Arnold barely escaped to British lines (peculiar part of Arnold's treason)

One of the cipher letters sent by Benedict Arnold to Sir Henry Clinton:

15 July 1788.

"If I point out a plan of cooperation by which S(ir) H(enry) (Clinton) shall possess himself of West Point, the garrison, etc. etc., twenty thousand pounds Sterling I think will be a cheap purchase for an object of so much importance."

(Full text - see typewritten sheet accompanying plate 6.5)

6.5

Plain text of the preceding message.

6.6

Treason against Washington Arnold lays a trap for Washington.

6.7

Another example of Benedict Arnold's ciphers.

6.8

Arnold's Treasonable Cow Letter

6.9

Example of a grille used by British

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LOVELL, James.

Congress' cipher expert who managed to decipher nearly all, of not all, of

British code messages intercepted by the Americans.

\* \* \* \* \*

To Gen. Greene, cy to Washington)

Philadelphia Sept. 21, 1780

Sir:

You once sent some papers to Congress which no one about you could decypher. Should such be the case with some you have lately forwarded I presume that the result of my pains, herewith sent, will be useful to you I took the papers out of Congress, and I do not think it necessary to let it be known here what my success has been in the attempt. For it appears to me that the Enemy make only such changes in their Cypher when they meet with misfortune, (as makes a difference in position only to the same alphabet) and therefore if no talk of Discovery is made by me here or by your Family you may be in chance to draw Benefit this campaign from my last Night's watching.

I am Sir with much respect.

Your Friend,  
JAMES LOVELL

Tell about next great landmark--Egyptian Hieroglyphics and Poe.

But British cryptanalysts also were at work on American ciphers.

Tell about collection of Clinton Papers at Clements Library, U. of Michigan.

Tell about how an operation went awry because of incorrect solution by British  
Army Cryptanalysts (amateur) with British Army in America.

Tell about the British Agent who was illiterate.

And about Ellis history. "The Secret Post Office and Office of Decipherer."

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Enciphered resolution of the Revolutionary Congress of the U.S , 8 February 1782

6.10

Interest in cryptology in Europe

Frontispiece of Dlandol. Contre - Espion 1793

Breadboard model of WAC or WAVE Cryptographic Officer