Prologue

"A History, A Theory, A Flood"

A History

1948 - Bell Labs

1. Transistor - Tiny Switch
   - Makes Electronics Practical
   - Basis of Computers, Cell Phones, ...

2. Claude Shannon
   What Does the Phone Company Sell?
   - Quantify?
   - Conversations?
   - Words? Characters?
   - Bits - Fundamental Unit of Information
     \[ 0 = \text{off} = \text{bright} \]
     \[ 1 = \text{on} = \text{dark} \]
"A mathematical theory of communication"

Alan Turing - computer computing

Biology - Richard Dawkins
Biology = information
DNA = genetics
Bioinformatics

(A flood)

Telegraph
Telephone
Internet
Email
Texting
Social media

Then: Scarce
Now: surplus

Select (privacy)
1950's: INFORMATION AGE

Information: (1) When will the salmon run start? 
(2) Where is the best place to position ourselves? 
Prediction:
AN ARMY GATHERING TO ATTACK US

D1: HOW MANY ARE THEY?
D2: WHERE ARE THEY?
D3: WHEN WILL THEY GET HERE?
D4: WHAT DO THEY HAVE?

DATA
MEASURE
FACTS
Raw - unorganized

INFO (KNOWLEDGE)

ACTION

DATA

INFORMATION
Gathered, structured

ACTIONS
1. RUN AWAY!
2. STAND AND FIGHT
   PREPARE
3. SEND FOR HELP
OPTION 3

ME

C O U S I N

PREPARE A MESSAGE
"Encode" idea

CODE:
"ONE IF BY LAND
TWO IF BY SEA"

ENCODE MESSAGE
WRITE A MESSAGE (NOTE)
MESSENGER

1. FAST
2. RELIABLE
3. COMPROMISED (SECURE)
4. DISTANCE
TELEGRAPH

'M O R S E  C O D E'

MORSE CODE

- SHORT "DIT" "DIT"
- LONG "DAH"
- LETTER SPACES
- WORD SPACES

SENDER

IDEA → WORDS → LETTERS → ENCODE → SEND

RECEIVER

IDEA ← WORDS ← LETTERS ← MORSE DECODE ←

(Intermediate Alphabet)
ABSTRACT → PHYSICAL MEDIUM

SOUND
ELECTRICAL
KEY

ICE

XMT

RCVR

LIGHTS

DRUMS
Read ch 1: Drums that talk

Return

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P13. Drum talk

Make your feet come back the way they went.
Make your legs come back the way they went.

Two tones

1. How is drum talk different from Morse code?
2. Why are drummers so verbose (poetic).