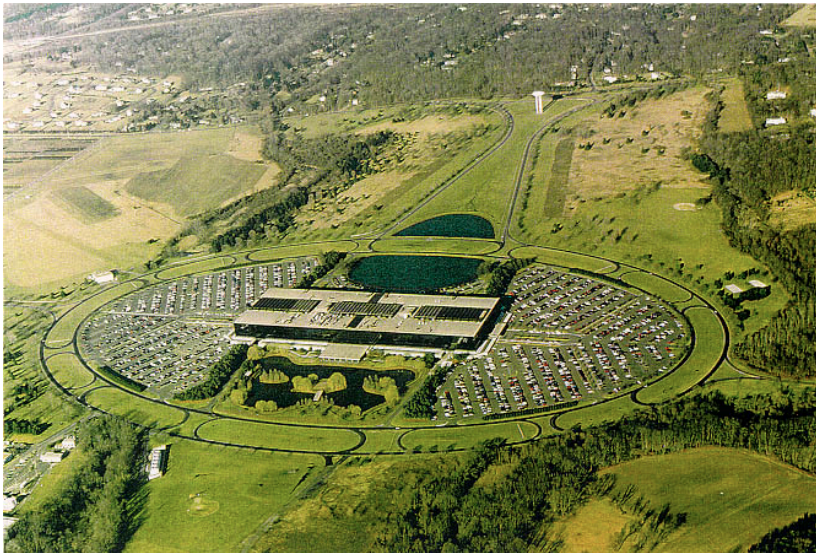


# Information and Intelligence (Politics and Propaganda II)

History of Information, July 28, 2010

# Information Theory

- ▶ Claude Shannon, *A Mathematical Theory of Communication*, 1949
  - ▶ "Information relates not so much to what you *do* say, as to what you *could* say ... a measure of one's freedom of choice when one selects a message" -Weaver



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*The Mathematical Theory of Communication*

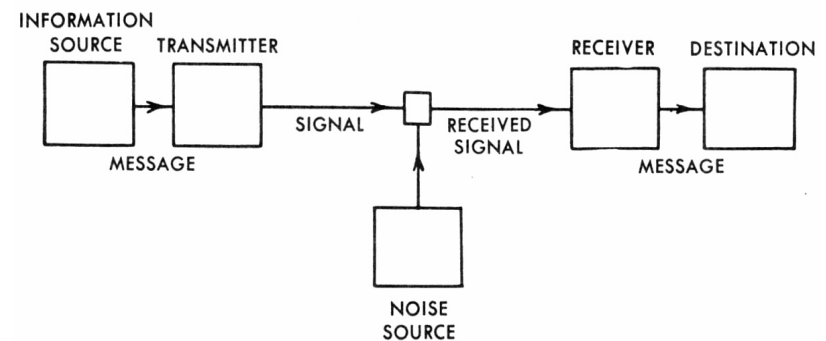
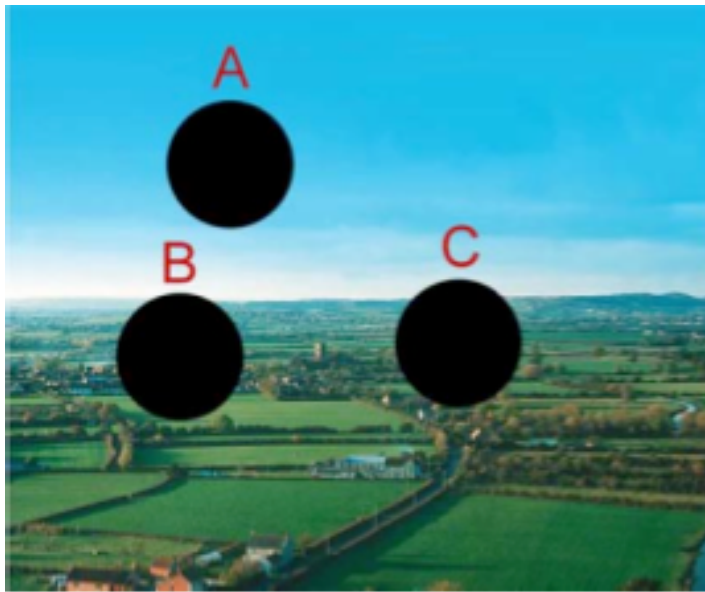


Fig. 1. — Schematic diagram of a general communication system.

## Information Theory (2)

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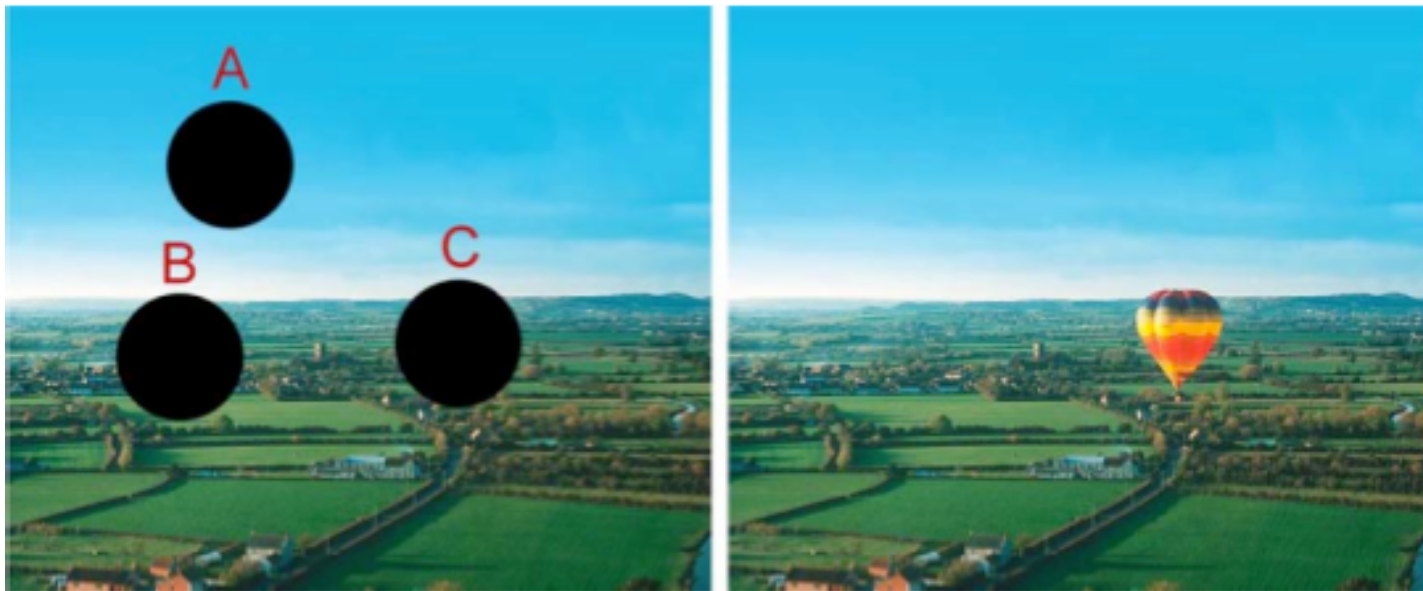
- ▶ The more unlikely the information in a message, the more valuable (“self-information”)



## Information Theory (2)

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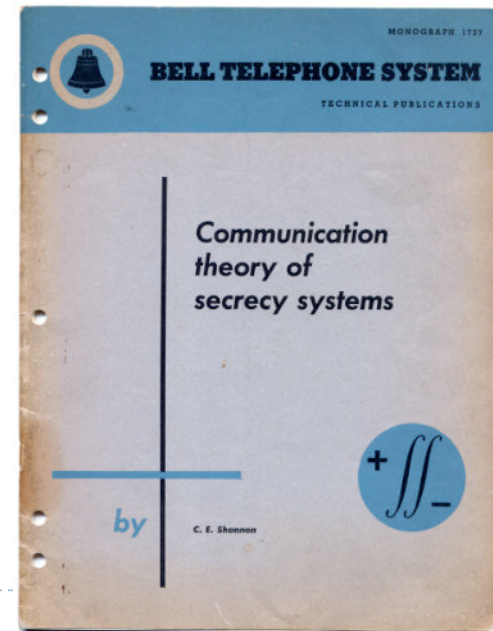
- ▶ The more unlikely the information in a message, the more valuable (“self-information”)



# Connections

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- ▶ "I started thinking about cryptography and secrecy systems. There is this connection; they are very similar things, in one case trying to conceal information, and in the other case trying to transmit it."
  - Claude Shannon quoted in Rogers and Valente, "A History of Information Theory in Communication," 1993



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▶ Src: [http://www.manhattanrarebooks-science.com/shannon\\_secrecy.htm](http://www.manhattanrarebooks-science.com/shannon_secrecy.htm)

# Signal and Noise

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- ▶ Shannon's Theorem: No amount of clever engineering can overcome laws of physics

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*The Mathematical Theory of Communication*

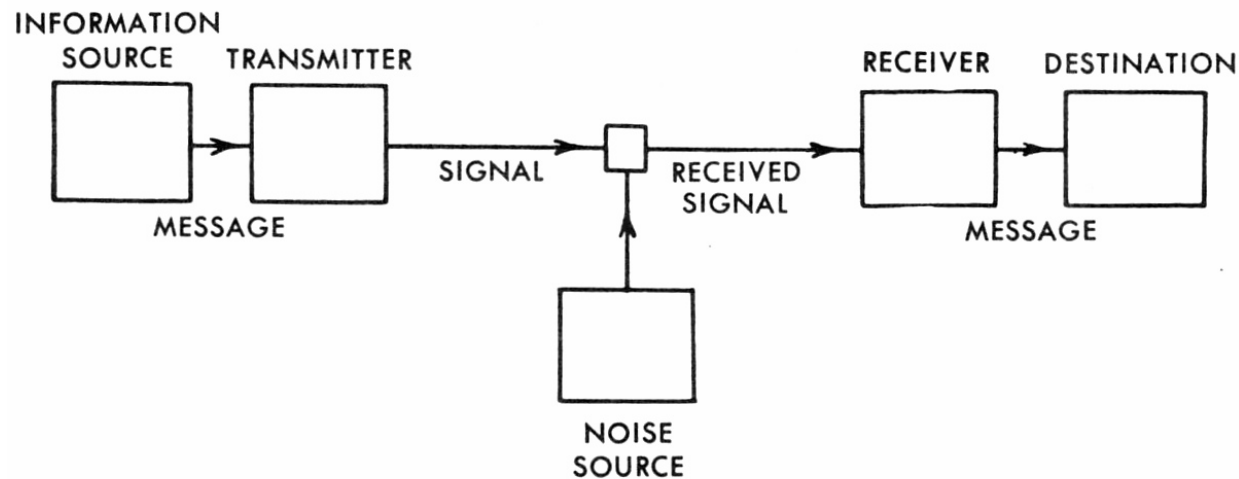


Fig. 1. — Schematic diagram of a general communication system.

# Messages and Mirrors

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*The Mathematical Theory of Communication*

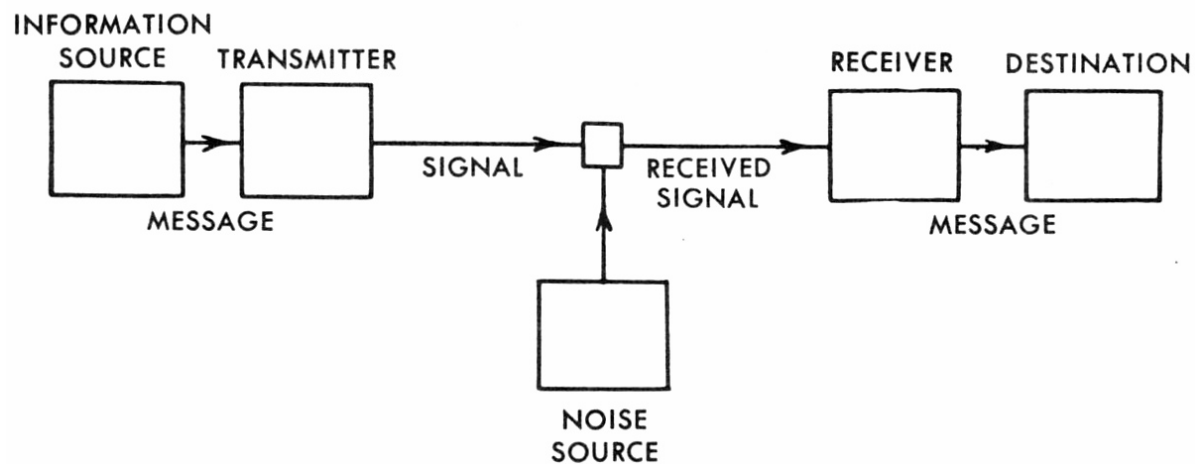


Fig. 1. — Schematic diagram of a general communication system.

# Sources of Intelligence

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- ▶ Human
- ▶ Signals (Communications, Electronic, combinations)
- ▶ Network (“spirit web”, “divine manipulation of threads”)
- ▶ Characteristics
  - ▶ Disposition
  - ▶ Competence





# Interpretive Guidelines

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- ▶ **Same as news?**
  - ▶ Seriality
  - ▶ Periodicity
  - ▶ Currency
  - ▶ Independence
  - ▶ Completeness



# Interpretive Guidelines

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- ▶ **Same as news?**
  - ▶ Seriality
  - ▶ Periodicity
  - ▶ Currency
  - ▶ Independence
  - ▶ Completeness
- ▶ And Silence?



# Content

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- ▶ Observation
  - ▶ Deduction
  - ▶ Inference
  - ▶ Speculation
  - ▶ Opinion
  - ▶ Rumor
  - ▶ Gossip
- 
- ▶ Did Darnton have a point about the role of gossip?
    - ▶ What are the consequences of relying on these methods?



# Sigint Successes

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## Taliban leader's arrest hinged on U.S. information

*Officials say an intelligence break let U.S. spies pinpoint military chief Mullah Abdul Ghani Baradar and help Pakistan organize a daring raid. Islamabad denies its cooperation is something new.*



# And Failures

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## Intelligence System Is Intractable, Wildly Expensive, 'The Washington Post' Reports

These are not academic issues; lack of focus, not lack of resources, was at the heart of the Fort Hood shooting that left 13 dead, as well as the Christmas Day bomb attempt thwarted not by the thousands of analysts employed to find lone terrorists but by an alert airline passenger who saw smoke coming from his seatmate.

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Src: <http://www.npr.org/blogs/thetwo-way/2010/07/19/128616279/intelligence-system-is-intractable-wildly-expensive-the-post-reports>

# Volume of Data

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**Sensory overload: Military is dealing with a data deluge**

Too much data inhibits analysts' ability to unearth meaningful intelligence



# Other Costs of Intelligence

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KEY ISSUES OUR WO

TECHNOLOGY AND LIBERTY

**Stunning New Report on Domestic  
NSA Dragnet Spying Confirms ACLU  
Surveillance Warnings**



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► Src: <http://w2.eff.org/Privacy/TIA/>

# “Spies” in Peacetime

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[News](#) > [World news](#) > [Russian 'spy ring'](#)

## FBI breaks up alleged Russian spy ring in deep cover

Arrests of ten accused agents living in suburban homes made  
after Barack Obama praised Medvedev as solid





# Sun Tzu

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- ▶ Sun Who?
- ▶ “He is not modern; he is not Western; he is about as far from us in history as he can be.”
  - Warner, *The Divine Skein*

