

# Determinism and Alternatives: Approaches To Technology

History of Information, July 9, 2010

# Administrivia

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- ▶ Reading Response #1 Posted
  - ▶ DUE Monday at start of class
    - ▶ 2 paper copies, email to both instructors
- ▶ Presentation Signup Link Sent



# Agent, Reaction, Reflection?

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- ▶ What role does technology play in human culture / society / history?



# Determinism, Redux

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- ▶ Tech drives change



## Determinism (2)

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- ▶ Change comes from outside society as part of autonomous scientific development
- ▶ Technology “imprints” on us certain aspects that are key to the tech itself
  - ▶ May be a “cultural lag” while society reorders itself around new technology



## Determinism (3)

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- ▶ Technologies have their own inertia, totally separate from influences of people
  - ▶ At extreme, tech *causes* social change!



# Consequences

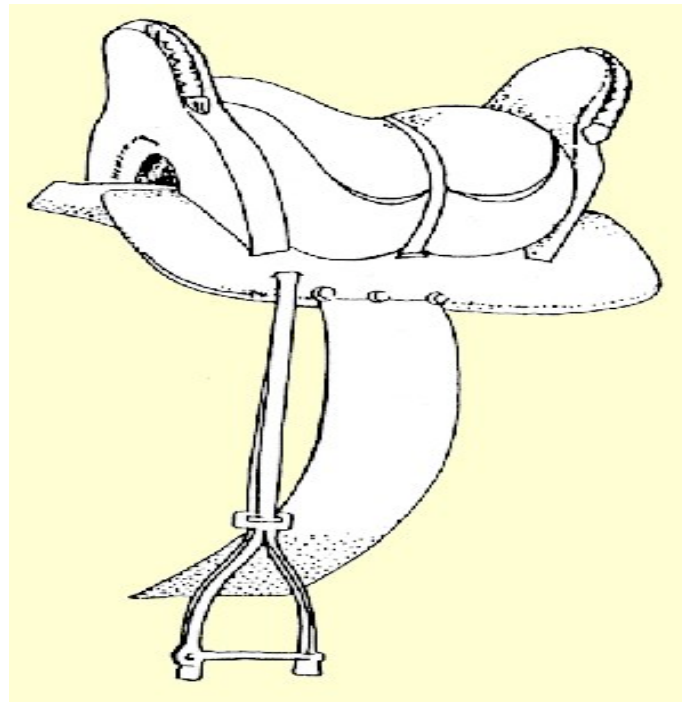
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- ▶ Macro – tech causes social/historical change
- ▶ Micro – tech affects social/socio-psychological processes as individuals use tech and tools



# Example 1: The Stirrup

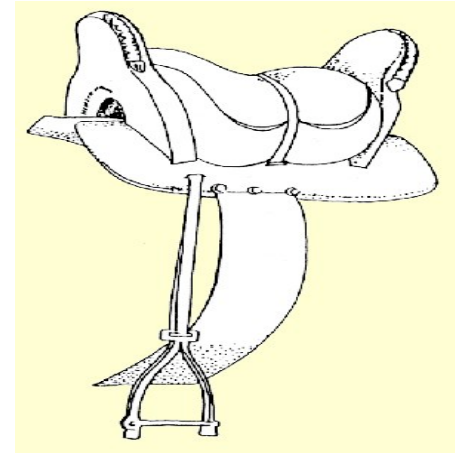
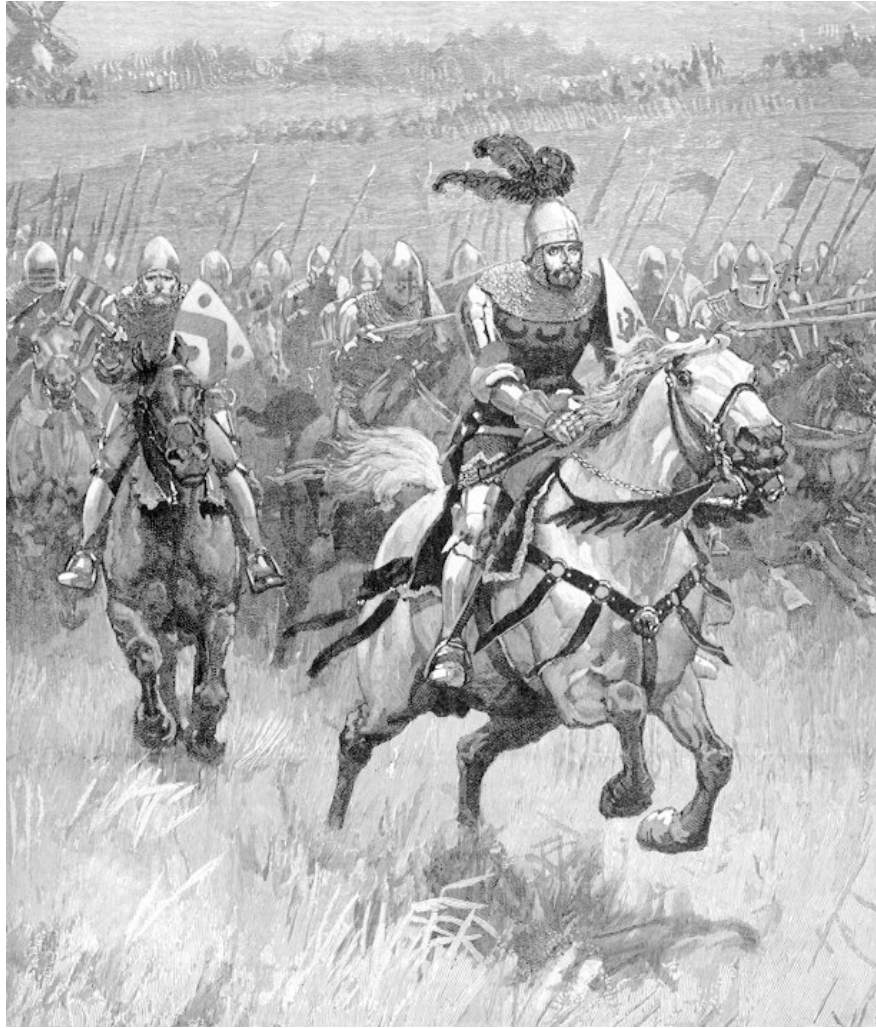
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## The Stirrup (2)

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Now...

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...and Then



# Levittown

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# Symptomatic Approach

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- ▶ Technologies are expressions of culture
- ▶ History has a “grand direction”
- ▶ Tech/material goods are manifestations of “Geist”
  - ▶ “guiding mind”



## Symptomatic (2)

- ▶ People are tied to new information technologies (mobile phone, email, Twitter) and feel lost/lonely without them
- ▶ Train, automobile, motorcycle are part of American expression of freedom/change
- ▶ But what about causality?



Illustration of a yellow and red train car, labeled "THE MIDWAUKEE ROAD" and "Super Dome". A woman in a red jacket is waving from the side of the train. The train is traveling through a scenic landscape with trees and mountains.

**AMERICA'S FIRST SUPER DOMES**  
**NOW ON THE *Hiawathas***  
**CHICAGO • TWIN CITIES • PACIFIC NORTHWEST**

*Delightfully new for a wonderful view. First end-to-end domes on any railroad! The first dome cars of any type between Chicago and the Pacific Northwest!*

*Introducing new principles of car design, these rolling roof gardens have comfortable chairs for 68. Views unlimited!*

*The luxurious Cafe Lounge on the lower deck of the Super Dome car is the smartest club room on wheels. With its warm colors and charming decorative scheme, it is the perfect spot to listen to the radio and enjoy a beverage or a light meal. All passengers are welcome.*



*The glass enclosed Striped Lounge, another unique Hiawatha feature.*

# Devices vs. Things

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- ▶ Borgmann – *Technology and the Character of Contemporary Life*
  - ▶ Modern technology: “the typical way in which one in the modern era takes up with reality.”
  - ▶ Distinguishes modern *devices* (1700-now) from largely premodern *things*





# Things

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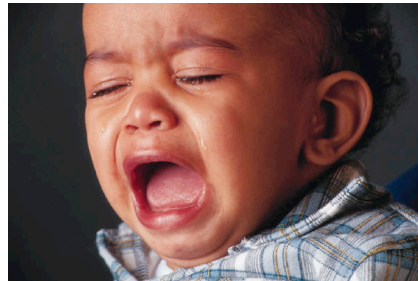
- ▶ Objects whose internal workings we understand, and which can “center and illuminate our lives”
  - ▶ Fireplaces
  - ▶ Violins
  - ▶ National Parks
- ▶ **GOOD**



# Devices

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- ▶ Objects whose internal workings are unknown, and that exist merely to provide some basic function for us
  - ▶ Central heating
  - ▶ Stereos
  - ▶ Motor Homes
- ▶ BAD



# Borgmann, We Have a Problem

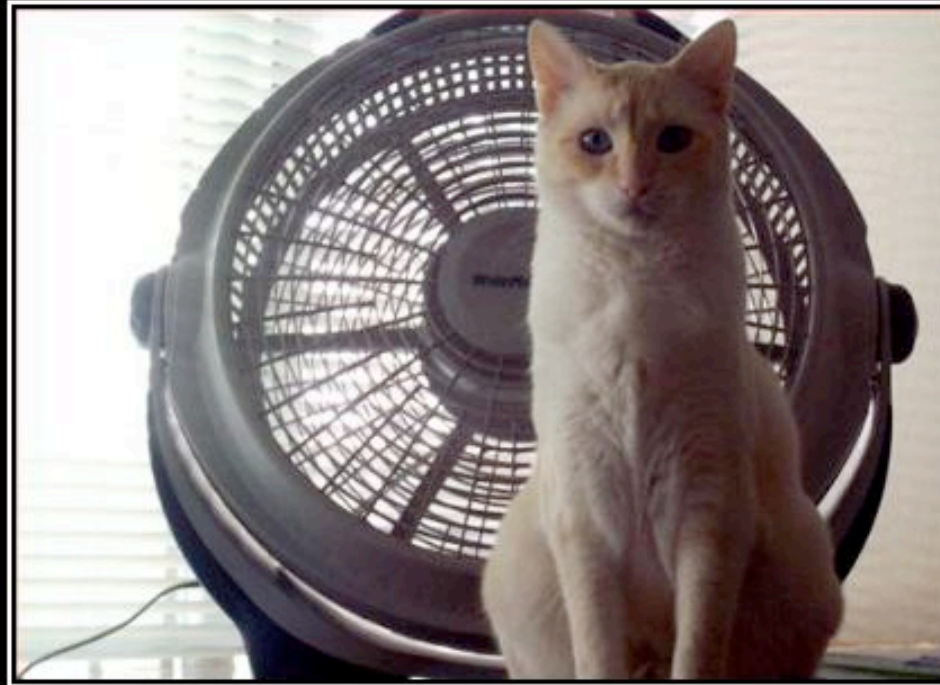
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- ▶ Not everyone knows the internal operation of a violin
- ▶ The computer may be a *device* whose operations are mysterious to some, while to others it may well be a focal *thing* that provides great sense of satisfaction and/or community
- ▶ And what of the potential disconnect between knowing how something works and how to work something?
  - ▶ Do we have to know something inside and out to benefit from it?



# Social Construction of Technology

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**USING TECHNOLOGY**

to efficiently and evenly distribute  
cat hairs around your home.

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## Social Construction of Technology (2)

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- ▶ Tech shaped by social interaction
- ▶ In some cases, users choose to use technology in ways that produce no significant change in activities
  - ▶ 35-minute commute
  - ▶ Housecleaning aids
  - ▶ Tools for keeping in touch



## SCOT (3)

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- ▶ Both tech and social processes shape tech development
- ▶ What we think of as tech is produced by many factors:
  - ▶ Individual/group behavior
  - ▶ Economy/markets
  - ▶ Consumer demand





# Bicycle Built For Who?

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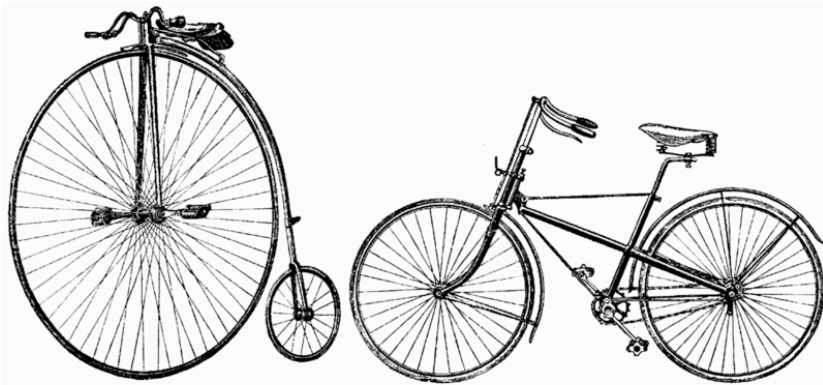


Fig. 2. Bicycle (Hochrad) von 1880.

Fig. 3. Rover (Niederrad) von 1886.



## SCOT (4)

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- ▶ Technologies can develop differently
  - ▶ Interpretive flexibility
    - ▶ An object may be perceived differently by different relevant social groups
  - ▶ Stabilization
    - ▶ RSGs negotiate and cause technology to converge
  - ▶ Closure
    - ▶ Social process in which technological artifact reaches its final form





# TD's Response to SCOT

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- ▶ Reality can't be “discovered” if it's already out there
- ▶ Scoping problem: what's the “society” here?
  - ▶ Family, company, nation?
- ▶ SCOT assumes equality of groups
  - ▶ Fails to recognize power dynamics
- ▶ Tends to avoid overarching political pronouncements
- ▶ Historical method, but history is tricky
  - ▶ You can tell where we've been but not where we're going



# Blast From “The Past”

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- ▶ How might a technological determinist react to this?
  - ▶ A social constructionist?

**Would 4,000 LPs fit in your house? What about your pocket?**

You're probably not familiar with the term "gigabyte." But you should know that there are 160 of them in the new **Pocket Hi-Fi**™ from **ALT1977**, giving it the astonishing ability to store the songs of up to 4,000 long-play stereophonic albums\* in a device small enough to fit in your pocket. Sound hard to believe? It should. Trust us. In addition to its impressive memory banks, the Pocket Hi-Fi™ features our proprietary 32-bit RISC microprocessor with a 32 kilobyte internal cache and high-speed MMU, letting you enjoy your entire music library at the highest possible fidelity. So the next time you're looking for a way to bring your tunes with you on the go, remember two things: nothing beats the Pocket Hi-Fi™, and our company **definitely** wasn't started by rogue time travelers from 33 years in the future. Like, at all.

**Pocket Hi-Fi™**  
Like a party in your pocket. But not in a weird way.™

**ALT1977™**

\*Assumes an approximate size of four megabytes per digital song representation, and an average of 10 songs per LP. Actual capacity performance may vary.

# Back To The Future

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- ▶ How do past innovations look in hindsight?

