

IS 103

# HISTORY OF INFORMATION

## PROFESSORS DUGUID & NUNBERG



UC Berkeley School of Information

# Why HOFI?

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**School of Information, UC Berkeley**

**IS 103**  
**History of Information**  
**Jan. 18, 2011**



# Itinerary, 1/18

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The history of "information": Why now?

What makes this the "Information Age"?

What historical assumptions does the "information age" usually imply?

Novelty: "Never before...."

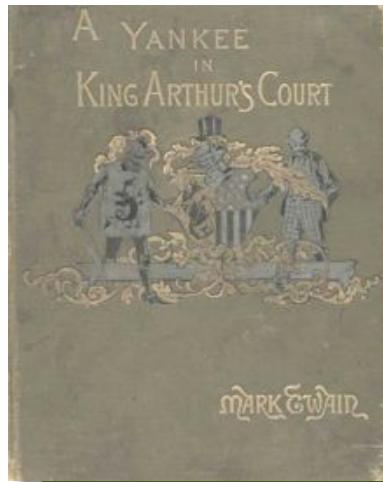
The determinant role of "information technology"

Why does it matter that we get Hofl right?

Looking forward: How does history help us to understand the present & predict the future?

Looking backward: How useful is "information" as a principle for organizing & understanding the past?

Outline of course structure, requirements, grades (Paul)



# The history of "information": Why now?

Every age gets the history it needs: Gutenberg in the machine age



The monks around me besieged me so with eager questions: What is this curious thing? What is it for?...

"It is a public journal; I will explain what that is, another time. It is not cloth, it is made of paper; some time I will explain what paper is. The lines on it are reading matter; and not written by hand, but printed; by and by I will explain what printing is. A thousand of these sheets have been made, all exactly like this, in every minute detail--they can't be told apart."

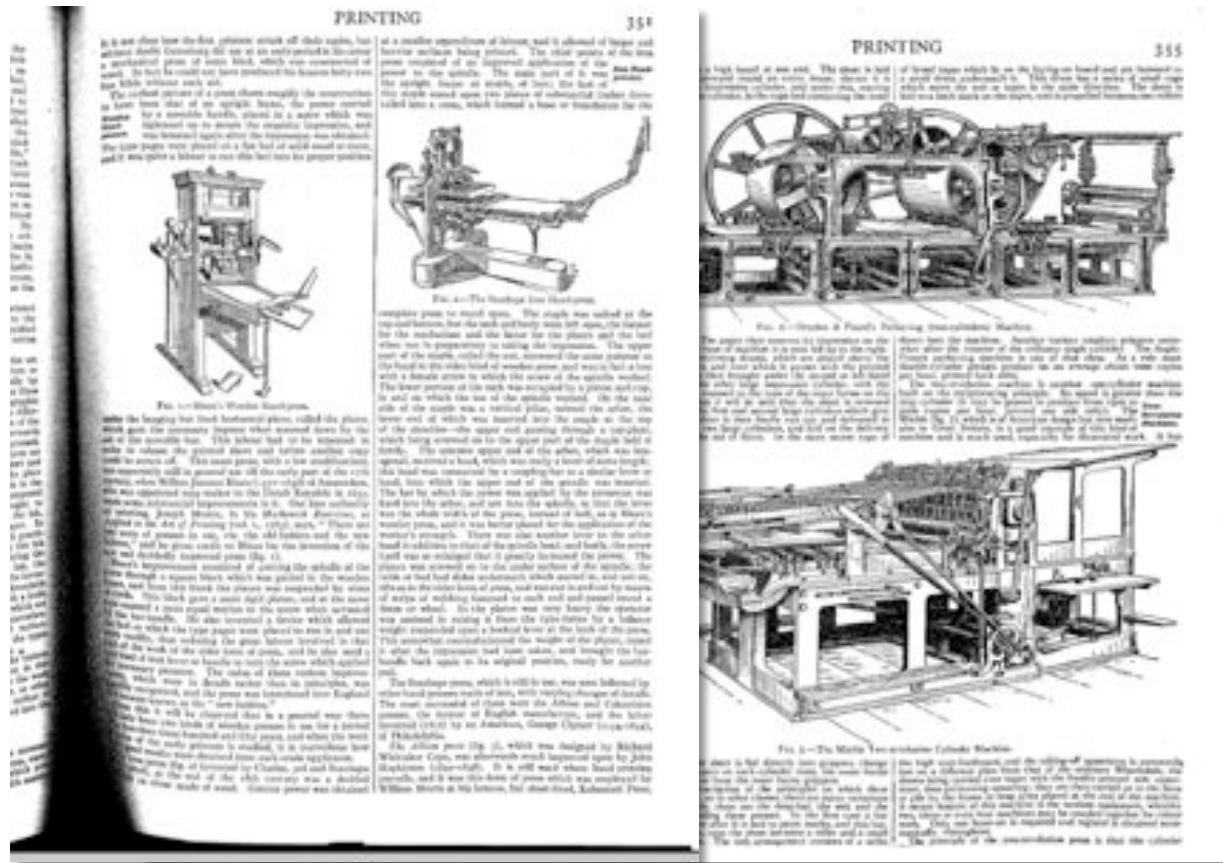
Then they all broke out with exclamations of surprise and admiration: "A thousand! Verily a mighty work--a year's work for many men." "No--merely a day's work for a man and a boy." They crossed themselves...

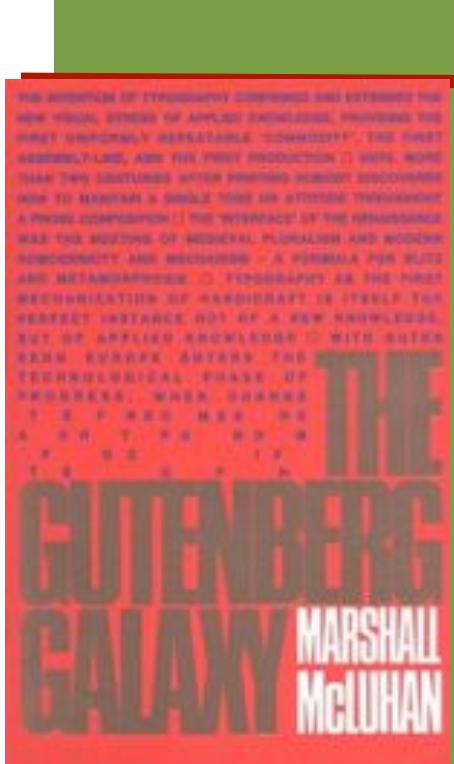
Mark Twain, *A Connecticut Yankee In King Arthur's Court*, 1889



# The history of "information": Why now?

# Article on "printing" in the Encyclopedia Britannica 11<sup>th</sup> ed., 1911





# The history of "information": Why now?

The Four Ages of Man (Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*):

Oral tribe culture

Manuscript culture

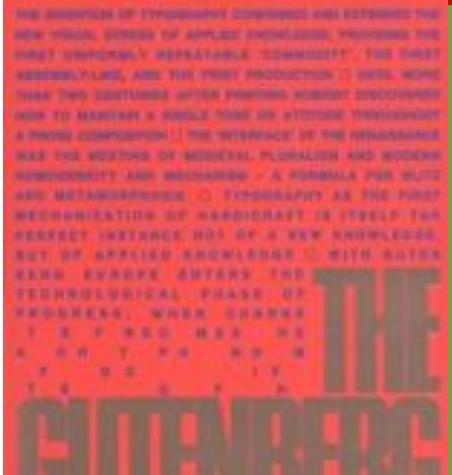
Gutenberg galaxy

Electronic age ("the Galaxy reconfigured")

"societies have been shaped more by the nature of the media by which men communicate than by the content of the communication."



# The history of "information": Why now?



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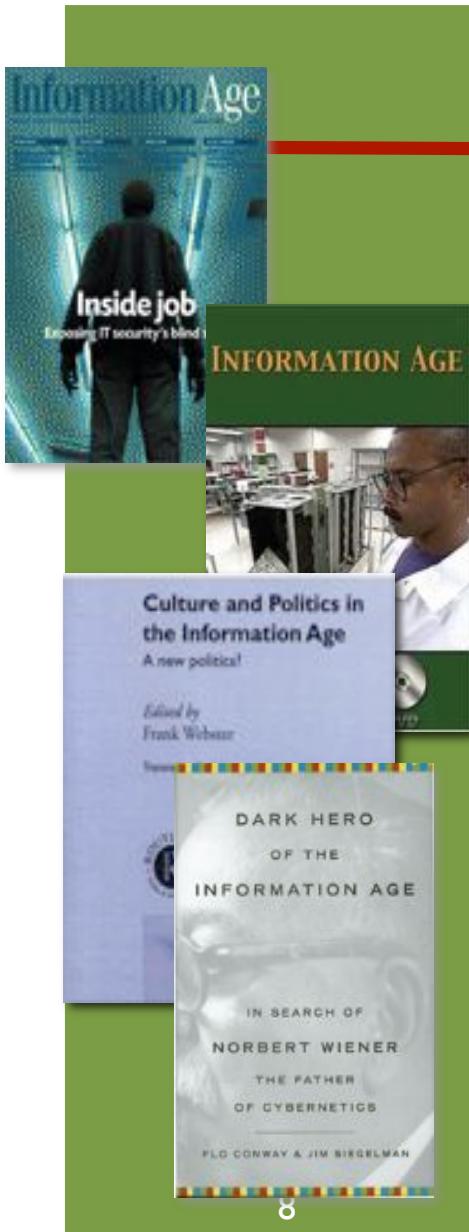
Electronic age ("the Galaxy reconfigured")

"societies have been shaped more by the nature of the media by which men communicate than by the content of the communication."

"I don't pretend to understand it. After all, my stuff is very difficult." M. McLuhan

# "Information" – An age whose time has come

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You, the American people, have made our passage into the global information age an era of great American renewal.

Bill Clinton, Farewell Address, Jan 19, 2001

The information age is opening up new possibilities for all of us, for our children and for the entire nation. . . ."

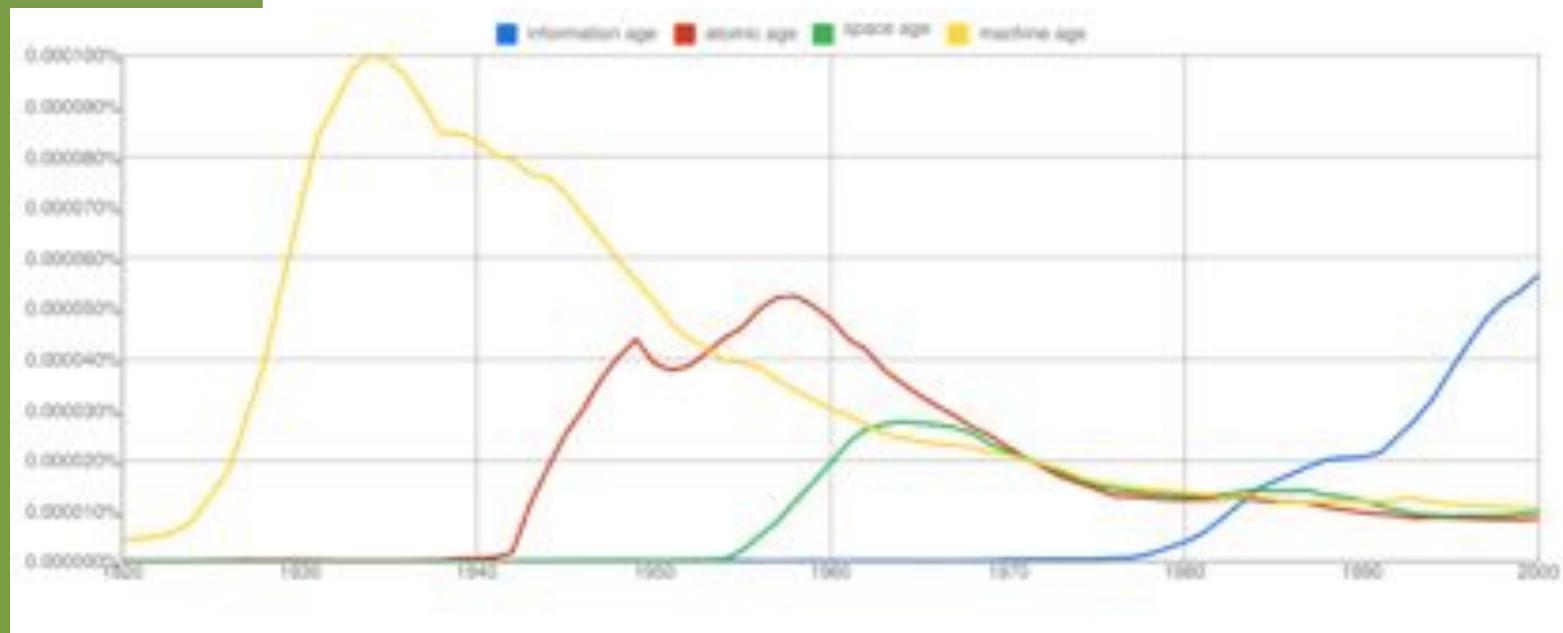
Bill Gates

Our Information Age is still in its infancy. We're only at Web 2.0. Now our virtual world is going viral. And we've only just begun to explore the next generation of technologies that will transform our lives in ways we can't even begin to imagine.

Barack Obama, May 29, 2009



# The coming of the information age



Relative frequency of *machine age*, *atomic age*, *space age* and *information age* in Google Books, 1920-2000



# Defining the "Information Age"

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**information age** The period beginning around 1970 and noted for the abundant publication, consumption, and manipulation of information, especially by computers and computer networks. *American Heritage Dict.*, 4th ed.

**Information Age** is a term that has been used to refer to the present era, generally beginning within ten years of 1990. The term alludes to the global economy's shift in focus away from the production of physical goods and towards the manipulation of information. Wikipedia



# The First Information-Age President?



It's the result of Clinton being the first information age president. *Washington Post*, 1/22/99



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It's the result of Clinton being the first information age president. *Washington Post*, 1/22/99

George W. Bush is the first Information Age president. *Seattle Times*, 8/27/06



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"I like the fact that we have a president who uses information technology to his benefit. It means we actually have the first information-age president," said Bruce Schneier, a security technologist and author. —Fox Bus News, Feb. 6, 2009



## **Implicit historical assumptions about the "Information Age"**

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The unprecedented present

The determinative role of technology



# The Unprecedented Present

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## The Shock of the New: "Never Before"

The advent of the Information Age entails fundamental changes in the nature of commerce, organizational structure, education, politics & public discourse, national identity, news and entertainment, community and personal relations – and in the nature of change itself.



# The Unprecedented Present

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## Novelty: "Never Before"

"The Web seems to be growing at an a rate of sheer numbers that is unprecedented in world history."

"I.T. has triggered complex social, political, economic and ethical issues that need urgent action if we are to survive the coming decades of unprecedented technological change."

"The promise of the Information Age is the unleashing of unprecedented productive capacity by the power of the mind. . . . The dream of the Enlightenment, that reason and science would solve the problems of humankind, is within reach." Manuel Castells



## **"Been there, done that"**

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But many of the "unprecedented" features of the Information Age have instructive historical antecedents...



## **"Been there, done that"**

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But many of the "unprecedented" features of the Information Age have historical antecedents  
...starting with the idea that the current age is unprecedented.



## "Been there, done that"

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History provides antecedents for:

The digital generation gap – immigrants and "digital natives"

"The death of distance" the "annihilation of space and time"

"The end of the book"; "The death of the newspaper";  
economic models for the new media

How to organize and make accessible an unprecedented  
mass of information?

Piracy and IP in the information age – "information wants to  
be free"

Problems of reliability; who can you trust online?

Threats to individual privacy

What role for the government in building infrastructure,  
monitoring use?

*But does that mean there's nothing new under the sun?*



## Implicit historical assumptions in "The Information Age," 2

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### The historical role of Technology

However you date the "dawn" of the IA, presumed to be tied to new technologies (Jacquard loom, Babbage's "difference engine," punch cards, Eniac, Internet, etc.)



# The historical role of technology

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## The role of Technology

Does the history of information" = "history of information technology"?

**History 3493 (Oklahoma U.) The Cultural History of Information.** An introduction to the history of information technologies and communications media from the printing press to the internet. Topics will include the print revolution, the advent of electronic communications, the growth of broadcast media, the development of the digital computer, and the internet boom.



# **Why HOFL is not a history of information technology**

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## Problem 1: Tracing Technological "Antecedents"





# Problem 1:

## Tracing Technological "Antecedents"

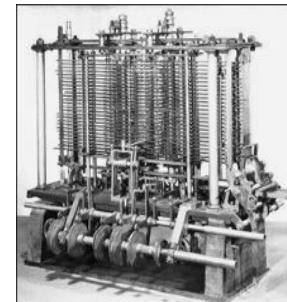


Schickard's calculator 1623

Jaquard loom 1801



Babbage's difference engine 1820's



Hollerith tabulating machine 1890



Apple II 1977



DEC PDP11 1965



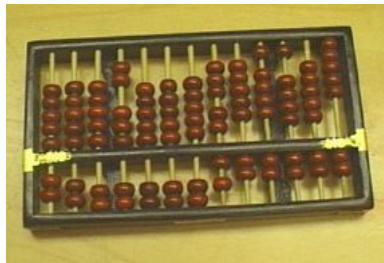
Eniac I 1946



## "What was the first computer"?



Pascal's calculator, 1624



Abacus 2400, B.C.



Stonehenge, 3100 B.C.



Antikythera mechanism, ca. 150 B.C.



Ishango bone, 20,000 B.C.



# History as a Whiggish Progression leading to.... us

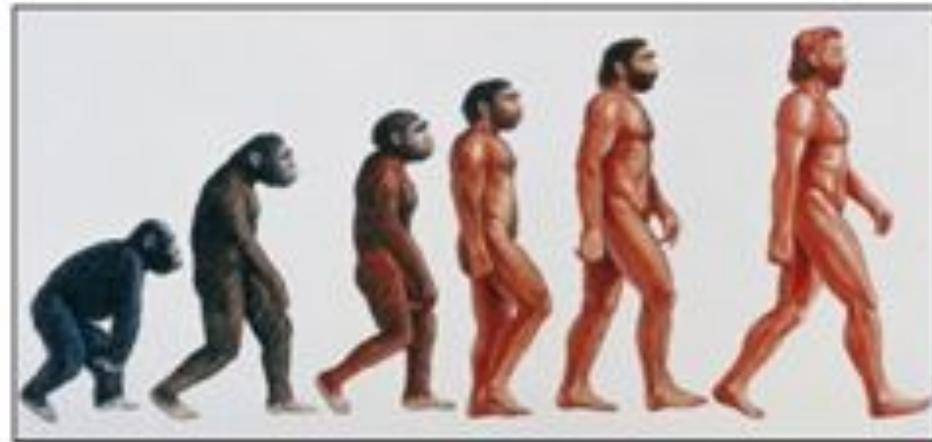
Whig theory of history = history is a triumphant (and, often, inevitable) progress toward the present state...

... the history of our country during the last hundred and sixty years is eminently the history of physical, of moral, and of intellectual improvement.

Thos. Babington Macaulay, 1848

That great, growling engine of change -- technology.

Alvin Toffler, 1970.





## Problem 2: What are "Information Technologies"

What makes for "Information technology"?  
Prototypical instances of modern "IT"





## More marginal instances of "information technologies"





# Non-IT

What isn't IT?





# Rethinking "Information Technologies"





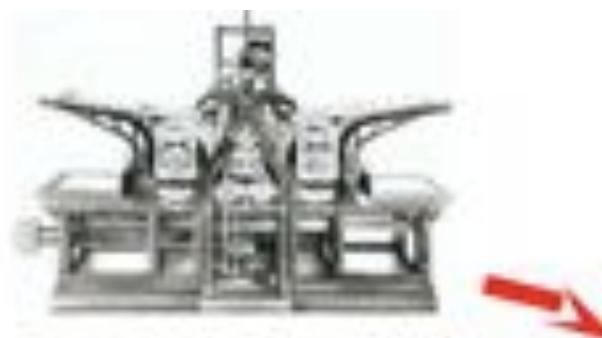
# Rethinking "Information Technologies"





## Complicating the Story: The Interconnection of Technologies

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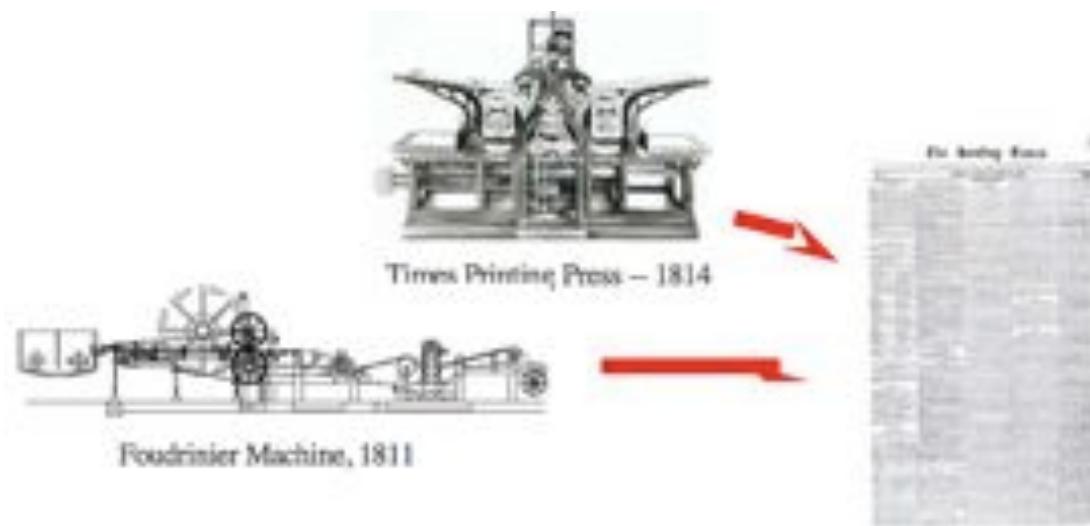


Times Printing Press – 1814



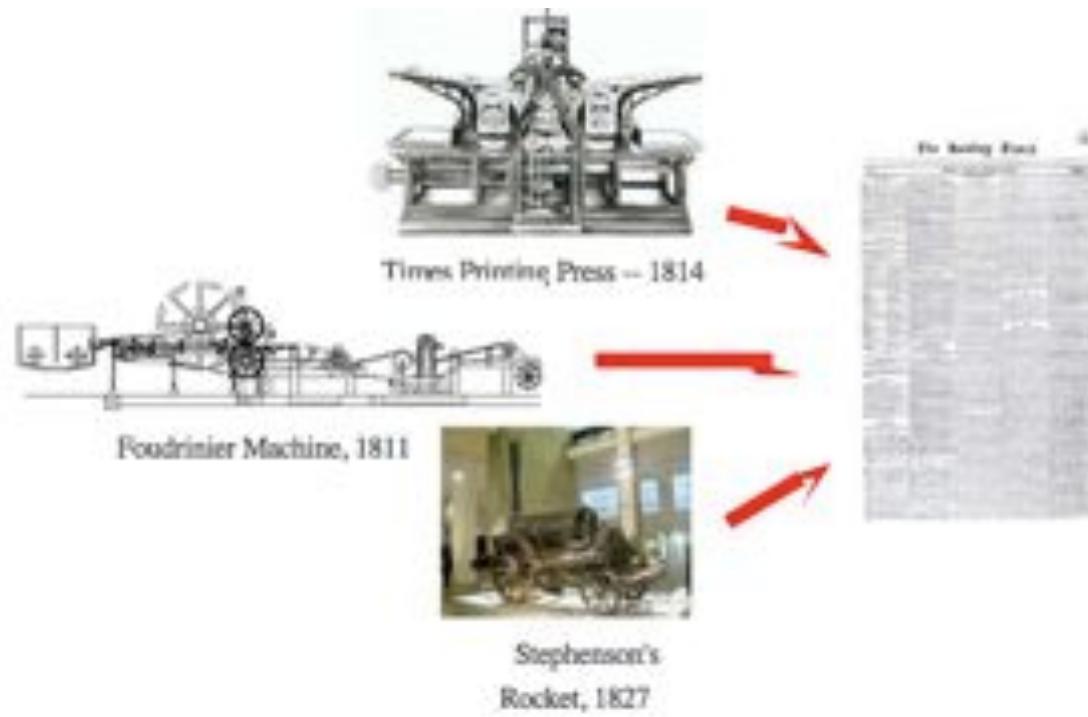


## Complicating the Story: The Interconnection of Technologies



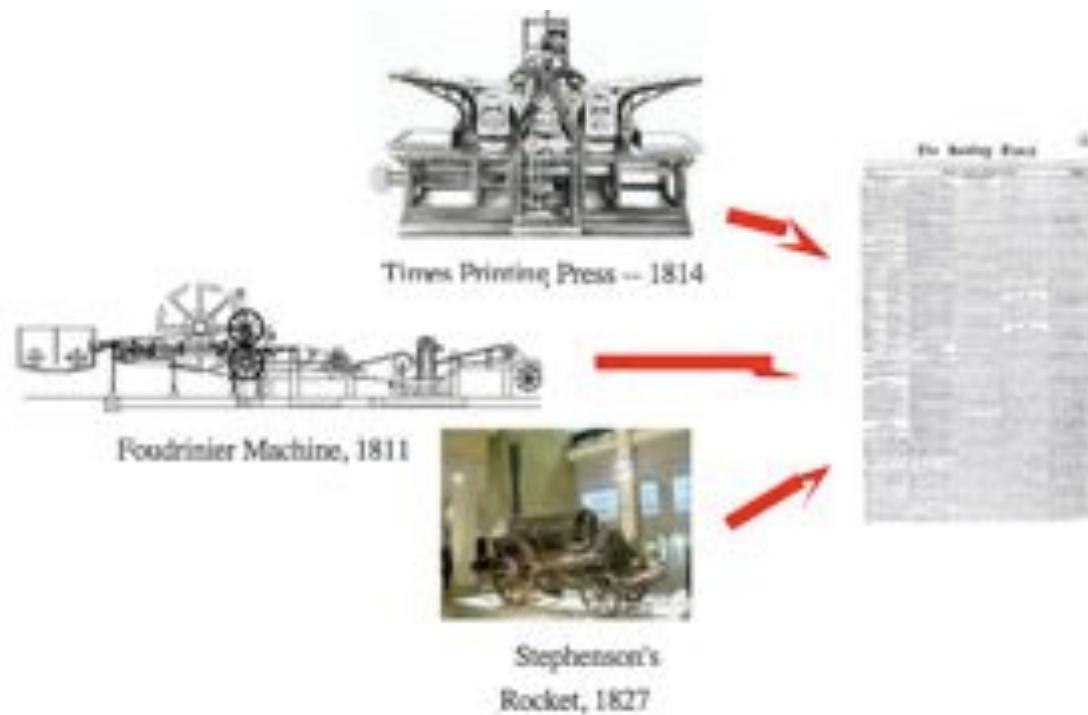


## Complicating the Story, 1: The Interconnection of Technologies



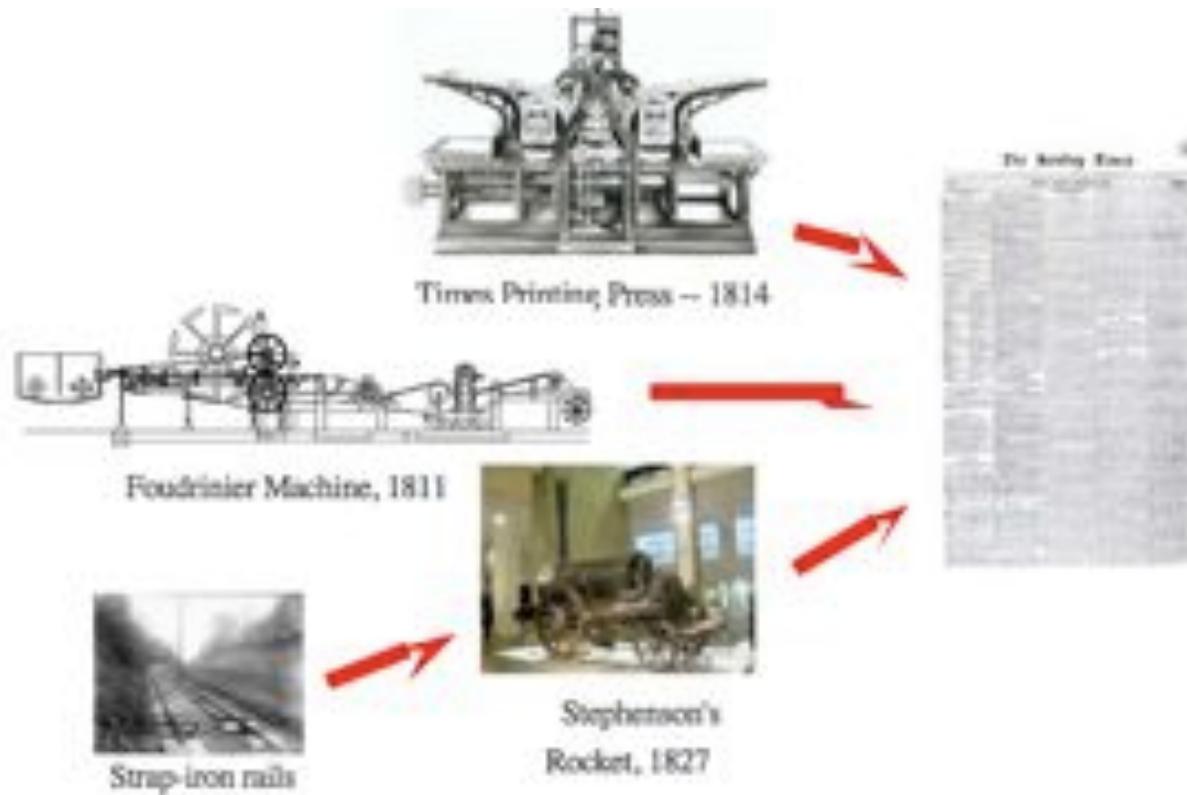


## Complicating the Story, 1: The Interconnection of Technologies





## Complicating the Story, 1: The Interconnection of Technologies



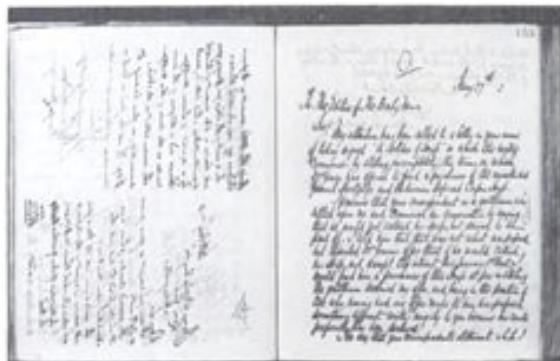


# The Interconnection of Technologies: Managing correspondence

Letterpress and letterpress book,  
late 19<sup>th</sup> c.



2.1 A letter press in action. (Catalogue for Yostman and Erbe, 1905; Hagley Museum and Library.)



2.2 An open letter press book. (Pennsylvania Railroad Collection, Hagley Museum and Library.)



Wooten desk

## Genuine Shannon Sectional Cabinets

THE Shannon Arch method has been used for years, and is today the safest way to file letter or cap size papers.

Prices quoted include stock index (please specify in your order the type of index required).

Price "solid Arch" means the "I and d" combination locking device described on page 6.



Convenience on cover large papers conveniently together, printed form shows record of transfers for locating back correspondents.



No. 1000. P.  
Dr. Letter-size  
Sectional Cabinet  
with Solid Arch  
Under Vertical  
File, No. 1000. Cap-  
size, \$60.



No. 10. P.  
Dr. Letter-size Section, \$6.00.  
No. 10. P.  
Dr. Cap-size Section, \$6.00.

No. 20. P.  
Dr. Letter-size Section, \$10.00.  
No. 20. P.  
Dr. Cap-size Section, \$10.00.





# The Interconnection of Technologies: Managing correspondence



IN  
UP-  
RIGHT  
UNITS.

## Globe-Wernicke Vertical File.

Vertical filing is simply the filing of letters, papers, bills, etc., on edge in folders, instead of flat in the ordinary letter file. If not acquainted with the system we would like to explain its advantages. If familiar with it, however, we want to show you the best Vertical Filing Cabinet fitted with the most perfect Vertical Files for the system ever made. If you can't call, write us for pamphlet containing valuable information.

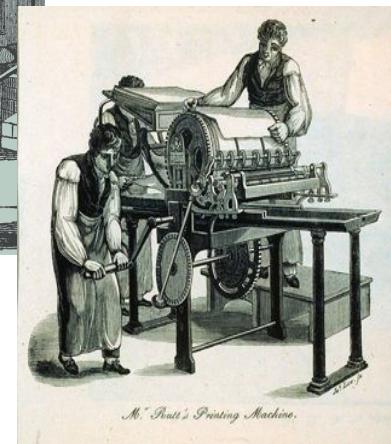
**THE J. K. GILL CO.  
PORTLAND, OREGON**



## Complicating the Story, 2: The Social Setting of Technologies

The 19th c. newspaper required....

Specialization of  
Skills



Specialization of  
Commercial Roles





# Complicating the Story, 2: The Social Setting of Technologies

What made possible the modern newspaper?



- Mass literacy,
- Availability of capital
- Emergence of professional journalism
- Shifts in political partisanship, relaxation of censorship
- Rise of science & "objectivity"
- Modern advertising





# **Why Study History, 1: Looking Ahead**

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# Every Age Gets the Future it Thinks It Wants



Norman Bel Geddes, General Motors  
Futurama, 1939 World's Fair

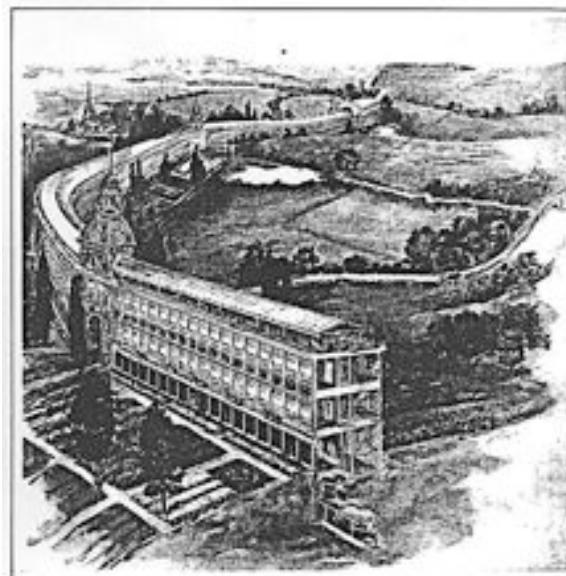




# Technological Utopianism: 1880-1930



Milo Hastings, "City of Endless Night" (Berlin, 2041), 1920



Edgar Chambliss, "Roadtown," 1910

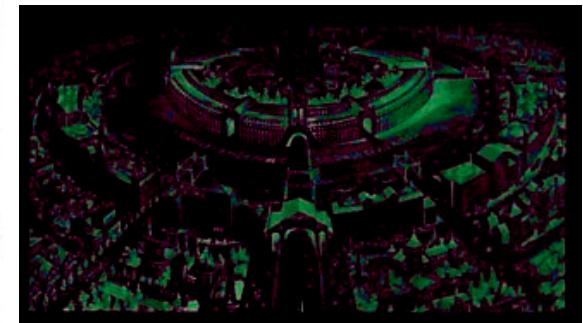
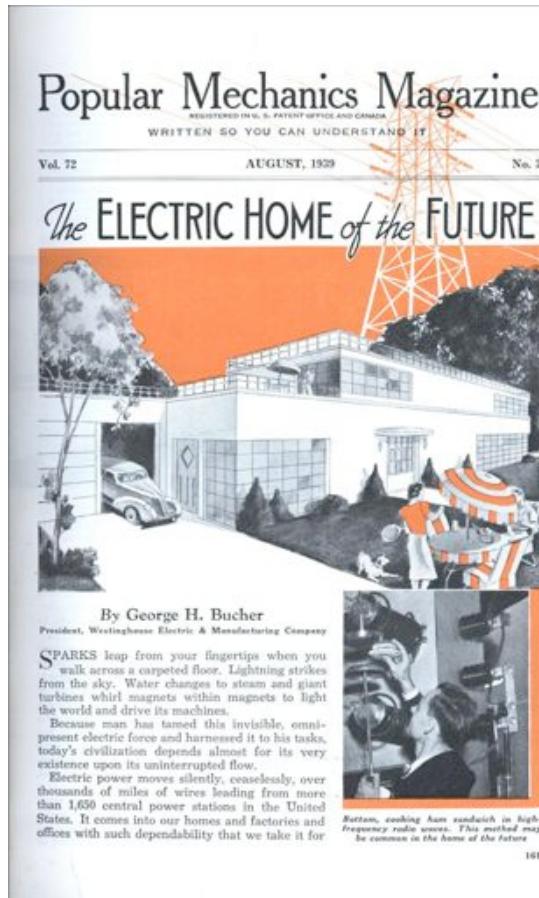


Figure 5  
Sketch of the center of New Era Model city, from Charles Caryl's *New Era* (1897).  
Caryl depicts one of technological utopia's metropolitan centers, the equivalent of the modern megalopolis.

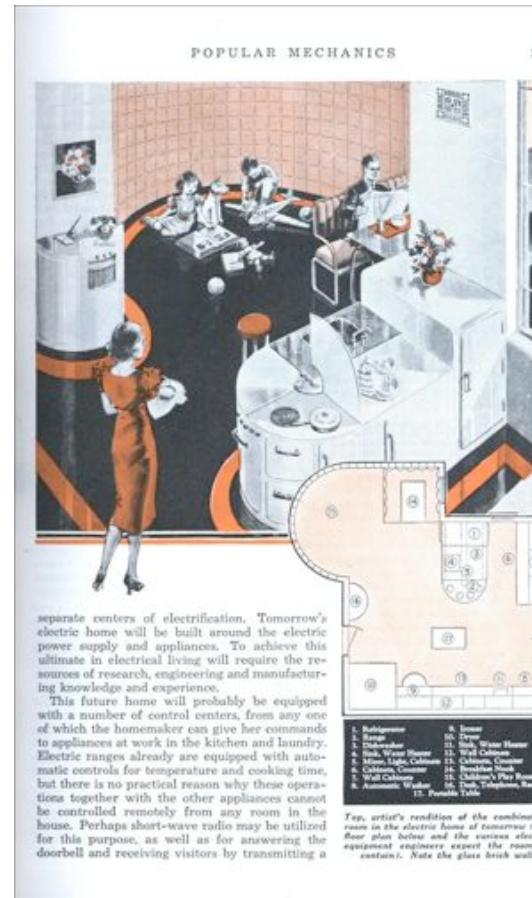
The determinist fallacy: Whatever can be built, will be built



# Projecting technologies



Westinghouse Electric Home of the Future, 1939



Libbey-Owens-Ford, 1943

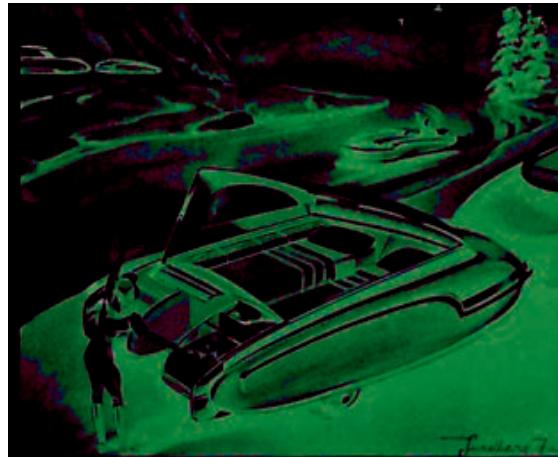


Figure 3  
Industrial designer Carl W. Sundberg tantalized Americans with this vision of an all-plastic auto trailer/camper/motorboat shell. *Modern Plastic* 22 (May 1945), p. 106.

## Plastics!

"The American of tomorrow, clothed in plastics from head to foot, will live in a plastics house, drive a plastics auto, and fly in a plastics airplane." *Popular Mechanics*, 1940



Monsanto, House of the Future, Disneyland, 1957 -- "Everything is ultra-modern and almost entirely synthetic."





# Plastics!

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Because everything in her home is waterproof, the thousands of fibers can sit there daily collecting with a home

Two Ways of Getting the Future Wrong



# Anticipating Change

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What would be most surprising to the characters of "Father Knows Best" if they could see the world of 2011?





# Anticipating Change

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# Anticipating Social Change

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# Anticipating Social Change

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What will make our predictions most quaint or ridiculous to our descendants?

Recognizing the historical roots of "news," "information," "intellectual property," "objectivity," etc.

(PD, next time)



## The Uses of History, 2: Looking Back

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Every age writes the history it needs.

How can "information" serve as a lens to organize historical accounts?

(PD, next time)



## Assignment for 1/20

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Pick one of the following and explain how it might be serve as an "information technology." Try to make your answers ingenious without being implausible. Bring your answer to class.

- a bicycle
- a necktie
- a blanket
- a piece of string
- a dishrack