

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. 19, 2010



Itinerary, 1 / 19

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)



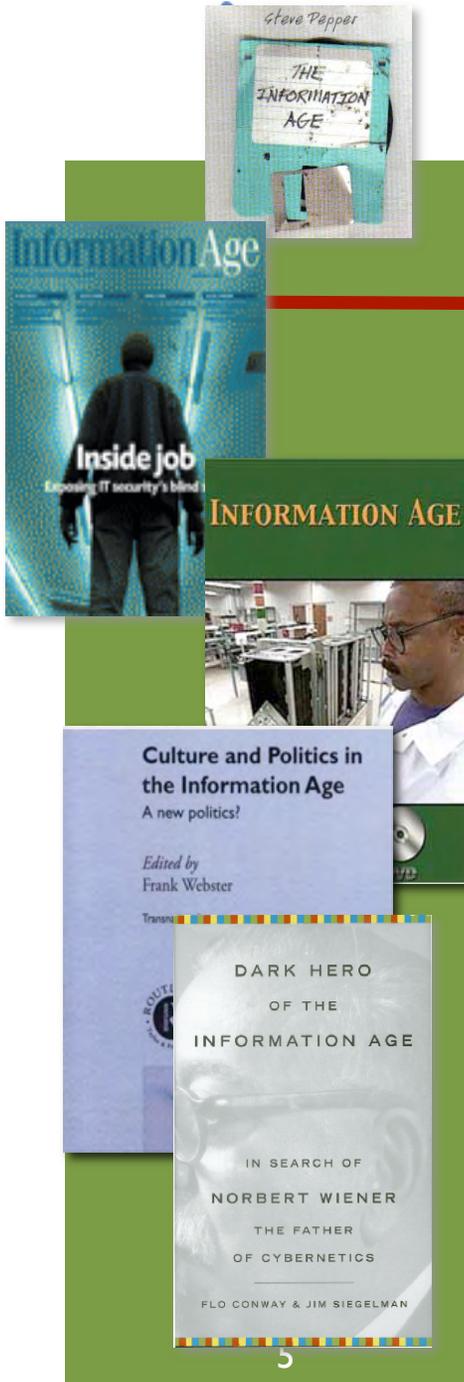
i- : A Prefix Whose Time has Come

What puts the *i-* in iSchool?

Why "the history of information"?

The screenshot shows the UC Berkeley School of Information website. At the top left is the 'i' logo and the text 'UC Berkeley School of Information'. To the right is a search bar. Below the header is a navigation menu with links: UC BERKELEY | ALUMNI NETWORK | SITE MAP | CONTACT US | SUPPORT THE SCHOOL | ISCHOOL INTRANET. On the left is a green sidebar with a menu: ABOUT, PROGRAMS, PEOPLE, RESEARCH, ADMISSIONS, CAREERS, PARTNERS. At the bottom of the sidebar is the text 'FROM INFORMATION, KNOWLEDGE'. The main content area features a 'STUDENT PROFILE' section with a photo of Janaki Srinivasan and text describing her as a doctoral student with interests in information and computer technologies for development in India. Below this are two news sections: 'BREAKING NEWS' with bullet points for 'Tapan Parikh named Humanitarian of the Year' and 'Joe Hall weighs in on post-election', and 'DON'T MISS' with bullet points for 'Lecture: Richard Stallman' and 'Lecture: Mitch Kapur'.

"Information" – An age whose time has come



"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

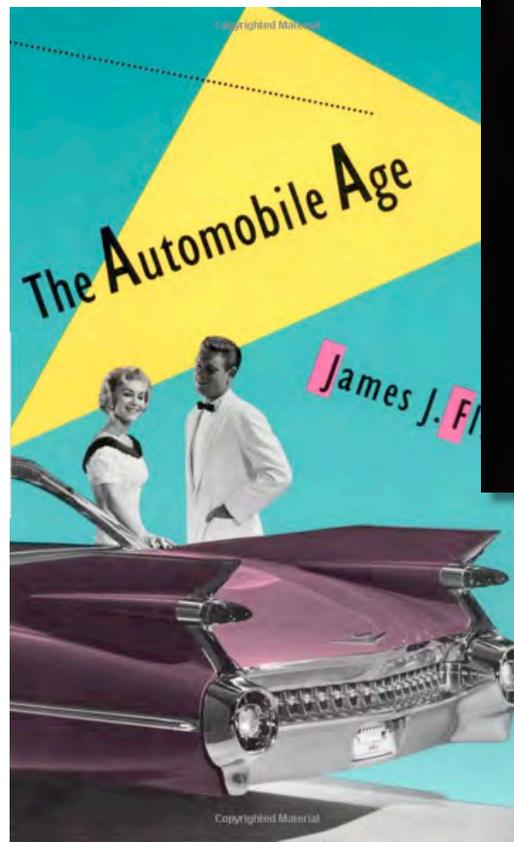
"The information age is opening up new possibilities for all of us, for our children and for the entire nation. . . ."
Bill Gates

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



What Makes "Information" Different?

<u>Age of X/X age</u>	<u>Google hits (000)</u>
information	2274
digital	1880
internet	1137
computer	722
electronic	494
space	1990
Cold War	1270
air	512
nuclear	494
atomic	327
oil	188
terrorism	220
democracy	220
television	96
automobile/-motive	69
Aquarius	268





Defining the "Information Age"

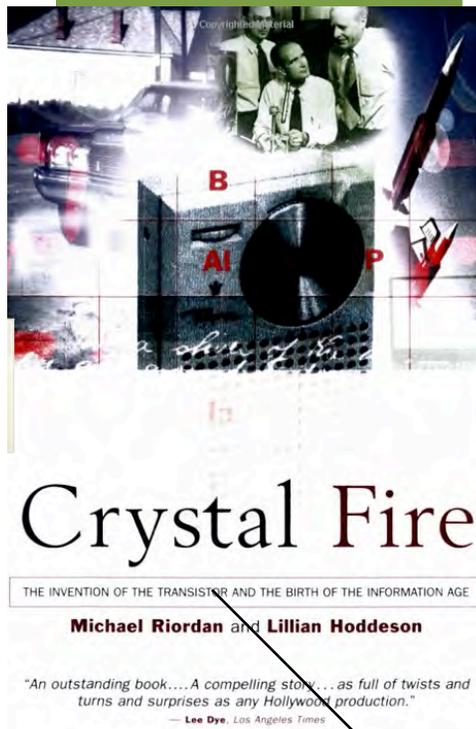
information age The period beginning around 1970 and noted for the abundant publication, consumption, and manipulation of information, especially by computers and computer networks. *American Heritage Dict.*, 4th ed.

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

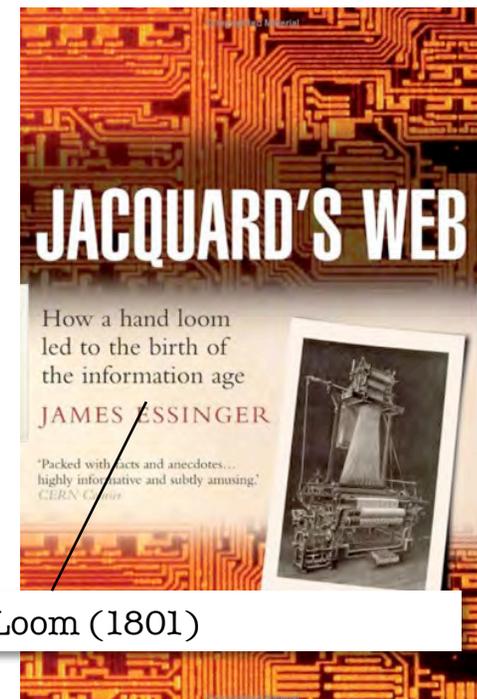


The Many Dawns of the "Information Age"

Dawn of a New Age of Information: The success of Mauchly and Eckert [in building Eniac, 1946] inspired others to build improved computers.



The Invention of the Transistor and the Birth of the Information Age (1947)



Jacquard's Loom (1801)



The First Information-Age President?

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





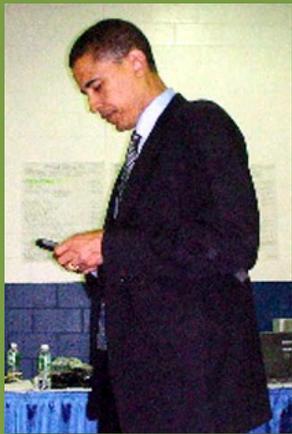
The First Information-Age President?

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





The First Information-Age President?



Obama's insistence on keeping his BlackBerry underscores not just his own tech savvy, but also the ubiquitous nature of the device. "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"

The unprecedented present

The determinative role of technology



The Unprecedented Present

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

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



Industrial Age Classrooms vs. Information Age Classrooms

by Jane Bluestein, Ph.D.

On this page you will find a comparison between the Industrial Age and the Information Age, particularly as these differences correspond to classroom values, priorities, motivators, authority relationships, student behaviors and discipline goals.

<i>Industrial Age</i>	<i>Information Age</i>
The Traditional Classroom	The 21st Century Classroom
<p><i>Values, Priorities & Motivators</i></p> <ul style="list-style-type: none"> • Uniformity, sameness; fitting in. • Stability, permanence, security (rigid roles) • Competitive • Motivation for cooperation: pleasing authority (approval-seeking), avoiding punishment, humiliation, rejection, disapproval; oriented to adult and adult's reaction • Outcome or product orientation • Pleasing others regardless of personal needs • Perfectionism • Black-and-white thinking (or all-or-nothing thinking, dualism); tunnel vision 	<p><i>Values, Priorities & Motivators</i></p> <ul style="list-style-type: none"> • Diversity, personal potential and unfoldment; growth potential, personal fulfillment • Flexibility, choices, personal control, (variable roles, expectations) • Cooperation • Motivation for cooperation: personal satisfaction; curiosity; positive consequences or outcomes that are unrelated to adult's reaction; oriented to student • Process or person orientation • Self-care; doing for others with regard for personal needs • Mistakes seen as a necessary and valuable part of growth

"Everything is different"



"Been there, done that"

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



"Been there, done that"

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"

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

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

The role of Technology

History of information" → "history of information technology"

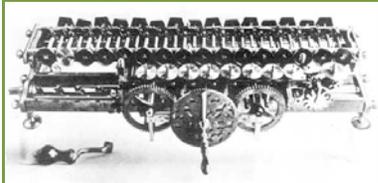
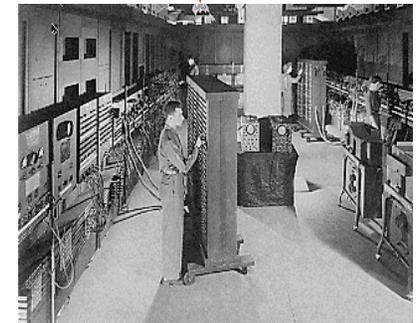
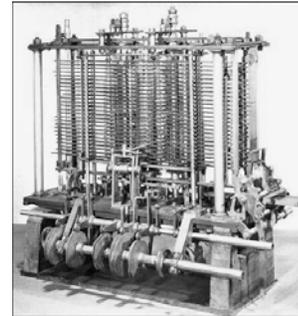
History 3493 (Oklahoma U.) The Cultural History of Information. An introduction to the history of information technologies and communications media from the printing press to the internet. Topics will include the print revolution, the advent of electronic communications, the growth of broadcast media,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



Why HOFI is not a history of information technology



Tracing Technological "Antecedents"

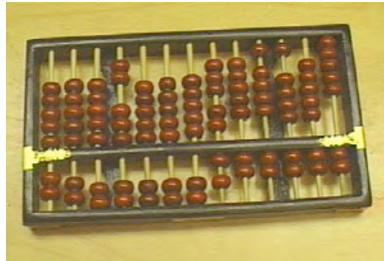




"What was the first computer"?



Pascal's calculator, 1624



Abacus 2400, B.C.



Stonehenge, 3100 B.C.



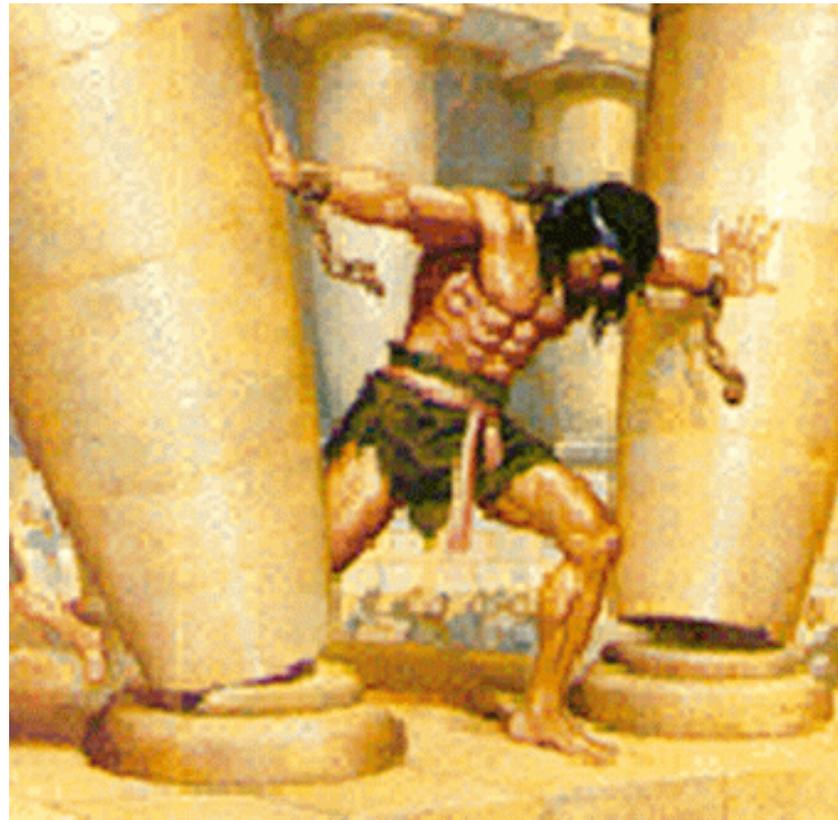
Antikythera mechanism, ca. 150 B.C.



Ishango bone, 20,000 B.C.



Who was the first suicide terrorist?





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

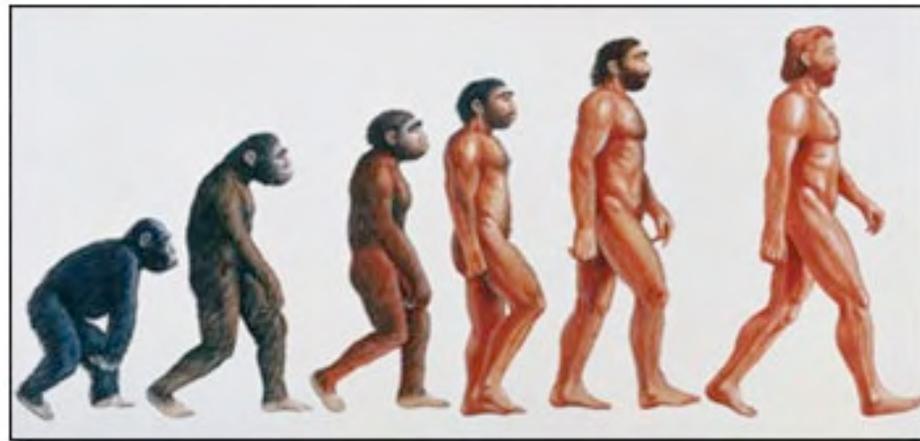
All history = a triumphant (and, often, ineluctable) progress toward the present state...

... 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"



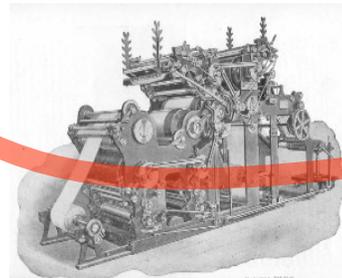


Rethinking "Information Technologies"



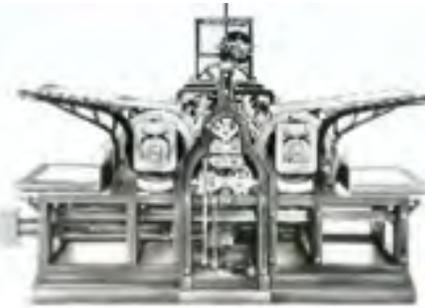


Does history of Information = history of IT?





Complicating the Story, 1: The Interconnection of Technologies

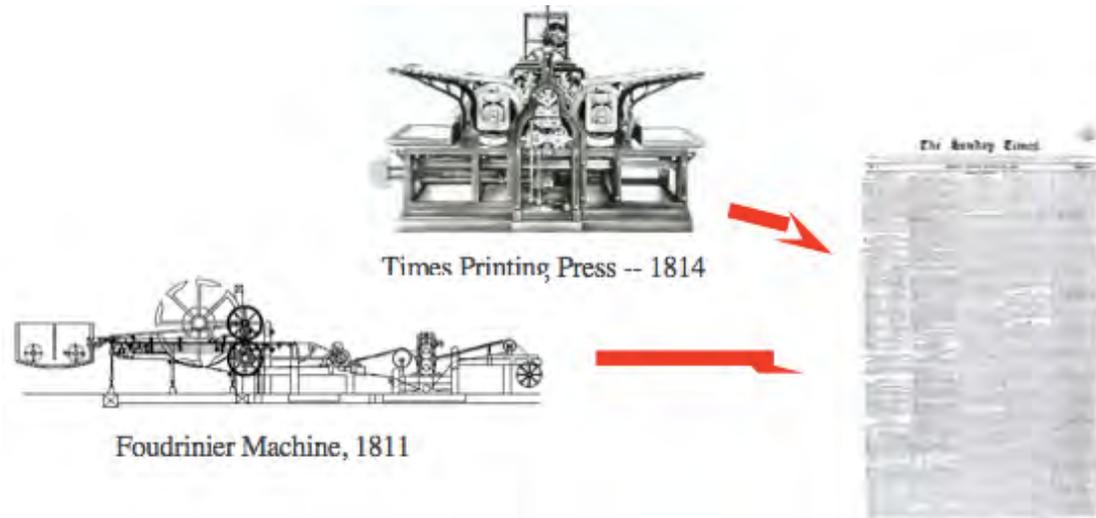


Times Printing Press -- 1814



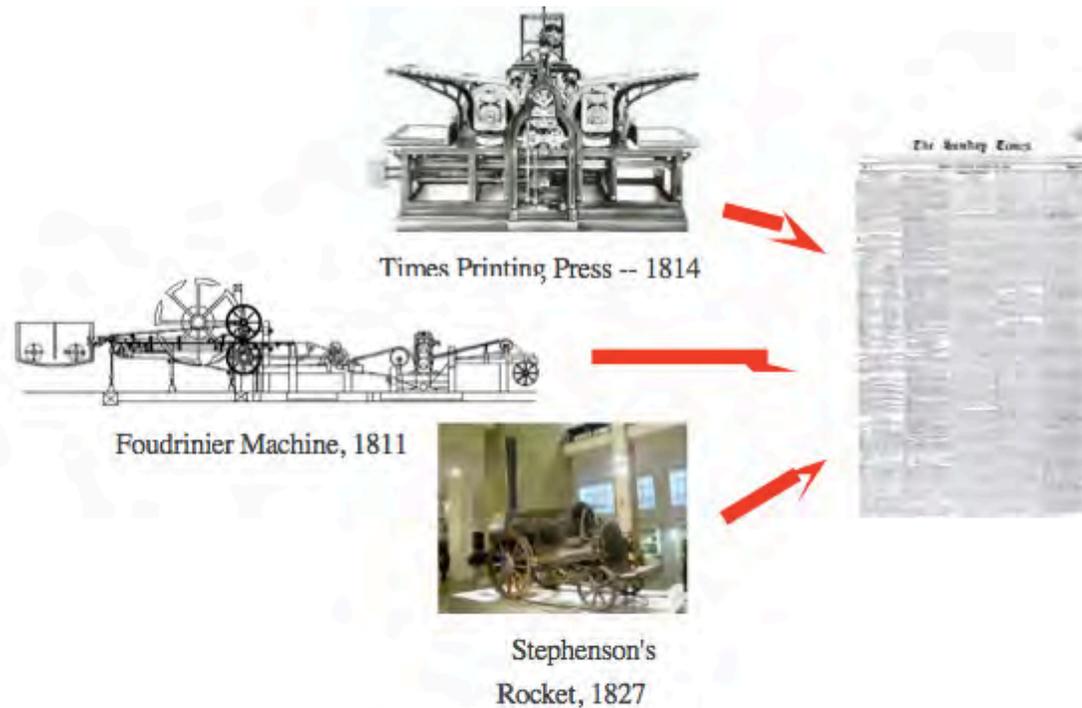


Complicating the Story, 1: The Interconnection of Technologies



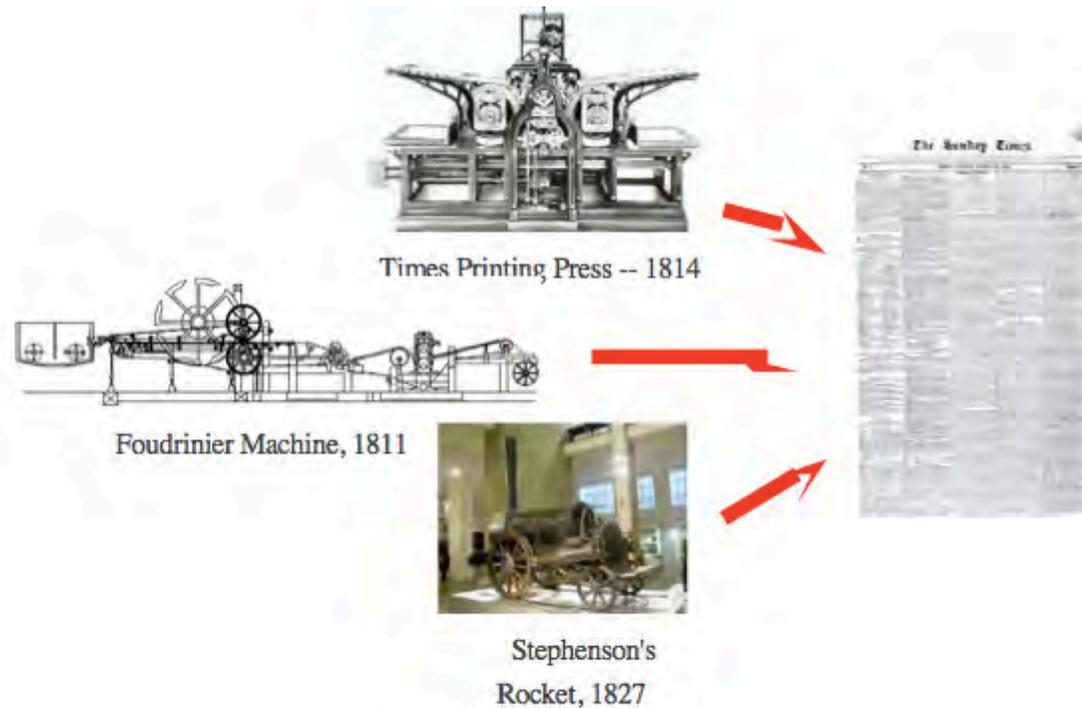


Complicating the Story, 1: The Interconnection of Technologies



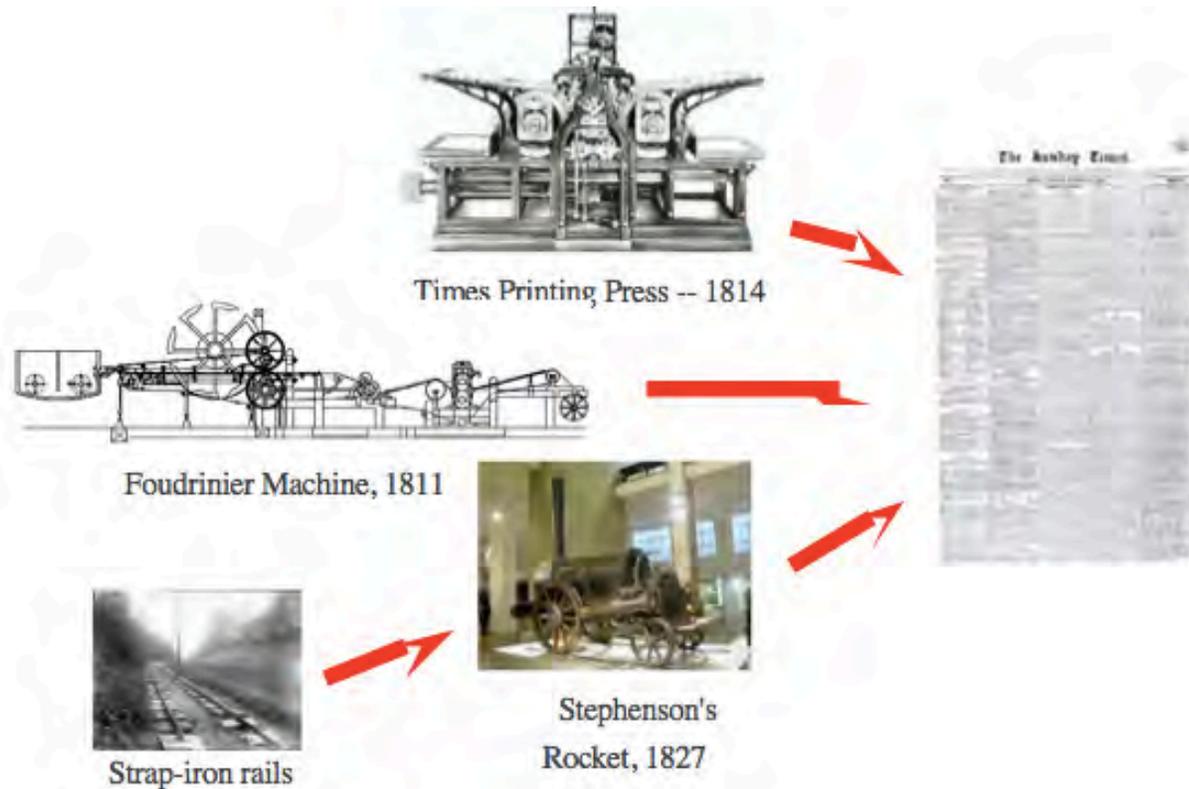


Complicating the Story, 1: The Interconnection of Technologies





Complicating the Story, 1: The Interconnection of Technologies





Complicating the Story, 2: The Social Setting of Technologies

The 19th c. newspaper required....

Specialization of
Skills



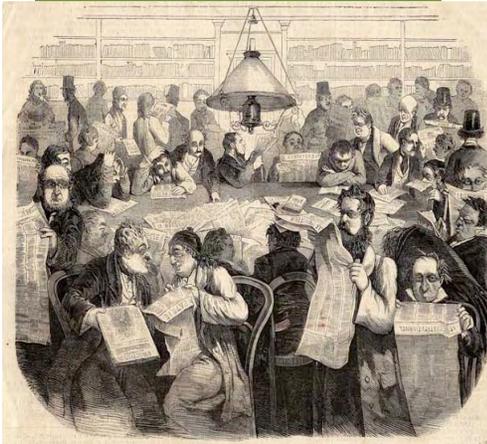
Specialization of
Commercial Roles





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





The Uses of History, 1: Looking Ahead



Every Age Gets the Future it Thinks It Wants



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

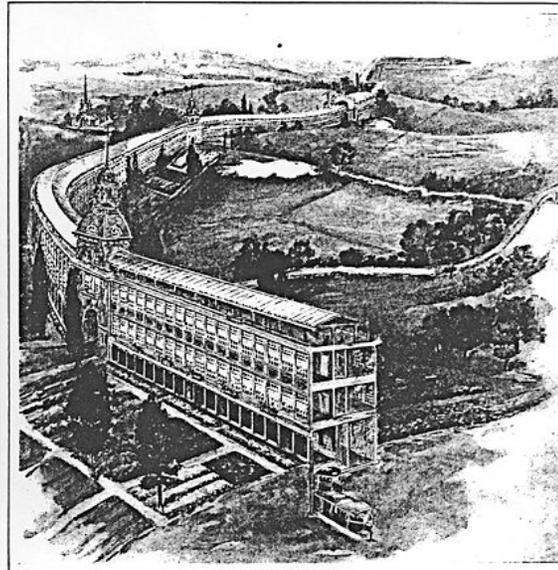




Technological Utopianism: 1880-1930



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



Edgar Chambless, "Roadtown," 1910

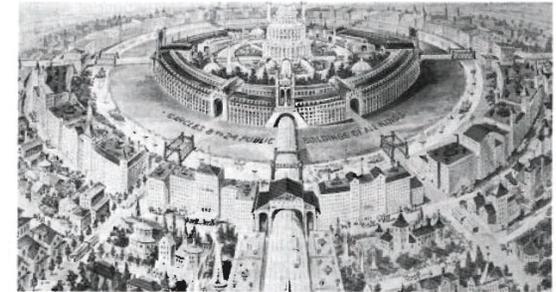


Figure 3
Sketch of the center of New Era Model city, from Charles Cary's *New Era* (1897). Cary depicts one of technological utopia's metropolitan centers, the equivalent of the modern megalopolis.

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



Every Age Gets the Future it Thinks It Needs

Popular Mechanics Magazine
REGISTERED IN U. S. PATENT OFFICE AND CANADA
 WRITTEN SO YOU CAN UNDERSTAND IT

Vol. 72 AUGUST, 1939 No. 2

The ELECTRIC HOME of the FUTURE

By George H. Bucher
President, Westinghouse Electric & Manufacturing Company

SPARKS leap from your fingertips when you walk across a carpeted floor. Lightning strikes from the sky. Water changes to steam and giant turbines whirl magnets within magnets to light the world and drive its machines.

Because man has tamed this invisible, omnipresent electric force and harnessed it to his tasks, today's civilization depends almost for its very existence upon its uninterrupted flow.

Electric power moves silently, ceaselessly, over thousands of miles of wires leading from more than 1,650 central power stations in the United States. It comes into our homes and factories and offices with such dependability that we take it for granted.

Bottom, cooking ham sandwich in high-frequency radio waves. This method may be common in the home of the future

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Westinghouse Electric Home of the Future, 1939

POPULAR MECHANICS 163

separate centers of electrification. Tomorrow's electric home will be built around the electric power supply and appliances. To achieve this ultimate in electrical living will require the resources of research, engineering and manufacturing knowledge and experience.

This future home will probably be equipped with a number of control centers, from any one of which the homemaker can give her commands to appliances at work in the kitchen and laundry. Electric ranges already are equipped with automatic controls for temperature and cooking time, but there is no practical reason why these operations together with the other appliances cannot be controlled remotely from any room in the house. Perhaps short-wave radio may be utilized for this purpose, as well as for answering the doorbell and receiving visitors by transmitting a

1. Refrigerator	9. Inover
2. Range	10. Dryer
3. Dishwasher	11. Sink, Waste Heater
4. Sink, Waste Heater	12. Wall Cabinet
5. Mirror, Light, Cabinets	13. Cabinet, Counter
6. Cabinet, Counter	14. Breakfast Nook
7. Wall Cabinet	15. Children's Play Room
8. Automatic Washer	16. Desk, Telephone, Radio
17. Portable Table	

Top, artist's rendition of the combination room in the electric home of tomorrow (see floor plan below and the various electric equipment engineers expect the room to contain). Note the glass brick wall



Libbey-Owens-Ford, 1943



Plastics!

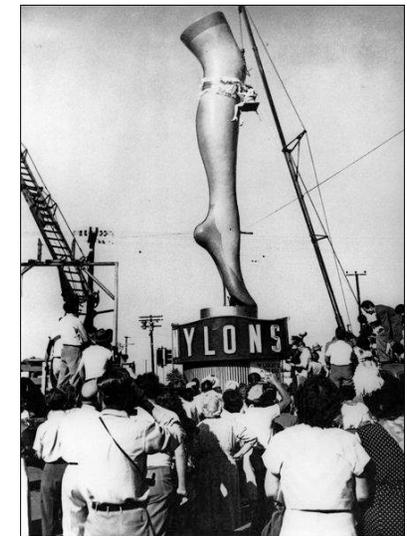


Figure 3
Industrial designer Carl W. Sundberg tantalized Americans with this vision of an all-plastic auto trailer/camper/motorboat shell. *Modern Plastics* 22 (May 1945), p. 106.

"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!



Two Ways of Getting the Future Wrong



Anticipating Social Change

What would be most surprising to the characters of "Father Knows Best" if they could see the world of 2010?



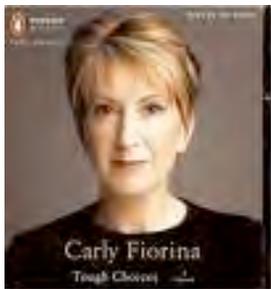
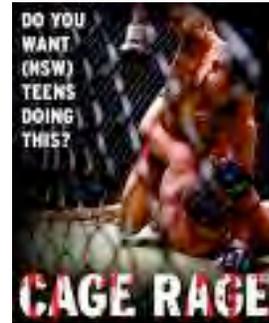


Anticipating Social Change





Anticipating Social Change





Anticipating Social Change

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

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

(PD, next time)



The Uses of History, 2: Looking Back

Every age writes the history it needs.

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

(PD, next time)



What could "history of information" mean?

Individuating the object of inquiry: "History of X"

X= "Belgium," "America,"
"English literature," "fashion,"
etc.

We see the past through the lens
of the present...





Assignment for 1/21

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

a bicycle

a necktie

a blanket

a piece of string

an electric transmission tower

a dishrack