print "revolution"

history of information

February 12, 2013
Feb 10, Happy New Year
(coming up: Time & Money, Feb 28)

R.I.P John Karlin, 1918-2013

Feb 12, 2013 in Congress?
overview

Johannes Gutenberg
138?-1468

theme:
talking about technology
Theuth
Moses
Lord Kulaba
Ts'ai Lun
Morse
Edison
Bell
Marconi
Bill Gates, Steve Jobs, Tim Berners-Lee, Mark Zuckerberg ...
overview

what gets overlooked?

assessing a revolution

talking about technology

print revolution

Monday, February 11, 2013
McLuhan (1911-1980)

The Gutenberg Galaxy:
the making of typographic man, 1962

"Printing ... created the public ... What we have called 'nations' ... did not and could not precede the advent of Gutenberg technology ... isolation of the visual faculty from other senses ..."

"uniformity ... individualism, nationalism ...

"of all [discoveries] recorded in civil history, is of the most important and extensive consequences"
end of an era

"We are witnessing simultaneously the end of ... the Mechanical, or Gutenberg Era, dominated by movable type and later mechanical forms, and the birth pangs of the new and entirely different Electric Age ... the Age of Circuitry or Information.

"Books and jobs--all are obsolete. Any phrasemaking yokel can become a world center."

McLuhan, *Life*, 1966
McLuhan is the message

"I ran across a copy of Marshall McLuhan's *The Gutenberg Galaxy* ... He pronounced ... the age of Gutenberg to be at an end ... stimulated my curiosity ... about the specific historical consequences of the fifteenth-century communications shift

"McLuhan raised a number of questions about the actual effects of the advent of printing ..."
agent of change

the three Rs

"The impact of printing, experienced first by literate groups in early modern Europe, changed the character of the Italian Renaissance and ought to be considered among the causes of both the Protestant Reformation and the rise of modern science."

--Eisenstein, "The Emergence of Print Culture in the West" 1980.
"revolution in political character ... the sun of science arose ... a well-regulated constitution ... "more than the conquerors and law-givers of antiquity ... "to the art of printing ... we owe the Reformation ..."

-- Knox, "On the moral, political and religious effects of printing," 1783
"democracy of learning ... liberty of the press ... common papers of intelligence ... challenge to despotism ... 

Reformation ... Enlightenment ... Science ... Natural Rights of Mankind ... revolution in political character ...

"Resistance was vain, and religion was reformed ...

[People] "with views to private emolument, ultimately contributed more to the empires, and caused more important events than all the efforts of the renowned conquerors and law-givers of antiquity."
"vanity ... misanthropy ... sceptic ...
voluptuary ... secrets of private life ...
scandal ... licentiousness [of the press] ...

"unrestrained use of the press ... may it never be taken from us by fraud or force!

"truth is great and will prevail."

---

4th Annual TV News Trust Poll

PPP’s annual poll on TV news finds that there’s only one source more Americans trust than distrust: PBS. 52% of voters say they trust PBS to only 29% who don’t trust it. The other seven outlets we polled on are all distrusted by a plurality of voters.

Just like its actual ratings, Fox News has hit a record low in the four years that we’ve been doing this poll. 41% of voters trust it to 46% who do not. To put those numbers into some perspective the first time we did this poll,
will truth prevail?

Twitter at a crossroads: Economic value vs. information value

by Mathew Ingram  JUL. 31, 2012 - 10:46 AM PST

SUMMARY: As Twitter tries to evolve from being a real-time information network into a multibillion-dollar commercial media entity, it is having to face the inherent conflict between those two goals, and many critics see the suspension of journalist Gary Adams’ account as a symptom of that conflict.

AP Photo/Marcio Jose Sanchez)

The Federal Trade Commission’s premature decision to close down its investigation of Google is a blow not just to antitrust efforts, but also to the broader public interest.
"central role of printing, a relatively new technology at the time [1517] ... not the printing press itself .. social networks

"indulgences ... need for broad reform ...
Latin ... German ... Saxony ... Tyrol ...

"pamphlets ...

"signalling."

"How Luther Went Viral"
unchanging change?

But history teaches us that there is nothing new under the sun. Robert Darnton, an historian at Harvard University, who has studied information-sharing networks in pre-revolutionary France, argues that “the marvels of communication technology in the present have produced a false consciousness about the past—even a sense that communication has no history, or had nothing of importance to consider before the days of television and the internet.” Social media are not unprecedented: rather, they are the continuation of a long tradition. Modern digital networks may be able to do it more quickly, but even 500 years ago the sharing of media could play a supporting role in precipitating a revolution. Today's social-media systems do not just connect us to each other: they also link us to the past.
taking sides

Knox is ...

closer to Socrates & Trithmius: 26%

closer to the *Economist*: 68%

neither one nor the other: 6%
taking sides

Knox is ...

closer to Socrates & Trithmius: 26%
eg, Mondee Lu, Rebecca Neumann, Keien Ohta

closer to the Economist: 68%
eg, Kathryn Bender, Forrest Riege

neither one nor the other: 6%
eg, Kenneth Patterson
Kenneth Patterson: Therefore, I believe it’s more constructive to recognize the significance of each advancement toward the greater goal of gathering more information rather than claiming whose technological invention restarts the calendar to year I.
Mondee Lu: Knox advocates for the need to develop a discriminating attitude toward printed material in order to combat the evils disseminated by printing, and to guard against the inaccuracies found in vernacular translations, drawing a sharp distinction with the *Economist’s* more populist stance toward social change and literary diffusion.
closer to Socrates

Rebecca Neumann: Knox, Trithemus, and Socrates all acknowledge to some extent that the technology of writing or printing can be used for either good or bad, they are still making value judgments and thinking prescriptively about its future effects on society. The author of the Economist article, however, is making a fundamentally different argument. He/She argues instead that online social media such as that used in the Arab Spring revolutions are not new technologies, but rather the “continuation of a long tradition” that traces back at least as far as the Reformation—noting historical parallels instead of making future predictions, and discusses the mechanisms of how information spreads in these networks without judging whether or not what they spread is good for society.
Keien Ohta: The disagreement between these authors is indicative of their points of view being restricted to their specific technology. What they do have in common, though, is favoritism toward their familiar technology and apprehension amidst respect toward new technology because of its supposed revolutionary effects on society. In this, the Economist article sets itself apart by observing that "modern society tends to regard itself as somehow better than previous ones, and technological advance reinforces that sense of superiority...but...history teaches us that there is nothing new under the sun."
Kathryn Bender: The hashtag may be a foreign object to Knox, but a revolution grown out of media sharing through social networks? Nothing new.

Forrest Riege: Like The Economist ... Knox tries to toe the line between acknowledging the potential power of technology, good and bad, and recognizing that innovation has precedent.
overview

what gets overlooked?

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print revolution

Monday, February 11, 2013
overview

what gets overlooked?

assessing a revolution

what happened?
who was involved?
what came before?
what came after?
what happened elsewhere?
what was necessary, what sufficient, what incidental?

talking about technology

print revolution
how determined?

necessary vs sufficient

Renaissance, Reformation, Scientific Revolution

- the press inevitably produces R, R, & SR?

- couldn't have R, R, & SR without the press?
what happened
who was involved?

**Gutenberg:** metalworker from Mainz

1438: exile, Strasbourg
   partners: Riffe, Dritzehn, Helman

1438, December: Dritzehn dies
   "4 pieces to be destroyed"; carpentry work

1439: Aachen mishap; Dritzehn's heirs sue

1450: back in Mainz
   creditor Johannes Fust
   employee Peter Schöffer
   ally Cardinal Nicholas of Cusa
complete works?

1454: Cyprus Indulgence

1455: 42-line bible
the Cardinal's connections?

1455: Fust sues, wins
new partnership of
Fust & Schöffer

1457: Mainz psalter
lookalikes?
what went viral?

1454: Cyprus Indulgence

1455: 42-line bible

1457: Mainz psalter

"200,000 indulgences printed between 1498 and 1500 at the behest of the Benedictines of Monserrat in Catalonia."

--Ann Blair, *Too Much to Know*, 2010
spread of print

1455: Mainz
1465: Subiaco, Italy
1476: London
1480: Budapest, Krakow, Prague, Brussels

http://atlas.lib.uiowa.edu/index.html
spread of print

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http://atlas.lib.uiowa.edu/index.html
spread of print

1455: Mainz
1465: Subiaco, Italy
1470: Paris, Cologne, Strasbourg, Basel,

http://atlas.lib.uiowa.edu/index.html
print technology

c. 1460: Roman type

c. 1500: italic type, Aldus Manutius, Venice

1539: first press in the Americas

c. 1720 - 1780: invention of stereotype

1814: steam press

1847: rotary press

1886: Mergenthaler Linotype

1887: Monotype

1892: process color printing

1902: offset lithography (and ?)
overview

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text

print revolution

Monday, February 11, 2013
scientific revolution

a question of timing?

Gutenberg, d. 1468
Copernicus, 1473-1543
Tycho Brahe, 1546-1601
Bacon, 1561-1626
Galileo, 1564-1642
Descartes, 1596-1650
Newton, 1642-1727
Royal Society, 1660
whose revolution?

Fig. 1. Comparison of diagrams of Regiomontanus and Qūshjī. (Left) J. Regiomontanus and G. Peurbach, Epytoma Joannis de monte regio In almagestum ptolemaei (Venice, 1496), n4r, and (right) ʿAli Qūshjī, Fi anna aşl al-khārīj..., Carullah MS 2060, f. 137a. Reproductions courtesy of the History of Science Collections, University of Oklahoma Libraries, and of the Süleymaniye Library, Istanbul, respectively.
"possibility that ... Arabic manuscripts inspired similar features ... in 13th century Europe" --Ann Blair, *Too Much to Know*, 2010

**what came before**

**manuscript scholarly apparatus**

gloss
running heads
subdivisions: books, chapters
analytical tables of contents
chapter headings
cross references
alphabetical order
page numbers
indexes
thanks to print

"only a few features of the early printed book were innovations: the title page .... new methods for signaling section breaks"

-- Ann Blair, *Too Much to Know* 2010
numbering

"From about 1300 very many scribes, librarians, and book owners provided their volumes with leaf numbering."

--Margaret Smith,
"Printed Foliation" 1988
"of 4194 incunables ... only 10.3 percent use printed foliation, none use page numbers ..."

--Margaret Smith, "Printed Foliation"

Missale "Constantiense"
"After examining about 80,000 Dutch books from the 16th and 17th century I think that printers did not care for page numbers ... 60–70% contain mistakes in the page numbers"

[some printed books with 50% of the page numbers wrong]

--Piet Verkruijsse,

"Wacht u voor de bladwachter!"
why page numbers?
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what happened elsewhere?
printing in china

lithography: printing from stone

**c. 200 BCE**: the use of seals
*yin* = seal and print

**175 CE**: printing of Confucian classics from stone carvings

**868**: earliest surviving Chinese printing

xylography: wood carving
10th century?
playing cards, printed textiles, paper money

1041: Pi Sheng clay moveable type
"in the Northern Song in the eleventh century ... there were some thirty printing centers ... and some two hundred in the Southern Song (twelfth century)"

--Lucille Chia

Printing for Profit 2002
Empress Shotoku, and her charms

770: xylographic printing (? 1,000,000 copies)

Japanese "printing was for many centuries a Buddhist monopoly ... religious texts formed the bulk of material ... before 1600 ... only the monasteries ... could afford the costs of book production."

--Kojiro Ikegami,

*Japanese Bookbinding*, 1986
8th century: xylography

918-1392: Koryo Dynasty
three methods of publishing:

transcription: Royal library

xylography: Buddhist temples

typography: civil service

1087: Tripitaka Koreana (xylography)
80,000 wood blocks, 77 years to complete
destroyed 1232 and recarved
Korean printing

1241: Yi Munsun Chip (metal moveable type)

1377: Jikji (earliest book with metal type)

1392: Kyosugam (dept. of publishing)

1403: Jujaso (type foundry)

1446: Hangul alphabet and typography
enigmatic hints

"The first attempts at Hebrew printing may well have been made at Avignon, where on 10 March 1446 a certain Procope undertook to make for a former associate 27 square Hebrew letters engraved on iron."

-- Colette Sirat, Hebrew Manuscripts of the Middle Ages, 2002
"[Theodore] De Vinne, in his book [The Invention of Printing, 1878] writes, 'The inventor of printing did not invent paper .. did not originate engraving on wood. He was not the first to print upon paper, he was not the first to make printed books, it is not certain that he made the first press, it is not probable that he was the first to think of or make movable type. What he did was to invent the type mold'

"... it was the type mold that the Koreans developed."

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see also

Paul Needham and Blaise Aguera y Arcas, "What did Gutenberg Invent?"
c. 1290:

"HOW THE GREAT KAAN CAUSETH THE BARK OF TREES, MADE INTO SOMETHING LIKE PAPER, TO PASS FOR MONEY OVER ALL HIS COUNTRY "All the grand Kaan's subjects receive this paper money without hesitation because wherever their business may call them, they can dispose of it again in the purchase of merchandise they have occasion for."

--Marco Polo
world of print

printing

China, 7th century
Korea, 8th century
Japan, 8th century
W. Europe, 15th century
Jews, 15th century
India, 18th century
Islam, 19th century
world of books

parchment to paper
- China, 200 BCE
- Korea, 3rd century
- India, 5th century
- Japan, early 7th century
- Islam, 8th century
- Jews, 10th century
- Byzantium, 9th century
- Western Europe, 11th century

scroll to codex
- Christians, 2nd century
- Islam, 8-9th century
- Jews, 8-9th century
- China, 9th (butterfly)
- 13th (thread binding)
- Korea, ?12th century (sutra binding)
- Japan 18th century

printing
- China, 7th century
- Korea, 8th century
- Japan, 8th century
- W. Europe, 15th century
- Jews, 15th century
- India, 18th century
- Islam, 19th century
chicken and egg

"Indians had created a highly effective information order in which strategically placed written media reinforced a powerful culture of oral communication; printing .. not needed until society itself began to change more radically"

--Christopher Bayly

*Empire and Information 1780–1870*, 1998
"[E]ither the Germanes borrowed this Invention from the Chineses, or at leastwise the Chineses had the practise & vse of it long before them."

--George Hakewill, *An Apology of the Power*, 1627

"Whether the Germans first borrowed this Invention from the Chineses, or whether amongst the Germans (who undoubtedly lay best claim to it) Iohn Gutenberg the Knight of Mentz, or Iohn Fust a Moguntine, was the first Inventor thereof, it matters not."

--Robert Heath, *Paradoxical Assertions*, 1659
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reliability and authority

"Book-sellers follow their owne judgment in printing the antient Authors according to such Text as they found extant ... Errors repeate & multiply in every Edition". -- John Evelyn, 1666

"every lover of accurate editions looks back with regret on those times when an Erasmus corrected what an Aldus printed [earlier editions] surpass the more splendid editions of later times in the one great excellence of correctness" -- Knox
market temptations

piracy

the success of print leading to claims of "ownership" and of "piracy"

"Luther's German translation of scripture was actually beaten into print by its first piracy"


questions of what or whom to rely on
control & censorship

1487: Court of Star Chamber
1557: Stationer's Company
1710: Statute of Anne
18c: Stamp Acts
1798: Alien and Sedition Acts
pseudo-science

chapbooks and almanacs

"for three-and-a-half centuries, the Almanack has been the most popular book in the English language" [1492-1600, probably 600 published]


By 1700 "printers were producing between 350,000 and 400,000 copies in the last two months of every year."

Louise Curth, "Medical Contents of English Almanacs, 1640-1700" 2005
14 Feb: Scientific ‘Revolution’

Required Reading


Sprat divides his history into three parts. The first gives the background of the group which formed the Royal Society. The second describes what they did that earned them the title “Royal Society” (in 1662). And the third describes what they did between 1662 and the publication of Sprat’s book in 1667. You are asked to read from the second part, so

Start at page 60—page numbers are given in bold within square brackets, so scroll down until you see [60] then look for the paragraph that begins, “I come now to the Second Period of my Narration…” and read to p. 79, “The Royal Society will become Immortal.”

Note: The Royal Society was founded in England in 1660. It still exists today. 2010 was its 350th anniversary—and claims to be the world’s oldest scientific society. Thomas Sprat (1635-1713), the author of the work you have to read, was a student of one of the founders. He joined the Society in 1663 and was asked to write the Society’s history. In this book, then, we have a contemporary, insider’s account of the founding of a very influential society, one that people argue was at the center of the “scientific revolution.” Because it was written in the seventeenth century, however, the text is a challenge. But it is manageable and even rewarding with patience. Take it slowly—the section you have to read, pages 60-79, is not very long. If you keep going, what is at first confusing may become clear (or irrelevant). Mark up passages that don’t make sense (as well as those that interest you) to discuss in class, but keep on reading. As you read, ask yourself how much this does or does not resemble what we think of as modern science.

If you go to Early English Books Online, you will be able to see the pages as they appeared in the original book.