

# HISTORY OF INFORMATION: PRINT AND PRINT CULTURE

Lecture 3 – Megan Finn – July 10, 2009

# Agenda



- A little from last time
- Assessing the print revolution in Europe
  - ▣ Before
  - ▣ During (quiz)
  - ▣ After
- Non-European cases

# LAST TIME

- Early “writing”
- Pictographic writing
- Logographic writing
  - ▣ Examples: Math, Chinese
  - ▣ Advantage: you don’t have to know how to say something to read it
- Alphabetic writing
  - ▣ Examples: English, Hangul
  - ▣ Greeks invented consonants and vowels
  - ▣ Beware of Alphabetolatry



# The literacy myth?



- Does widespread literacy “require” the alphabet?
- the societal consequences attributed to literacy
- economic, political, and religious institutions who have always exercised greatest influence on the actual uses of reading and writing



# Orality overthrown?



- **“Then, about 500 years ago, orality was overthrown by technology.** Gutenberg’s invention of metallic movable type elevated writing into a central position in the culture. By the means of cheap and perfect copies, text became the engine of change and the foundation of stability. From printing came journalism, science and the mathematics of libraries and law.”
- Kevin Kelly, “Becoming Screen Literate”, New York Times, November 21, 2008

# The third revolution



- There have been three revolutions in the history of human thought. The first ... when language first emerged. ... The second cognitive revolution was the advent of writing ... The third ... the invention of a type and the printing press. ... the fourth cognitive revolution, which is just about to take place with the advent of "electronic skywriting".
- Steven Harnad, "Post-Gutenberg Galaxy: The Fourth Revolution in the Means of Production of Knowledge", 1991



# Between writing and printing?

What was going on at the time of Gutenberg's invention?

Last time:



# Information in Medieval Europe



- Technologies

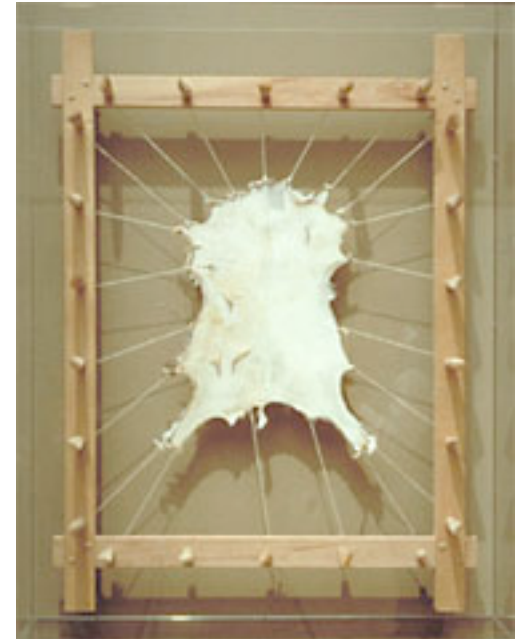
- Form: scroll versus codex
- Material

- Institutions

- Church
- bureaucracies

# Material: Papyrus, parchment, paper

- parchment over papyrus?
- paper invented in 200 bc?
- diffusion:
  - ▣ 105 ad, China
  - ▣ 300 ad, Korea (Koguryo dynasty)
  - ▣ 5th century, 'domestic' uses,
  - ▣ India 610,
  - ▣ Japan 750,
  - ▣ 795, Baghdad
  - ▣ 9th century, Byzantium





# Technology: Features of the scroll

- **handy**
- **Pages**
- **random access**
- **doesn't crack**



# Technology: Features of the scroll

□ handy

□ Pages

□ rando

□ doesn'

ern Europe By Elizabeth L. Eisenstein

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[Link](#)

<sup>2</sup> Lucien Febvre and H.-J. Martin, *The Coming of the Book – L'Apparition du Livre*, tr. David Gerard (London, 1976).

<sup>3</sup> S. H. Steinberg, *Five Hundred Years of Printing*, rev. ed. (Bristol, 1961), 11.

<sup>4</sup> Rudolf Hirsch, *Printing, Selling and Reading 1450–1550*, rev. ed. (Wiesbaden, 1974), 2.

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## AN UNACKNOWLEDGED REVOLUTION

5

The effects produced by printing have aroused little controversy, not because views on the topic coincide, but because almost none has been set forth in an explicit and systematic form. Indeed, those who seem to agree that momentous changes were entailed always seem to





# Technology: The codex takes over



- "The roll continued to serve for ... writing of the sort that goes into files or archives, but the codex took over in literature, scientific studies, technical manuals ... the sort that go onto library shelves".
  - ▣ Casson, *Libraries in the Ancient World*, 2000
- "the revolution between the second and fourth centuries that changed the very structure of the book by substituting the codex for the roll"
  - ▣ Roger Chartier, *Forms and Meaning* 1995

# Technology: affordances of the codex



- In Western Europe in 200 ad, codex gaining, scroll losing 500 ad, codex dominating
- **why? Codex gives...**
  - ▣ random access
  - ▣ one handed
  - ▣ two-sided
  - ▣ pagination
  - ▣ marginalia
  - ▣ footnotes
  - ▣ indexes

# Technical superiority?





# Institution: The church



SCRIPTORIUM MONK AT WORK. (From *Lacroix*.)





# Technology: the codex

- "The late medieval book differs more from its early medieval predecessors than it does from the printed book."
  - ▣ Parkes, "Influence" 1976
- "The expectation of readers was changed, and this was reflected in changes in the physical appearance of books."
  - ▣ Parkes, *ibid*



# Technology: the codex

## □ Innovation in changing codex:

- running titles
- subdivisions: books, chapters
- analytical tables of contents
- chapter headings
- cross references
- alphabetical order
- page numbers, indexes



# Institution: the bureaucratic state



- In England “lay literacy grew out of bureaucracy, rather than from any abstract desire for education or literature...”
  - ▣ Clanchy, *From Memory to Written Record*, 1993, p19

# Preparing the ground....



- Innovations:

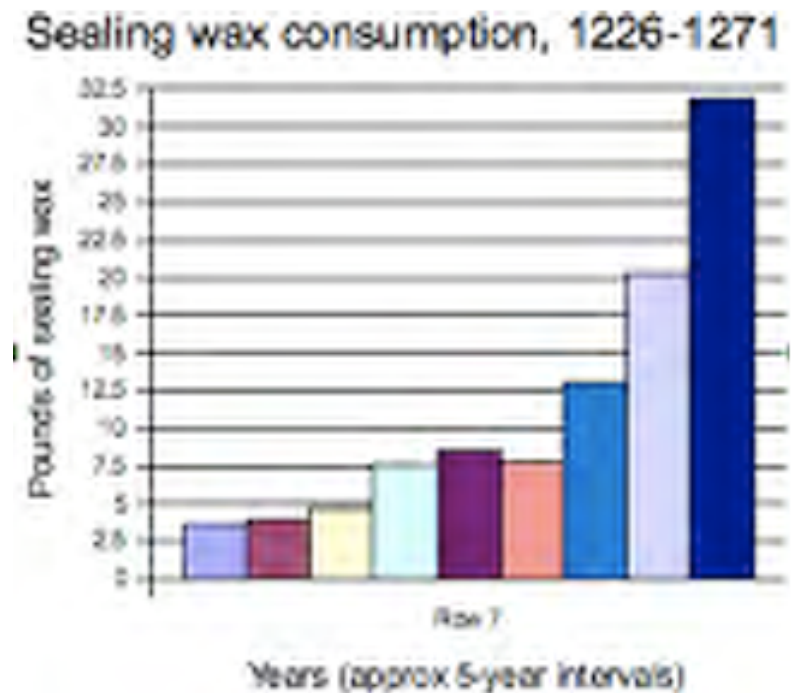
- Domesday
- dates
- names
- spelling
- written evidence
- authenticity
- Centralization

- Unintended consequences?



# Institution: the bureaucratic state

- In England “lay literacy grew out of bureaucracy, rather than from any abstract desire for education or literature...”
- ▣ Clanchy, *From Memory to Written Record*, 1993, p19





# The printing revolution?

- Assessing a revolution:

- What happened?

- Gutenberg
- Eisenstein

- What came before?

- Manuscript culture
- Non-European contexts

- What came after?

# Empowering ordinary people?



- “the net.... This is the most extraordinary invention for empowering ordinary people since the invention of the printing press in the 1400s. It really is. It has re-democratized America. There is an enormous shift in power. I thought the YouTube/CNN debate was sensational.”
- Howard Dean, Yearly Kos. Chicago, Aug 4, 2007; <http://howardempowered.blogspot.com>

# Individual empowerment



- “Not since Gutenberg invented the modern printing press more than 500 years ago, making books and scientific tomes affordable and widely available to the masses, **has any new invention empowered individuals**, and transformed access to information, as profoundly as Google.”
- From: Vise, David A. (2005) The Google Story. Macmillan: London



# Gutenberg

Who is this guy?

What did he do?

# Gutenberg's life



[http://  
commons.wikime  
dia.org/wiki/  
File:Gutenberg.j  
pg](http://commons.wikimedia.org/wiki/File:Gutenberg.jpg)

## Gutenberg's bio:

- “His story is shrouded in mystery”
  - ▣ -Stephen Fry
- What documentation existed about him?
  - ▣ Court records

# What we know from records



Src:

Henri-Jean Martin and Lydia G. Cochrane, The history and power of writing (University of Chicago Press, 1995).

Lucien Paul Victor Febvre, Henri-Jean Martin, and David Gerard, The coming of the book (Verso, 1997).

Gutenberg digital: <http://www.gutenbergadigital.de>

British Library Online: <http://www.bl.uk/treasures/gutenberg/>

Paul Duguid, lecture, "print culture", February 10, 2009

## Gutenberg's bio:

- 1394-1404 – Born in Mainz as Johannes Gensfleisch(?) In Mainz
- 1418/9 - Johannes de Alta villa enrolls at University of Erfurt
- 1420 – father dies
- 1428??? Gutenberg exiled from Mainz
- 1430 – Gutenberg is allowed to return to Mainz, but does not.
- 1434 – Gutenberg shows up in Strasbourg
- In 1436-7, Ennelin zu der yserin Thüre claims Gutenberg promised to marry her
- 1436 – pays Hanns Dunne for “things to do with printing”
- 1438 – Drizhen dies, conflict over inheritance.

### Gutenberg's bio:

- ❑ 1442 – incurred more debt in Strasbourg
- ❑ [Waldfoghel and Ferrose]
- ❑ 1448 – Back in Mainz – borrows money from Gelthus







John Fust.  
[From Maittaire.]

### Gutenberg's bio:

- 1450 – Fust lends Gutenberg money



Letterae  
indulgentiarum, 1455

## Gutenberg's bio:

- 145x – Donatus' Latin Grammar
- 1452? – indulgences printed



**U**nterschiedt sich die Welt in der Natur von der Welt in der Kunst. In der Natur ist die Welt eine Einheit, in der Kunst ist die Welt eine Vielheit. In der Natur ist die Welt eine Einheit, in der Kunst ist die Welt eine Vielheit. In der Natur ist die Welt eine Einheit, in der Kunst ist die Welt eine Vielheit.

[illegible][illegible]

# Why Catholic Indulgences Are Making a Comeback

By BONNIE ROCHMAN Sunday, Feb. 22, 2009



Alinari's *Meeting Between Dante and Beatrice in Purgatory*. Through the Catholic doctrine of indulgence, believers can minimize their time spent in purgatory

Alinari Archives / Corbis



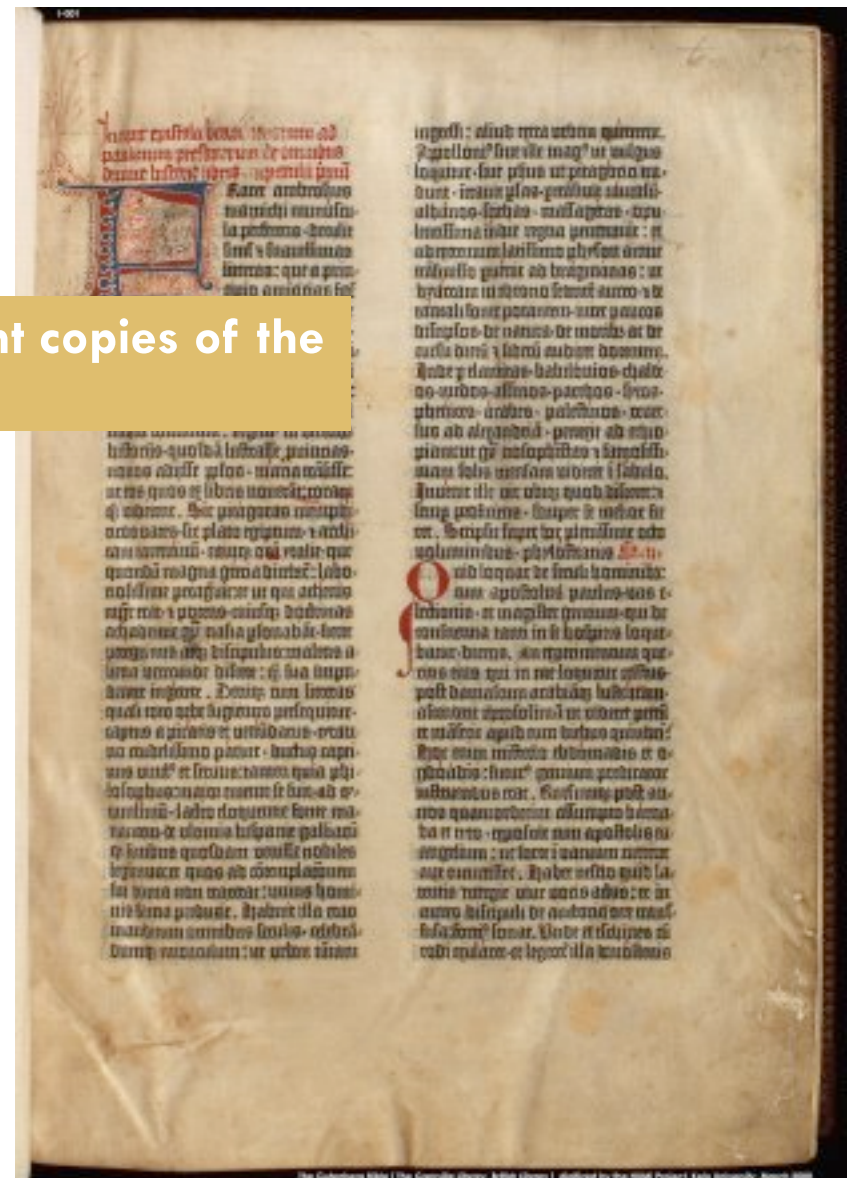
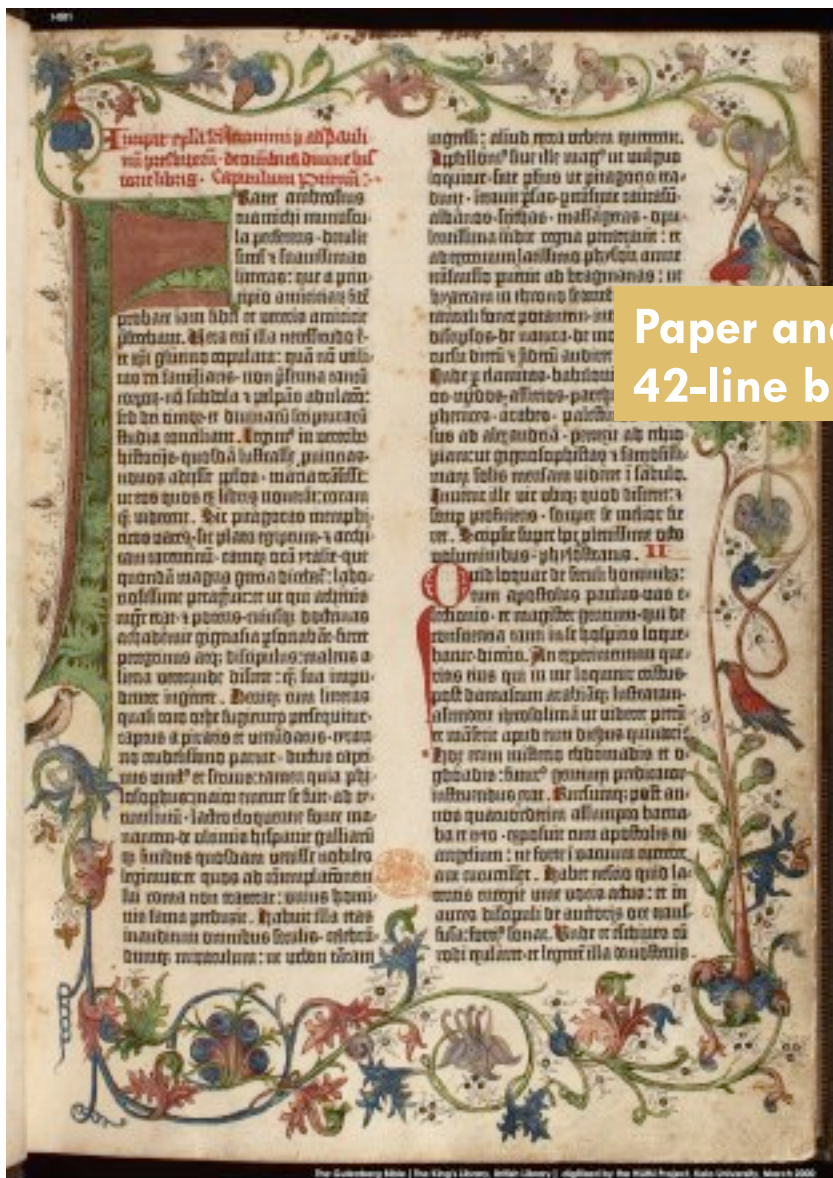


## Gutenberg's bio:

- 1455 – 42-line bible is printed

Image source: <http://molcat1.bl.uk/treasures/gutenberg/search.asp>

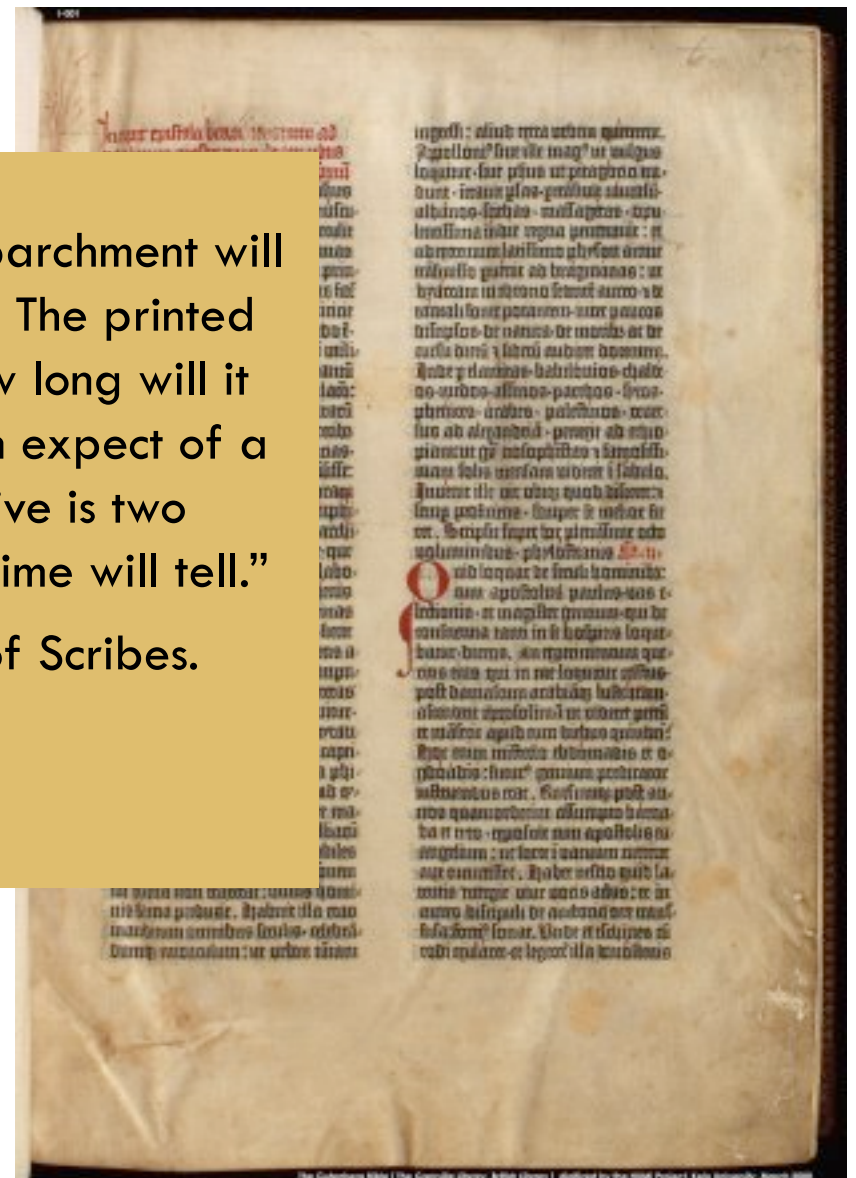
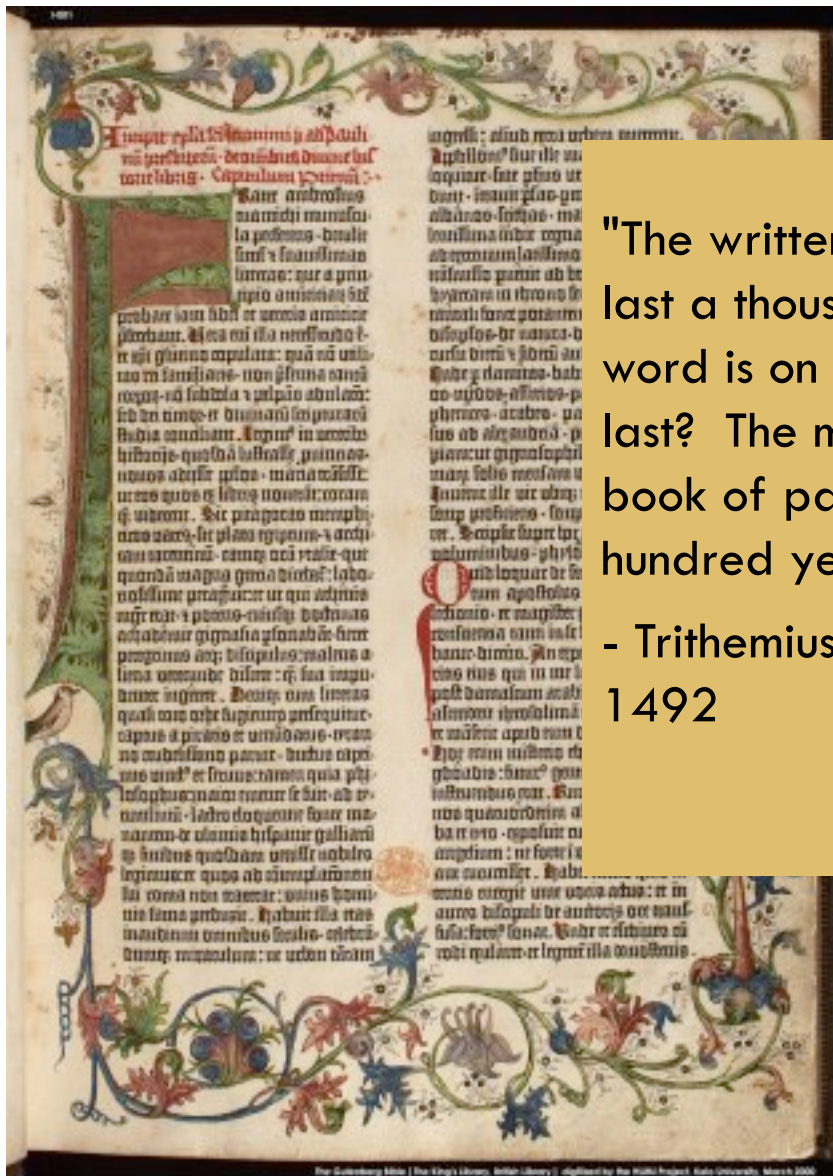




## Paper and parchment copies of the 42-line bible

Image source: <http://molcat1.bl.uk/treasures/gutenberg/search.asp>



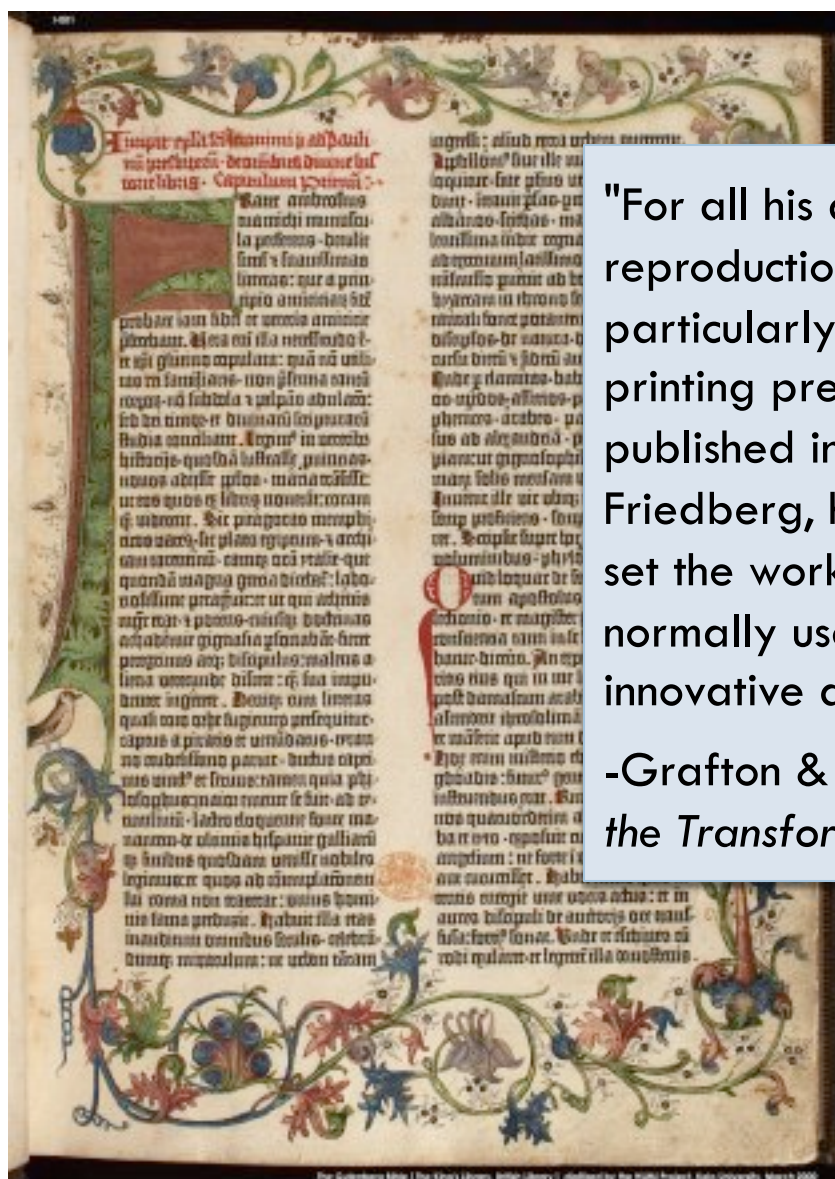


"The written word on parchment will last a thousand years. The printed word is on paper. How long will it last? The most you can expect of a book of paper to survive is two hundred years. Only time will tell."

- Trithemius, In Praise of Scribes. 1492

Image source: <http://molcat1.bl.uk/treasures/gutenberg/search.asp>





"For all his dislike of mechanical reproduction, 'Trithemius] proved particularly deft at exploiting the printing press. ... He had his book... published in Mainz by Peter von Friedberg, his favourite printer, and ... set the work not in Gothic type normally used in Germany, but in an innovative and attractive Roman font".  
-Grafton & Williams, *Christianity and the Transformation of the Book*, 2006.

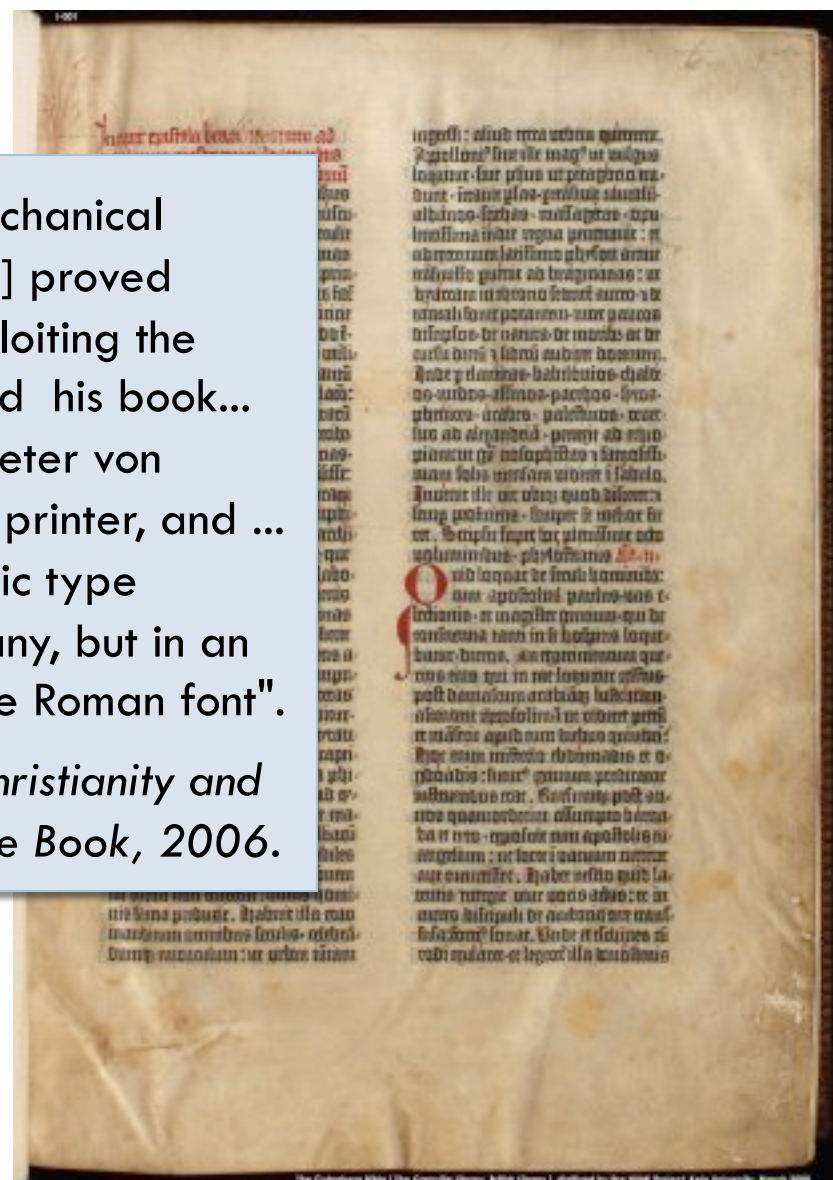


Image source: <http://molcat1.bl.uk/treasures/gutenberg/search.asp>



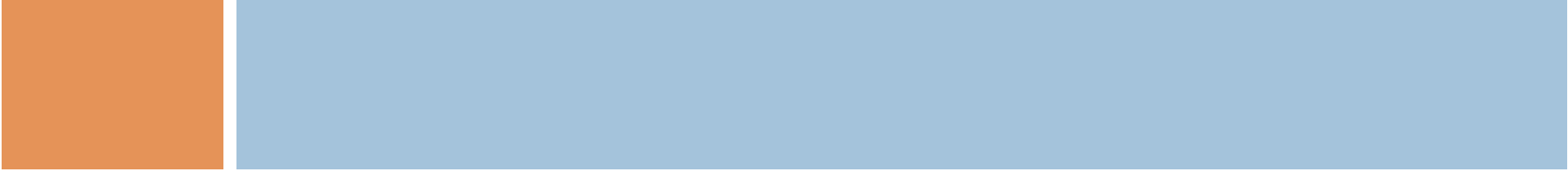
Country	Holding institution	Hubay-nr	Notes
Austria (1)	<a href="#">Österreichische Nationalbibliothek</a> , Vienna	27	Complete, paper
Belgium (1)	Bibliothèque universitaire, Mons	1	Incomplete, paper
Denmark (1)	<a href="#">Kongelige Bibliotek</a> , Copenhagen	12	Vol. II, incomplete, paper
		15	Complete, vellum
France (4)	<a href="#">Bibliothèque nationale</a> , Paris	17	Incomplete, paper. Contains note by binder dating it to August 1456
	<a href="#">Bibliothèque Mazarine</a> , Paris	16	Complete, paper
	Bibliothèque Municipale, Saint-Omer	18	Incomplete, paper
	<a href="#">Gutenberg Museum</a> , Mainz	8	One copy is vol. I, incomplete, paper; the other both vols., incomplete, paper. It is unclear which is which.
		9	
	Landesbibliothek, Fulda	4	Vol. I, incomplete, vellum
	Universitätsbibliothek, Leipzig	14	Incomplete, vellum
	<a href="#">Niedersächsische Staats-und Universitätsbibliothek</a> , Göttingen	2	Complete, vellum
	<a href="#">Staatsbibliothek</a> , Berlin	3	Incomplete, vellum
Germany (12)	<a href="#">Bayerische Staatsbibliothek</a> , Munich	5	Complete, paper
	Stadt- und Universitätsbibliothek, Frankfurt-am-Main	6	Complete, paper
	Hofbibliothek, Aschaffenburg	7	Incomplete, paper
	<a href="#">Württembergische Landesbibliothek</a> , Stuttgart	10	Incomplete, paper. Purchased in April 1978 for 2.2 million US dollars.
			Vol. I?, incomplete, paper. Possibly sister volume to Hubay 46, in Indiana
	Stadtbibliothek, Trier	11	
	Landesbibliothek, Kassel	12	Vol. I, incomplete, paper
			Vol. I, incomplete, paper. Purchased in October 1987 for either 4.9 or 5.4 million US dollars (sources disagree)
Japan (1)	<a href="#">Keio University Library</a> , Tokyo	45	
Poland (1)	Biblioteka Seminarium Duchownego, <a href="#">Pelpin</a>	28	incomplete, paper
Portugal (1)	Portuguese National Library, Lisbon	29	Complete, paper
Russia (2)	Russian National Library	-	Incomplete, vellum
	Lomonosov University Library, <a href="#">Moscow</a>	-	Complete, paper
Spain (2)	Biblioteca Universitaria y Provincial, Seville	32	Vol. II, incomplete, paper

Spain (2)	Seville	32	Vol. II, incomplete, paper
	Biblioteca Pública Provincial, Burgos	31	Complete, paper
Switzerland (1)	<a href="#">Bibliotheca Bodmeriana</a> , Cologny	30	Incomplete, paper
	<a href="#">British Library</a> , London	?	Complete, vellum
		?	Complete, paper
	<a href="#">National Library of Scotland</a> , Edinburgh	26	Complete, paper
United Kingdom (8)	<a href="#">Lambeth Palace Library</a> , London	20	New Testament only, vellum
	<a href="#">Eton College Library</a> , Eton	23	Complete, paper
	<a href="#">John Rylands Library</a> , Manchester	25	Complete, paper
	<a href="#">Bodleian Library</a> , Oxford	24	Complete, paper
	<a href="#">University Library</a> , Cambridge	22	Complete, paper
		37	Incomplete, vellum
	<a href="#">The Morgan Library &amp; Museum</a> , New York	38	Complete, paper
		44	Incomplete, paper
	<a href="#">Library of Congress</a> , Washington DC	35	Complete, vellum
	<a href="#">New York Public Library</a>	42	Incomplete, paper
United States (11)	<a href="#">Widener Library</a> , Harvard University	40	Complete, paper
	<a href="#">Beinecke Library</a> , Yale University	41	Complete, paper
	Scheide Library, <a href="#">Princeton University</a>	43	Incomplete, paper
	<a href="#">Lilly Library</a> , Indiana University		Incomplete, paper. Possibly sister volume to Hubay 11, in Trier
	<a href="#">Henry E. Huntington Library</a> , San Marino	36	Incomplete, vellum
	<a href="#">University of Texas at Austin</a>	39	Complete, paper. Purchased in 1978 for 2.4 million US dollars.
Vatican City (2)	<a href="#">Bibliotheca Apostolica Vaticana</a>	33	Incomplete, vellum
		34	Vol I, incomplete, paper









Printing spreads



# THE ATLAS *of* EARLY PRINTING

[about the atlas](#)   [fifteenth century printing](#)   [the fifteenth century book](#)   [sources](#)   [links](#)



Select a layer to display  
on the map

☒ Spread of Printing

☒ Universities

☒ Show Pre-1450 Locations

☒ Paper Mills

☒ Show Pre-1450 Locations

☐ Fairs

☐ Fairs possible in 1450-1500

☐ Conflicts

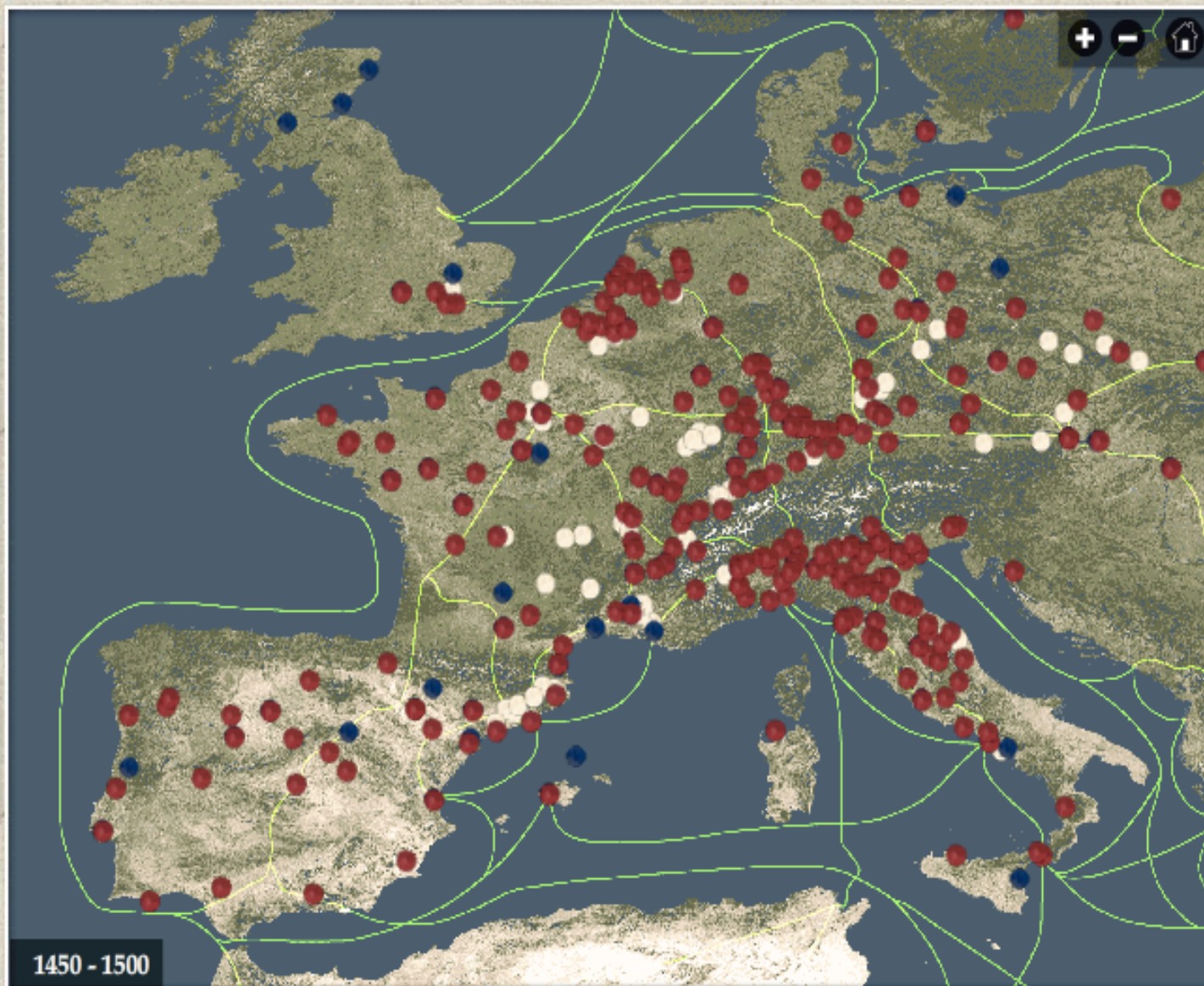
☐ Trade Routes

☐ View Modern Cities

☐ View Modern Borders

Using the Atlas

1450 - 1500





# So what was Gutenberg's invention?

- Movable metal type: the punch and the matrix
- But wait: Blaise Aguera y Arcas and Paul Needham call this into question

Source: [http://www.open2.net/historyandthearts/discover\\_science/gutenberg\\_conclusions.html](http://www.open2.net/historyandthearts/discover_science/gutenberg_conclusions.html)







John Fust.  
[From Maittaire.]











# The notary

“Ulrich Helmasperger, cleric of the diocese of Bamberg, notary public and lay judge of the holy seat at Mainz by imperial authority...

**marking it with his usual sign.”**

□ Src: <http://www.gutenbergdigital.de>

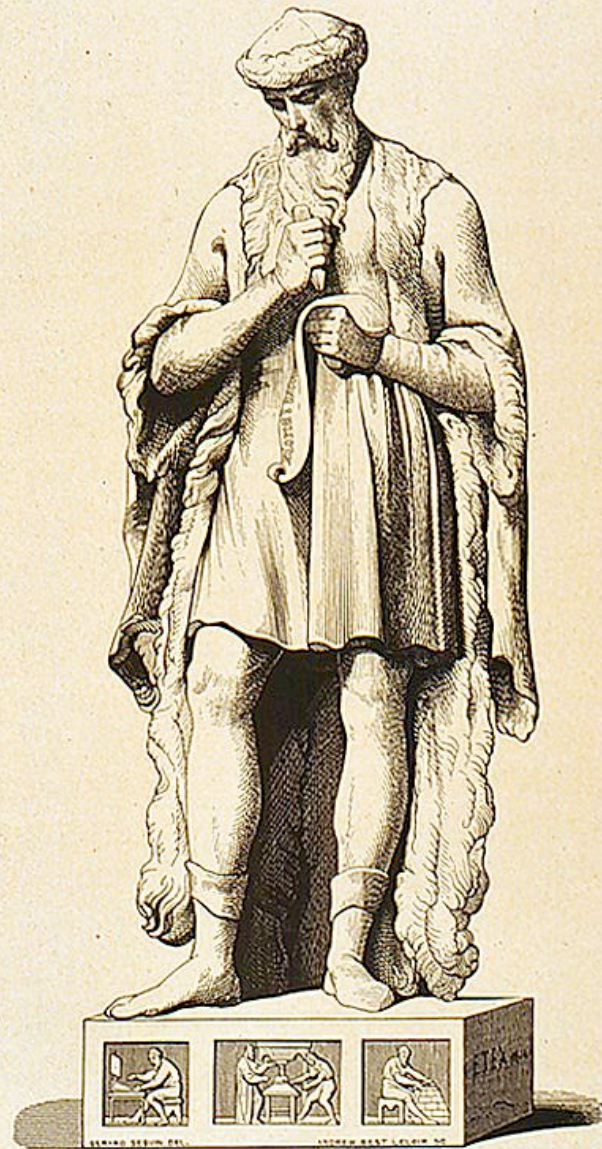


## Gutenberg's bio:

- 1457 – Mainz Psalter printed by the capable technician Schoeffer
- 1465 – Gutenberg is made a nobleman
- 1468 – Gutenberg dies

Image source: <http://www.royalcollection.org.uk/egallery/object.asp?object=1071478&row=0&detail=magnify>





## PROJET DE STATUE

A ÉRIGER DANS LA COUR PRINCIPALE DE LA BIBLIOTHÈQUE ROYALE

A L'INVENTEUR DE L'IMPRIMERIE

# ...not since Gutenberg



- "...the biggest technological revolution journalism has seen in years, "probably not since Gutenberg," in the words of Orville Schell, dean of the Graduate School of Journalism at UC Berkeley."
- Matthew B. Stannard, San Francisco Chronicle, April 9, 2006





Source:  
[http://  
commons.wiki  
media.org/  
wiki/  
File:DBPB\\_19  
61\\_201\\_Joh  
annes\\_Guten  
berg.jpg](http://commons.wikimedia.org/wiki/File:DBPB_1961_201_Johannes_Gutenberg.jpg)



# It matters not?



- "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



# Eisenstein

The features of print culture

# Quiz time – in groups of 1-3

- Pick one feature of print culture that Eisenstein describes. How did the technology of printing press contribute to that feature of print culture?
- Other than the printing press itself, what people, practices, artifacts or institutions also explain this feature?
- What is the significance of this feature to ONE of the following
  - Reformation
  - Renaissance
  - Scientific Revolution
- Summarize your response to EACH question in 3-4 sentences.
- Be thoughtful, concise, make an ARGUMENT, and use EVIDENCE

# Eisenstein: increased output; altered input



- combinatory reading
- spread of inaccurate knowledge
- increase in both religiosity and secularism
- libraries came quickly, but organizing them came later

# Eisenstein: standardization



- -errors were corrected with standard texts
- style of copyists ceases
- polarization of fonts (gothic and roman)
- made people aware of the roles in society by making something "typical" to the public
- printers had multiple roles beyond printing

# rationalizing, codifying, cataloguing



- reorganize the thinking of readers with alphabetic ordering, indexes, etc.
- intellectual and commercial activities brought together in the print shop
- pagination with Arabic numerals
- you could print lists of statutes

# from corrupted to improved



- quality of work improved in competition
- the "drift" of scribal culture is halted when new forms of feedback helped to correct errors which are a "prerequisite for modern scholarship and science" (p76)



# fixity and cumulative change



- Preservation easier with more copies
- preserving texts and reproducing them is a democratizing force
- standard vernaculars
- national identity
- “drive for fame” encouraged by print
- authorship

# Amplification and reinforcement



- Language and cultural customs can be spread
- Differences also become more apparent



# The non-European context

China

Korea

Six controversies

Three similarities

# Overview of adoption of printing-related technologies

	Paper	Codex	Printing	Typography
<b>China</b>	3d cent bc	10th cent *	8th cent	11th cent
<b>Korea</b>	4th cent ad	19th cent	8th cent	15th cent
<b>Japan</b>	7th cent ad	19th cent	9th cent	17th cent
<b>India</b>	5th cent ad	6th cent*	19th cent	19th cent
<b>Islam</b>	8th cent ad	8th cent	19th cent	19th cent
<b>Europe</b>	12th cent ad	2d cent	15th cent	15th cent

Image src: Paul Duguid, "Print Culture" – Hofl09



# Explaining the different order?



- Clearly different cultures adopted these technologies in radically different ways
- Why?
  - ▣ Religion?
  - ▣ Geography?
  - ▣ Political organization?

# The role of Geography and Religion

- Papyrus in Alexandria
- Silk in China
- Palm in India
- Parchment in Europe





China

# China – early printing

- 450 – stamp printing
- 175 ad - printing of Confucian classics from stone carvings
- 868 – the diamond sutra – oldest surviving book
- 972-83 - Tripitaka, 5,048 volumes, 130,000



# China – 10<sup>th</sup> and 11<sup>th</sup>

- 10<sup>th</sup> c. printed money and playing cards
- 1041 Pi Sheng - Early clay movable type







Korea

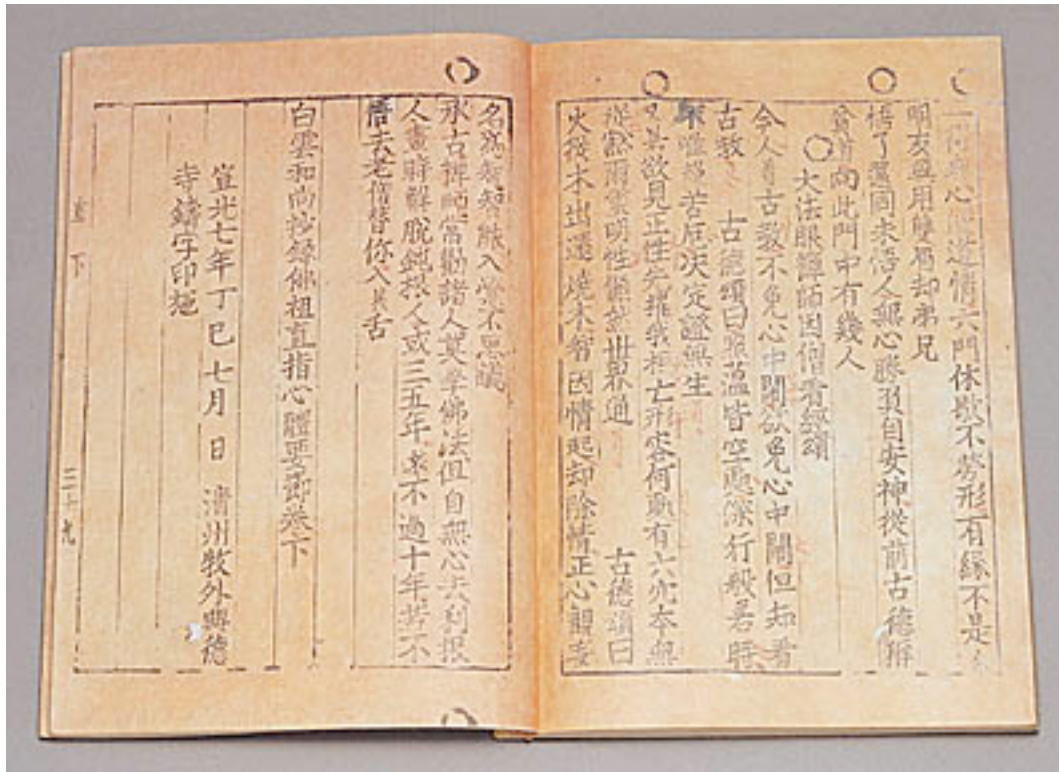
# Korea



- 918-1392: Koryo Dynasty three methods of publishing
  - ▣ transcription: Royal library; practice
  - ▣ xylography: Buddhist temples
  - ▣ typography: civil service
- 1087: *Tripitaka Koreana* (xylography)
  - ▣ 160,000+pages

# Korea

- 1377 –  
Baekunhwasang  
Chorok Buljo Jikji  
Simche Yojol – or Jikji  
– First book with metal  
type





# An unacknowledged unrevolution?

- Duguid, 2007
- RAND in 2000



# Six perspectives on printing

Source:

Six Perspectives in the History of Printing

Seong-Rae Park

Gutenberg-Jahrbuch

Volume 73.1998 / 1998 / Journal Part / Article



# Xylography v. movable type



- Xylography is advantageous:
  - ▣ Preservation: Can do a “run” at any time
  - ▣ Better for logographic writing (Chinese)
  - ▣ Better when there are multiple scripts (Japanese)
  - ▣ Wood easier to come by
  - ▣ No issues with “fixing the plate”
- Metal type is advantageous:
  - ▣ Once you have a set, you can print anything
  - ▣ Easier with a limited number of characters (42-line bible had 270)

# Alphabets v. Ideographs

- In Korea: Chinese v. Hangul
  - Is this about printing popular text?
  - **formal v. vernacular**
- (in Europe, the problem was Latin v. Vernacular)

Gutenberg. But, according to his comment, the Korean invention had failed to take advantage of it to develop further, largely because Koreans could not turn book publishing into lucrative business. According to his interpretation, the Koreans' failure was due to their limited use of the new technology in publishing Chinese classics, without printing the more widely circulatable novels for the grass-root people. In short Korean metal type printing had

# Wine press v. wax tray

- Details about technology actually matter
- Issue of holding pieces in place while printing

composing stick



locked down chase



# Money v. Monarch



- Or, where does your funding come from?
  - ▣ Gutenberg's research paid for by business ventures
  - ▣ Other places, by the state
- What are the implications for what gets printed and how it is distributed?

# Clay/Wood v. Metal type



- Depends who is telling the story of printing
- Metal type is more durable for many runs



# Chinese v. Korean

- Who has the oldest printing technology?
- Really about nationalism?

The history of printing told us that although woodblock, wooden-type and metal-type techniques were first developed in China, but the peoples of all other countries and areas made their own contributions to the further development of printing in the world, such contributions should be well recognized and written in the history. To study the history of printing from the angle of world history and comparison between the East and the West may be helpful to deepen the mutual understanding and the friendship among peoples in various countries.

A Comparative Research of Early Movable

Metal-type Printing Technique in China, ...

Jixing Pan

Gutenberg-Jahrbuch

Volume 73.1998 / 1998 / Journal Part / Article





# International features?

“In China as in the West, discourses on written culture reveal three dominant obsessions.”

*Roger Chartier, and Jill A. Friedman, trans. “Gutenberg Revisited from the East,” Late Imperial China 17.1 (1996) 1-9*

# Concern over Loss



- Multiplication of libraries and collections
- “preserve the written patrimony”

# Corruption



- Two different concerns
  - ▣ Competition creates incentives for “values which are not those of learning”
    - E.g. Piracy: Martin Luther’s German Bible
  - ▣ The authority of official interpretation



# Excess



- How to manage all this information?
  - Libraries
  - Indexes
  - Cataloging

# Not new to printing



- Concern over Loss
  - ▣ Paper v. parchment
- Corruption
  - ▣ Notion of textual drift in manuscripts
  - ▣ Plato's concerns about text: "your pupils will have the reputation for [wisdom] without the reality; they will receive a quantity of information without proper instruction."
- Excess
  - ▣ Cataloging, indexing -> not new to print



## Next time:

Eisenstein wrap-up; conclusions about print culture

“the public”

Virtuosi

Coffeehouses

“the news”

Penny universities

science