

HOFER'S SIX CYLINDER PRINTING PRESS.

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Gutenberg Parenthesis

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PRINTING

or

The Mother of Modernity





Wood Block Printing



Wood Block Printing

新刊

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Movable Type

- The first movable type was developed in China
- Entire Words
- Paper
- Ink



Alphabet Letterpress

- Each alphabet is a type cast from metal (lead or iron, brass)
- Alphabets kept together in a printers case
- Can be combined to form letters > sentences > paragraphs



Pages From Alphabet Letterpress



dabo: regalia tua propter peccata in uni-
uersis finibus tuis. Et reliquias so-
la ab hereditate tua quam dedi tibi: et
fuisse te faciam inimicis tuis in terra quam
ignoras. Quoniam igne succendisti in
furore meo usque in ceterum ardebit.
Hec dicit dominus: maledictus homo qui confidit
in homine: et ponit carnem brachium
suum: et a domino recedit cor eius. Erat enim
quasi micca in deserto: et non videbat
rum venerit bonum: sed habitabit in sic-
citate in deserto in terra saluginis et
inhabitabili. Benedictus vir qui con-
fidit in domino: et erit dominus fiducia
eius: et erit quasi lignum quod transplan-
tatur super aquas: quod ad humorem mi-
rit radices suas: et non timebit cum vene-
rit estus. Et erit folium eius viride: et in
tempore siccitatis non erit sollicitum:
nec aliquando desinet facere fructum.
Pravum est cor hominis et insecutabi-
le. Quis cognoscit illud? Ego dominus
scrutans cor et probans renes: qui do-
minus iuxta viam suam: et iuxta fructum
admissionum suarum. Perdix fons qui non
periret. Fecit divitias et non in iudicio.
In dimidio die suorum delinquit eas:
et in novissimo suo erit in speculo. So-
lum glorie altitudinis a principio: lo-
cus sanctificationis non israel. Domine omnes
quoniam confundentur: recedat
ra scribitur: quoniam deus
aquas viventi dominum. Et
re sanator: solus me facit
quoniam laus mea tu es
ad me. Vbi est verbum domini
ergo non sum turbatus
quoniam: et deus hominis non desiderat.
Tu scis quod egressum est de labijs meis
verbum in conspectu tuo fuit. Non se-
michi tu formidini: prope me tu in die

afflictionis. Confundantur qui me per-
secunt et non confundar ego: paucati
illi: et non paucam ego. Quid super eos
dixi afflictionis: et duplici conitione
contra eos. Hec dicit dominus ad me.
Vade et sta in porta filiorum populi tui per
quam ingrediuntur reges iuda: et egredi-
untur: et in ceteris portis iherusalem: et
dices ad eos. Audite verbum domini reges
iuda: et omnes iudea cunctique habitato-
res iherusalem: qui ingrediimini per portas
istas. Hec dicit dominus. Custodite a-
nimas vestras: et nolite portare pondera
in die sabbati: nec inferatis per portas
iherusalem: et nolite rursus onera de domi-
bus vestris in die sabbati et omne opus
non facitis. Sanctificate diem sabbati
sicut precepimus patribus vestris. Et non audi-
erunt nec inclinaverunt aurem suam: sed
induraverunt cervicem suam ne audirent
me: et ne acciperent disciplinam. Et erit
si audieritis me dicit dominus: ut non
inferatis onera per portas civitatis
huius in die sabbati et si sanctificaveritis
diem sabbati ne faciat in ea omne opus:
ingredietur per portas civitatis huius re-
ges et principes sedentes super solium da-
vid: et ascendent in curibus et equis
ipsi et principes eorum cum iuda et habita-

Petrus apostolus iesu christi. e-
lectis advenis dilectio-
nis ponti galacie capu-
doce. asye et bithinie
sedm psciam dei patris i-
scificacione sps in obediam et aspsio-
nem sanguinis iesu christi: gratia vobis et pax
multiplicetur. Benedictus deus christi
domini nostri iesu christi qui secundum magnam misericordiam
suam regeneravit nos in spiritu vivam
per resurrectionem iesu christi ex mortuis.
in hereditatem incorruptibilem et in-
contaminatam et immutabilem con-
servatam in celis in vobis qui in virtute
dei custodimini per fidem in salutem pa-
tam revelari in tempore novissimo.

Printed vs Manuscript

quoque non videntes creditis. Credentes
autem exultabitis leticia inenarrabili

1000
tisque scriptum est: scilicet
sum. Et superem in
acceptio primum iudic
intimore incolatus in
uerfaminis: scientes quod
lib: auro vel argento u
uana uia conuersa
traditionis: sed precioso
agni in contaminata
christi. precogniti quidem
stitutionem manifeste
temporibus: propter uos. qui pe-
in deo. Illi suscitavit e-
radit ergastium. ut fiat
deus. Animas uero castifica-
encia caritatis in frat-
re ex corde inuicem. Do-
lenati non ex seie co-
in corruptibili per uer-
et per manentis in eterni-
ferum romnis glori-
sem. Exaruit semum
uerbum autem domini in
hoc est autem uerbum quod
tum est in mobili. Deo



Print vs Manuscript

Alphabets as Visual Units

- Each letter is a unit of an alphabet or part
 - Sometimes only punctuation
- Breaks words into its basic unit
- These basic units are material, visual, flexible
- Can be touched, seen, position changed
- Before Writing words don't often exist as independent units
- After Printing words don't exist other than as alphabets

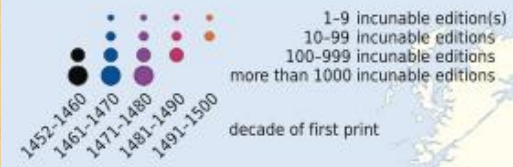
Words as Things

- “With alphabetical letterpress print, words are made out of units (type) which pre-exist [as material things] as units before the words which they will constitute.”
- “Alphabet letterpress printing, in which each letter was caste on a separate piece of metal , of type, marked a psychological breakthrough of the first order. It embedded the word itself deeply in the manufacturing process and made it into a kind of commodity.”
- “The first assembly line, a technique of manufacture which in a series of set steps produces identical complex objects made up of replaceable parts, was not one which produced stoves or shoes or weaponry but which produced the printed book”

Printing Press

- The first printing press, invented by Johannes Gutenberg in 1440s
 - Mainz
- The Gutenberg Bible was printed in early 1450s
- By 1500 there were printing shops in 270 cities and towns of Europe using Gutenberg's movable letterpress printer
- By 1500 there were about 20 million books published; mostly Bibles but also psalms and other religious literature
- Non-religious writings too started getting printed

15th century printing towns of incunabula



Letter Factory

- Printing created a new manufactory
 - Repeatability of letters
 - Repeatability of actions
 - (non)-Literate workers
- Dissolving older divisions of intellectual labour
- Building new ways of coordinating the work of brains, eyes, hands (ears?)
- Master printer was organising
 - Money -> Capital
 - Supplies -> Raw Materials
 - Craftsmen -> Workers (skilled and unskilled)
 - Scholars

A New Culture

- Printer's Workshop became a veritable cultural centre
 - Attract local literati, foreign scholars, book traders, scientists
- Printer's Workshop became a crucible for technological innovations
 - New paper, new inks, new binding of books, new machines
- "...an almost incredible mixture of sweat shop, the boarding house, and the research institute"
 - Is this the modern university?
- Shift from Scribes to Printers represented a genuine occupational mutation

Books as Commerce

- Mass produced commodity
- Book producers wanted to sell their products which produced profits
 - “Profits from selling the Bible”
- New Markets
 - Regions, Demographics...
 - Advertising, Competition
- Improved Products
 - More readable text, better index, careful proof-reading, editing...
 - Better paper, ink; stronger binding...
- Markets Flooded with new products competing with each other

Literacy = Markets

- Expansion of Literacy = Expansion of Markets
- By the late 1500s (16th century) 50% literacy in major urban centres
- Growing rural literacy
- Vested interest in expanding literacy
 - Poor, craftsmen, peasants, women...
- Religious literature
- Manuals; To-Do books
- “Learning *to read* is different... from learning by *reading*”.

Iconoclastic Bibliolatory

- Images, rituals, divine artefacts: non-literate person's way to remember god / religion
- "...the Calvinist assumption that the illiterate person should not be given graven images but should be taught to read."
- Printing fostered a movement from "image culture" to "word culture"
- Protestantism
 - Every man should read the Bible and make his own covenant with God
- But print cultures made images universal

Printed Images

- Printed images, endlessly replicable in exact terms, formed the basis of modern science education
 - And Research
- Visual aids were conveniently rendered
- Signs and Symbols codified and standardised
 - Mathematics
 - Crafts and Engineering
 - Medicine
- Maps
- Portraits

Consequences of the Flood

- Book Industry: Massive industrial capacity producing large profits
- Old manuscript books printed
 - Search for old classical texts
 - Greek; Roman; Arab....
- Abundantly stocked bookshelves
- “Increased output directed at relatively stable markets created conditions that favoured new combinations of old ideas at first and then, later on, the creation of entirely new systems of thought”.
- Older books from different times and civilisations could be
 - Compared
 - Checked
 - Revised
 - Corrected

Standardisation

- Calendars
 - Standardisation of time
 - Invention of clocks
- Maps and Routes
 - Standardisation of territory/space
 - Invention of Longitude
- Manuals and Primers
 - Standardisation of crafts and trades (make a list in class)
 - Invention of Disciplines

Standardisation

- “Printing made it possible for the first time to publish hundreds of copies which were alike and yet might be scattered everywhere”
- Conditions for the rise of a “lay intelligentsia”
- Standardised knowledge all over
 - Errors were also standardised
- Standardised Cultural norms, features
 - Spanish, German, English, French...
 - Bounded by language borders

Individualism

- Idea of Individualism only possible when standard as stereotype is the norm
 - Standard dress, food, speech, behaviour (cultural tropes)...
- Standard texts “...presented princes, courtiers, councillors, merchants, schoolmasters, husbandsmen, and the like in terms which made readers ever more aware, not merely of their shortcomings in their assigned roles, but also of the existence of a solitary singular self, characterised by all the peculiar traits that were unshared by others...”
- “...no precedent existed for addressing a large crowd of people who were not gathered together in one place but were scattered in separate dwellings and who, as solitary individuals with divergent interests, were more receptive to intimate interchanges than to broad-gauged rhetorical effects.”
- On this foil, grew ideas of individualism

Codifying, Cataloguing Data

- “Editorial decisions made by printers [due to the nature of the technology] with regard to layout and presentation ... helped reorganize the thinking of readers”
- Alphabetical Order and page numbers in ‘Arabic Numerals’
 - “Memorising a fixed sequence of discrete letters represented by meaningless symbols and sounds...”
- Pages and chapters of Pre-Print books were “idiosyncratically arranged”
- Alphabetical Order arranged both books as well as shops (and libraries)
- Typographical standardization and commercial competition

Systematise Scholarship

- Sales Catalogues
- Library Index
- “To tap markets and attract potential purchases while keeping competitors at bay called for booksellers’ lists that presented titles in a clear and coherent arrangement and for editions that could be described as ‘well indexed’ and ‘new and improved’.”
- “Reference apparatus”
 - Bibliographical references
 - Tables
 - Maps
 - Glossaries
- Numbers allowed catalogues using dates, sub-categories

Epitome of Catalogue

- Dictionary
 - And Thesaurus
- Indexing each and every word used or in use
- Networking these words with other words
- “Placing words (and letters) in piles according to alphabetical order was indeed a ubiquitous routine in the printer’s workshop. The preparation of the index was in itself an exercise in textual analysis...”
- “The printing shop performed a significant, albeit neglected, function by bringing together intellectual and commercial activities which reinforced each other and thus created an especially powerful, almost irresistible drive.”

New Knowledge

- “A disorder previously concealed by oral presentation and piecemeal copying became more visible to copy editors and indexers and more offensive to publishers who valued systematic routines. ... Clarity and logic of organization, the disposition of matter on the printed page became... a preoccupation of editors, almost an end in itself.”
- Old manuscripts were
 - Corrected of textual errors [spelling mistakes, etc]
 - Fact-checked
 - Indexed and referenced
- Changed pagination, chapterisation, removed and added text, etc
- “...when [a] complete restoration had been successfully applied to the letter of the ancient code, its living spirit vanished for good”.

New Knowledge - II

- The Bible changed its form and content
- Laws published and collected in a compendium
 - According to alphabetical order and date of issue, amendment
- “In ‘Englishing and printing’ the ‘Great Boke of Statutes 1530 – 1533’, John Rastell took care to provide an introductory ‘Tabula’: a forty six page ‘chronological register by chapters’...”
- “He was not merely providing a table of contents: he was offering a systematic review of parliamentary history – the first many readers had ever seen”.
- Spectacular innovation
- “Increasing familiarity with regularly numbered pages, punctuation marks, section breaks, running heads, indexes, and so forth helped to reorder the thought of all readers...”

Corrupted to Improved Copy

- Scribal cultures had a process of gradual corruption of the text
- Print arrested
- And then reversed this process
- Improved Editions [correcting for all accumulated past errors]
- Catalogues, Indexes, Systematisation
 - All helped check errors and bring out the correct edition
 - Not just scholars but any reader
- Continent wide network of knowledge creators

Knowledge Explosion

- New Books, New Catalogues, New Classifications
- New Disciplines
- “The new surveys led, in turn, to further interchanges which set off new investigations, the accumulation of more data making necessary more refined classification, and so on – *ad infinitum*.”
- Unlimited expansion of Knowledge for, for the first time, a possibility
 - Open-ended, indefinitely continuous process
- Feedback
 - “After printing, large scale data collection did become subject to new forms of feedback which had not been possible in the age of scribes”
- “Hellenistic achievements were first reduplicated and then, in a remarkably short time, surpassed.”

Typographical Fixity

- “Much is preserved when little is written; little is preserved when much is written”
 - Adage from the pre-print world where text had to find durable mediums to survive
- With thousands of copies, large text could be preserved
 - Paper less durable than parchment, vellum, bronze plate or stone
 - Yet distributed, constantly replacable, textually fixed copies stopped
 - Textual Drift
- “...the lost cannot be recovered; but let us save what remains: not by vaults and locks which fence them from the public eye and use... but by such a multiplication of copies, as shall place them beyond the reach of accident”.

Language Fixed

- Typographical fixity led to linguistic fixity
 - Geopolitical implications in Europe
 - Each 'Vernacular' got its own fixed language: dictionary and grammar
- Coincidence:
 - "The preservation of a given literary language often depended on whether or not a few vernacular primers, catechisms or Bibles happened to get printed in the sixteenth century"
- Building Language Walls:
 - "When this was the case, the subsequent expansion of a separate 'national' literary culture ensued. When this did not happen, a prerequisite for budding 'national' consciousness disappeared; a spoken provincial dialect was left instead"

Private Ownership of Words

- “Compare the anonymity of the inventor of spectacles with the later disputes over Galileo’s right to claim priority in the case of the telescope”
- By 1500, “legal fictions” were being devised to
 - Patent inventions to individuals
 - Copyright books to authors
- Individual initiative was released (refer to individualism)
- New issues involving monopoly and piracy.
 - “Printing forced legal definition of what belonged in the public domain. A literary ‘common’ became subject to ‘enclosure movements’, and possessive individualism began to characterize the attitude of writers to their work”.
 - Plagiarism

Copy Right

- Ownership of words by individual
- Can be traded like any other commodity
- Need not be owned by the author
 - Like with any other labour it can be owned by anyone who buys it
- Resentment at plagiarism emerges
 - Ownership of words brings recognition, position, profits
 - *Plagiarius*: Torturer, Oppressor, Plunderer... Steals Words
- Authorship fixed
- Ownership fixed

Accumulation

- “Steady advance [in knowledge] implies exact determination of every previous step”
- The continuous accumulation of fixed records
 - Which were open for public scrutiny across time and space
- Preservation of the old was a prerequisite for a tradition of innovation
- The Encyclopaedia
- The Empire of Knowledge and the Republic of Letters

Fragmentation

- Old Empires fragmented along language borders
 - Language of rule and language of people became one
 - King's rules and laws started getting recorded
 - Precedent in law
- Latin Christendom fragmented along language borders
 - Differences in how Bible was translated to each "vernacular"
 - Kings, Printers, controlled what was printed
- New political communities

Rise of the Reading Public

- Exact same texts, read over a widely distributed region
 - Readers formed new social groups
 - Motivated by same ideas
 - “Impersonal links between people who were unknown to each other”
- Reading a silent activity, unlike oral communication
 - Political views, Religious views, Pornography all benefited by silent consumption
 - “Printed material encouraged silent adherence to causes whose advocates could not be found in any one parish”
- Circulation of newspapers, of petitions, of political pamphlets

The New Intellectuals

- Lower costs of publishing and circulating a book
 - Scandal, provocation, pornography to sell
- Anybody can be an author
 - Rights and profits protected
 - Any idea can become popular
 - Anonymous and Pseudonymous author
- Intelligentsia linked to the market
- Ideas as commodity