



# The Organization of Knowledge



**History of Information i218**  
**Geoff Nunberg**

**Feb. 27, 2014**



# Midterm exam

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## Midterm exam

(from bCourses): 80 minute, in-class exam **March 20**. It will include three essay questions, two chosen from a list of questions provided in advance. There will also be short-answer sections asking you to identify quotations, people, dates, images, and other aspects of the course. Exam questions will be based on material covered in readings, slides, and class discussion. We will provide a study guide around March 10.



# Midterm paper

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## Midterm paper (optional)

2000-wd paper in response to one of a list of essay questions.  
Details on bcourses.

Essay prompts posted: 5/1

Paper outline w/ sources due March 8; our reply returned by 8/10

Paper due by March 20 at 9:30 AM BEFORE beginning of exam. **No late papers accepted**; if you haven't finished by then, take the exam.

Guidelines on form, etc. posted on bcourses



## Itinerary: 2/27

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Defining "knowledge"

The shifting frame of knowledge; from Renaissance to Enlightenment

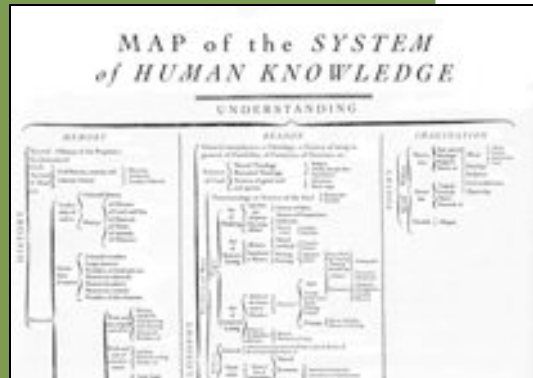
Early reactions to "information overload"

New conceptualizations of knowledge

The material representations of knowledge: encyclopedias, libraries, museums, dictionaries



# Where We Are





# The Emergence of the Modern "Informational System"

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Many, if not most, of the cultural phenomena of the modern world derive from [the 18th century] -- the periodical, the newspaper, the novel, the journalist, the critic, the public library, the concert, **the public museum** [*not to mention advertising, intellectual property, propaganda, the scientific society (and science itself), the modern dictionary and encyclopedia, etc.*— GN]. Perhaps most important of all, it was then that 'public opinion' came to be recognized as the ultimate arbiter in matters of taste and politics.

--Tim Blanning, *The Culture of Power*



# Defining "knowledge"

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# Defining "knowledge"

## Individual senses

*Oxford English Dictionary:*

- Acquaintance with a branch of learning, a language, or the like

*His knowledge of French is excellent.*

- The fact or state of having a correct idea or understanding of something.

*He has a considerable knowledge of alarm systems.*



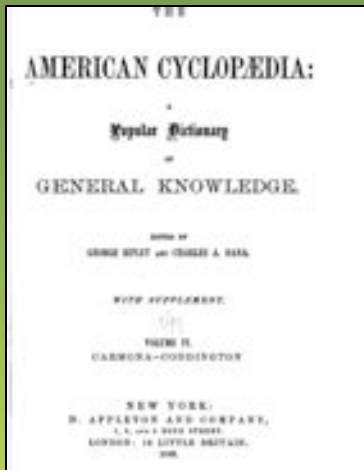
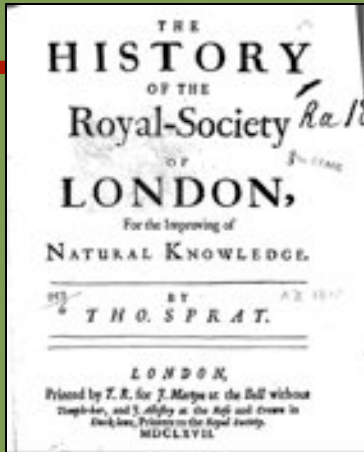
## Collective sense

**The sum of what is known.** *All knowledge may be commodiously distributed into science and erudition.*





# Collective knowledge: the missing roles

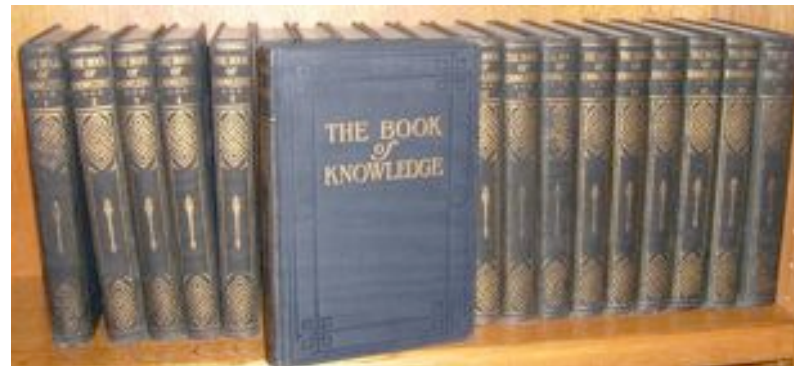


Collective sense: knowledge as a three-place relation

The sum of what is known [about X] [by Y]

The difference between "knowledge" and "what is known."

"Medical knowledge" vs "medical information"





# What makes for "knowledge"?

What qualifies something as (collective) knowledge?

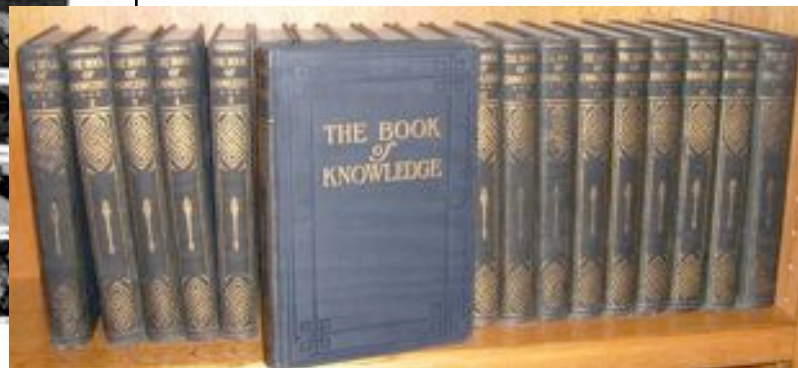
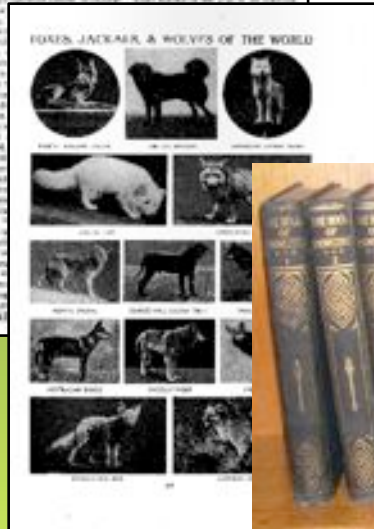
P is collectively significant

*Nunberg's out of paper towels.*

*Kimberly-Clark closed at \$108 yesterday.*

*Paper towel consumption is 50% higher in America than in Europe.*

*Arthur Scott introduced the first paper towel in 1931.*





# **Shifting Conceptions of Knowledge, 1500-1800**

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# The archaeology of knowledge

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How do we characterize conceptions of "knowledge" historically?

- Explicit descriptions & theories

- Models/images of knowledge in

  - Forms of institutions & practices (curriculum)

  - Material embodiments (library, museum)

  - Textual embodiments – encyclopedia, dictionary, compendium, bibliography

  - Metaphors & visualizations: *field*, *tree*, *discipline*, *trésor*, etc.



# Shifting Conceptions of Knowledge, 1500-1800

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Varieties of Renaissance knowledge:

*scientiae/artes*: "Ars sine scientia nihil est."

Higher vs lower

General/specialized

The "universal man" (*polymathia*, *pansophia*)

"A man is able to learn many things and make himself universal in many excellent arts." Matteo Palmieri, 1528

Book-learning vs knowledge of things



# The 15<sup>th</sup>-Century Curriculum

The *enkyklios paideia* ("circle of 'learning'"):

Trivium: grammar, logic, rhetoric

Quadrivium: arithmetic, astronomy, geometry, music

The three philosophies: ethics, metaphysics, "natural philosophy"

Higher faculties: theology, medicine, law





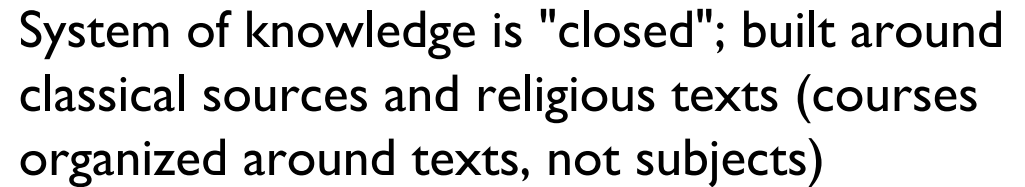
# The 15<sup>th</sup>-Century Curriculum

Curriculum roughly uniform throughout Europe, enabled *peregrinatio academica*

"town and gown"







## Organization of knowledge is fixed and "natural"





# Changing Frames of Knowledge

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Within 200 years, something like the mod, system emerges.

Responses to influences that are:

- Pragmatic/material

- Philosophical/academic

- Symbolic/political

- (Not independent...)



## Breaking with the past



It would disgrace us, now that the wide spaces of the material globe, the lands and seas, have been broached and explored, if the limits of the intellectual globe should be should be set by the narrow discoveries of the ancients. Francis Bacon, *The Advancement of Learning*, 1605





## Breaking with the past

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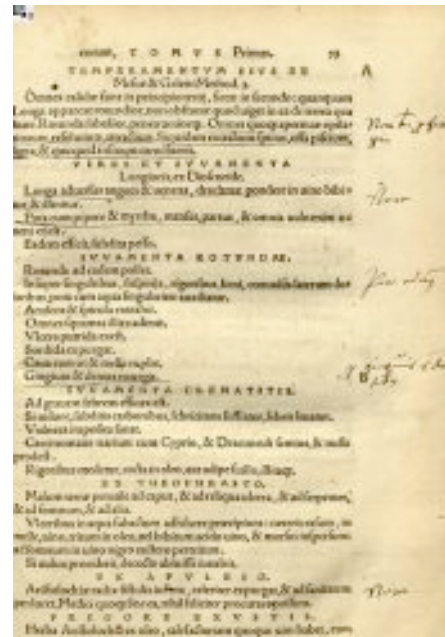
**What are these?**





# Opening the World of Knowledge: Botany

*Herbarum vivae eicones* ("Living Pictures of Herbs") by Otto Brunfels, 1532. Matched Swiss & German plants to those known to Pliny and Discorides, ignoring differences, with residual *herbae nudae* ("naked plants")





# Opening the world of knowledge



Valerius Cordus, *Historia plantarum* 1561 (1544), published posthumously by Conrad Gesner.

Records numerous plants not described by the ancients; emphasizes differences among similar plants.



Drawing annotated by Gesner





# Opening the world of knowledge



John Ray, *Historia generalis plantarum*, 1686-

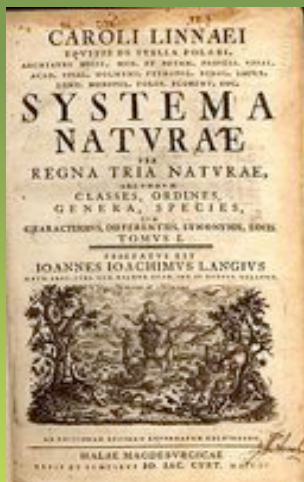
Classified 6100 plant species by seeds, seeds, fruit and leaves.  
Produced first modern definition of the species.

"... no surer criterion for determining species has occurred to me **than the distinguishing features that perpetuate themselves in propagation from seed**. Thus, no matter what variations occur in the individuals or the species, if they spring from the seed of one and the same plant, they are accidental variations and not such as to distinguish a species...

"I reckon all Dogs to be of one Species, they mingling together in Generation, and the Breed of such Mixtures being prolifick"





[illegible]

"I know no greater man on earth." Jean-Jacques Rousseau



# The birth of "modern" classification

Plants classified into 24 classes according to length and number of stamens; further classified into orders etc. Established binary system of naming



Frontispiece to  
Linnaeus, *Hortus  
Cliffortianus* 1737



Plate 156: An illustration by Georg Dionysius Ehret for the *Hortus Cliffortianus* (1735-48) in which the Swedish plantman, Carl Olof Cronquist, first began to work out his 'versteekten plantarum arboribus', grouping plants according to the number and arrangement of their stamens.





# Organizing Knowledge Responses to Early Modern "Information Overload"

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Linnaeus, index card, ca 1760



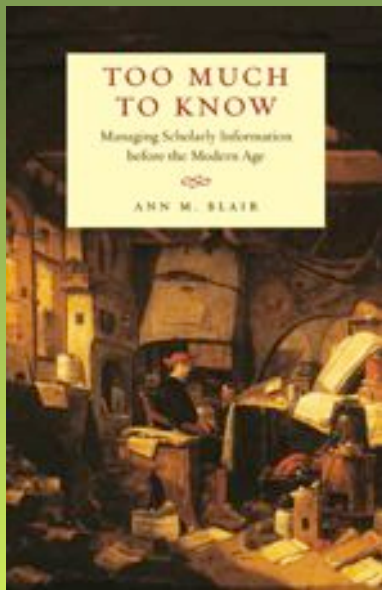
# Pragmatic Forces: Perceptions of "Information Overload"

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Antonfrancesco Doni, 1550: there are “so many books that we do not have time to read even the titles.”

“That horrible mass of books... keeps on growing, [until] the disorder will become nearly insurmountable.” Gottfried Leibniz, 1680





## The endless anxiety...

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It will soon be the employment of a lifetime merely to learn [books'] names. Many a man of passable information at the present day reads scarcely anything but reviews, and before long, a man of erudition will be little better than a mere walking catalogue Washington Irving, 1822



Books are not only printed, but in a great measure written and sold by machinery.... Every little sect among us, Unitarians, Utilitarians, Anabaptists, Phrenologists, must have its periodical, its monthly or quarterly magazine, hanging out like its windmill ...to grind meal for society. Thomas Carlyle, 1840



## The endless anxiety...

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Whether it is the records we have to keep in every business and profession or the ceaseless communicating at a distance which modern transport and industry require, the world's work is now unmanagenable, unthinkable, without literature. ... A committee won't sit if its drivelings are not destined for print. Even an interoffice memo goes out in sixteen copies. [There is a] huge number of activities which (it would seem) exist only to bombard us with paper...

Jacques Barzun, 1954



## The endless anxiety...

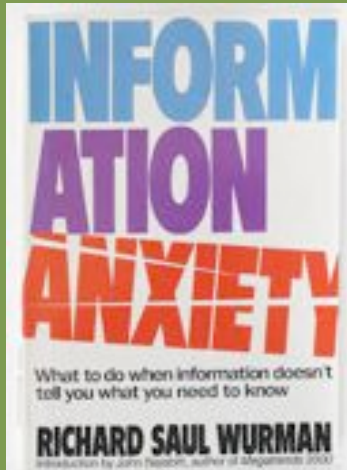
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And while Mr. Reagan prospered in schools without libraries, I believe that the "information explosion" of more recent years has made school libraries necessary.

This is the information age! There is an information explosion. Some students will need a longer period of time to master mathematics, science, economics, world history. 1983



# The endless anxiety...



DECEMBER 20, 2007, 5:52 PM

## Is Information Overload a \$650 Billion Drag on the Economy?



World of Psychology

### Overcoming Information Overload

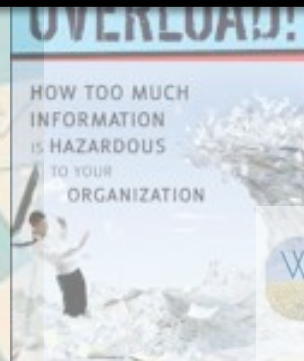
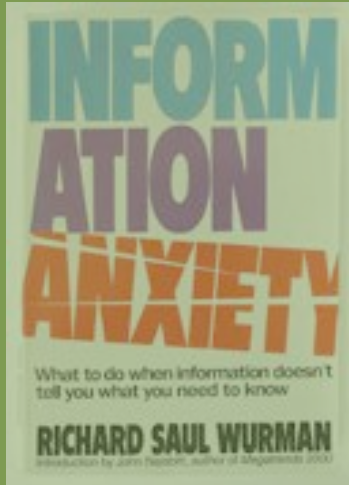
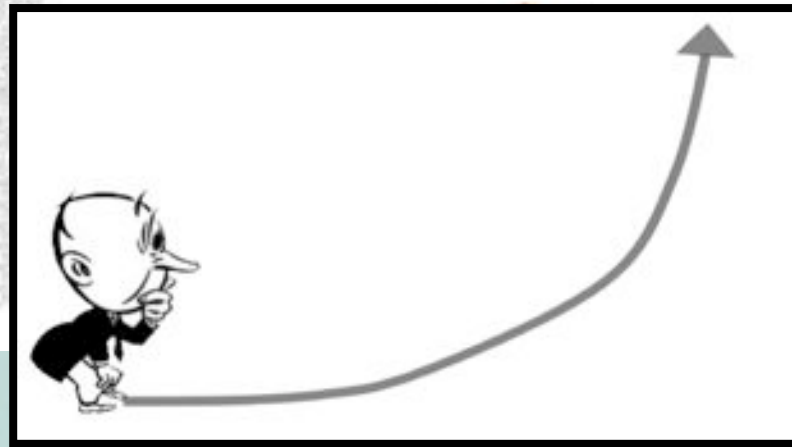
By MARGARITA TARTAKOVSKY, M.S.  
Associate Editor

« Blog Index



# The endless anxiety...

An exponential curve looks just as scary wherever you get on board.



a \$650 Billion Drag on the

World of Psychology

Overcoming Information Overload

By MARGARITA TARTAKOVSKY, M.S.  
Associate Editor

« Blog Index



# **Confronting the Explosion**

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# The Reorganization of Libraries



Gabriel Naudé proposes library organization scheme to “find books without labor, without trouble, and without confusion.” (1627)



Bibliothèque  
Mazarine (1643)



# Creation of "reference" works

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Compendia and reference books (*répertoires* or *trésors*)

*Répertoires* divided into:

Dictionaries (& onomasticons); Florilegia (collections of sayings, etc).; commonplace books; miscellanies...

"I esteem these Collections extreamly profitable and necessary, considering, the brevity of our life, and the multitude of things which we are now obliged to know, e're one can be reckoned amongst the number of learned men, do not permit us to do all of ourselves." Gabriel Naudé, 1661

The *Cyclopaedia* will "answer all the Purposes of a Library, except Parade and Incumbrance." Ephraim Chambers, 1728



## Distillations



E-L. Boulée, plan  
for the  
Bibliothèque du  
Roi, 1785

Men of good will have extracted the substance of a thousand volumes and passed it in its entirety into a single small duodecimo, a bit like skillful chemists who press out the essence of flowers to concentrate it in a phial while throwing the dregs away."

Louis-Sebastian Mercier, *L'An 2440*, 1771





# Strategies for dealing with information overload

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The most accomplished way of using books at present is twofold. Either, first, to serve them as men do Lords, learn their titles exactly and then brag of their acquaintance :—or, secondly, ..., to get a thorough insight into the Index, by which the whole book is governed and turned, like fishes, by the tail... Thus men catch knowledge by throwing their wit on the posteriors of a book, as boys do sparrows by flinging salt upon the tail."

Jonathan Swift, "Tale of a Tub," 1704

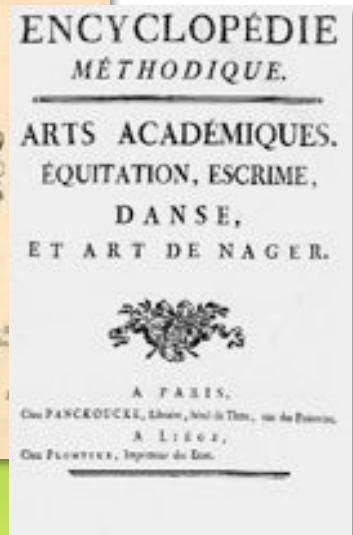
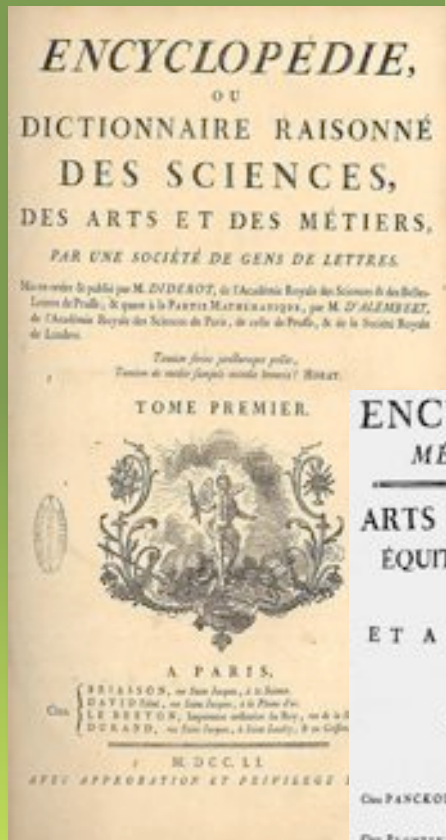


# Strategies for dealing with information overload

## Compendia and reference books (*répertoires* or *trésors*)

As long as the centuries continue to unfold, the number of books will grow continually, and one can predict that a time will come when it will be almost as difficult to learn anything from books as from the direct study of the whole universe. It will be almost as convenient to search for some bit of truth concealed in nature as it will be to find it hidden away in an immense multitude of bound volumes.

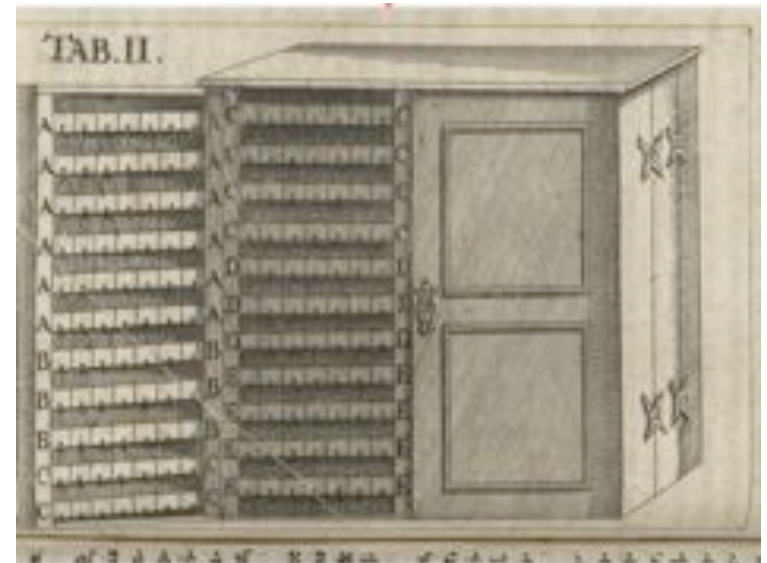
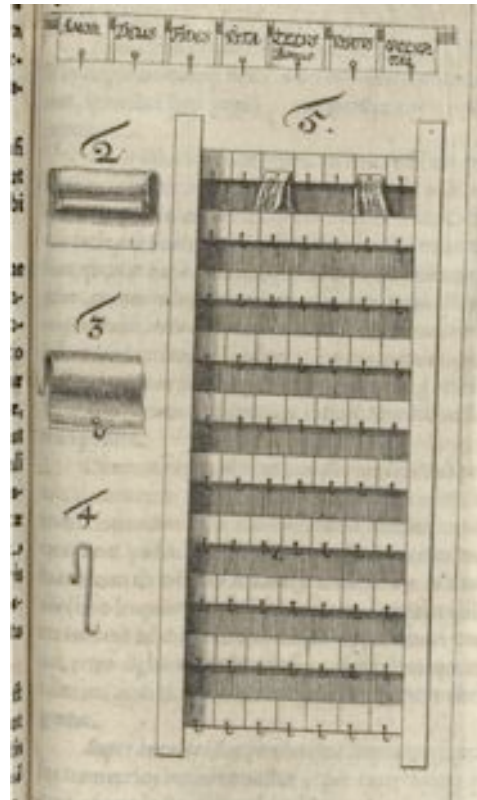
—Denis Diderot, *Encyclopédie*, 1755





# Strategies for Dealing with Information Overload

Note-taking system described by Vincent Placcius, from *De arte excerpendi*, 1689





# **Reconceptualizations of Knowledge**

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# The Classificatory Urge: Thematic Organization

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Vincent de Beauvais, *Speculum triplex*, 1244, in 3 divisions:

*Speculum naturale*: God, angels & devils, man, the creation, and natural history

*Speculum doctrinale*: Grammar, logic, ethics, medicine, crafts...

*Speculum historiale*: History of the world...







# New Schemes of Organization: Philosophical Influences

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Francis Bacon's scheme puts man at the center:

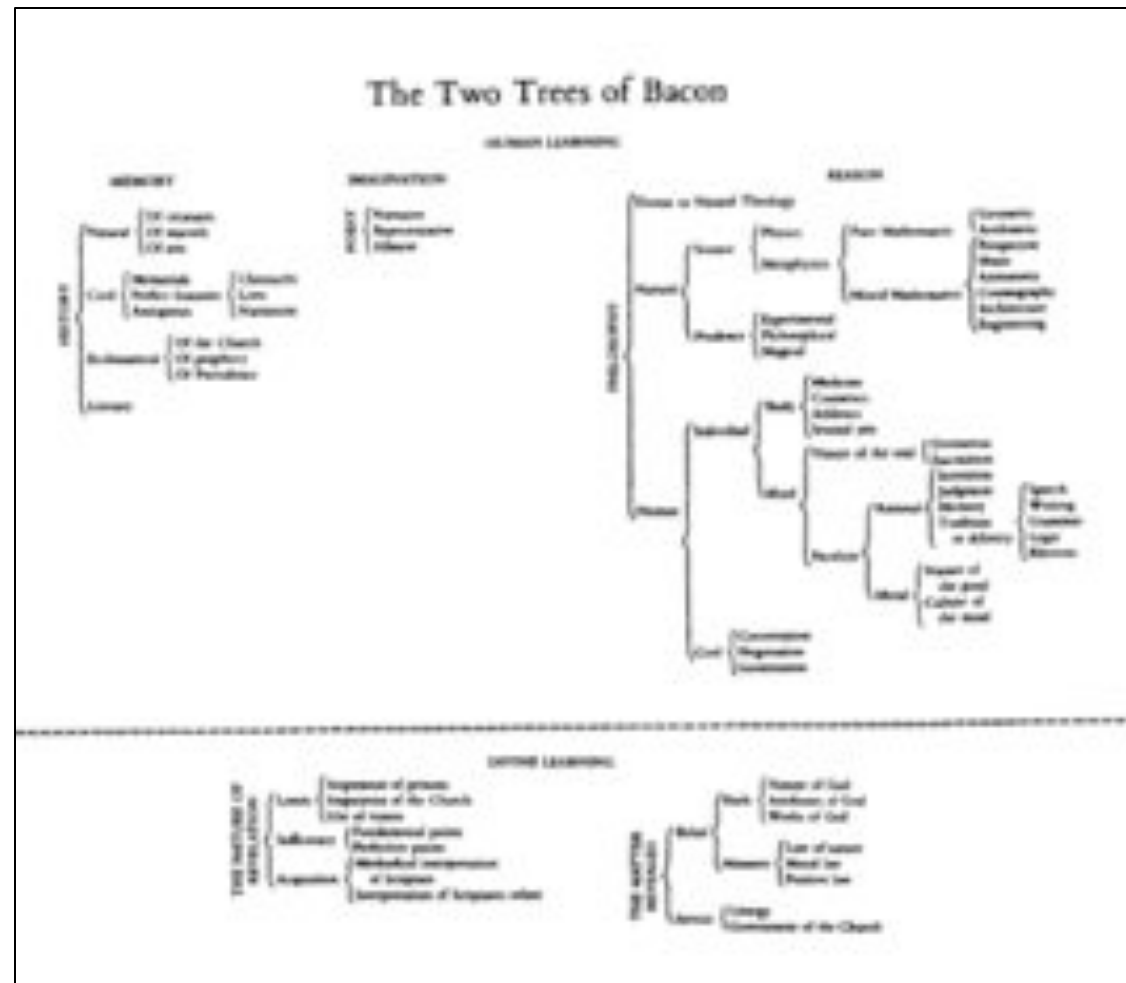
Nature (astronomy, meteorology, etc.).

Man (anatomy, powers, actions),

Man acting on nature (medicine, visual arts, arithmetic),,,



# The Tree of Bacon

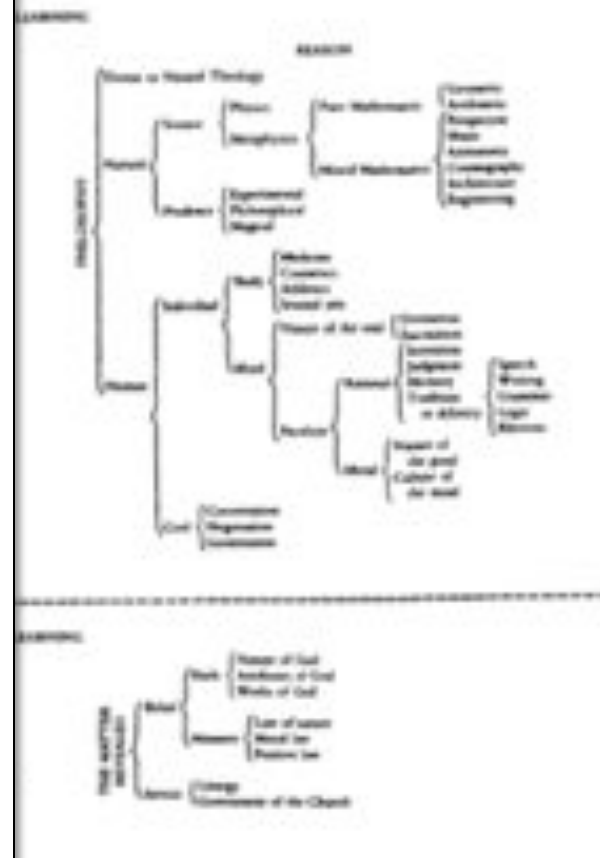


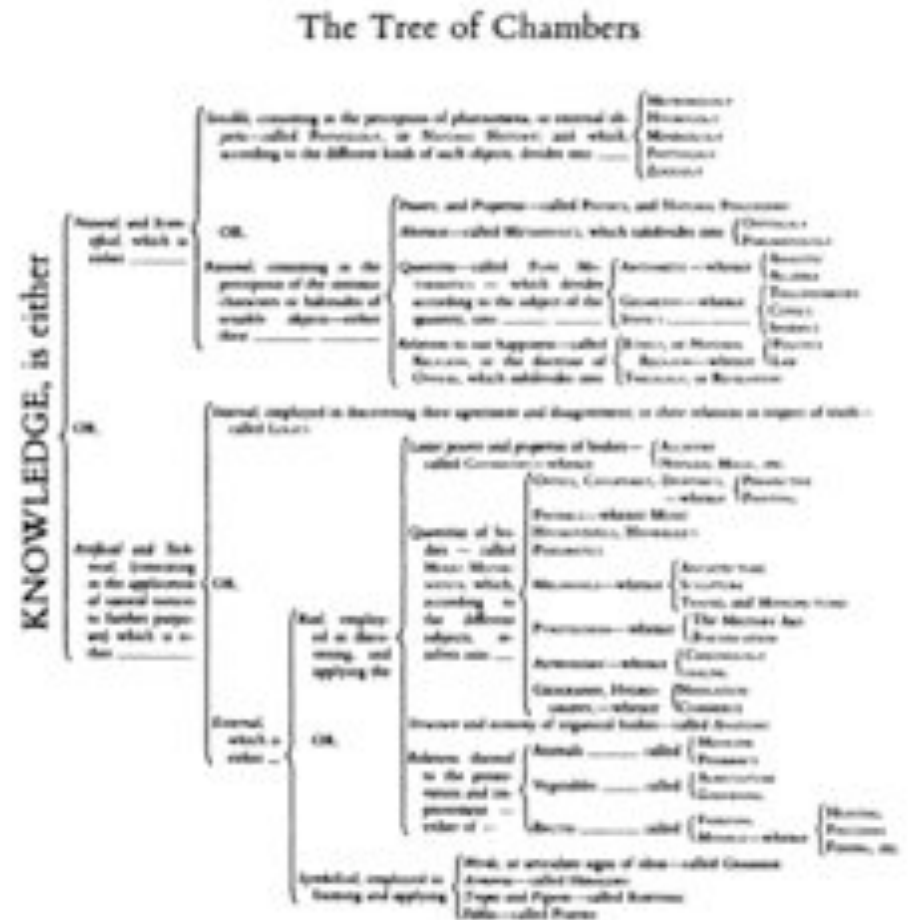


# The Tree of Bacon



## Tree of Bacon







# The Encyclopédie



Denis Diderot



## The modern condition: An infinity of orders

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Jean d'Alembert

The tree of human knowledge could be formed in several ways, either by relating different knowledge to the diverse faculties of our mind or by relating it to the things that it has as its object. ...But how could there not be arbitrariness? Nature presents us only with particular things, infinite in number and without firmly established divisions. Everything shades off into everything else by imperceptible nuances.

D'Alembert, Preliminary Discourse to the *Encyclopédie*



## The infinity of orders

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... a certain Chinese encyclopaedia entitled 'Celestial Empire of benevolent Knowledge'. In its remote pages it is written that the animals are divided into: (a) belonging to the emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies. There is no classification of the Universe not being arbitrary and full of conjectures

Jorge Luis Borges

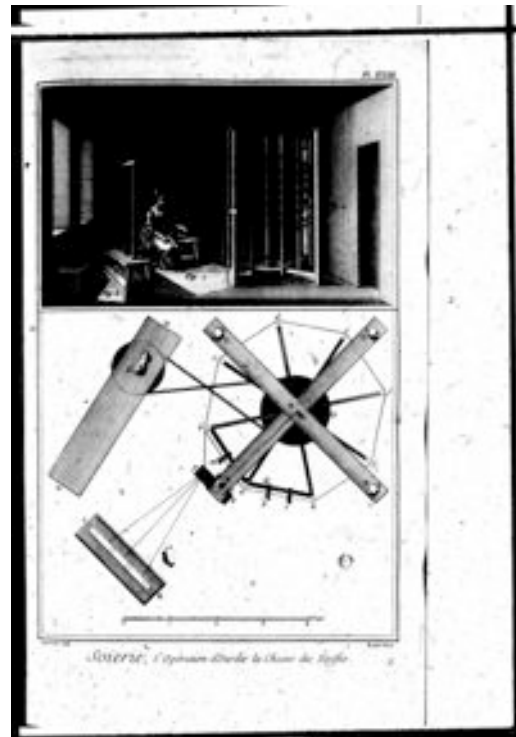




# "Sciences, Arts Libéraux, Arts Mécaniques"



Formier



Economie Rustique (silk-making)





# "Sciences, Arts Libéraux, Arts Mécaniques"

...the advantage that the *liberal* arts have over the *mechanical* arts, because of their demands upon the intellect... is sufficiently counter-balanced by the quite *superior* usefulness which the latter for the most part have for us....while justly respecting great geniuses for their enlightenment, society ought not to degrade the hands by which it is served"

d'Alembert, Preliminary Discourse to the *Encyclopédie*



Economie Rustique (silk-making)



# Organizing the Trésor

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# New Schemes of Organization: Didactic Objectives

Comenius (Amos Komensky),  
*Orbis sensualium pictus*, 1658

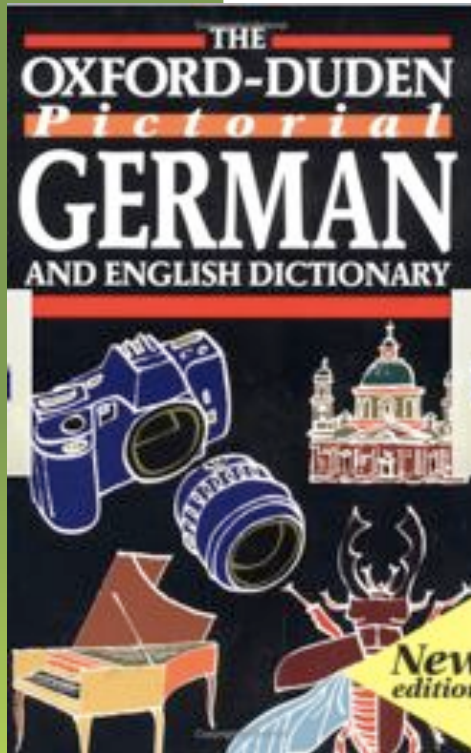
1. Elements, firmament, fire, meteors
2. Waters, earths, stones, metals,
3. Trees, fruits, herbs, shrubs
4. Animals
5. Man and his body...
20. Providence, God and the angels,,,







## Comenius's Descendants





# Comenius's Descendants



*P. M. Roget.*

Peter Marc Roget: 1779-1869

## THESAURUS OF ENGLISH WORDS AND PHRASES

CLASSIFIED AND ARRANGED  
SO AS  
TO FACILITATE THE EXPRESSION OF IDEAS  
AND USED IN  
LITERARY COMPOSITION.

PETER MARK ROGET, M.D., F.R.S.

PHYSICIAN OF THE ROYAL COLLEGE OF PHYSICIANS;  
MEMBER OF THE MEDICAL SOCIETY OF THE UNIVERSITY OF CAMBRIDGE;  
OF THE LITERARY AND PHILOSOPHICAL SOCIETY OF THE UNIVERSITY OF CAMBRIDGE;  
OF THE SOCIETY OF THE HISTORY OF THE UNIVERSITY OF CAMBRIDGE;  
OF THE SOCIETY OF THE HISTORY OF THE UNIVERSITY OF CAMBRIDGE;

EDITOR OF  
THE "CONCISE THESAURUS OF ENGLISH AND FRENCH VOCABULARY,"  
1811.

"It is impossible to do without thoroughly understanding the nature of the words, and  
the property needed and arrange the matter according to the 'Class' of the words."

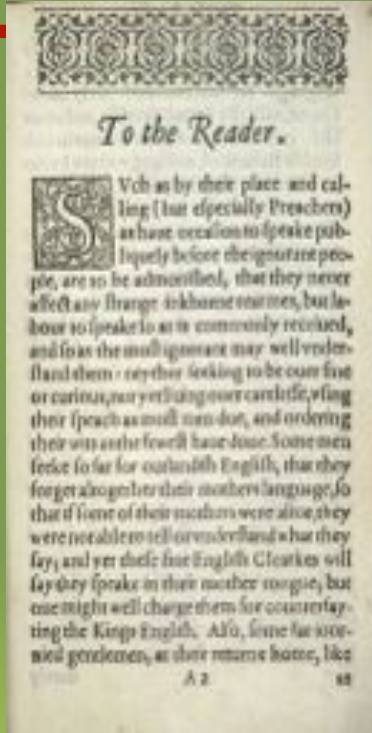
FOURTH EDITION, ENLARGED AND IMPROVED.

## PLAN OF CLASSIFICATION.

	SECT.		NO.
Class.	I. ABSTRACT RELATIONS	1. EXISTENCE	- - 1 to 8
		2. RELATION	- - 9—24
		3. QUANTITY	- - 25—57
		4. ORDER	- - 58—83
		5. NUMBER	- - 84—105
		6. TIME	- - 106—139
		7. CHANGE	- - 140—152
		8. CAUSATION	- - 153—179
II. SPACE	.....	1. GENERALLY	- - 180—191
		2. DIMENSIONS	- - 192—239
		3. FORM	- - 240—263
		4. MOTION	- - 264—315
III. MATTER	.....	1. GENERALLY	- - 316—320
		2. INORGANIC	- - 321—356
		3. ORGANIC	- - 357—449
IV. INTELLECT	.....	1. FORMATION OF IDEAS	450—515
		2. COMMUNICATION OF IDEAS	- - 516—599
V. VOLITION	.....	1. INDIVIDUAL	- - 600—736
		2. INTERSOCIAL	- - 737—819
VI. AFFECTIONS	.....	1. GENERALLY	- - 820—826
		2. PERSONAL	- - 827—887
		3. SYMPATHETIC	- - 888—921
		4. MORAL	- - 922—975
		5. RELIGIOUS	- - 976—1000



# The Emergence of Alphabetical Order



Advertisement to  
Cawdrey's Table  
Alphabetically

If thou be desirous (gentle Reader) rightly and readily to vnderstand, and to profit by this Table, and such like, then thou must learne the Alphabet, to wit, the order of the Letters as they stand, perfectly without booke, and where euery Letter standeth: as (b) neere the beginning, (n) about the middest, and (t) toward the end. Nowe if the word, which thou art desirous to finde, begin with (a) then looke in the beginning of this Table, but if with (v) looke towards the end. Againe, if thy word beginne with (ca) looke in the beginning of the letter (c) but if with (cu) then looke toward the end of that letter. And so of all the rest. &c.

Rob't Cawdrey, *A table alphabetically conteyning and teaching the true writing, and vnderstanding of hard usuall English wordes, borrowed from the Hebrew, Greeke, Latine, or French, &c* 1604





# The Emergence of Alphabetical Order

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## **Practical advantages of alphabetical order:**

Facilitates access to particular entries (assuming a certain mode of reading)

Philosophically modest

"It might be more for the general interest of learning, to have the partitions thrown down, and the whole laid in common again, under one undistinguished name."

Ephraim Chambers

- • Adult contemporary music
- Adult oriented pop music
- Adult standards
- Afiropop
- Arab pop
- Austropop
- Baroque pop
- Britpop
- Bastard pop
- Brazilian pop
- Bubblegum pop
- Chinese pop
- Contemporary Christian
- Country pop
- Dance-pop
- Disco
- Disco polo
- Dream pop
- Electropop/Technopop
- Eurobeat
- Euro disco
- Europop
- Experimental pop music
- French pop
- Greek Laika pop
- Hindi pop
- Hong Kong and Cant
- Hong Kong English pi
- Hot Adult Contempor

# Wikipedia: The logical end of destructuring?

**Ilma Julieta Urrutia Chang** was Guatemala's national representative for the major beauty pageants in 1984.

**The N battery is a type of battery.** It has a battery. It has a diameter of 12 mm and a height of 30.2 mm. For a typical alkaline battery, the N size weighs 9 grams.

**A System Requirements Specification** (SRS) is a document where the requirements of a system that is planned to be developed are listed.

**Protestants in Eritrea** are about 91,232, which are 2% of the population.

Categories: 1926 births | 1991 deaths | African American musicians | American jazz bandleaders | American jazz composers | American jazz trumpeters | American songwriters | Avant-garde trumpeters | Bebop trumpeters | Cool jazz trumpeters | Deaths from stroke | Deaths from respiratory failure | People with sickle-cell disease | Grammy Award winners | Grammy Lifetime Achievement Award winners | Columbia Records artists | Capitol Records artists | Hard-bop trumpeters | Musicians from Illinois | Juilliard School of Music alumni | Miles Davis | Modal jazz trumpeters | People from Madison County, Illinois | People from St. Clair County, Illinois | Rock and Roll Hall of Fame inductees | St. Louis music | Third Stream trumpeters | Deaths from pneumonia | Burials at Woodlawn Cemetery (The Bronx) | Infectious disease deaths in California



# Visualizing Knowledge

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## Visualizing knowledge



Jean d'Alembert

[T]he encyclopedic arrangement of our knowledge ... consists of collecting knowledge into the smallest area possible and of placing the philosopher at a vantage point, so to speak, high above this vast labyrinth, whence he can perceive the principle sciences and the arts simultaneously. From there he can see at a glance the objects of their speculations and the operations which can be made on these objects; he can discern the general branches of human knowledge, ...and sometimes he can even glimpse the secrets that relate them to one another. It is a kind of world map which is to show the principle countries, their position and their mutual dependence, the road that leads directly from one to the other.

# CYCLOPÆDIA: OR, AN UNIVERSAL DICTIONARY OF ARTS AND SCIENCES.

CONTAINING  
AN EXPLANATION of the TERMS, and an ACCOUNT  
OF THE SEVERAL SUBJECTS,  
IN THE  
LIBERAL AND MECHANICAL ARTS,  
AND THE  
SCIENCES, HUMAN and DIVINE.

Intended to be a COURSE of ANCIENT and MODERN LEARNING.

By L. CHAMBERS, F.R.S.

*Perfector ut apes in fideles erudit illos,  
Jocis nam Liber.*

WITH THE  
SUPPLEMENT,  
AND  
MODERN IMPROVEMENTS,  
incorporated in one ALPHABET.

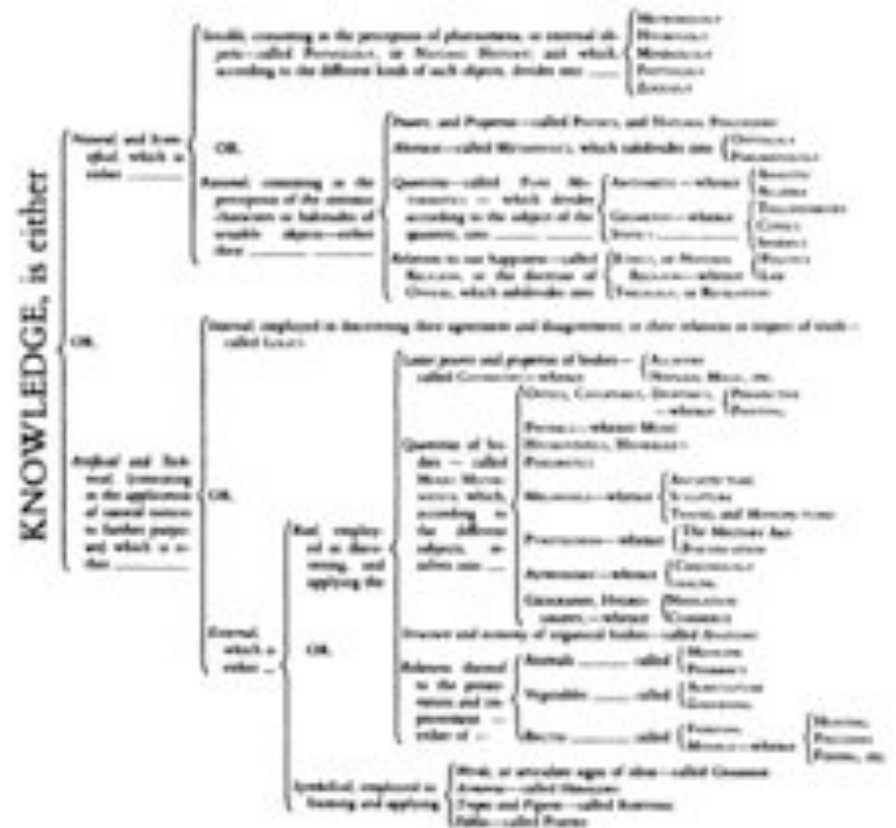
By ABRAHAM REES, D.D.

IN FOUR VOLUMES.



## Chamber's Cyclopædia, 1728

### The Tree of Chambers





# Picturing knowledge



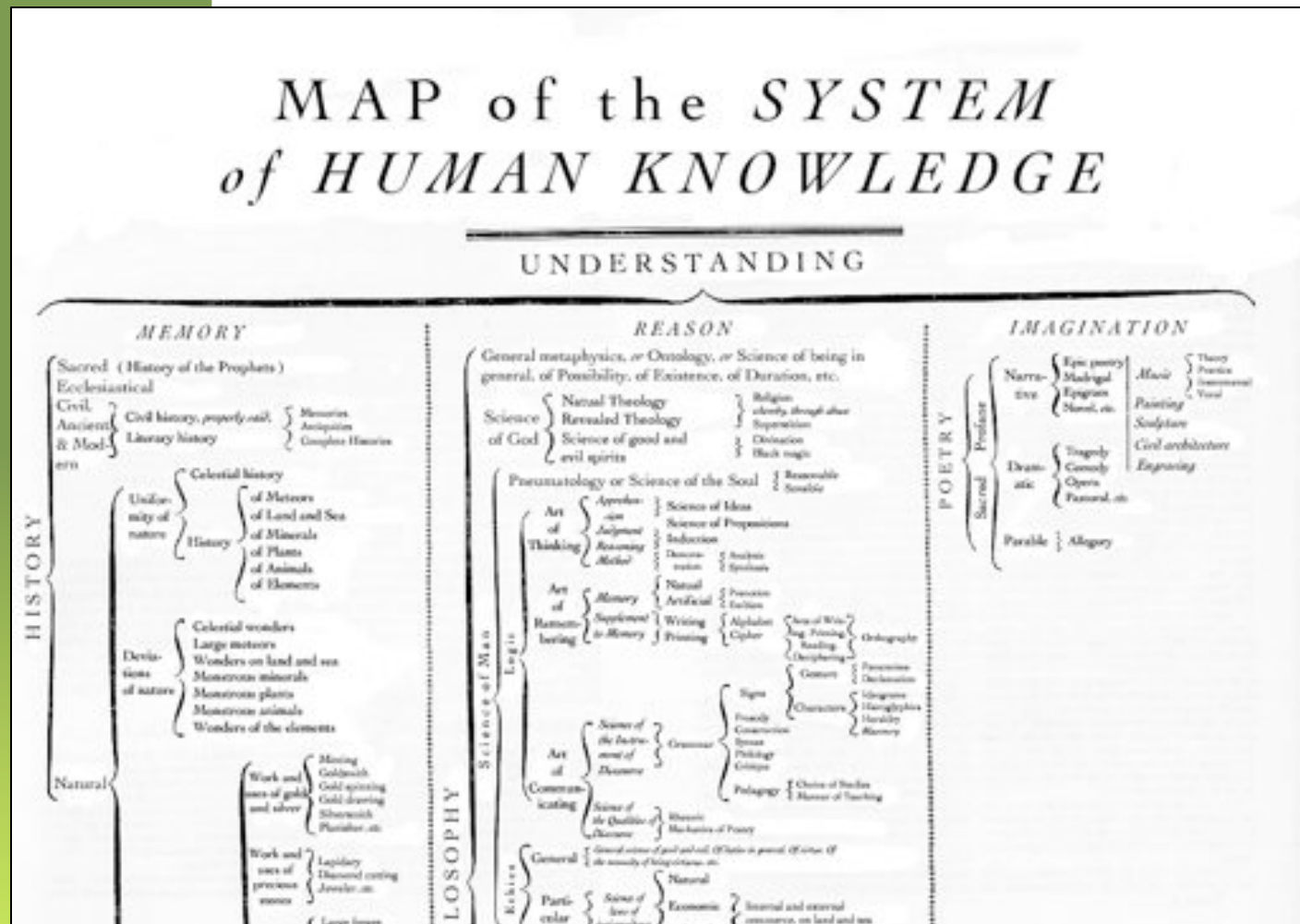


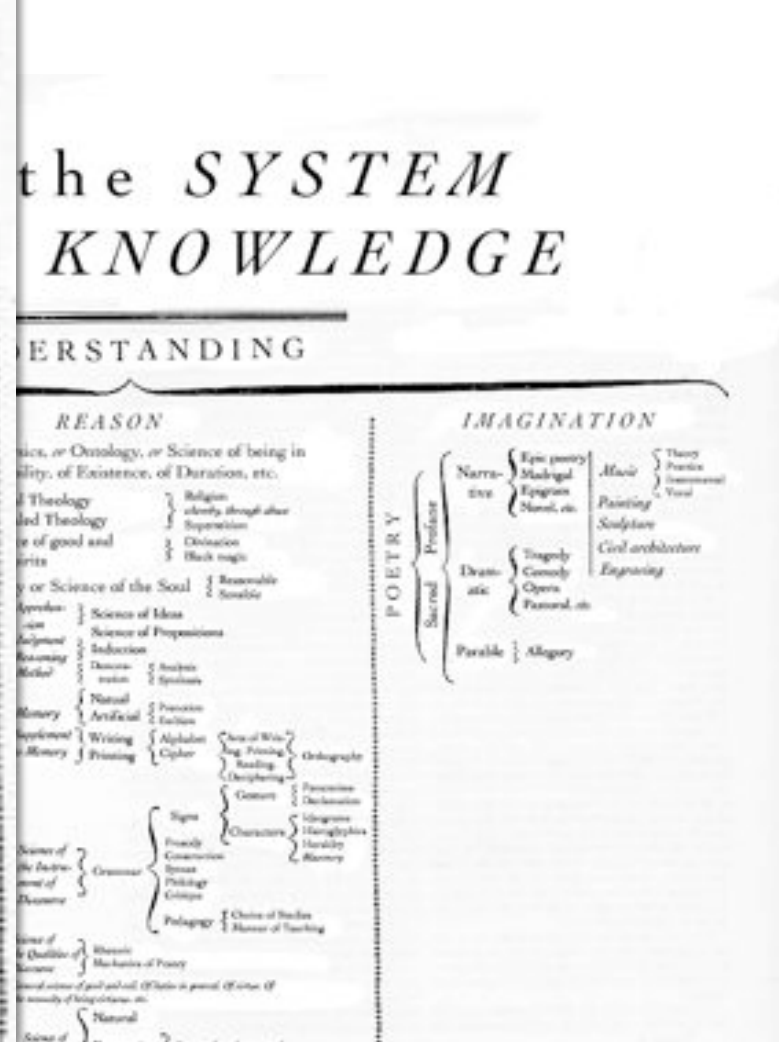






# The Tree of Diderot & D'Alembert





# Tree of Diderot & D'Alembert

## ESSAI D'UNE DISTRIBUTION GÉNÉALOGIQUE DES SCIENCES ET DES ARTS PRINCIPAUX.

Selon l'Explication détaillée du Système  
des Connaissances Humaines dans le Discours  
préliminaire des Editeurs de l'Encyclopédie  
publiée par M. Diderot et M. d'Alembert,  
Weimar, 1769

Art of Remembering.

Natural.

Artificial.

Prenotion.

Emblem.

Supplement to Memory.

Writing.

Printing.

Alphabet.

Cipher.

Arts of Writing, Printing, Reading  
(process) | Reading, Deciphering.

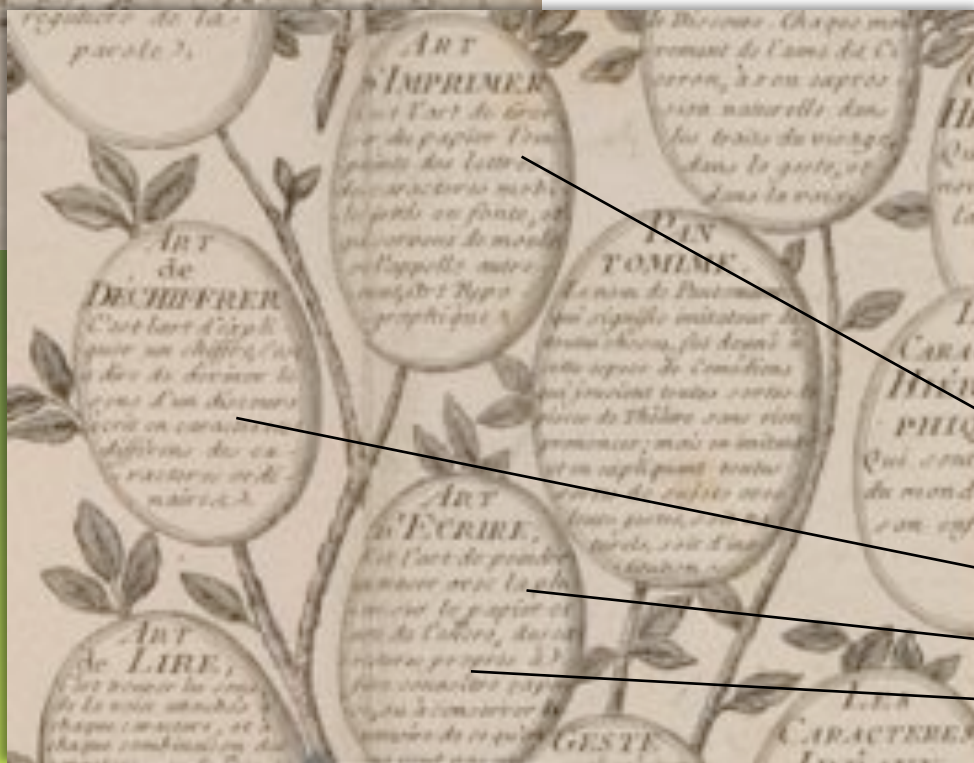
Orthography.

Art of printing

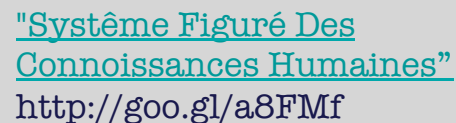
Art of deciphering

Art of writing

Art of reading



on l'Explication détaillée du Système  
 naissances Humaines dans le Discours  
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# Material Representations of Knowledge

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# Material Representations of Knowledge, 1

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## Knowledge and the role of the "trésor"

Libraries, anthologies, dictionaries, in a word "treasuries" [trésors], alongside of encyclopedic collections, delimit a vast territory on which are cast the signs required for knowledge, the expression of identities, and communication among the members of the group.

-Alain Rey, "Les trésors de la langue," 1986



# Material Representations of Knowledge

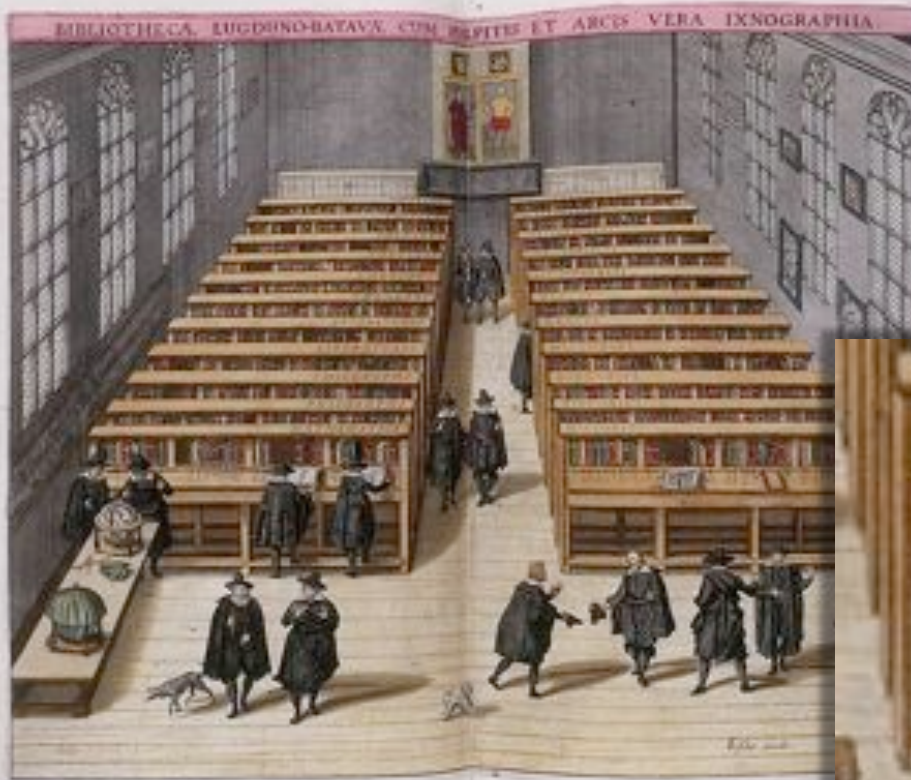


Curriculum mirrored in  
form of library  
(bibliographies)





# Material Representations of Knowledge



Curriculum mirrored in  
form of library  
(bibliographies)



Leiden University Library, 1610



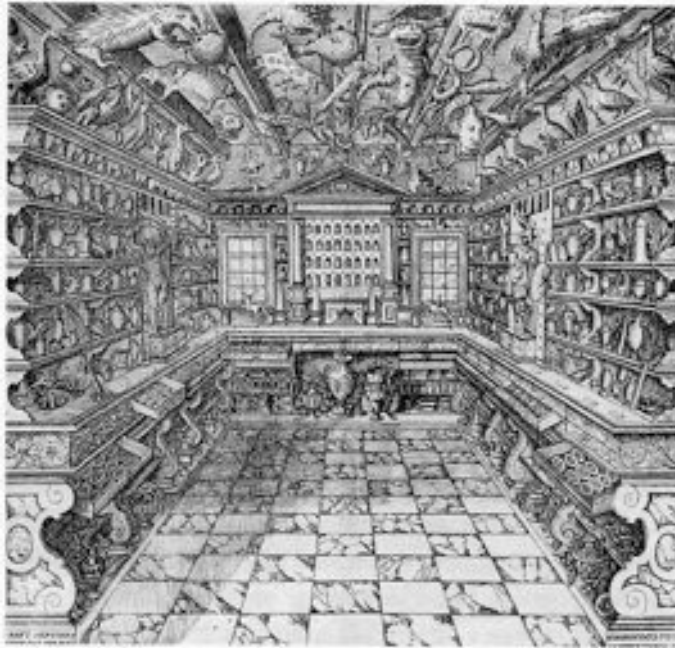
# Representations of Knowledge: The Kunstkammer

Organization of knowledge mirrored in form of  
Kunstkammer, cabinets of curiosities,  
Wunderkammer, etc.





# The Kunstkammer & Wunderkammer



Kunst- und Wunderkammer of Emperor Rudolf II, ca 1610



Natural History Cabinet, Naples, 1599





# Representations of Knowledge: The Studiolo



Studiolo of Francesco I  
Florence (1570)



Kunstkammer, 1636



# Representations of Knowledge: The Studiolo



Studiolo of Federico da Montefeltro  
Urbino (ca. 1460) with wood intarsia  
(inlay)



# Representations of Knowledge: The Kunstschränk

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The Kunstschränk (art cabinet or art shrine)







# Representations of Knowledge: The Kunstschränk



French Reliquary, 1330



Presentation of the Pomeranian Kunstschränk, Anton Mozart 1615





# From Cabinets to Museums

Kunstkammers first made available for public viewing in mid-17<sup>th</sup>. C (Kunstmuseum Basel, 1661)

Public museums in 18<sup>th</sup> c:

British Museum, 1759, containing cabinet of curiosities assembled by Hans Sloan, ms collections, Royal Library. Later: collections of antiquities, etc.



Montague House, home of original British Museum in Bloomsbury

Uffizi Gallery, Florence, 1765

Belvedere Palace, Vienna, 1781

Louvre Palace opened to public in 1793 with royal collections; augmented by Napoleon



## 17th c. Galleries



21 The Imperial Gallery in Prague, by Johann Breitschneider, 1714. The paintings are arranged according to the visual and decorative effect.



# 17th c. Galleries

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Gallery of Cornelis  
van der Geest,  
1628





# Modern Salon Style



Daumier, Salon de 1867



Walker Museum,  
Minneapolis



# 18th c. Galleries

Painting  
Galleries,  
Schloss  
Belvedere,  
Vienna, 1781



29 - Histories of Art were created in many of the galleries of Europe. This plan of the painting gallery in the Schloss Belvedere in 1778, shows how the works were grouped by country, and within that, by date, by (geographical) school, or by individual artist. This is in marked contrast to the form of display shown in Plate 11.



Rationalizing the organization of the  
trésor



## Readings for 2/4

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“Electro-Magnetic Telegraphs,” H. Rpt 753 (to Accompany Bill H.R. 713) 25th Congress, 2nd Session, April 6, 1838

Alexander Graham Bell, “To the Capitalists of the Bell Telephone Company,” Kensington (UK), March 25, 1878

Samuel Colt & William Robinson, “To the Public,” New York, May 20, 1846

Henry George, “The Western Union Telegraph Company and the California Press,” San Francisco, April 21 1869.