The Organization of Knowledge
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Concepts of Information i218
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A MODEST PROPOSAL

To avoid confusion with ordinary-lg uses of *data*, *information*, and *knowledge*, substitute new terms for technical notions:

"data" = "moe" "information = "curly" "knowledge" = "larry"

Moes are facts that are the result of observation or measurement. Curly is meaningful moe. ... Larry is internalized or understood curly that can be used to make decisions.

Defining "knowledge":

What are we talking about?

COLLOCATIONS

knowledge economy *n. Econ.* and *Business* an economy in which growth is thought to be dependent on the effective acquisition, dissemination, and use of information, rather than the traditional means of production **knowledge management** *n. Econ.* and *Business* the effective management of the sharing and retention of information in an organization; the use of management techniques to optimize) the acquisition, dissemination, and use of knowledge. **knowledge work** *n.* work which involves handling or using information. **knowledge worker** *n.* a person whose job involves handling or using information.

[Note: almost never translated with equivalent of "knowledge"]

INDIVIDUAL SENSES

Oxford English Dictionary:

• The fact of knowing a thing, state, etc., or a person; familiarity gained by experience. *His knowledge of human nature must be limited indeed.*

• Acquaintance with a branch of learning, a language, or the like; *His knowledge of French is excellent.*

The information that the Giants acquired Aoki →The knowledge that Giants acquired Aoki. No epistemic difference…

The ideology of "knowledge"

Folding the social into the concept, :

> Information is piecemeal, fragmented, particular. Knowledge is structured, coherent and **universal**.
>
> information is timely, transitory, even ephemeral. Knowledge is **enduring** and **temporally expansive**.
>
> information is a flow across spaces. Knowledge is a stock, **specifically located**, yet **spatially expansive.** Machlup 1983

What kind of knowledge is "universal," "enduring," etc.?

COLLECTIVE SENSES

OED 13. The sum of what is known.

> De Quincey, 1860 All knowledge may be commodiously distributed into science and erudition.

Collective senses: knowledge as a three-place relation

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

CIRCUMSCRIBING THE COMMUNITY/DISCOURSE

Medical knowledge vs medical information: what is the difference?

> P must be collectively accessible (to everyone? In C?)
>
> "The third-century Chinese had knowledge of porcelain"

WHAT YOU MEAN, "WE"?

> In that medical knowledge doubles every 3.5 years or less, by 2029, **we** will know at least 256 times more than we know today. As a result, it is not impracticable nor improbable to expect that humankind will reach the point where we'll know how to substantially slow or perhaps even stop aging,
>
> It's snowing in Chicago./It often snows in Chicago.
>
> "We are out of paper towels"/Paper towel consumption is 50% higher in America than in Europe/Arthur Scott introduced the first paper towel in 1931.
>
> GN was born in Manhattan./William Tell was born in Bürglen, Switzerland.

Cf *medical knowledge* vs *medical information*

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Circumscribing the knowledge domain

Knowledge is characterized by "spatial" extension & internal structure

Internal structure implies a standardized (canonical, implicit) classificatory scheme, *ideally…*

= socially embedded, principled procedure for sorting everything in D into mutually exclusive categories

Class schemes realized in (more-or-less) formal infrastructures consisting of procedures, institutions, technologies, communities, etc.

Natural vs nominal, naïve vs. specialist, explicit vs implicit, etc.

Changing Frames of Knowledge

Schemes of knowledge are responses to influences that are:

Pragmatic/material

Technological

Philosophical/academic/theological

Symbolic/political

(Metaphysical – what's out there)

The anthropology of knowledge

How do we characterize conceptions of "knowledge" historically?

Explicit descriptions & theories

Models/images of knowledge in

Forms of institutions & practices (curriculum, conferences, job descriptions)

Material embodiments (library, museum, form of book)

Textual embodiments – encyclopedia, dictionary, compendium, bibliography

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

Shifting Conceptions of Knowledge, 1500-1800

Varieties of Renaissance knowledge: The 15th-Century Curriculum

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

Trivium: grammar, logic, rhetoric

Quadrivium: arithmetic, astronomy, geometry, music

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

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Higher faculties: theology, medicine, law

System of knowledge is "closed"; built around classical sources and religious texts (courses organized around texts, not subjects)
Organization of knowledge is fixed and "natural"

Curriculum roughly uniform throughout Europe, enabled *peregrinatio academica*

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

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")

By 1600, thousand of species are described, though in disorganized fashion.

Systems of description (not taxonomies) emerge. Plants bear four names (common, pharmacists' Latin, trad. Latin, Greek)

John Ray, *Historia generalis plantarum*, 1686-

Classified 6100 plant species by seeds, seeds, fruit and leaves. Produced first modern defintion 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...

THE BIRTH OF "MODERN" CLASSIFICATION: LINNAEUS

Organizing Knowledge

Reference works

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

Creation of "reference" works

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

Enlightenment Reorganizations of Knowledge

Francis Bacon's scheme puts man at the center:

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Nature (astronomy, meterology, etc.).

Man (anatomy, powers, actions),

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

The Encyclopédie

First vol. appears in 1751; last in 1772;

Classification

On "Monsters"

This passage [of Borges] quotes a 'certain Chinese encyclopedia' in which it is written that '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, (1) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies'. In the wonderment of this taxonomy, the thing we apprehend in one great leap, the thing that… is demonstrated as the exotic charm of another system of thought, is the limitation of our own, the stark impossibility of thinking *that*.

The monstrous quality that runs through Borges's enumeration consists in the fact that the common ground on which such meetings are possible has itself been destroyed. … [The passage} kept me laughing a long time, though not without a certain uneasiness that I found hard to shake off. Perhaps because there arose in its wake the suspicion that there is a worse kind of disorder than that of the incongruous, the linking together of things that are inappropriate; I mean the disorder in which fragments of a large number of possible orders glitter separately in the dimension, without law or geometry, of the heteroclite; 'laid', 'placed', 'arranged' in sites so very different from one another that it is to find a place of residence for them, to define a common locus beneath them all. Foucault, Preface to *The Order of Things* (*Les Mots et les Choses*)
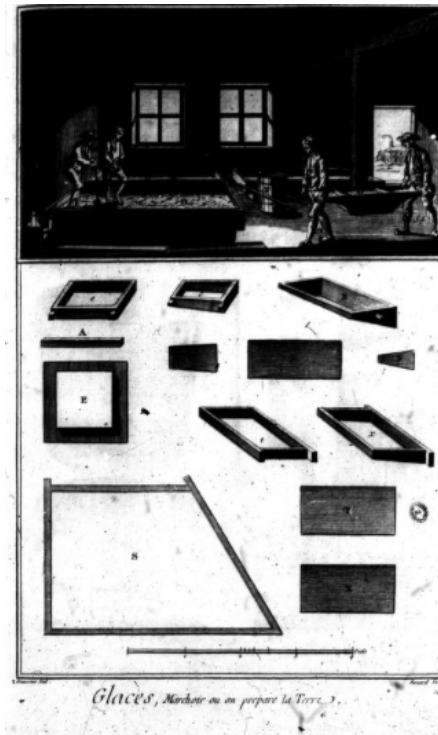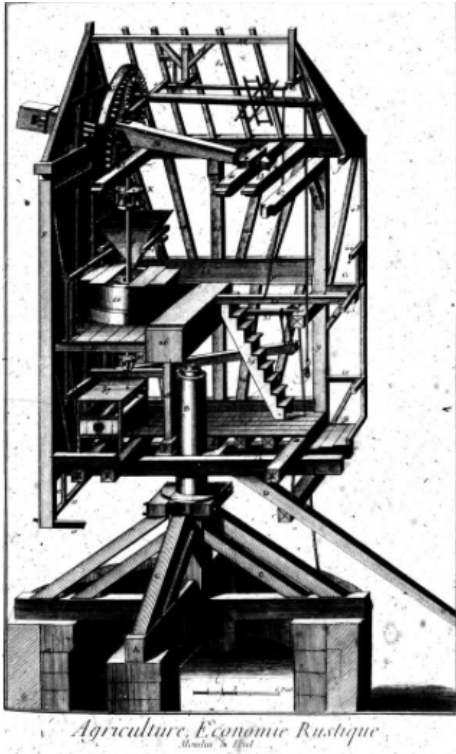
It is only the presence of man that makes the existence of other beings significant… Why should we not introduce man into our Encyclopedia, giving him the same place that he occupies in the universe? Why should we not make him the center of all that is? ... With man at the center, how lively and pleasing will be the ensuing relations between man and other beings, between other beings and man!" (Diderot, p. 80-81).

"Sciences, Arts Libéraux, Arts Méchaniques"

…the advantage that the *liberal* arts have over the *mechanical* arts, because of their demands upon the intellect and because of the difficulty of excelling in them, is

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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"

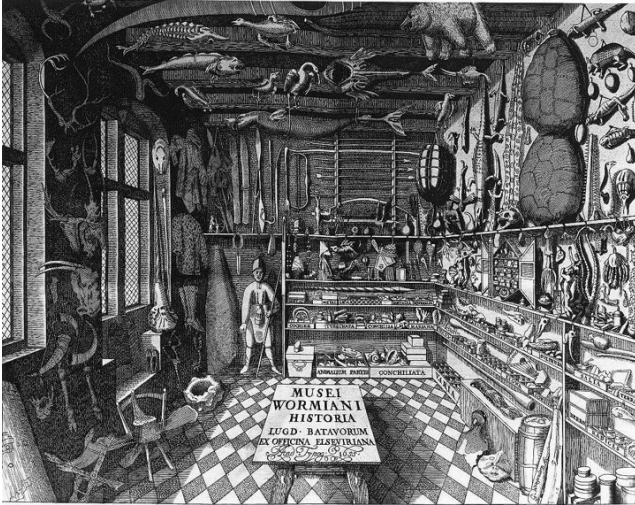d'Alembert, Preliminary Discourse to the Encyclopédie

Agriculture, Économie Rustique

Glaces, Marchoir ou en prepare la Terre.

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

Representations of Knowledge: The Kunstkammer

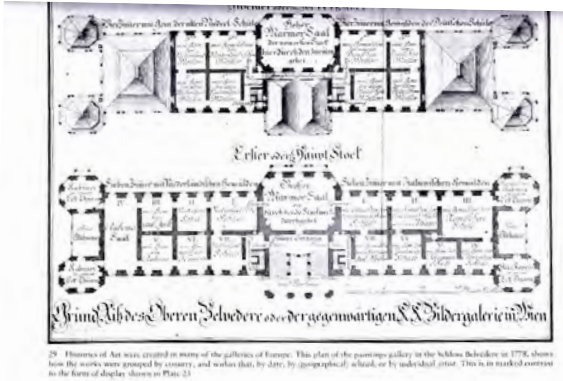Organization of knowledge mirrored in form of Kunstkammer, cabinets of curiosities, Wunderkammer, etc.

The Kunstkammer of Rudolph II was a carefully organized "museum' articulated through an understanding of the world… Its contents were organised to exhibit a world picture, with objects that symbolised all aspects of nature and art, as conceptualized by the occult philosophers… This organisation depended on the concept of resemblance, where the objects and their proximities suggested macrocosmic microcosmic links.

Eilean Hooper-Greenhill, *Museums and the Organisation of Knowledge*

18th c. Galleries

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29 Histories of Art were created in many of the galleries of Europe. This plan of the paintings gallery in the Schloss Belvedere in 1776, 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 23.

The spatialization of knowledge: trees and maps

[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.
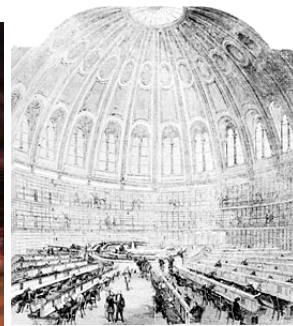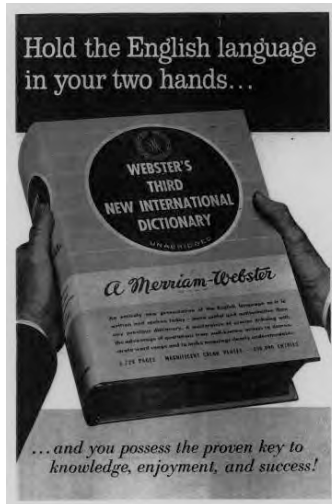
The Enlightement Plan

"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. The difficulty was greatest where it involved the most arbitrariness. 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.

Depicting boundaries

Why "all the words"?

Topographical and metrical spaces

> That vast aggregate of words and phrases which constitutes the Vocabulary of English-speaking men presents... the aspect of one of those nebulous masses familiar to the astronomer, in which a clear and unmistakable nucleus shades off on all sides, through zones of decreasing brightness, to a dim marginal film that seems to end nowhere, but to lose itself imperceptibly in the surrounding darkness.…
> James Murray, "General Explanation" to the OED

Canonicity: All elements of all subdomains are ordered with regard to "centrality" of membership (i.e., discursive space is metrical, not just topological)

What defines a "reference book"

words*: civet > panther > cat*
authors: Michael Crichton > John Updike > Herman Melville

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news events: rescued cat > school budget vote > earthquake

Also: tourist attractions (travel guides), artists (national collections), etc.

Buf cf. world records: ??Most hot dogs eaten> largest waistline > longest kiss

> "[M]en 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." L-S.Mercier, *L' An 2440*, 1771

Assignment for 3/24

What happens to this global conception of the structure of knowledge in the age of Wikipedia and similar efforts? Is it still preserved in some form? Do the Wikipedians think they're reproducing it (as the -pedia suggests)? Or if it's essentially pluralist and fragmentary, can we really still speak of knowledge as opposed simply to information? One way to come at this is to pick a general topic area in Wikipedia that doesn't have a canonical internal structure (i.e., it doesn't reproduce the contents of an academic curriculum, like a topic in mathematics or cell biology, and its structure isn't determined more-or-less straightforwardly by the properties of its subject -- e.g., an entry for a city, a commercial product, or the career trajectory of a rock band). What we're looking for is "monsters," entries that sit uneasily at the intersection of several distinct knowledge domains, reflecting differences in subject matter, community, etc., and consequently scattered in coverage, tone &/or point of view. (Sometimes this is evident from the "see also" or "external link" sections.)

There's no algorithm for finding these things (is that a logical consequence of their definition?) but see if you can dig one or two out and speculate about what they say about the organization of knowledge.

OR

One can simply bang around in an area one is familiar with (but again, not one that has a standardized canonical structure) looking for entries that suggest the overapping of knowledge categories associated with different domains -- that is, that would present complications for the Encyclopédie picture of knowledge.

Some examples that have worked in previous years: glamour, profanity, buttocks, superficial charm, high tech

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