

# Monothèque: a radiated book

# Index

THIS IS A DRAFT

- Mondothèque: a radiated book
  - Property:Person (agents + actors)
  - Introduction + NL + FR
- Embedded hierarchies
  - The radiated interview/L'entrevue rayonnée/Het gestraalde interview
  - Amateur Librarian - A Course in Critical Pedagogy **Tomislav Medak** & **Marcell Mars** + FR
  - A bag but is language nothing of words **Michael Murtaugh**
  - A Book of the Web **Dušan Barok**
  - De Indexalist **Matthew Fuller** + EN
  - Une lecture-écriture du livre sur le livre **Alexia de Visscher**
- Disambiguation
  - An experimental transcript **Sinziana Păltineanu**
  - LES UTOPISTES and their common logos **Dennis Pohl**
  - X = Y **Dick Reckard**
  - Madame C/Mevrouw C **Femke Snelting**
  - Une histoire préemptif de l'Institut culturel de Google **Geraldine Juárez** + EN
  - Special:Disambiguation
- Location, location, location
  - From Paper Mill to Google Data Center **ShinJoung Yeo**
  - House, City, World, Nation, Globe **Natacha Roussel**
  - The Smart City - City of Knowledge **Dennis Pohl**
  - The itinerant archive
- Cross-readings
  - Les Pyramides
  - Transclusionism
  - Cross-readings
  - Colophon/Colofon

# Property:Person

Meet the cast of historical, contemporary and fictional people that populate La Mondothèque.



Yves  
Bernard

Wilhelmina  
Coops

Wilhelmina  
Coops

Wilhelmina  
Coops

Wilhelmina  
Coops

Vint Cerf



Vint Cerf

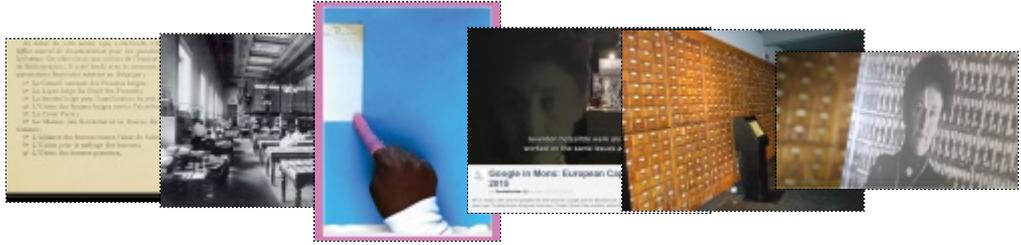
Vint Cerf

Unidentified  
Woman

Unidentified  
Woman

Unidentified  
Woman

Unidentified  
Woman



Unidentified  
Woman

Unidentified  
Woman

Unidentified  
Woman

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Woman



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Woman

Unidentified  
Woman

Unidentified  
Woman

Unidentified  
Woman

Unidentified  
Woman

Thea  
Coops



Sylvia  
Van  
Peteghem

Steve  
Crossan

Paul  
Otlet

Unidentified  
Woman

Paul  
Otlet

Paul  
Otlet



Paul  
Otlet

Wilhelmina  
Coops

Marie  
Van  
Mons

Paul  
Otlet

Paul  
Otlet

Unidentified  
Woman



Wilhelmina  
Coops

Paul  
Otlet

Paul  
Otlet

Paul  
Otlet

Jiddu  
Krishnamurti

Paul  
Otlet



Unidentified  
Woman

Paul  
Otlet

Cato van  
Nederhasselt

Unidentified  
Woman

Paul  
Otlet

Paul  
Otlet



Paul  
Otlet

Unidentified  
Woman

Paul  
Otlet

Paul  
Panda

Paul  
Otlet

Paul  
Otlet



Le  
Corbusier

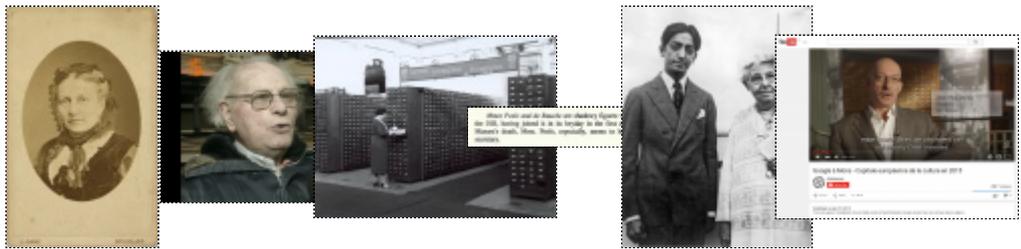
Unidentified  
Woman

Unidentified  
Woman

Paul  
Otlet

Unidentified  
Woman

Patrick  
Geddes



Marie-  
Louise  
Philips

Marcel  
Flamion

Unidentified  
Woman

Louis  
Masure

Annie  
Besant

Jean-Paul  
Deplus



Bill  
Echikson

Jean  
Olet Jr.

Jean  
François  
Fueg

Annie  
Besant

Igor  
Platounoff

Wilhelmina  
Coops



Henri La  
Fontaine

Mathilde  
Lhoest

Henri La  
Fontaine

Henri La  
Fontaine

Henri La  
Fontaine

Henri La  
Fontaine



Harm  
Post

Gustave  
Abeels

Gaston  
Fagel

François  
Schuiten

Femke  
Snelting

Robert  
M.  
Ochshorn



Nicolas  
Malevé

Stéphanie  
Manfroid

Stéphanie  
Manfroid

Alexia de  
Visscher

Stéphanie  
Manfroid

Ernest  
de Potter



Nicolas  
Sarkozy

Eric E.  
Schmidt

Elio Di  
Rupo

Sylvia  
Van  
Peteghem

Elio Di  
Rupo

Elio Di  
Rupo



Elio Di  
Rupo

Elio Di  
Rupo

Alexander  
De Croo

Elio Di  
Rupo

Elio Di  
Rupo

Unknown  
man



Elio Di  
Rupo

Elio Di  
Rupo

Delphine  
Jenart

Delphine  
Jenart

Bill  
Echikson

Bill  
Echikson



Bernard  
Otlet

Bernard  
Otlet

Bernard  
Otlet

Barack  
Obama

Ami  
Jonsson

André  
Canonne



Andrew  
Carnegie

Unknown  
man

# Introduction

## About this book

(input/notes for an introduction)

'Google didn't pick random collections of content. Instead the company's venture into the world of literature started by digitizing millions of books from some of the most venerable research libraries – Harvard, the New York Public Library, Stanford, the University of Michigan and Oxford – with plans to expand to libraries around the world. These are highly curated collections of books which have been built by cultural workers over hundreds of years, and with considerable public funding. As Google devoured these library collections, the company also invisibly absorbed the countless hours of labor that had been expended by the cultural workers who had built those collections – without paying a dime in compensation and with few commitments to any kind of democratic accountability beyond “access.”<sup>[1]</sup>

'I'm proposing that we consider movements and our digital records in the context of “cycles of contention.” Think about these cycles as the opening and closing of windows of opportunities for people to realize that their problems aren't individual failings, but systemic, and then to act on those grievances as a group.<sup>[2]</sup>

'Culture has not only created epistemology, but indeed also signal-processing machines, which are then by definition detached from culture: they do not 'count' semantic aspects; they do not view images as icons; they do not perceive sound as music; and they read texts with the aesthetics of a scanner, by Optical Character Recognition.<sup>[3]</sup>

'The engagement with the present -- and the spirit of the times -- set the political agenda in a variety of realms, (ranging from sexuality and kinship system to religious and discursive practices). The analyses of these themes are transmitted through narratives -- mythologies or fictions, which I have renamed as "figurations" or cartographies of the present. A cartography is a politically informed map of one's historical and social locations, enabling the analysis of situated formations of power and hence the elaboration of adequate forms of resistance<sup>[4]</sup>

1. <http://informationobservatory.info/2015/10/27/google-books-fair-use-or-anti-democratic-preemption/#more-279>

2. <https://viewpointmag.com/2015/10/31/radical-archives-and-the-new-cycles-of-contention/>

3. Wolfgang Ernst: "From Media History to Zeitkritik".

4. Rosi Braidotti, Nomadic Theory (2011)

# Inleiding

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(notities voor een introductie, in het NEDERLANDS)

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# Preface

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(input/notes for an introduction FRANCAIS)

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# Embedded hierarchies

# The radiated interview/ L'entrevue rayonnée/Het gestraalde interview

- **Dries Moreels** & **Sylvia Van Peteghem** (Universiteitsbibliotheek Gent)
- **Marc d'Hoore** & **Eglantine Lebacq** (Koninklijke bibliotheek van België)
- t.b.c. **Stéphanie Manfroid** (Mundaneum archive center)

Interviews: Femke Snelting, Alexia de Visscher

Transcriptions: Femke Snelting, Alexia de Visscher, Tom van de Wijngaert

# Amateur Librarian - A Course in Critical Pedagogy

Tomislav Medak & Marcell Mars (Public Library project)

A proposal for a curriculum in amateur librarianship, developed through the activities and exigencies of the Public Library project. Drawing from a historic genealogy of public library as the institution of access to knowledge, the proletarian tradition of really useful knowledge and the amateur agency driven by technological development, the curriculum covers a range of segments from immediately applicable workflows for scanning, sharing and using e-books, over politics and tactics around custodianship of online libraries, to applied media theory implicit in the practices of amateur librarianship. The proposal is made with further development, complexification and testing in mind during the future activities of the Public Library and affiliated organizations.

## Public library, a political genealogy

Public libraries have historically achieved as an institutional space of exemption from the commodification and privatization of knowledge. A space where works of literature and science are housed and made accessible for the education of every member of society regardless of their social or economic status. If, as a liberal narrative has it, education is a prerequisite for full participation in a body politic, it is in this narrow institutional space that citizenship finds an important material base for its universal realization.

The library as an institution of public access and popular literacy, however, did not develop before a series of transformations and social upheavals unfolded in the course of 18th and 19th century. These developments brought about a flood of books and political demands pushing the library to become embedded in an egalitarian and democratizing political horizon. The historic backdrop for these developments was the rapid ascendancy of the book as a mass commodity and the growing importance of the reading culture in the aftermath of the invention of the movable type print. Having emerged almost in parallel with capitalism, by the early 18th century the trade in books was rapidly expanding. While in the 15th century the libraries around the monasteries, courts and universities of Western Europe contained no more than 5 million manuscripts, the output of printing presses in the 18th century alone exploded to formidable 700 million volumes.<sup>[1]</sup> And while this provided a vector for the emergence of a bourgeois reading public and an unprecedented expansion of modern science, the culture of reading and Enlightenment remained largely a privilege of the few.

Two social upheavals would start to change that. On 2 November 1789 the French revolutionary National Assembly passed a decision to seize all library holdings from the Church and aristocracy. Million of volumes were transferred to the Bibliothèque Nationale and local libraries across France. At the same time capitalism was on the rise, particularly in England. It massively displaced the impoverished rural population into growing urban centres, propelled the development of industrial production and, by the mid-19th century, introduced the steam-powered rotary press into the commercial production of books. As books became more easily mass-produced, the commercial subscription libraries catering to the better-off parts of society blossomed. This brought the class aspect of the nascent demand for public access to books to the fore.

After the failed attempt to introduce universal suffrage and end the system of political representation based on property entitlements through the Reform Act of 1832, the English Chartist movement started to open reading rooms and cooperative lending libraries that would quickly become a popular hotbed of social exchange between the lower classes. In the aftermath of the revolutionary upheavals of 1848, the fearful ruling classes finally consented to the demand for tax-financed public libraries, hoping that the access to literature and edification would after all help educate skilled workers that were increasingly in demand and ultimately hegemonize the working class for the benefits of capitalism's culture of self-interest and competition.<sup>[2]</sup>

## Really useful knowledge

[3]

It's no surprise that the Chartists, reeling from a political defeat, had started to open reading rooms and cooperative lending libraries. The education provided to the proletariat and the poor by the ruling classes of that time consisted, indeed, either of a pious moral edification serving political pacification or of an inculcation of skills and knowledge useful to the factory owner. Even the seemingly noble efforts of the Society for the Diffusion of the Useful Knowledge, a Whig organization aimed at bringing high-brow learning to the middle and working classes in the form of simplified and inexpensive publications, were aimed at dulling the edge of radicalism of popular movements.<sup>[4]</sup>

These efforts to pacify the downtrodden masses pushed them to seek ways of self-organized education that would provide them with literacy and really useful knowledge – not applied, but critical knowledge that would allow them to see through their own political and economic subjection, develop radical politics and innovate shadow social institutions of their own. The radical education, reliant on meagre resources and time of the working class, developed in the informal setting of household, neighbourhood and workplace, but also through radical press and communal reading and discussion groups.<sup>[5]</sup>

The demand for really useful knowledge encompassed a critique of “all forms of ‘provided’ education” and of the liberal conception “that ‘national education’ was a necessary condition for the granting of universal suffrage.” Development of radical “curricula and pedagogies” formed a part of the arsenal of “political strategy as a means of changing the world.”<sup>[6]</sup>

# Critical pedagogy

This is the context of the emergence of the public library. A historical compromise between a push for radical pedagogy and a response to dull its edge. And yet with the age of digitization, where one would think that the opportunities for access to knowledge have expanded immensely, public libraries find themselves increasingly limited in their ability to acquire and lend both digital and paper editions. It is a sign of our radically unequal times that the political emancipation finds itself on a defensive fighting again for this material base of pedagogy against the rising forces of privatization. Not only has mass education become accessible only under the condition of high fees, student debt and adjunct peonage, but the useful knowledge that the labour market and reproduction of the neoliberal capitalism demands has become the one and only rationale for education.

No wonder that over the last 6-7 years we have seen self-education, shadow libraries and amateur librarians emerge again to counteract the contraction of spaces of exemption that have been shrunk by austerity and commodity.

The project Public Library was initiated with the counteraction in mind. To help everyone learn to use simple tools to be able to act as an Amateur Librarian – to digitize, to collect, to share, to preserve books and articles that were unaffordable, unavailable, undesirable in the troubled corners of the Earth we hail from.

Amateur Librarian played an important role in the narrative of Public Library. And it seems it was successful. People easily join the project by 'becoming' a librarian using Calibre<sup>[7]</sup> and [let's share books].<sup>[8]</sup> Other aspects of the Public Library narrative add a political articulation to that simple yet disobedient act. Public Library detects an institutional crisis in education, an economic deadlock of austerity and a domination of commodity logic in the form of copyright. It conjures up the amateur librarians' practice of sharing books/catalogues as a relevant challenge against the convergence of that crisis, deadlock and copyright regime.

To understand the political and technological assumptions and further develop the strategies that lie behind the counteractions of amateur librarians, we propose a curriculum that is indebted to a tradition of critical pedagogy. Critical pedagogy is a productive and theoretical practice rejecting an understanding of educational process that reduces it to a technique of imparting knowledge and a neutral mode of knowledge acquisition. Rather, it sees the pedagogy as a broader "struggle over knowledge, desire, values, social relations, and, most important, modes of political agency", "drawing attention to questions regarding who has control over the conditions for the production of knowledge."<sup>[9]</sup>

No industry in the present demonstrates more the asymmetries of control over the conditions of production of knowledge than the academic publishing. The denial of access to outrageously expensive academic publications for many universities, particularly in the Global South, stands in stark contrast to the super-profits that a small number of commercial publishers draws from the free labour of scientists who write, review and edit contributions and the extortive prices their institutional libraries have to pay for subscriptions. It is thus here that the amateur librarianship attains its poignancy for a critical pedagogy, inviting us to closer formulate and unfold its practices in a shared process of discovery.

# A curriculum

Public library is:

- free access to books for every member of society,
- library catalogue,
- librarian.

The curriculum in amateur librarianship develops aspects and implications of this definition. Parts of this curriculum have evolved over a number of workshops and talks previously held within the Public Library project, parts of it are yet to evolve from a process of future research, exchange and knowledge production in the education process. While schematic, scaling from the immediately practical, over strategic and tactical, to reflexive registers of knowledge, there are actual – here unnamed – people and practices we imagine we could be learning from.

The first iteration of this curriculum could be either a summer academy rostered with our all-star team of librarians, designers, researchers and teachers, or a small workshop with a small group of students delving deeper into one particular aspect of the curriculum. In short it is an open curriculum: both open to educational process and contributions by others. We welcome comments, derivations and additions.

## MODULE 1: Workflows

- from book to e-book
  - **digitizing a book on a book scanner**
  - **removing DRM and converting e-book formats**
- from clutter to catalogue
  - **managing an e-book library with Calibre**
  - **finding e-books and articles on online libraries**
- from reference to bibliography
  - **annotating in an e-book reader device or application**
  - **creating a scholarly bibliography in Zotero**
- from block device to network device
  - **sharing your e-book library on a local network to a reading device**
  - **sharing your e-book library on the internet with [let's share books]**
- from private to public IP space
  - **using [let's share books] & library.memoryoftheworld.org**
  - **using logan & jessica**
  - **using Science Hub**

- using Tor

## MODULE 2: Politics/tactics

- from developmental subordination to subaltern disobedience
  - **uneven development & political strategies**
  - **strategies of the developed v strategies of the underdeveloped : open access v piracy**
- from property to commons
  - **from property to commons**
  - **copyright, scientific publishing, open access**
  - **shadow libraries, piracy, custodians.online**
- from collection to collective action
  - **critical pedagogy & education**
  - **archive, activation & collective action**

## MODULE 3: Abstractions in action

- from linear to computational
  - **library & epistemology: catalogue, search, discovery, reference**
  - **print book v e-book: page, margin, spine**
- from central to distributed
  - **deep librarianship & amateur librarians**
  - **network infrastructure(s)/topologies (ruling class studies)**
- from factual to fantastic
  - **universe as library as universe**

## Reading List

- Mars, Marcell; Vladimir, Klemo. *Download & How to: Calibre & [let's share books]*. Memory of the World (2014) <https://www.memoryoftheworld.org/blog/2014/10/28/calibre-lets-share-books/>
- Buringh, Eltjo; Van Zanden, Jan Luiten. *Charting the "Rise of the West": Manuscripts and Printed Books in Europe, A Long-Term Perspective from the Sixth through Eighteenth Centuries*. The Journal of Economic History (2009) [http://journals.cambridge.org/article\\_S0022050709000837](http://journals.cambridge.org/article_S0022050709000837)
- Mattern, Shannon. *Library as Infrastructure*. Places Journal (2014) <https://placesjournal.org/article/library-as-infrastructure/>

- AntoniĆ, Voja. *Our beloved bookscanner*. Memory of the World (2012) <https://www.memoryoftheworld.org/blog/2012/10/28/our-beloved-bookscanner-2/>
- Medak, Tomislav; SekuliĆ, Dubravka; Mertens, An. *How to: Bookscanning*. Memory of the World (2014) <https://www.memoryoftheworld.org/blog/2014/12/08/how-to-bookscanning/>
- Barok, Duřan. *Talks/Public Library*. Monoskop (2015) [http://monoskop.org/Talks/Public\\_Library](http://monoskop.org/Talks/Public_Library)
- Custodians.online. *In Solidarity with Library Genesis and Science Hub* (2015) <http://custodians.online>
- Battles, Matthew. *Library: An Unquiet History* Random House (2014)
- Harris, Michael H. *History of Libraries of the Western World*. Scarecrow Press (1999)
- MayDay Rooms. *Activation* (2015) <http://maydayrooms.org/activation/>
- Krajewski, Markus. *Paper Machines: About Cards & Catalogs, 1548-1929*. MIT Press (2011) <https://library.memoryoftheworld.org/b/PaRC3gldHrZ3MuNPXyrh1hM1meyyaqvhaWl-HTvr53NRj2k>

For updates: [https://www.zotero.org/groups/amateur\\_librarian\\_-\\_a\\_course\\_in\\_critical\\_pedagogy\\_reading\\_list](https://www.zotero.org/groups/amateur_librarian_-_a_course_in_critical_pedagogy_reading_list)

1. For an economic history of the book in the Western Europe see Eltjo Buringh and Jan Luiten Van Zanden, "Charting the 'Rise of the West': Manuscripts and Printed Books in Europe, A Long-Term Perspective from the Sixth through Eighteenth Centuries," *The Journal of Economic History* 69, No. 02 (June 2009): 409–45, doi:10.1017/S0022050709000837, particularly Tables 1-5.
2. For the social history of public library see Matthew Battles, *Library: An Unquiet History* (Random House, 2014) chapter 5: "Books for all".
3. For this concept we remain indebted to the curatorial collective What, How and for Whom/WHW, who have presented the work of Public Library within the exhibition *Really Useful Knowledge* they organized at Museo Reina Sofía in Madrid, October 29, 2014 – February 9, 2015.
4. "Society for the Diffusion of Useful Knowledge," *Wikipedia, the Free Encyclopedia*, June 25, 2015, [https://en.wikipedia.org/w/index.php?title=Society\\_for\\_the\\_Diffusion\\_of\\_Useful\\_Knowledge&oldid=668644340](https://en.wikipedia.org/w/index.php?title=Society_for_the_Diffusion_of_Useful_Knowledge&oldid=668644340).
5. Richard Johnson, "Really Useful Knowledge," in *CCCS Selected Working Papers: Volume 1*, 1 edition, vol. 1 (London u.a.: Routledge, 2014), 755.
6. *Ibid.*, 752.
7. <http://calibre-ebook.com/>
8. <https://www.memoryoftheworld.org/blog/2014/10/28/calibre-lets-share-books/>
9. Henry A. Giroux, *On Critical Pedagogy* (Bloomsbury Academic, 2011), 5.

# Bibliothécaire Amateur - Un Cours en pédagogie critique

VERSION FRANCAISE

Tomislav Medak & Marcell Mars (Public Library project)

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## Really useful knowledge

[3]

It's no surprise that the Chartists, reeling from a political defeat, had started to open reading rooms and cooperative lending libraries. The education provided to the proletariat and the poor by the ruling classes of that time consisted, indeed, either of a pious moral edification serving political pacification or of an inculcation of skills and knowledge useful to the factory owner. Even the seemingly noble efforts of the Society for the Diffusion of the Useful Knowledge, a Whig organization aimed at bringing high-brow learning to the middle and working classes in the form of simplified and inexpensive publications, were aimed at dulling the edge of radicalism of popular movements.<sup>[4]</sup>

These efforts to pacify the downtrodden masses pushed them to seek ways of self-organized education that would provide them with literacy and really useful knowledge – not applied, but critical knowledge that would allow them to see through their own political and economic subjection, develop radical politics and innovate shadow social institutions of their own. The radical education, reliant on meagre resources and time of the working class, developed in the informal setting of household, neighbourhood and workplace, but also through radical press and communal reading and discussion groups.<sup>[5]</sup>

The demand for really useful knowledge encompassed a critique of “all forms of ‘provided’ education” and of the liberal conception “that ‘national education’ was a necessary condition for the granting of universal suffrage.” Development of radical “curricula and pedagogies” formed a part of the arsenal of “political strategy as a means of changing the world.”<sup>[6]</sup>

# Critical pedagogy

This is the context of the emergence of the public library. A historical compromise between a push for radical pedagogy and a response to dull its edge. And yet with the age of digitization, where one would think that the opportunities for access to knowledge have expanded immensely, public libraries find themselves increasingly limited in their ability to acquire and lend both digital and paper editions. It is a sign of our radically unequal times that the political emancipation finds itself on a defensive fighting again for this material base of pedagogy against the rising forces of privatization. Not only has mass education become accessible only under the condition of high fees, student debt and adjunct peonage, but the useful knowledge that the labour market and reproduction of the neoliberal capitalism demands has become the one and only rationale for education.

No wonder that over the last 6-7 years we have seen self-education, shadow libraries and amateur librarians emerge again to counteract the contraction of spaces of exemption that have been shrunk by austerity and commodity.

The project Public Library was initiated with the counteraction in mind. To help everyone learn to use simple tools to be able to act as an Amateur Librarian – to digitize, to collect, to share, to preserve books and articles that were unaffordable, unavailable, undesirable in the troubled corners of the Earth we hail from.

Amateur Librarian played an important role in the narrative of Public Library. And it seems it was successful. People easily join the project by 'becoming' a librarian using Calibre<sup>[7]</sup> and [let's share books].<sup>[8]</sup> Other aspects of the Public Library narrative add a political articulation to that simple yet disobedient act. Public Library detects an institutional crisis in education, an economic deadlock of austerity and a domination of commodity logic in the form of copyright. It conjures up the amateur librarians' practice of sharing books/catalogues as a relevant challenge against the convergence of that crisis, deadlock and copyright regime.

To understand the political and technological assumptions and further develop the strategies that lie behind the counteractions of amateur librarians, we propose a curriculum that is indebted to a tradition of critical pedagogy. Critical pedagogy is a productive and theoretical practice rejecting an understanding of educational process that reduces it to a technique of imparting knowledge and a neutral mode of knowledge acquisition. Rather, it sees the pedagogy as a broader "struggle over knowledge, desire, values, social relations, and, most important, modes of political agency", "drawing attention to questions regarding who has control over the conditions for the production of knowledge."<sup>[9]</sup>

No industry in the present demonstrates more the asymmetries of control over the conditions of production of knowledge than the academic publishing. The denial of access to outrageously expensive academic publications for many universities, particularly in the Global South, stands in stark contrast to the super-profits that a small number of commercial publishers draws from the free labour of scientists who write, review and edit contributions and the extortive prices their institutional libraries have to pay for subscriptions. It is thus here that the amateur librarianship attains its poignancy for a critical pedagogy, inviting us to closer formulate and unfold its practices in a shared process of discovery.

# A curriculum

Public library is:

- free access to books for every member of society,
- library catalogue,
- librarian.

The curriculum in amateur librarianship develops aspects and implications of this definition. Parts of this curriculum have evolved over a number of workshops and talks previously held within the Public Library project, parts of it are yet to evolve from a process of future research, exchange and knowledge production in the education process. While schematic, scaling from the immediately practical, over strategic and tactical, to reflexive registers of knowledge, there are actual – here unnamed – people and practices we imagine we could be learning from.

The first iteration of this curriculum could be either a summer academy rostered with our all-star team of librarians, designers, researchers and teachers, or a small workshop with a small group of students delving deeper into one particular aspect of the curriculum. In short it is an open curriculum: both open to educational process and contributions by others. We welcome comments, derivations and additions.

## MODULE 1: Workflows

- from book to e-book
  - **digitizing a book on a book scanner**
  - **removing DRM and converting e-book formats**
- from clutter to catalogue
  - **managing an e-book library with Calibre**
  - **finding e-books and articles on online libraries**
- from reference to bibliography
  - **annotating in an e-book reader device or application**
  - **creating a scholarly bibliography in Zotero**
- from block device to network device
  - **sharing your e-book library on a local network to a reading device**
  - **sharing your e-book library on the internet with [let's share books]**
- from private to public IP space
  - **using [let's share books] & library.memoryoftheworld.org**
  - **using logan & jessica**
  - **using Science Hub**

- **using Tor**

## MODULE 2: Politics/tactics

- from developmental subordination to subaltern disobedience
  - **uneven development & political strategies**
  - **strategies of the developed v strategies of the underdeveloped : open access v piracy**
- from property to commons
  - **from property to commons**
  - **copyright, scientific publishing, open access**
  - **shadow libraries, piracy, custodians.online**
- from collection to collective action
  - **critical pedagogy & education**
  - **archive, activation & collective action**

## MODULE 3: Abstractions in action

- from linear to computational
  - **library & epistemology: catalogue, search, discovery, reference**
  - **print book v e-book: page, margin, spine**
- from central to distributed
  - **deep librarianship & amateur librarians**
  - **network infrastructure(s)/topologies (ruling class studies)**
- from factual to fantastic
  - **universe as library as universe**

## Reading List

[https://www.zotero.org/groups/amateur\\_librarian\\_-\\_a\\_course\\_in\\_critical\\_pedagogy\\_reading\\_list](https://www.zotero.org/groups/amateur_librarian_-_a_course_in_critical_pedagogy_reading_list)

1. For an economic history of the book in the Western Europe see Eltjo Buringh and Jan Luiten Van Zanden, "Charting the 'Rise of the West': Manuscripts and Printed Books in Europe, A Long-Term Perspective from the Sixth through Eighteenth Centuries," *The Journal of Economic History* 69, No. 02 (June 2009): 409–45, doi:10.1017/S0022050709000837, particularly Tables 1-5.
2. For the social history of public library see Matthew Battles, *Library: An Unquiet History* (Random House, 2014) chapter 5: "Books for all".

3. For this concept we remain indebted to the curatorial collective What, How and for Whom/WHW, who have presented the work of Public Library within the exhibition *Really Useful Knowledge* they organized at Museo Reina Sofía in Madrid, October 29, 2014 – February 9, 2015.
4. “Society for the Diffusion of Useful Knowledge,” *Wikipedia, the Free Encyclopedia*, June 25, 2015, [https://en.wikipedia.org/w/index.php?title=Society\\_for\\_the\\_Diffusion\\_of\\_Useful\\_Knowledge&oldid=668644340](https://en.wikipedia.org/w/index.php?title=Society_for_the_Diffusion_of_Useful_Knowledge&oldid=668644340).
5. Richard Johnson, “Really Useful Knowledge,” in *CCCS Selected Working Papers: Volume 1*, 1 edition, vol. 1 (London u.a.: Routledge, 2014), 755.
6. *Ibid.*, 752.
7. <http://calibre-ebook.com/>
8. <https://www.memoryoftheworld.org/blog/2014/10/28/calibre-lets-share-books/>
9. Henry A. Giroux, *On Critical Pedagogy* (Bloomsbury Academic, 2011), 5.

# A bag but is language nothing of words

(language is nothing but a bag of words)

**THIS IS A DRAFT**

Michael Murtaugh

In text indexing and other machine reading applications the term "bag of words" is frequently used to underscore how processing algorithms often represent text using a data structure (word histograms or weighted vectors) where the original order of the words in sentence form is stripped away. While "bag of words" might well serve as a cautionary reminder to programmers of the essential violence perpetrated to a text and a call to critically question the efficacy of methods based on subsequent transformations, the expression's use seems in practice more like a badge of pride or a schoolyard taunt that would go: Hey language: you're nothin' but a big BAG-OF-WORDS.

## Bag of words

In information retrieval and other so-called *machine-reading* applications (such as text indexing for web search engines) the term "bag of words" is used to underscore how in the course of processing a text the original order of the words in sentence form is stripped away. The resulting representation is then a collection of each unique word used in the text, typically weighted by the number of times the word occurs.

Bag of words, also known as word histograms or weighted term vectors, are a standard part of the data engineer's toolkit. But why such a drastic transformation? The utility of "bag of words" is in how it makes text amenable to code, first in that it's very straightforward to implement the translation from a text document to a bag of words representation. More significantly, this transformation then opens up a wide collection of tools and techniques for further transformation and analysis purposes. For instance, a number of libraries available in the booming field of "data sciences" work with "high dimension" vectors; bag of words is a way to transform a written document into a mathematical vector where each "dimension" corresponds to the (relative) quantity of each unique word. While physically unimaginable and abstract (imagine each of Shakespeare's works as points in a 14 million dimensional space), from a formal

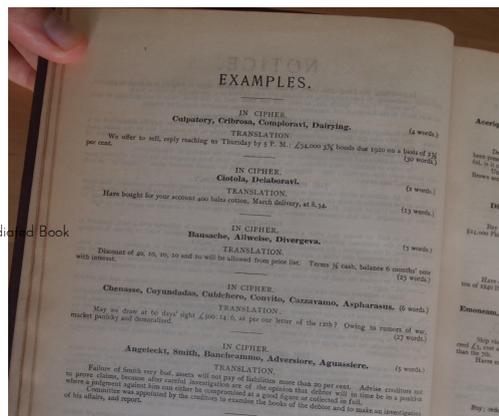
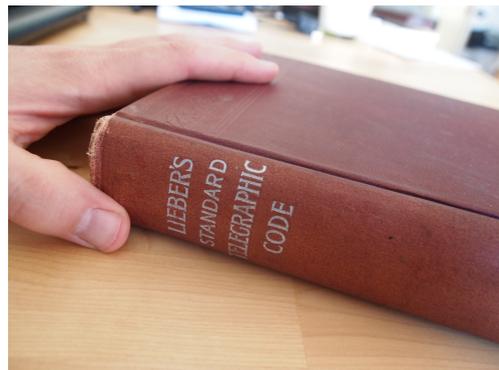
mathematical perspective, it's quite a comfortable idea, and many complementary techniques (such as principle component analysis) exist to reduce the resulting complexity.

What's striking about a bag of words representation, given is centrality in so many text retrieval application is its irreversibility. Given a bag of words representation of a text and faced with the task of producing the original text would require in essence the "brain" of a writer to recompose sentences, working with the patience of a devoted cryptogram puzzler to draw from the precise stock of available words. While "bag of words" might well serve as a cautionary reminder to programmers of the essential violence perpetrated to a text and a call to critically question the efficacy of methods based on subsequent transformations, the expressions use seems in practice more like a badge of pride or a schoolyard taunt that would go: Hey language: you're nothing but a big BAG-OF-WORDS. Following this spirit of the term, "bag of words" celebrates a perfunctory step of "breaking" a text into a purer form amenable to computation, to stripping language of its silly redundant repetitions and foolishly contrived stylistic phrasings to reveal a purer inner essence.

## Book of words

Lieber's Standard Telegraphic Code, first published in 1896 and republished in various updated editions through the early 1900s, is an example of one of several competing systems of telegraph code books. The idea was for both senders and receivers of telegraph messages to use the books to translate their messages into a sequence of code words which can then be sent for less money as telegraph messages were paid by the word. In the front of the book, a list of examples gives a sampling of how messages like: "Have bought for your account 400 bales of cotton, March delivery, at 8.34" can be conveyed by a telegram with the message "Ciotola, Delaboravi". In each case the reduction of number of transmitted words is highlighted to underscore the efficacy of the method. Like a dictionary or thesaurus, the book is primarily organized around key words, such as *act*, *advice*, *affairs*, *bags*, *bail*, and *bales*, under which exhaustive lists of useful phrases involving the corresponding word are provided in the main pages of the volume. <sup>[1]</sup>

[...] my focus in this chapter is on the inscription technology that grew



*parasitically alongside the monopolistic pricing strategies of telegraph companies: telegraph code books. Constructed under the bywords "economy," "secrecy," and "simplicity," telegraph code books matched phrases and words with code letters or numbers. The idea was to use a single code word instead of an entire phrase, thus saving money by serving as an information compression technology. Generally economy won out over secrecy, but in specialized cases, secrecy was also important.*

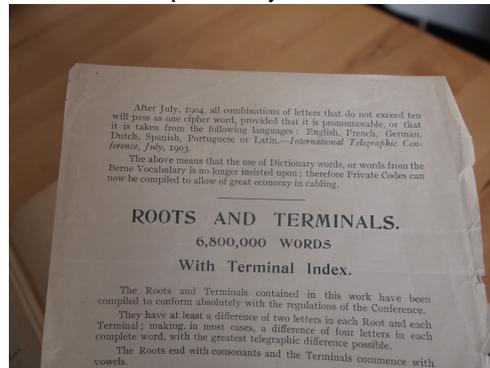
[2]

In Katherine Hayles' chapter devoted to telegraph code books she observes how:

*The interaction between code and language shows a steady movement away from a human-centric view of code toward a machine-centric view, thus anticipating the development of full-fledged machine codes with the digital computer. [3]*

Aspects of this transitional moment are apparent in a notice included prominently inserted in the Lieber's code book:

*After July, 1904, all combinations of letters that do not exceed ten will pass as one cipher word, provided that it is pronounceable, or that it is taken from the following languages: English, French, German, Dutch, Spanish, Portuguese or Latin -- International Telegraphic Conference, July 1903 [4]*



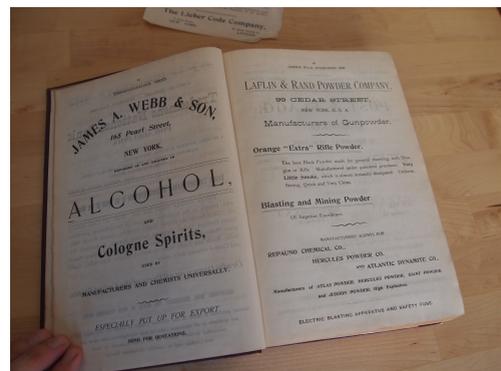
Conforming to international conventions regulating telegraph communication at that time, the stipulation that code words be actual words drawn from a variety of European languages (many of Lieber's code words are indeed arbitrary Dutch, German, and Spanish words) underscores this particular moment of transition as reference to the human body in the form of "pronounceable" speech from representative languages begins to yield to the inherent potential for arbitrariness in digital representation.

What telegraph code books do is remind us of is the relation of language in general to economy. Whether they may be economies of memory, attention, costs paid to a telecommunications company, or in terms of computer processing time or storage space, encoding language or knowledge in any form of writing is a form of shorthand and always involves an interplay with what one expects to perform or "get out" of the resulting encoding.

*Along with the invention of telegraphic codes comes a paradox that John Guillory has noted: code can be used both to clarify and occlude. Among the sedimented structures in the technological unconscious is the dream of a universal language. Uniting the world in networks of communication that flashed faster than ever before, telegraphy was particularly suited to the idea that intercultural communication could become almost effortless. In this utopian vision, the effects of continuous reciprocal causality expand to global proportions capable of radically transforming the conditions of human life. That these dreams were never realized seems, in retrospect, inevitable. [5]*

Far from providing a universal system of encoding messages in the English language, Lieber's code is quite clearly designed for the particular needs and conditions of its use. In addition to the phrases ordered by keywords, the book includes a number of tables of terms for specialized use. One table lists a set of words used to describe all possible permutations of numeric grades of coffee

The image shows two pages from a 'COFFEE MARKET' table. The top page lists various coffee grades such as 'Havre standard', 'Havre standard', 'Havre standard', and 'Havre standard' with their respective prices. The bottom page is a similar table with columns for 'Havre market', 'Havre market', 'Havre market', and 'Havre market'.



(Choliam = 3,4, Choliambos = 3,4,5, Choliba = 4,5, etc.); another table lists pairs of code words to express the respective daily rise or fall of the price of coffee at the port of Le Havre in increments of a quarter of a Franc per 50 kilos ("Chirriado = prices have advanced 1 1/4 francs"). From an archaeological perspective, the Lieber's code book reveals a cross section of the needs and desires of early 20th century business communication between the United States and its trading partners.

The advertisements lining the Liebers Code book further situate its use and that of commercial telegraphy. Among the many advertisements for banking and law services, office equipment, and alcohol

are several ads for gun powder and explosives, drilling equipment and metallurgic services all with specific applications to mining. Extending telegraphy's formative role for ship-to-shore and ship-to-ship communication for reasons of safety, commercial telegraphy extended this network of communication to include those parties coordinating the "raw materials" being mined, grown, or otherwise extracted from overseas sources and shipped back for sale.

## "Raw data now!"

*Tim Berners-Lee: [...] Make a beautiful website, but first give us the unadulterated data, we want the data. We want unadulterated data. OK, we have to ask for raw data now. And I'm going to ask you to practice that, OK? Can you say "data"?*

*Audience: Raw.*

*Tim Berners-Lee: Can you say "data"?*

*Audience: Data.*

*TBL: Can you say "now"?*

*Audience: Now!*

*TBL: Alright, "raw data now"!*

*[...]*

*So, we're at the stage now where we have to do this -- the people who think it's a great idea. And all the people -- and I think there's a lot of people at TED who do things because -- even though there's not an immediate return on the investment because it will only really pay off when everybody else has done it -- they'll do it because they're the sort of person who just does things which would be good if everybody else did them. OK, so it's called linked data. I want you to make it. I want you to demand it. [6]*

As new modernist forms and use of "data" propagated the abundance of decorative elements, Otlet believed in the possibility of language as a model of "raw data", reducing it to essential information and unambiguous facts, while removing all inefficient assets of ambiguity or subjectivity. (The Smart City - City of Knowledge)

## Un/Structured

As graduate students at Stanford, Sergey Brin and Lawrence (Larry) Page had an early interest in producing "structured data" from the "unstructured" web. [7]

*The World Wide Web provides a vast source of information of almost all types, ranging from DNA databases to resumes to lists of favorite restaurants. However, this information is often scattered among many web servers and hosts, using many different formats. If these chunks of information could be extracted from the World Wide Web and integrated into a structured form, they would form an unprecedented source of*

information. It would include the largest international directory of people, the largest and most diverse databases of products, the greatest bibliography of academic works, and many other useful resources. [...]

## 2.1 The Problem

Here we define our problem more formally:

Let  $D$  be a large database of unstructured information such as the World Wide Web [...]

[8]

In a paper titled *Dynamic Data Mining* Brin and Page situate their research looking for *rules* (statistical correlations) between words used in web pages. The "baskets" they mention stem from the origins of "market basket" techniques developed to find correlations between the items recorded in the purchase receipts of supermarket customers. In their case, they deal with web pages rather than shopping baskets, and words instead of purchases. In transitioning to the much larger scale of the web, they describe the usefulness of their research in terms of its computational economy, that is the ability to tackle the scale of the web and still perform using contemporary computing power completing its task in a reasonably short amount of time.

*A traditional algorithm could not compute the large itemsets in the lifetime of the universe. [...] Yet many data sets are difficult to mine because they have many frequently occurring items, complex relationships between the items, and a large number of items per basket. In this paper we experiment with word usage in documents on the World Wide Web (see Section 4.2 for details about this data set). This data set is fundamentally different from a supermarket data set. Each document has roughly 150 distinct words on average, as compared to roughly 10 items for cash register transactions. We restrict ourselves to a subset of about 24 million documents from the web. This set of documents contains over 14 million distinct words, with tens of thousands of them occurring above a reasonable support threshold. Very many sets of these words are highly correlated and occur often.*

[9]

# Un/Ordered

In programming, I've encountered a recurring "problem" that's quite symptomatic. It goes something like this: you (the programmer) have managed to cobble out a lovely "content management system" (either from scratch, or using any number of helpful frameworks) where your user can enter some "items" into a database, for instance to store bookmarks. After this ordered items are automatically presented in list form (say on a web page). The author: It's great, except... could this bookmark come before that one? The problem stems from the fact that the database ordering (a core functionality provided by any database) somehow applies a sorting logic that's almost but not quite right. A typical example is the sorting of names where details (where to place a name that starts with a Norwegian "Ø" for instance), are language-specific, and when a mixture of languages occurs, no single ordering is necessarily "correct". The (often) exasperated programmer might hastily add an additional database field so that each item can also have an "order" (perhaps in the form of a date or some other kind of (alpha)numerical "sorting" value) to be used to correctly order the resulting list. Now the author has a means, awkward and indirect but workable, to control the order of the presented data on the start page. But one might well ask, why not

just edit the resulting listing as a document? Not possible! Contemporary content management systems are based on a data flow from a "pure" source of a database, through controlling code and templates to produce a document as a result. The document isn't the data, it's the end result of an irreversible process. This problem, in this and many variants, is widespread and reveals an essential backwardness that a particular "computer scientist" mindset relating to what constitutes "data" and in particular it's relationship to order that makes what might be a straightforward question of editing a document into an over-engineered database.

Recently working with Nikolaos Vogiatzis whose research explores playful and radically subjective alternatives to the list, Vogiatzis was struck by how from the earliest specifications of HTML (still valid today) have separate elements (OL and UL) for "ordered" and "unordered" lists.

*The representation of the list is not defined here, but a bulleted list for unordered lists, and a sequence of numbered paragraphs for an ordered list would be quite appropriate. Other possibilities for interactive display include embedded scrollable browse panels. <sup>[10]</sup>*

Vogiatzis' surprise lay in the idea of a list ever being considered "unordered" (or in opposition to the language used in the specification, for order to ever be considered "insignificant"). Indeed in its suggested representation, still followed by modern web browsers, the only difference between the two visually is that UL items are preceded by a bullet symbol, while OL items are numbered.

The idea of ordering runs deep in programming practice where essentially different data structures are employed depending on whether order is to be maintained. The indexes of a "hash" table, for instance (also known as an associative array), are ordered in an unpredictable way governed by a representation's particular implementation. This data structure, extremely prevalent in contemporary programming practice sacrifices order to offer other kinds of efficiency (fast text-based retrieval for instance).

## Data mining

In announcing Google's impending data center in Mons, Belgian prime minister Di Rupo invoked the link between the history of the mining industry in the region and the present and future interest in "data mining" as practiced by IT companies such as Google.

Whether speaking of bales of cotton, barrels of oil, or bags of words, what links these subjects is the way in which the notion of "raw material" obscures the labor and power structures employed to secure them. "Raw" is always relative: "purity" depends on processes of "refinement" that typically carry social/ecological impact.

Stripping language of order is an act of "disembodiment", detaching it from the acts of writing and reading. The shift from (human) reading to machine reading involves a shift of responsibility from the individual human body to the obscured responsibilities and seemingly inevitable forces of the "machine", be it the machine of a market or the machine of an algorithm.

The computer scientists' view of textual content as "unstructured", be it in a webpage or the OCR scanned pages of a book, reflect a negligence to the processes and labor of writing, editing, design, layout, typesetting, and eventually publishing, collecting and cataloging <sup>[11]</sup>.

Still, it is reassuring to know that the products hold traces of the work, that even with the progressive removal of human signs in automated processes, the workers' presence never disappears completely. This presence is proof of the materiality of information production, and becomes a sign of the economies and paradigms of efficiency and profitability that are involved. ( $X = Y$ )

"Unstructured" to the computer scientist, means non-conformant to particular forms of machine reading. "Structuring" then is a social process by which particular (additional) conventions are agreed upon and employed. Computer scientists often view text through the eyes of their particular reading algorithm, and in the process (voluntarily) blind themselves to the work practices which have produced and maintain these "resources".

Berners-Lee, in chastising his audience of web publishers to not only publish online, but to release "unadulterated" data belies a lack of imagination in considering how language is itself structured and a blindness to the need for more than additional technical standards to connect to existing publishing practices.

1. Benjamin Franklin Lieber, Lieber's Standard Telegraphic Code, 1896, New York; <https://archive.org/details/standardtelegrap00liebuoft>
2. Katherine Hayles, "Technogenesis in Action: Telegraph Code Books and the Place of the Human", *How We Think: Digital Media and Contemporary Technogenesis*, 2006
3. Hayles
4. Lieber's
5. Hayles
6. Tim Berners-Lee: The next web, TED Talk, February 2009 [http://www.ted.com/talks/tim\\_berners\\_lee\\_on\\_the\\_next\\_web/transcript?language=en](http://www.ted.com/talks/tim_berners_lee_on_the_next_web/transcript?language=en)
7. "Research on the Web seems to be fashionable these days and I guess I'm no exception." from Brin's Stanford webpage
8. Extracting Patterns and Relations from the World Wide Web, Sergey Brin, Proceedings of the WebDB Workshop at EDBT 1998, <http://www-db.stanford.edu/~sergey/extract.ps>
9. Dynamic Data Mining: Exploring Large Rule Spaces by Sampling; Sergey Brin and Lawrence Page, 1998; p. 2 <http://ilpubs.stanford.edu:8090/424/>
10. Hypertext Markup Language (HTML): "Internet Draft", Tim Berners-Lee and Daniel Connolly, June 1993, <http://www.w3.org/MarkUp/draft-ietf-iiir-html-01.txt>
11. <http://informationobservatory.info/2015/10/27/google-books-fair-use-or-anti-democratic-preemption/#more-279>

# A Book of the Web

Dušan Barok

Is there any crucial difference between publishing a text in print and on-line besides reaching out to a different group of people and allowing it a different lifespan? In both cases, the text has a chance to be considered worth preserving and end up in all sorts of libraries. The on-line environment has created its own hybrid form between the text and the library and this is key to understanding how digital text produces difference.

Historically, we have been treating texts as discrete units, that are distinguished by their material properties such as cover, binding, script. These characteristics establish them as either a book, a magazine, a diary, sheet music and so on. One book differs from another book, books differ from magazines, printed matter differs from handwritten manuscripts. Each volume is a self-contained whole, further distinguished by descriptors such as title, author, date, publisher, and classification codes that allow it being located and referred to. The demarcation of a publication as a container of text works as a frame or a boundary which organises the way it can be located and read. Researching a particular subject matter, the reader is carried along classification schemes under which volumes are organised, along references inside texts, pointing to yet other volumes, and along tables of contents and indexes of subjects that are appended to texts, pointing to places within that volume.

So while their material properties separate texts into distinct objects, bibliographic information provides each object with a unique identifier, a unique address in the world of print culture. Such identifiable objects are further replicated and distributed across containers that we call libraries, where they are to be accessed.

The on-line environment however, intervenes in this condition. It establishes shortcuts. Through search engine, digital texts can be searched for any text sequence, regardless of their distinct materiality and bibliographic specificity. This changes the way they function as a library, and the way its main object, the book, is to be rethought.

(1) Rather than operate as distinct entities, multiple texts are simultaneously accessible through full-text search as if they are one long text, with its portions spread across the web, and including texts that had not been considered as candidates for library collections.

(2) The unique identifier at hand for these text portions is not the bibliographic information, but the URL.

(3) The text is as long as web-crawlers of a given search engine are set to reach, refashioning the library into a storage of indexed data.

These are some of the lines along which on-line texts appear to produce difference. The first contrasts the distinct printed publication to the machine-readable text, the second the bibliographic information to the URL, and the third the library to the search engine.

The introduction of full-text search has created an environment in which all machine-readable on-line documents at reach are effectively treated as one single document. For any text-sequence to be locatable, it doesn't matter in which file format it appears, nor whether its interface is a database-powered website or mere directory listing. As long as text can be extracted from a document, it is a container of text sequences and itself is a sequence in a "book" of the web.

Even though this is hardly any news after almost two decades of Google Search ruling, little seems to have changed with respect to the forms and genres of writing. Loyal to standard forms of publishing, most writing still adheres to the principle of coherence, based on the units such as book chapters, journal papers, newspaper articles, etc., that are designed to be read from the beginning to the end.

Still, the scope of textual forms appearing in search results, and thus a corpus of texts in which they are being brought into, is radically diversified: it may include discussion board comments, product reviews, private e-mails, weather information, spam etc., the type of content that used to be omitted from library collections. Rather than being published in a traditional sense, all these texts are produced onto digital networks by mere typing, copying, OCR-ing, generated by machines, by sensors tracking movement, temperature, etc.

Even though portions of these texts may come with human or non-human authors attached, authors have relatively little control over discourses their writing gets embedded in. This is also where the ambiguity of copyright manifests itself. Crawling bots pre-read the internet with all its attached devices according to the agenda of their maintainers, and the decisions about which, how and to whom the indexed texts are served in search results is in the code of a library.

Libraries in this sense are not restricted to digitised versions of physical public or private libraries as we know them from history. Commercial search engines, intelligence agencies, and virtually all forms of on-line text collections can be thought of as libraries.

Acquisition policies figure here on the same level with crawling bots, dragnet/surveillance algorithms, and arbitrary motivations of users, all of which actuate the selection and embedding of texts into structures that regulate their retrievability and through access control produce certain kinds of communities or groups of readers. The author's intentions of partaking in this or that discourse are confronted by discourse-conditioning operations of retrieval algorithms. Hence, Google structures discourse through its Google Search differently from how the Internet Archive does with its Wayback Machine, and from how the GCHQ does it with its dragnet programme.

They are all libraries, each containing a single "book" whose pages are URLs with timestamps and geostamps in the form of IP address. Google, GCHQ, JStor, Elsevier – each maintains its own searchable corpus of texts. The decisions about who, to which sections and under which conditions is to be admitted are informed by a mix of copyright laws, corporate agendas, management hierarchies, and national security issues. Various sets of these conditions that are at work in a particular library, also redefine the notion of publishing and of the publication, and in turn the notion of public.

Corporate journal repositories exploit publicly funded research by renting it only to libraries which can afford it; intelligence agencies are set to extract texts from any moving target, basically any networked device, apparently in public interest and away from the public eye; publicly-funded libraries are being prevented by outdated copyright laws and bureaucracy from providing digitised content on-line; search engines create a sense of giving access to all the public record on-line while only a few know what is excluded and how search results are ordered.

It is within and against this milieu that the libraries such as the Internet Archive, Wikileaks, Aaaaarg, UbuWeb, Monoskop, Memory of the World, Nettime, TheNextLayer and others gain their political agency. Their counter-techniques available for negotiating the publics of publishing include self-archiving, open access, book liberation, leaking, whistle-blowing, open source search algorithms and so on.

Digitisation and posting texts on-line are interventions in the procedures that make search possible. Operating on-line collections of texts is as much the work of organising texts within libraries, as is placing them within books of the web.

Originally written 15-16 June 2015 in Prague, Brno and Vienna for a talk given at the *Technopolitics* seminar in Vienna on 16 June 2015. Revised 29 December 2015 in Bergen.

# De Indexalist

The Indexalist (English)

Matthew Fuller

Ik sprak voor het eerst met de patiënt in de laatste week van die augustus. De zon was zacht die avond in hoe ze schaduwen tekende over de lijnen van zijn gezicht. De ogen starden zachtjes halverwege de ruimte in, alsof ze een lijn aanbrachten op een doorschijnende pagina die midden in de lucht hing, de handen tikten een paar muziekmaten op benen bedekt met de bruine plooien van een badstof kamerjas. Hij zag er uit als iemand die iets heel indrukwekkends had gezien, maar nog niet de woorden had gevonden om het uit te drukken. Terwijl ik de patiënt in de eropvolgende weken beter leerde kennen begreep ik dat dit niet was door een gebrek aan moeite.

Toen hij jong was had hij wat met de wereldtaal Volapük gerommeld. Een spraak ontworpen om de onverenigbaarheid van tongen af te schaffen en een standaard te stellen waardoor de wetenschappelijke omgang met maximale efficiëntie en minimale wrijving tussen de beweging van de handen en de labratoria en publicaties kon worden uitgevoerd. Biologische termen in het Latijn, de vruchtbare lijst van elementen, metrische meeteenheden, de nomenclatuur van hemellichamen van wolken tot planeten, anatomische delen en medische aandoeningen hadden allemaal hun eigen benoemingsstelsel zonder specifieke tongval. Het was een poging om spraak en gegevens tot rede te brengen maar wanneer de werkelijkheid zich tegen deze vroege maatregel verzette, konden andere middelen worden ingezet.

Dat rommelen, dacht hij, was een beetje meer dan dat geworden. Hij had zich op zijn schuif in de wereldtaal geabonneerd, schreef brieven aan collega's en in ruil ontving hij de taal van hen. Een paar woorden in de taal waren op zijn tong blijven hangen, woorden die hij regelmatig uitspuugde in de geel-behangen zitkamer van het sanatorium, met een walging die naargeestig tastbaar was.

Uit mijn eigen gegevens en het samenraapsel van de aantekeningen van voorgaande artsen bleek ook iets anders, iets diepgaander waar de taal enkel op zinspeelde. Het postwereld had de geen specifieke spraak te adopteren, maar had zijn eigen formules om hen te integreren in geadresseerde, adresregel, stad en land. Zoals de post het oppervlak van de aarde ordende was er het gevoel dat de patiënt een ontmoeting met een fundamentele organisatievorm had doorstaan die zijn ziel in kaart had gebracht. Veel opwindender dan de kwestie van de taal was inderdaad het systeem waarin linguïstische symbolen worden ingeschreven. Voor overdenking van de lezer volgen hier enkele uitspraken die kenmerkend waren voor datgene waar de patient over leek te piekeren:

"Het systeem van de index-kaart sprak tot mijn ziel. Het volstaat te zeggen dat ik in het gebruik ervan de hoogste vorm van spiritueel plezier voel, een organisatorische efficiëntie. Een diepgaande intellectuele bloei waarin elke gedachte in een honingzoete stroom van ideevorming en bevredigde nieuwsgierigheid bewoog tussen verkondiging, getuigenis, referentie en articulatie." Dit gevoel van de ziel die als een vraag

over tijdperken doolt, over vormen van kennis en de dicht aaneengesloten landschappen van de uitgestrekte planeet en de kosmos kwam steeds terug. Een gevoel dat er in hem een onverklaarbare kracht was die altijd aan zijn aanraking ontsnapte. "Bij elke verwijzing stond weer een andere verwijzing, de één nog interessanter dan de ander. Elk vormde de top van een piramide van weer verdere literatuurstudie, zwanger met de dreiging om af te dwalen. Elk was een strakgespannen koord dat indien niet in acht genomen de auteur in de val van een fout zou lokken, een vondst al uitgevonden en opgeschreven." Hij noemt ook een aantal maal de manier waarop het meubilair zijn gedachten leek te ondersteunen – het gemak waarmee een verwijzing gesuggereerd werd door de manier waarop het bureau lijnde met de tekst die rustte op de pagina's van het knipsel, het tijdschrift, de krant, de blauwdruk of het boek, waarboven nog meer kaartenbakken klaarstonden in hun kast. Ze werden allemaal geïntegreerd in het systeem. En toch, tussen de rusteloze herinneringen bevond zich een element van rouw in zijn contemplatieve stemmingen. "De opeenstapeling van alle onderzoeksvelden en denkvlakken in één systeem stoot diegenen af voor wie een dergelijke harmonieuze vaart verdacht is." Deze gedachte werd uitgedrukt met een blik die niet echt beschuldigend was, maar die bleef hangen met de indruk dat er nog een nadere verklaring zou volgen, en nog een, klaar in de wachtrij.

Terwijl ik het vertrouwen van de patiënt won leek het of hij mij beschouwde als een soort junior medewerker, een assistent voor zijn natuurlijke rol als manager. Een fortuinlijke, zei het wat dubieuze jonge man die hij misschien kon gidsen naar een staat van efficiëntie en volledige toegang tot informatie. In zijn wereld waren de oude methodes niet corrupt noch vermoeid. In zijn hoofd bewogen ideeën waarschijnlijk sneller dan nu over de hele wereld. Een register te hebben van gedachten die een periode van meerdere jaren beslaat is een kostbaar bezit waarvan de waarde bijna niet valt te berekenen. Dat het elke vraag kan beantwoorden in relatie tot iedere gedachte die men eerder heeft onderzocht is nog het minste van zijn verdiensten. Belangrijker is het feit dat het voortdurend de aandacht vestigt op zaken die een dergelijke aandacht vragen.

Veel van zijn betogen gingen over de optimale inrichting van het systeem, dat het een kunst was om de kaarten uit te leggen. Zoals de patiënt nader toelichtte werd het probleem van losse kaarten die gemakkelijk verloren kunnen raken ondervangen door ze van één tot tien te nummeren met behulp van tabs. Wanneer ze in de kaartenbak worden geplaatst volgen de tabs elkaar van links naar rechts op en kan het ontbreken van een enkele kaart dus gemakkelijk worden gedetecteerd. De kaarten worden daarnaast tussen gekleurde infochips gezet. Als een alternatief voor tabs op de kaarten kunnen ook zogenaamde signaalvlaggen worden gebruikt. In dat geval worden opvallende metalen clips aan de bovenkant van de kaart bevestigd die als aanwijzer fungeren. Om het systeem te gebruiken in relatie tot de dagen van de maand worden de nummers 1 tot 31 op de bovenrand van de kaarten gedrukt. Een metalen clip wordt geplaatst als signaal dat deze kaart behandeld moet worden op de gemarkeerde dag. In een grotere organisatie kan een aanvullende kaart geplaatst worden die de verantwoordelijke aanwijst die de kaart zal behandelen op de aangegeven dag. Er waren ontelbare manieren om met de kaarten te werken, speciale technieken om ze te integreren in om het even welke soort organisatie of onderzoek. Door indexen op indexen toe te passen konden informatiereserves worden aangeboord om de kennis en de mogelijkheden van de mensheid uit te breiden.

Terwijl hij me verder aanspoorde begon ik zelf met vergelijkbare methoden te experimenteren. 's Nachts haalde ik gegevens uit de administratie van het sanatorium en bracht die over op index-kaarten. De voordelen van het systeem zijn overweldigend. Kaarten die met de juiste wiskundige mate van nauwkeurigheid zijn gesneden kunnen vervolgens zonder moeite in bakken worden gezet en geplaatst in kasten met standaardafmetingen die op hun beurt eenvoudig worden uitgebreid. De kaarten kunnen worden toegewezen aan om het even hoeveel onderzoekers die er ieder onafhankelijk en gelijktijdig mee aan de slag kunnen gaan. Het gebonden boek daarentegen kan maar door één persoon tegelijk worden

gebruikt en moet op een plank blijven staan om zelf door een indexkaartsysteem te worden verwezen. Ik begon een structuur op te zetten met rijen spiegels aan kettingen en katrollen en met door hefbomen aangedreven scharnierende mechanische armen zodat ik de lades vanaf iedere plek in het sanatorium kon openen om heimelijk mijn bestanden te raadplegen. De helderheid van het beeld wordt helaas nog te veel verstoord door lichtverstrooiing in het systeem.

Verder moet worden overwogen dat een systeem dat op die manier in staat is oneindig uit te breiden de noodzaak ondervangt om een onderzoeker te hinderen met meubels of apparatuur van een groter formaat dan onmiddellijk nodig is. De continue en ordelijke opeenvolging van de kaarten kan vervolgens worden uitgebreid tot het domein van het meubilair, de gedragsregels voor bedrijfsvoering en het dagelijks leven. Argumentatie, referentie en de ordening van ideeën verschijnen wanneer ze een chaotische wereld omarmen en dan onderling communiceren om op hun beurt de wereld te veranderen in iets wat lijkt op het denkproces, een eindeloos proces van raadplegen, herformuleren, toevoegen en sorteren. Voor de patiënt stroomden ideeën als een levenskracht, ongestoord door onnatuurlijke limieten. Denken werd met het juiste gebruik van het systeem een deel van de stroom van het leven zelf. Gedachten verplaatsten zich via de kaarten niet alleen op het oppervlakkige niveau van de beweging van de vingers en het mechanisch schuiven en bundelen ervan, maar op het meest diepgaande niveau van de beweging tussen de werkelijkheid en de ideeën die we er over hebben. De organisatorische gratie van rangschikking, classificatie en indexering beroerde de restanten van zijn zenuwstelsel tot op de laatste dag.

# The Indexalist

De Indexalist (Nederlands)

Matthew Fuller

I first spoke to the patient in the last week of that August. That evening the sun was tender in drawing its shadows across the lines of his face. The eyes gazed softly into a close middle distance, as if composing a line upon a translucent page hung in the middle of the air, the hands tapping out a stanza or two of music on legs covered by the brown folds of a towelling dressing gown. He had the air of someone who had seen something of great amazement but yet lacked the means to put it into language. As I got to know the patient over the next few weeks I learned that this was not for the want of effort.

In his youth he had dabbled with the world-speak language Volapük, one designed to do away with the incompatibility of tongues, to establish a standard in which scientific intercourse might be conducted with maximum efficiency and with minimal friction in movement between minds, laboratories and publications. Latin biological names, the magnificent table of elements, metric units of measurement, the nomenclature of celestial objects from clouds to planets, anatomical parts and medical conditions all had their own systems of naming beyond any specific tongue. This was an attempt to bring reason into speech and record, but there were other means to do so when reality resisted these early measures.

The dabbling, he reflected, had become a little more than that. He had subscribed to journals in the language, he wrote letters to colleagues and received them in return. A few words of world-speak remained readily on his tongue, words that he spat out regularly into the yellowed paper of the sanatorium with a disgust that was lugubriously palpable.

According to my records, and in piecing together the notes of previous doctors, there was something else however, something more profound that the language only hinted at. Just as the postal system did not require the adoption of any language in particular but had its formats that integrated them into address, address line, postal town and country, something that organised the space of the earth, so there was a sense of the patient as having sustained an encounter with a fundamental form of organisation that mapped out his soul. More thrilling than the question of language indeed was that of the system of organisation upon which linguistic symbols are inscribed. I present for the reader's contemplation some statements typical of those he seemed to mull over.

"The index card system spoke to my soul. Suffice it to say that in its use I enjoyed the highest form of spiritual pleasure, and organisational efficiency, a profound flowering of intellect in which every thought moved between its enunciation, evidence, reference and articulation in a mellifluous flow of ideation and the gratification of curiosity." This sense of the soul as a roving enquiry moving across eras, across forms of knowledge and through the serried landscapes of the vast planet and cosmos was returned to over and over, a sense that an inexplicable force was within him yet always escaping his touch.

“At every reference stood another reference, each more interesting than the last. Each the apex of a pyramid of further reading, pregnant with the threat of digression, each a thin high wire which, if not observed might lead the author into the fall of error, a finding already found against and written up.” He mentions too, a number of times, the way the furniture seemed to assist his thoughts - the ease of reference implied by the way in which the desk aligned with the text resting upon the pages of the off-print, journal, newspaper, blueprint or book above which further drawers of cards stood ready in their cabinet. All were integrated into the system. And yet, amidst these frenetic recollections there was a note of mourning in his contemplative moods, “The superposition of all planes of enquiry and of thought in one system repels those for whom such harmonious speed is suspicious.” This thought was delivered with a stare that was not exactly one of accusation, but that lingered with the impression that there was a further statement to follow it, and another, queued up ready to follow.

As I gained the trust of the patient, there was a sense in which he estimated me as something of a junior collaborator, a clerk to his natural role as manager. A lucky, if slightly doubtful, young man whom he might mentor into efficiency and a state of full access to information. For his world, there was not the corruption and tiredness of the old methods. Ideas moved faster in his mind than they might now across the world. To possess a register of thoughts covering a period of some years is to have an asset, the value of which is almost incalculable. That it can answer any question respecting any thought about which one has had an enquiry is but the smallest of its merits. More important is the fact that it continually calls attention to matters requiring such attention.

Much of his discourse was about the optimum means of arrangement of the system, there was an art to laying out the cards. As the patient further explained, to meet the objection that loose cards may easily be mislaid, cards may be tabbed with numbers from one to ten. When arranged in the drawer, these tabs proceed from left to right across the drawer and the absence of a single card can thus easily be detected. The cards are further arranged between coloured guide cards. As an alternative to tabbed cards, signal flags may be used. Here, metal clips may be attached to the top end of the card and that stand out like guides. For use of the system in relation to dates of the month, the card is printed with the numbers 1 to 31 at the top. The metal clip is placed as a signal to indicate the card is to receive attention on the specified day. Within a large organisation a further card can be drawn up to assign responsibility for processing that date's cards. There were numerous means of working the cards, special techniques for integrating them into any type of research or organisation, means by which indexes operating on indexes could open mines of information and expand the knowledge and capabilities of mankind.

As he pressed me further, I began to experiment with such methods myself by withdrawing data from the sanatorium's records and transferring it to cards in the night. The advantages of the system are overwhelming. Cards, cut to the right mathematical degree of accuracy, arrayed readily in drawers, set in cabinets of standard sizes that may be added to at ease, may be apportioned out amongst any number of enquirers, all of whom may work on them independently and simultaneously. The bound book, by contrast, may only be used by one person at a time and that must stay upon a shelf itself referred to by an index card system. I began to set up a structure of rows of mirrors on chains and pulleys and a set of levered and hinged mechanical arms to allow me to open the drawers and to privately consult my files from any location within the sanatorium. The clarity of the image is however so far too much effaced by the diffusion of light across the system.

It must further be borne in mind that a system thus capable of indefinite expansion obviates the necessity for hampering a researcher with furniture or appliances of a larger size than are immediately required. The continuous and orderly sequence of the cards may be extended further into the domain of furniture

and to the conduct of business and daily life. Reasoning, reference and the order of ideas emerging as they embrace and articulate a chaotic world and then communicate amongst themselves turning the world in turn into something resembling the process of thought in an endless process of consulting, rephrasing, adding and sorting.

For the patient, ideas flowed like a force of life, oblivious to any unnatural limitation. Thought became, with the proper use of the system, part of the stream of life itself. Thought moved through the cards not simply at the superficial level of the movement of fingers and the mechanical sliding and bunching of cards, but at the most profound depths of the movement between reality and our ideas of it. The organisational grace to be found in arrangement, classification and indexing still stirred the remnants of his nervous system until the last day.

# Une lecture-écriture du livre sur le livre

THIS IS A DRAFT

Alexia de Visscher

Lecture-écriture du *Traité de documentation*.

- Dépouiller
  - Souligner
    - Indexer
      - Organiser
        - re-composer le *Traité de Documentation - Le livre sur le livre*, afin d'en proposer une lecture-écriture. Proposition d'une lecture fragmentée dont le processus s'appuie sur une réécriture du *Traité* par lui-même pour mieux y déceler son caractère *meta* . et dans l'hypothèse que *Le Traité de documentation* serait la première expérience mise en œuvre par Otlet afin de valider ses propres principes de documentologie.

Cet index constitue une proposition de lecture du *Traité de documentation - Le livre sur le livre - Théorie et pratique*, ouvrage publié en 1934 qui reprend une somme d'écrits à propos du livre et au delà, la documentation sous toutes ses formes écrites. Dans ce traité, Paul Otlet initie et théorise une science globale de l'écrit, la bibliologie, tendant à dégager faits, principes et règles de classification et d'identification des documents, pour une mise en pratique individuelle et collective. Il s'adresse à tous, à travers une conception humaniste du partage de la connaissance et suggère à travers certains passages le livre à venir comme une expérience multimédia connectée.

Cet index n'est ni systématique, ni exhaustif. Il témoigne de la façon dont les concepts développés par Otlet dans son livre sont mis en exergue dans la conception même de sa rédaction, au travers d'une écriture fragmentaire. On y décèle un caractère expérimental : en partie incomplet, coquilles et redondances cohabitent, autant de traces qui constituent une forme de documentation sur le procédé éditorial mis en œuvre. La construction de cet index constitue également une expérience de réappropriation d'une partie de la méthode proposée par Otlet : le dépouillement (la sélection) et le classement (l'indexation) de fragments ou unités intellectuelle.

A part être un index, il est aussi un sommaire, qui – à part le fait qu'il soit présenté dans l'ordre alphabétique –, n'a ni entrée, ni sortie particulière. Chaque extrait indexé, et chaque catégorie constituante de l'index, forment des pages uniques sur le wiki. Les extraits vont de la courte citation à la retranscription intégrale de sections du Traité. Ces pages sont "appelées" à apparaître dans les catégories auxquelles elles se réfèrent, à plusieurs endroits parfois. Ces occurrences sont commentées, ou non. Les mises en évidence, constituent une forme de soulignage afin de pointer un passage en particulier dans l'extrait choisi. Cet index tend à être collaboratif et invite à la discussion, il aurait peut-être été, en partie, une réponse au desiderata d'ubiquité qu'Otlet vouait à la documentation.

### Abréviation

En plus de la notation, Paul Otlet utilise des codes abrégés de façon systématique. Lors d'un premier travail d'identification de ses documents d'archives à propos du *Traité de documentation* au Centre d'archives Mundaneum, l'abréviation "MB" ou "MBA" est celle que l'on retrouve sur tous les documents relatifs à la génétique textuelle du Traité. Ici, l'ensemble des abréviations retrouvées lors de l'identification de ses papiers.

## Archives

- CM= Cité mondiale
- UAI= Union des associations internationales
- RUD= Répertoire universel de documentation
- APM= Amis du palais mondial
- PP= Papiers personnels
- PO= Paul Otlet
- EUM= Encyclopaedia Universalis Mundaneum (MICROPHOTICA, A4, ATLAS)

- IIB= Institut international de bibliographie? ou bibliologie?
- BIDO=
- MB= code relatif au Traité de documentation noté sur les documents de PO > Manuel ou Manuscrit de Bibliologie
- MBA= code relatif au Traité de documentation noté sur les documents de PO > Manuel ou Manuscrit de Bibliologie abrégé?

Base 10

## 412.36 La Classification décimale.

*Caractéristique.* – La Classification décimale répond aux dix caractéristiques de la définition suivante : 1° Classification systématique dans sa disposition et encyclopédique dans son contenu.

2° Notation décimale, dont les nombres se combinent entre eux selon certaines fonctions correspondant aux aspects fondamentaux des documents.

3° Classification exposée dans des Tables à doubles entrées, l'une méthodique et l'autre alphabétique.

4° Permettant à volonté une indexation sommaire ou détaillée.

5° D'application universelle à toutes espèces de documents et objets.

6° À toutes les collections ou parties d'un organisme documentaire.

7° Appropriée aux besoins de la science spéculative et à ceux de l'activité pratique.

8° Susceptible à la fois d'invariabilité et de développement illimité.

9° Instrument prenant place dans l'Organisation internationale de la Documentation.

10° La Documentation conçue elle-même comme base de l'Organisation mondiale du Travail intellectuel (voir Publication n° 51 de l'Institut International de Bibliographie).

La Classification décimale, elle, se présente comme une vaste systématique des connaissances, sorte de « table de matières des tables de matières » de tous les traités et périodiques spéciaux. Mais comme il serait impossible de retrouver dans semblables classifications la place assignée à un sujet par rapport à un autre sujet, un numérotage marquant l'ordre, s'impose. Ce numérotage est décimal, ce qu'un exemple fera bien comprendre. Voici l'allotropie, elle sera classée ainsi :

5<sup>e</sup> classe Sciences naturelles.

4<sup>e</sup> groupe Chimie pure.

1<sup>re</sup> division Théories chimiques.

7<sup>e</sup> subdivision Allotropie

soit : 541.7.

Ce nombre 541.7 est dit décimal car le savoir tout entier est constitué par l'unité, dont chaque science est une fraction, et chaque question particulière est une décimale d'un ordre plus ou moins subdivisé. La classification est encore dite décimale, par ce que c'est en dix classes puis, dans chacune d'elles, en dix groupes, ou moins puis dans chaque groupe en dix

divisions ou moins que l'on répartit toutes les matières.

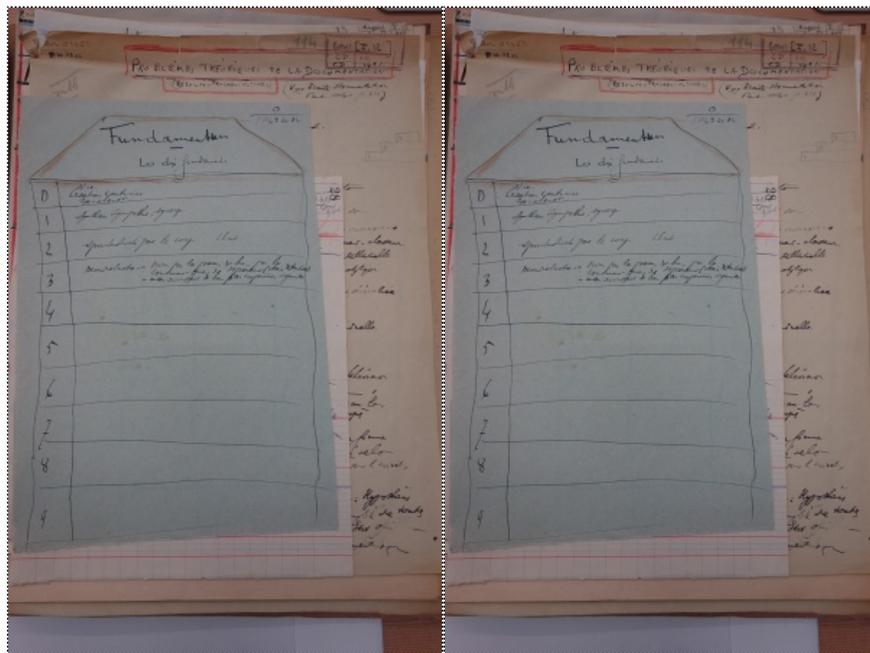
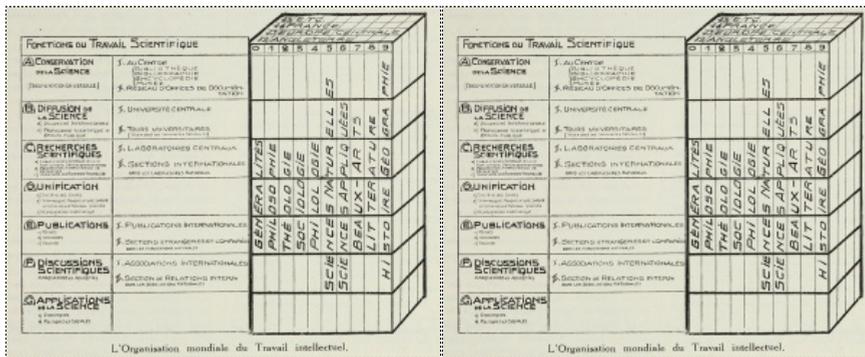


Table des 10 Fondamentaux - Archives Mundaneum-2105-09-28 Traité de documentation



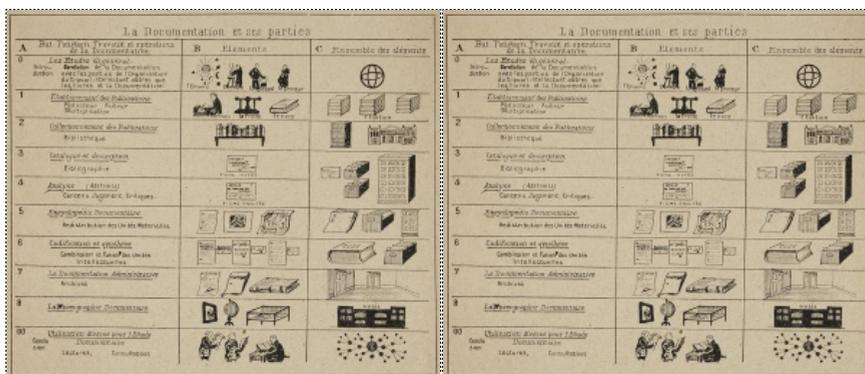
L'organisation mondiale du Travail intellectuel

Paul Otlet

Traité de documentation

1934

Paul Otlet, *Traité de documentation: le livre sur le livre, théorie et pratique* (Bruxelles: Editions Mundaneum, 1934), p.418.



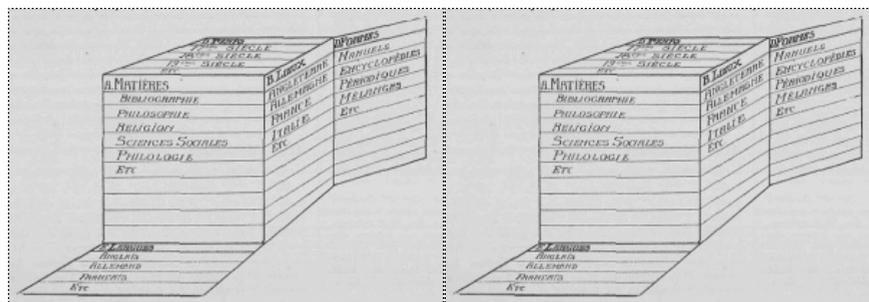
La documentation et ses parties

Paul Otlet

Traité de documentation

1934

Paul Otlet, *Traité de documentation: le livre sur le livre, théorie et pratique* (Bruxelles: Editions Mundaneum, 1934), p42.



La classification bibliographique

Paul Otlet

Traité de documentation

1934

Paul Otlet, *Traité de documentation: le livre sur le livre, théorie et pratique* (Bruxelles: Editions Mundaneum, 1934).

</div>

Biblion

Biblion est l'un des termes utilisés par Otlet pour désigner le livre et une partie de ses extensions. Issu du radical βιβλίον (Biblio-), rouleau ou cahier, volumen ou codex, les grecs appelèrent un livre fait de feuilles de papyrus, un biblion. Otlet l'assimile de manière équivalente aux autres radicaux que sont gramme (*gramma*), livre (*liber*), et document (*documentum*), favorisant ce dernier car plus général et couvrant un champ plus large mais aussi les ensembles de documents (Documentation).

*Le grec a donné le mot biblion, le latin le mot liber. On a fait de l'un Bibliographie, bibliologie, Bibliophilie, Bibliothèque; de l'autre Livre, Livresque, Librairie<sup>[1]</sup>*

Otlet étend le mot Biblion à d'autres types de supports et le destine à devenir le terme qui définit les unités intellectuelles.

# 1 1 1 Notion.

1. Livre (Biblion ou Document ou Gramme) est le terme conventionnel employé ici pour exprimer toute espèce de documents. Il comprend non seulement le livre proprement dit, manuscrit ou imprimé, mais les revues, les journaux, les écrits et reproductions graphiques de toute espèce, dessins, gravures, cartes, schémas, diagrammes, photographies, etc. Livre, éléments servant à indiquer ou reproduire une pensée envisagée sous n'importe quelle forme.

## 2 1 1 3. Le Biblion.

Il y a désormais un terme générique (Biblion ou Bibliogramme ou Document) qui couvre à la fois toutes les espèces : volumes, brochures, revues, articles, cartes, diagrammes, photographies, estampes, brevets, statistiques, voire même disques phonographiques, verres ou films cinématographiques.

Le « Biblion » sera pour nous l'unité intellectuelle et abstraite mais que l'on peut retrouver concrètement et réellement mais revêtu de modalités diverses. Dans le cosmos (ensemble des choses) le livre ou Document prend place parmi les choses corporelles (non incorporelles), artificielles (non naturelles), et ayant une utilité intellectuelle (non matérielle). Le Livre est un moyen de produire des utilités intellectuelles.

## 4 1 1.1 Les documents.

2° L'Image (Icône). Elle reproduit la réalité. On distingue la reproduction directe de la réalité. Elle s'opère par l'un des procédés suivants : tableau, aquarelle (en couleurs) isolé ou mobile ou fixe (fresque), plafond, encadrement dans une paroi dans un objet, dessin (noir ou couleur), gravure, photographie, sculpture.

Les écrits (Biblion). On distingue qu'ils sont ou relatifs directement à la réalité ou bien relatifs à une image, et alors ils sont : a) ou relatifs à une reproduction de la réalité, soit tableau, dessin, gravure, photographie, sculpture ; b) ou relatifs à une reproduction d'une reproduction faite à son tour par tableau, dessin, gravure, photographie ou sculpture. 1. Réalité.

2. Reproduction de la réalité.

3. Écrit sur une reproduction de la réalité. 1. Choses elles-mêmes.

2. La mention de chose dans la classification.

3. Le catalogue général inventoriant les choses en elles-mêmes ou appartenant à des collections déterminées.

4. Le catalogue (général ou particulier) de documents relatifs aux choses. 1. Auteur de l'original.

2. Auteur de la reproduction.

Boustropheron

Otlet envisage une écriture multidimensionnelle et multidirectionnelle.

## 222.11 Notion.

La disposition donnée à l'écriture sur le papier a quelque chose de fondamental. En principe on peut écrire normalement de gauche à droite et d'en dessus en dessous, mais l'inverse est possible. De droite à gauche, de bas en haut, on peut écrire et commencer par la première page à partir de l'extérieur ou par la page du milieu. En principe, l'écriture est linéaire, car elle suit l'énonciation des sons qui se succèdent dans le temps. La ligne a donc pris trois directions fondamentales : horizontale, verticale et retour. (Boustropheron). L'écriture pourrait-elle être transformée de simplement linéaire en surface et y aurait-il quelque parti à tirer d'une écriture plurilinéaire à la manière des partitions musicales ou des notations chimiques ? Sur des lignes superposées, ayant même direction, ou sur des lignes prenant d'un point central des directions diverses seraient écrits les développements d'un exposé qui se succèdent aujourd'hui linéairement.

Citation

## 212 Analyse des caractéristiques du Livre et du Document.

Il en est du livre comme des machines. Dans les premiers temps, chaque machine était considérée comme un tout, composé de parties qui lui étaient propres. À de rares exceptions près, les yeux de l'esprit ne distinguaient pas encore, dans les machines, le groupe de précision que nous désignons aujourd'hui sous le nom de mécanisme. Une machine était un moulin, un brocard était un procédé et pas autre chose. C'est qu'en réalité, il faut que la pensée sur un sujet donné ait déjà fait bien des progrès pour être à même de distinguer ce qu'il a de général dans ce qui est propre à ce sujet : c'est la première distinction entre la pensée scientifique et la pensée ordinaire. (Reuleaux. Cinématique, p. 11.)

## 251.26 Comment on écrit.

Traité de documentation

## 251.322 Les notes

L'élément matériel premier de tout travail intellectuel est la note. Les savants en dépouillant un ouvrage prennent parfois autant de notes que de pages. Observer le principe monographique. Un élément, une fiche ; une fiche, un élément. On peut employer plusieurs fiches si la place manque sur une seule. Il est préférable de n'écrire que sur un côté de la fiche, en vue du découpage et du collage ultérieur. Mais des exceptions sont possibles. Dans l'élaboration de la pensée et de l'écrit, les notes sont à la fois des jalons et des représentants de réalités existantes. Impossible de les négliger : elles s'affirment être et force est bien d'en tenir compte. Aussi le répertoire est comparable à une « machine à penser ».

Coquille

Publié dans l'empressement, le Traité de documentation comporte une série de coquilles allant de la faute d'orthographe, à la page manquante ou dupliquée, à la répétition.

## 222.11 Notion.

La disposition donnée à l'écriture sur le papier a quelque chose de fondamental. En principe on peut écrire normalement de gauche à droite et d'en dessus en dessous, mais l'inverse est possible. De droite à gauche, de bas en haut, on peut écrire et commencer par la première page à partir de l'extérieur ou par la page du milieu. En principe, l'écriture est linéaire, car elle suit l'énonciation des sons qui se succèdent dans le temps. La ligne a donc pris trois directions fondamentales : horizontale, verticale et retour. (Boustrophéron). L'écriture pourrait-elle être transformée de simplement linéaire en surface et y aurait-il quelque parti à tirer d'une écriture plurilinéaire à la manière des partitions musicales ou des notations chimiques ? Sur des lignes superposées, ayant même direction, ou sur des lignes prenant d'un point central des directions diverses seraient écrits les développements d'un exposé qui se succèdent aujourd'hui linéairement.

## Errata

ANNEXE ERRATA : ( Page omise ).

373 bis.</div>

Corrélation

Couleur

Desiderata

Division

Equation

Traité de documentation

## 212.5 Equation du livre

Sous une forme condensée et en se reportant aux tableaux ci-après des éléments et de la structure du livre, la définition générale peut prendre la forme suivante d'une équation énumérant les facteurs :

$$\langle \text{math} \rangle \text{L} = \frac{\text{E} \left( \text{M} + \text{G} + \text{L} + \text{I} \right)}{\text{S} \left( \text{r} + \text{f} + \text{p} + \text{c} + \text{t} + \text{a} \right)} \langle \text{math} \rangle$$

Ce qui se lit : Livre = éléments (éléments matières + éléments graphiques + éléments linguistiques + éléments intellectuels) : Structure (reliure + frontispice + préliminaires + corps de l'ouvrage + tables + appendices).

En exprimant ainsi la détermination d'un espace (lieu) et d'un temps (date) et les données relatives à l'auteur, l'équation se complète ainsi :

$$\langle \text{math} \rangle \text{L} = \frac{\text{E}}{\text{S}} \times \text{e} \times \text{t} \langle \text{math} \rangle$$

Francesco Lumachi (Nella republica del Libro, Firenze Lumachi. 1907, p. 190) donne du livre la formule suivante non complète :

$$\langle \text{math} \rangle \text{L} = \frac{\text{A} \left( \text{t} + \text{e} + \text{l} \right)}{\text{P}} \langle \text{math} \rangle$$

A = auteur ; t = typographie ; e = éditeur ; l = libraire ; P = public ; L = livre.

Traité de documentation

Faux-amis

Fin

Gramme

## 111 Notion.

1. Livre (Biblion ou Document ou Gramme) est le terme conventionnel employé ici pour exprimer toute espèce de documents. Il comprend non seulement le livre proprement dit, manuscrit ou imprimé, mais les revues, les journaux, les écrits et reproductions graphiques de toute espèce, dessins, gravures, cartes, schémas, diagrammes, photographies, etc. Livre, éléments servant à indiquer ou reproduire une pensée envisagée sous n'importe quelle forme.

## 223.6 Orthographe

(...)

4. Depuis le XVI<sup>e</sup> siècle des efforts nombreux ont été faits en vue d'une réforme de l'orthographe française. Ils ont rencontré de l'opposition.

L'orthographe, disent les opposants, est une forme conventionalisée de l'écriture. Elle a l'avantage de s'imposer aux irrégularités des dialectes et aux changements historiques des sons. Elle lie les forces et les expressions d'une civilisation. Sans orthographe ou avec une orthographe phonétique, Shakespeare et la Bible ancienne seraient des œuvres étrangères pour les Anglais d'aujourd'hui. Le langage littéraire comme lien d'une civilisation et voix d'une nation doit être regardé d'abord comme un langage écrit, bien qu'il ne doive pas rester sans relation avec le parler pour devenir vivant.

Les grammairiens ont donc tenté un effort systématique pour établir un moyen de relation commun et bien authentique entre les communautés à dialectes divers d'une nation.

M. Brunetière a adressé à la réforme deux reproches : elle changerait la « figure » des mots et en altérerait l'« harmonie » et, ce faisant, elle transformerait le français en une sorte de volapük. M. Renard réplique qu'au XVI<sup>e</sup> et XVII<sup>e</sup> siècle l'orthographe avait une autre figure, que

dans les éditions d'aujourd'hui on la modernise et que Brunetière lui-même, dans son édition des « Sermons » de Bossuet, n'a pas respecté l'ancienne orthographe.

À la fin du XVIII<sup>e</sup> siècle, l'Académie a simplifié en bloc 5.000 mots sur les 10.000 que comptait la langue. Et nul ne protesta.

(...)

Traité de documentation

Génétique

Un certain nombre de documents, issus des papiers personnels d'Otlet, témoignent du processus d'écriture du Traité. Un premier travail d'identification des documents relatifs à la genèse/génétique du livre, a révélé qu'il s'agissait plus de documents résultants d'une opération de classement et d'organisation des contenus que de leur rédaction à proprement dite. Il est à supposer qu'Otlet écrivait sur des cartes ses idées qu'il indexait et classait ensuite.

## 251.26 Comment on écrit.

Traité de documentation

## 251.322 Les notes

L'élément matériel premier de tout travail intellectuel est la note. Les savants en dépouillant un ouvrage prennent parfois autant de notes que de pages. Observer le principe monographique. Un élément, une fiche ; une fiche, un élément. On peut employer plusieurs fiches si la place manque sur une seule. Il est préférable de n'écrire que sur un côté de la fiche, en vue du découpage et du collage ultérieur. Mais des exceptions sont possibles. Dans l'élaboration de la pensée et de l'écrit, les notes sont à la fois des jalons et

des représentants de réalités existantes. Impossible de les négliger : elles s'affirment être et force est bien d'en tenir compte. Aussi le répertoire est comparable à une « machine à penser ».

## 411.5 Des divers principes.

Sont à mettre en œuvre les principes : 1° unité ; 2° universalité ; 3° expansibilité ; 4° rationalisation, normalisation, standardisation ; 5° coopération ; 6° publicité ; 7° Sériation des efforts.

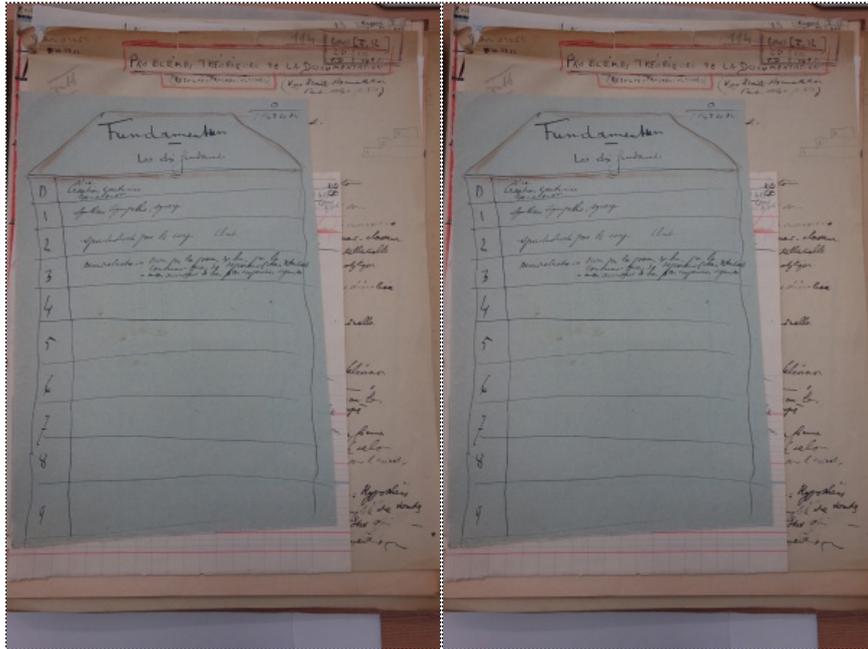
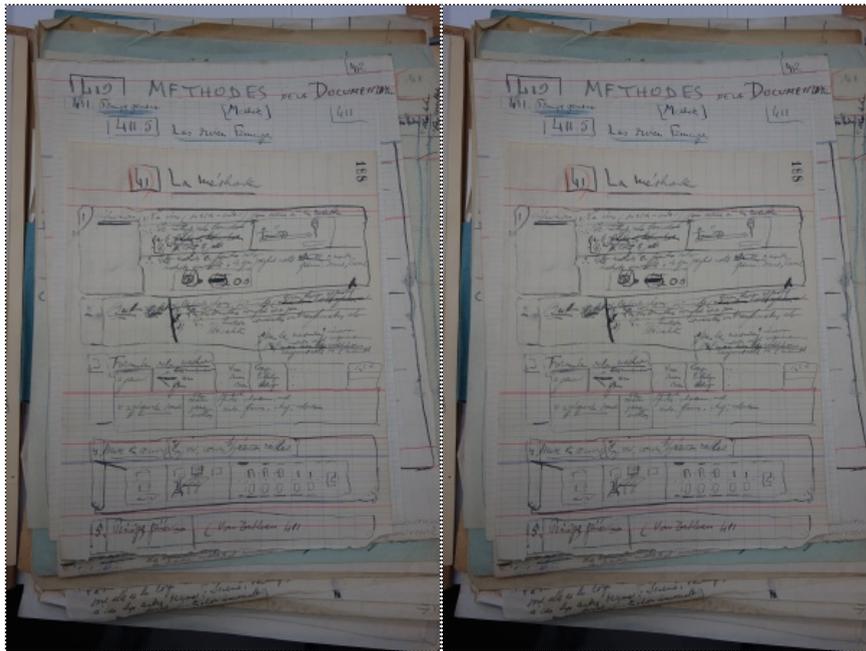


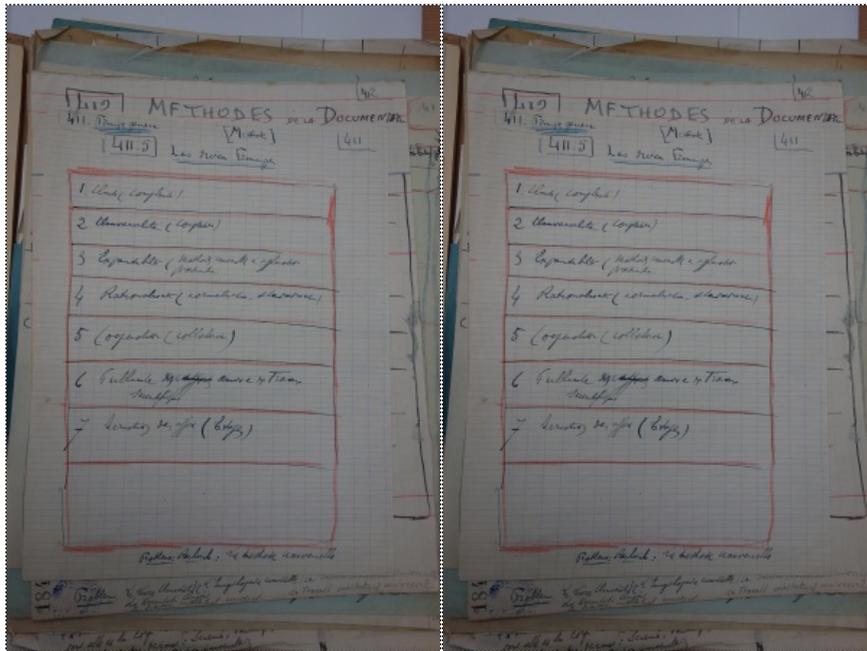
Table des 10 Fondamentaux - Archives Mundaneum-2105-09-28 Traité de documentation



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Traité de documentation

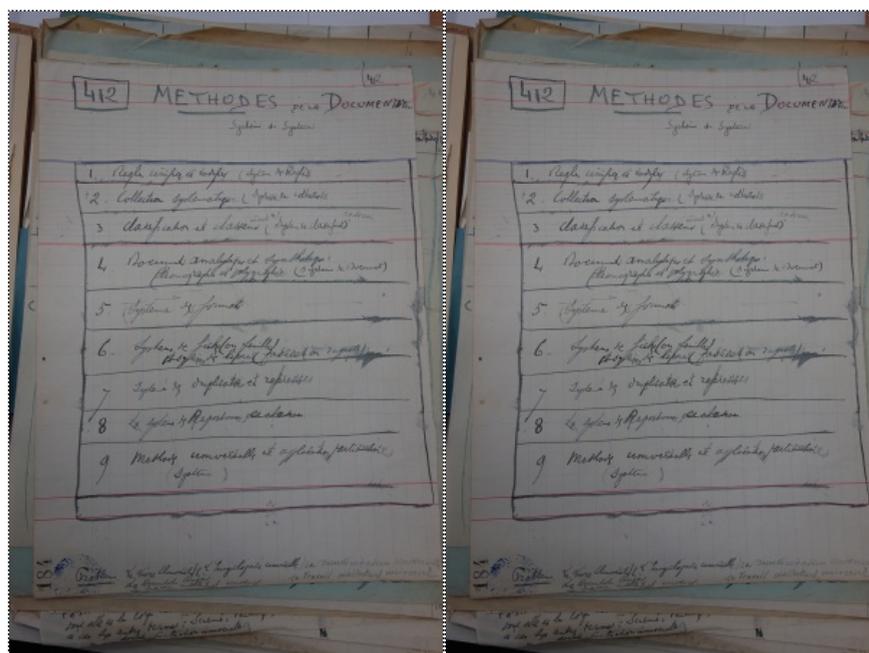
41 PRINCIPES GÉNÉRAUX ET MÉTHODE D'ORGANISATION



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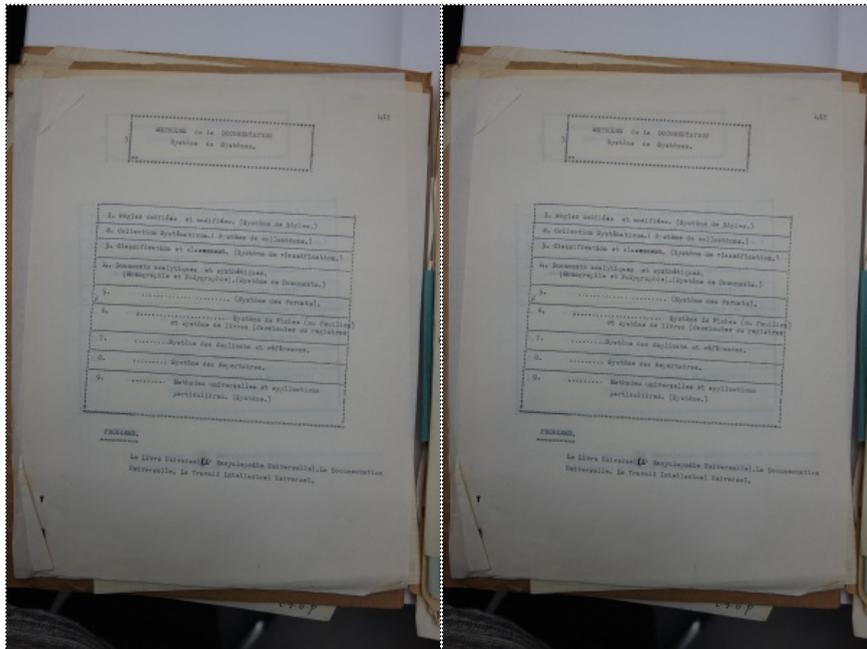
411.5 Des divers principes.



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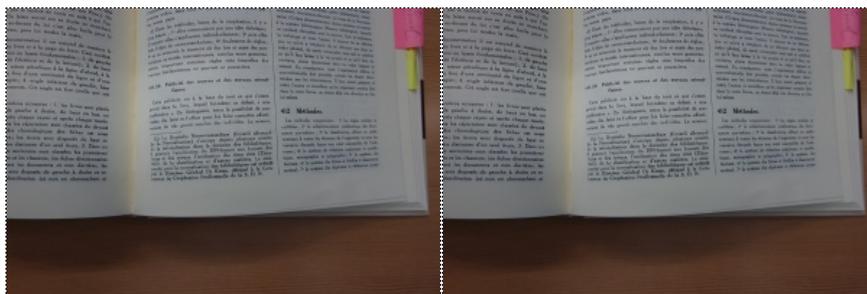
412 Méthodes.



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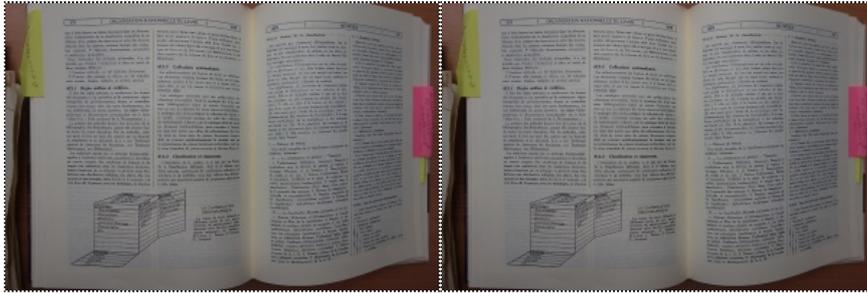
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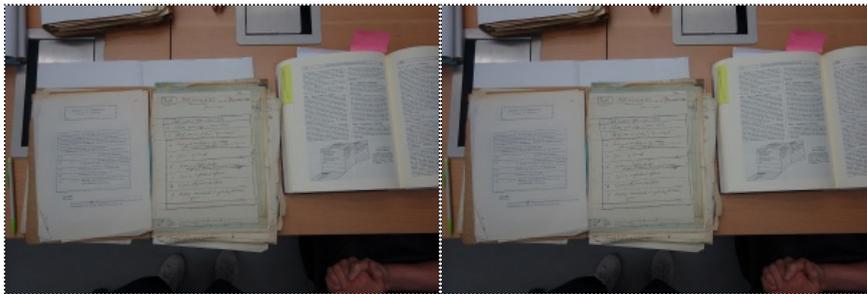
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412 Méthodes.



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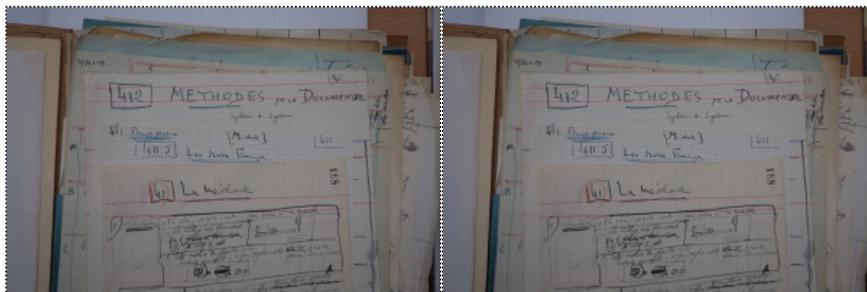
412 Méthodes.



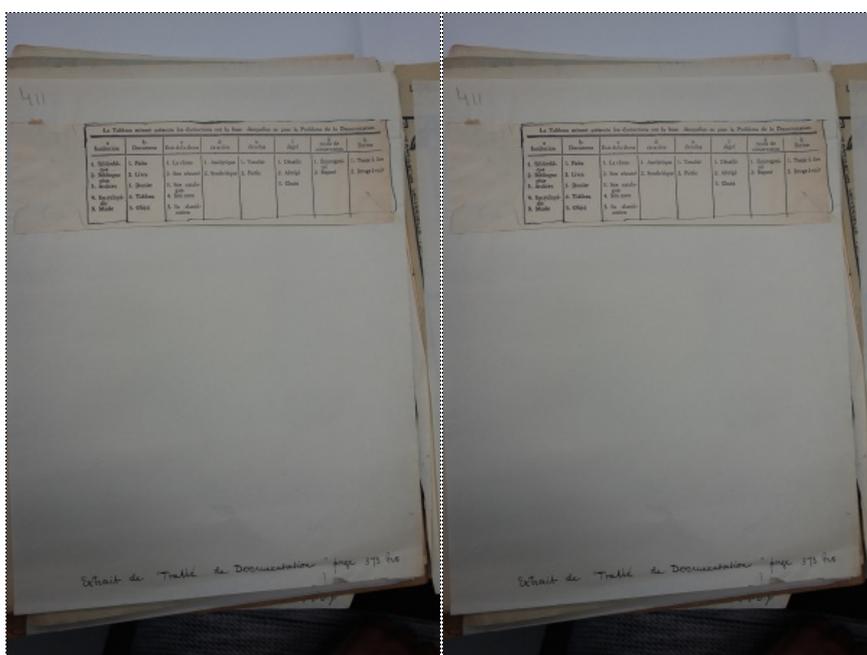
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412 Méthodes.

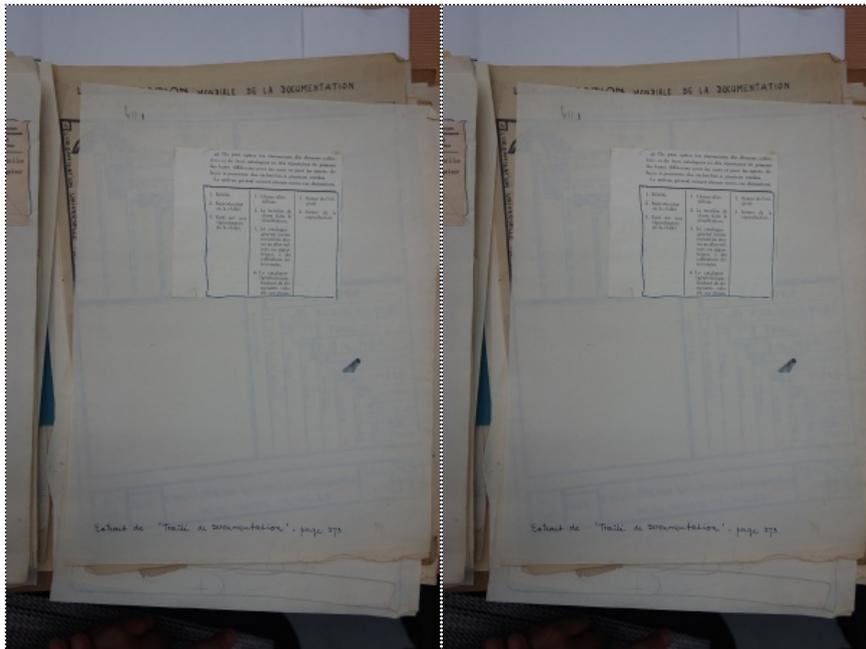


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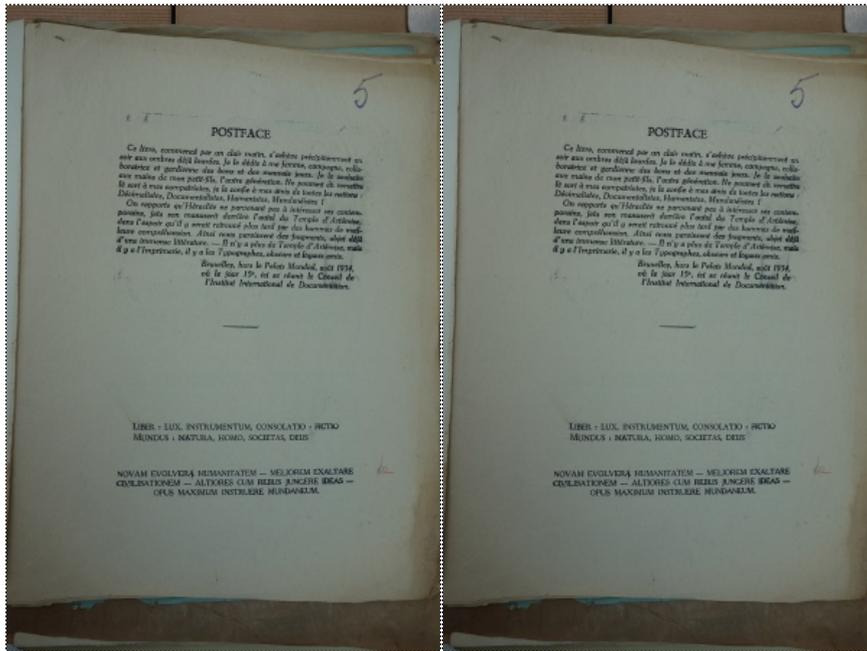
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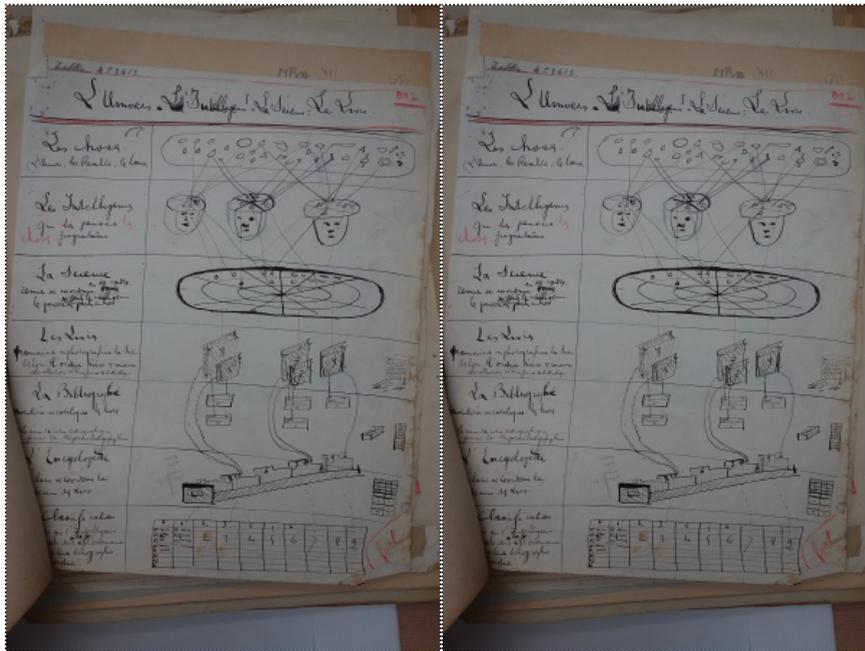
411.1 Les documents.



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Postface

Traité de documentation



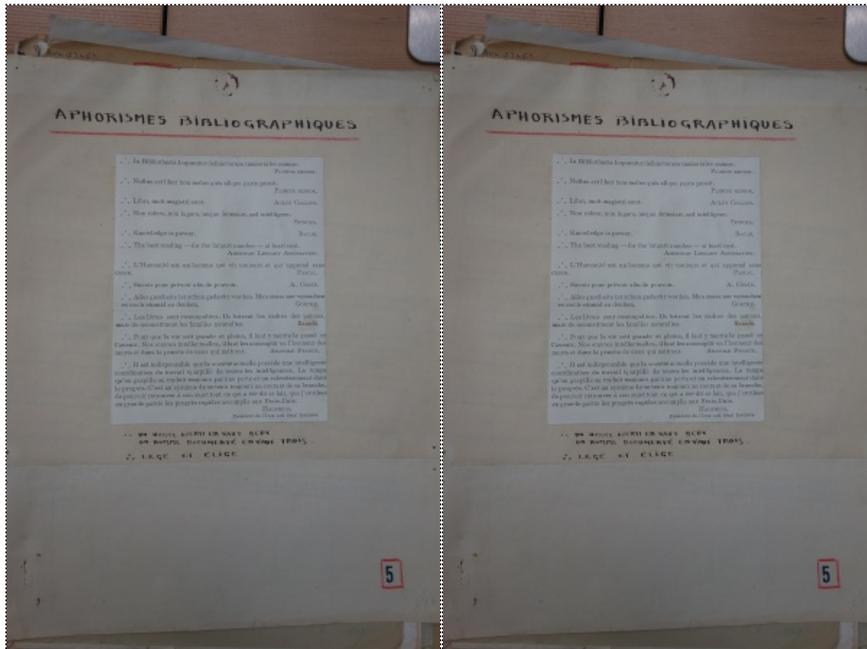
L'univers. L'intelligence. La science. Le livre

Paul Otlet

Traité de documentation

Paul Otlet, *Traité de documentation: le livre sur le livre, théorie et pratique* (Bruxelles: Editions Mundaneum, 1934), p.41.

L'univers. L'intelligence. La science. Le livre.



Archives Mundaneum-2105-09-28

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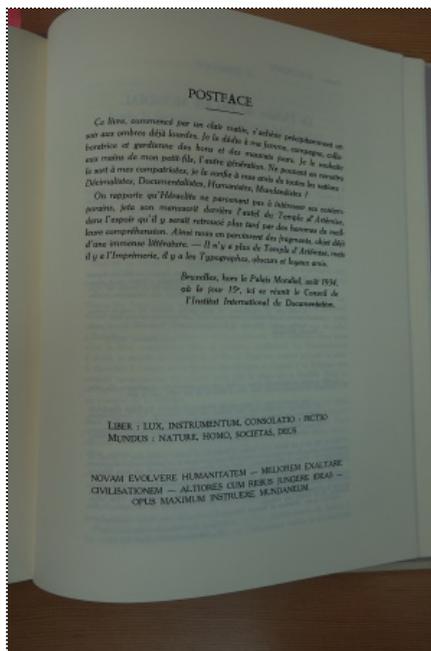
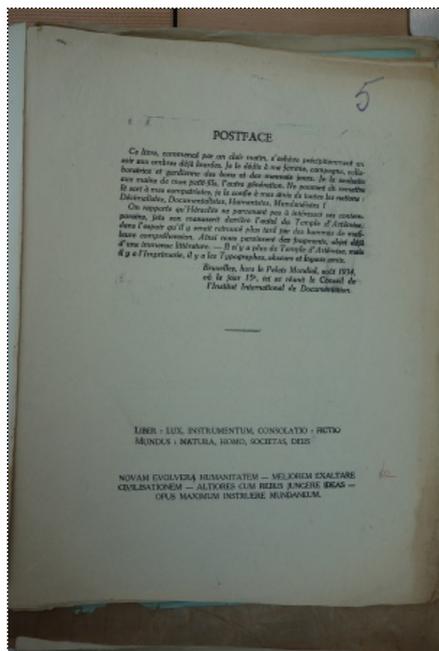
## Postface

*Ce livre, commencé par un clair matin, s'achève précipitamment un soir aux ombres déjà lourdes. Je le dédie à ma femme, compagne, collaboratrice et gardienne des bons et des mauvais jours. Je le souhaite aux mains de mon petit-fils, l'autre génération. Ne pouvant en remettre le sort à mes compatriotes, je le confie à mes amis de toutes les nations : Décimalistes, Documentalistes, Humanistes, Mundanéistes !*

On rapporte qu'Héraclite ne parvenant pas à intéresser ses contemporains, jeta son manuscrit derrière l'autel du Temple d'Artémise, dans l'espoir qu'il y serait retrouvé plus tard par des hommes de meilleure compréhension. Ainsi nous en parvinrent des fragments, objet déjà d'une immense littérature. — Il n'y a plus de Temple d'Artémise, mais il y a l'Imprimerie, il y a les Typographes, obscurs et loyaux amis. Bruxelles, hors le Palais Mondial, août 1934, où le jour 15<sup>e</sup>, ici se réunit le Conseil de l'Institut International de Documentation.

LIBER : LUX, INSTRUMENTUM, CONSOLATIO : FICTIO MUNDUS : NATURE,  
HOMO, SOCIETAS, DEUS

NOVAM EVOLVERE HUMANITATEM – MELIOREM EXALTARE  
CIVILISATIONEM – ALTIORES CUM REBUS JUNGERE IDEAS –  
OPUS MAXIMUM INSTRUERE MUNDANEUM.



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[Traité de documentation](#)

[Icône](#)

[Index](#)

[Livre machinique](#)

[Livre prototype](#)

Otlet décrit le livre prototype comme un type de livre qui a développé une type de contenu. Plus qu'un contenant, le *livre prototype* fait office de matrice intellectuelle dans laquelle les idées prennent forme selon le moule de ce prototype

## 225 Éléments scientifiques ou littéraires du livre : Les données de l'exposé.

Chaque mouvement a créé un livre prototype : ce livre une fois créé, il s'est développé, réédité, continué d'édition en édition. Ex. les livres sacrés, les œuvres des grands philosophes, les dictionnaires de langue, les encyclopédies, les recueils d'inscriptions, etc. Quel spectacle aurions-nous si, par un miracle bibliographique, il nous était donné tout à coup de pouvoir les lire en même temps dans toutes leurs parties, sur toutes leurs pages ?

Livre à faire

Otlet et l'anticipation du livre à venir

## 17 HISTOIRE ET ÉVOLUTION. PHASES DES SCIENCES BIBLIOLOGIQUES

1. Trois points de vue tendent à prévaloir dans toute science : le statique, le dynamique, le génétique ou évolutif. De même en Bibliologie. Très longtemps statique, elle-même doit se faire maintenant largement évolutive et génétique.

La loi d'évolution est générale. On la retrouve dans les phénomènes biologiques, sociaux et ceux qui portent l'objet des autres sciences. Influence du milieu, procédés organiques divers et réitérés d'agrégation des parties en un tout ; transition incessante d'un ordre moins homogène, moins organique, moins efficace et moins parfait à un autre plus homogène, plus organique, plus efficace et plus parfait.

Sous le nom d'« Histoire du Livre », des matériaux considérables ont été rassemblés, mais ils visent les détails plus que les ensembles. L'Histoire du Livre, distincte de l'histoire des sciences bibliologiques, sera traitée au chapitre qui envisage les livres aux diverses époques.

Une histoire du livre détaillée est une source incomparable pour la compréhension réelle du livre tel qu'il se présente aujourd'hui. Le livre est l'aboutissement d'une longue, très longue évolution et bien peu de ses détails qui soient le résultat d'un hasard et d'un facteur arbitraire. On est stimulé ainsi à créer de nouveaux types, en connaissance plus complète des possibilités. Les notes historiques éclairent tout exposé et lui donnent une signification plus vive.

Il semble que pour nos objets familiers comme pour nos connaissances, le plus difficile est d'en prendre conscience, de les détacher pour ainsi dire en nous-mêmes, pour leur faire prendre existence et consistance propre. C'est le « désaxement » facilité par l'histoire, qui rend possible cette « autonomisation ».

2. La Documentation, vieille comme l'homme au moment où il inscrivait ses premiers signes, a offert trois phases dans son développement récent :

1° Au sortir des temps modernes, les *Bibliothèques* constituent de grands centres d'érudition. Elles commandent l'activité intellectuelle et entreprennent l'œuvre de leur catalogue concurrentement avec celle du collectionnement. C'est d'autre part chez elles et c'est avec leurs ressources en matériaux de toute nature que s'entreprennent alors les grandes compilations, recueils, dictionnaires, encyclopédies.

2° Ensuite la *Bibliographie* se dégage peu à peu de la Bibliothèque. Elle naît des besoins, non d'une collection déterminée, qui est satisfaite par le catalogue, mais de la Science, désireuse de se servir des livres où qu'ils soient entreposés. Pour se constituer une méthode, – celle de la description des livres et des études sur les ensembles de livres, – elle arrive bientôt à élargir la conception qu'elle se fait du livre lui-même jusqu'à lui substituer la notion du document. À partir de ce moment, à l'étroit dans les anciens cadres, la Bibliographie s'affirme autonome, l'égale même de la Bibliothéconomie, et critique son particularisme. En travaillant dans la catégorie de l'universel, elle influence rapidement la science, la production intellectuelle elle-même, à laquelle elle apporte le moyen de se représenter plus clairement sa propre universalité.

3° Et maintenant voici qu'une nouvelle phase est commencée. Ce n'est plus ni celle de la Bibliothéconomie, ni celle de la Bibliographie, c'est celle de l'ensemble du Livre et du Document, la Documentation. L'une et l'autre en sont des parties, mais des parties rattachées à un corps plus vaste, dont l'existence les élargit, les élève, les transforme.

On peut rapprocher tout ce développement de celui de la Chimie à travers les âges. Science théorique, industrie pratique, on ne trouve d'abord que les officines du moyen âge avec chez quelques esprits la préoccupation du problème de la matière, de ses espèces et de ses créations. La chimie naît lentement de l'Alchimie et de la Philosophie naturelle, et un moment vient, le nôtre, où toute la pharmacie est absorbée et réordonnée par la Chimie.

3. Il ne faudrait trop s'étonner que la Bibliologie ne se constitue que de nos jours. Il fallait d'abord que les livres existassent avant de pouvoir les décrire, les analyser et dégager de leur existence même des faits généraux. De même la Critique littéraire est apparue tardivement « le dernier produit d'une longue expérience disait Longin, avec la tâche de constater l'état-civil des vivants et de relever les morts »,

Proudhon (*sur l'Économie politique*), a dit :

« L'Histoire de la Bibliologie est nécessairement prématurée si on la juge au point de vue d'une Science faite. Mais elle est lumineusement utile sous ce rapport qu'elle est le dernier degré que nous ayons à monter pour arriver au sanctuaire ».

Il y a des sciences qui se sont formées au sein des universités. D'autres hors les universités : ainsi la Statistique. Il est compréhensible que la Bibliologie se soit constituée hors les universités et qu'elle s'impose aujourd'hui à elles.

4. L'histoire des moyens de communications montre les phases suivantes :

*Première époque.* – D'abord le langage est le seul moyen de communication. Plus tard, les nouvelles se transmettent par des signaux (feux de nuit, signaux par le langage des tambours en Afrique). Plus tard, le système des messagers. *Deuxième époque.* – Communication par l'Écriture.

Le livre, l'écriture sont si importants qu'on dénomme période préhistorique celle qui va des premières manifestations humaines aux premiers documents écrits.

*Troisième époque.* – Communication par des appareils mécaniques. Imprimerie (journal), Télégraphie, Téléphone, Poste, Radiophonie.

*XX<sup>e</sup> Siècle.* – Nous nous sommes trouvés subitement en présence du livre en large collaboration de la publication périodique et continue, de la commercialisation, des formes matérielles nouvelles, notamment des répertoires sur fiches, de l'invasion du texte par l'image, des procédés de notation, de chiffage et de diagramme, de la culture simultanée de toutes les sciences de leur application.

Peut-être sommes-nous à un moment aussi important dans l'Histoire du Livre qu'a été la découverte et la généralisation de l'imprimerie au XV<sup>e</sup> Template:E siècle. En toute matière les grands changements d'orientation nécessitent de longues et patientes préparations. Après les efforts particuliers des dernières décades, nous assistons maintenant à ce qu'on pourrait appeler la rénovation de la pensée bibliologique.

5. Les phases du livre correspondent aux phases de la Pensée : 1° Les pensées primitives. 2° L'expression littéraire de la pensée morale, philologique, scientifique. 3° La science constituée. 4° L'étape nouvelle : la science synthétisée, documentée, visualisée, mathématisée, se condensant, se ramassant pour mieux bondir plus loin et plus haut.

C'est la parole extérieure, la vérité, la phonation, qui a fini par modeler la parole intérieure, et a donné au travail de notre pensée l'expression verbale, une réalité presque tangible. De même, c'est l'écriture qui a donné une forme, une réalité à la science : l'écriture a peu à peu constitué les livres. D'une manière générale, on peut suivre cette histoire de la pensée cérébrée (cogitée) et se constituant peu à peu en un vaste organisme intellectuel, la science.

6. La science bibliologique dans sa première phase a été purement descriptive : La Bibliographie proprement dite. Dans une deuxième elle a tendu à devenir théorique : Bibliologie. Voici qu'elle tend à devenir technique, c'est-à-dire à influencer la confection du livre par des règles déduites de la théorie (Bibliotechnie). Cessant d'être la servante de livres tout faits, et insuffisamment bien faits, elle revendique une action sur les livres à faire. Elle prescrit à la fois les meilleures formes (abstraction faite du contenu) et l'opportunité d'écrire certains ouvrages selon les besoins scientifiques reconnus, ce qui est aujourd'hui livré entièrement à l'arbitraire des éditeurs et souvent des auteurs. Cette fonction, les sciences du livre ont à la partager avec l'organisation scientifique de chaque science.

Traité de documentation

## 230 7. Livres faits, livres à faire.

Un livre représente un ensemble d'idées et de faits classés dans un certain ordre. On pourrait par la classification et la bibliographie tracer une carte très intéressante des livres faits et des livres restant à écrire ou possibles. En telles langues existent tels livres, en d'autres pas (livres possibles) ; de même en telle science on a étudié telle question à telle époque, ou en tel pays, ou sous tel aspect ; on n'a pas fait une étude intégrale de tous les pays, époques ou aspects ; ou bien on n'a pas fait de même dans d'autres sciences.

Traité de documentation

### 412.6 Le système de fiches ou feuilles et le système des livres, fascicules ou registres

1. – Le livre traditionnel est formé de feuillets reliés portant chacun un texte en lignes à lire de gauche à droite et successivement de haut en bas (les Orientaux écrivent et lisent des lignes de haut en bas ; les anciens avaient des « volumes » où le texte était enroulé).
2. – En fait, le contenu d'un livre peut être représenté par une seule ligne continue mais sectionnée en parties égales qui correspondent chacune à une page et ensuite à une ligne de page. Ce sectionnement est matériel ; il ne concorde pas avec le sectionnement selon les divisions intellectuelles de l'idée (chapitres, sections, paragraphes, alinéas).
3. – La disposition sous forme de feuilles ou fiches mobiles qui ne soient pas fixées par brochage ou reliure, permet d'obtenir les avantages des trois principes suivants :
  - a) *Principe de la monographie.* Chaque élément intellectuel d'un livre est (après avoir été sectionné de l'ensemble du texte) incorporé en un élément matériel correspondant.
  - b) *Principe de la continuité et de la pluralité d'élaboration.* Alors qu'un livre est élaboré intellectuellement par un seul ou par quelques collaborateurs et arrêté après achèvement, les fiches permettent d'y travailler à un nombre illimité de personnes ; il ne doit jamais être tenu pour achevé.
  - c) *Principe de la multiplication des données.* Pour faire figurer les diverses données sous les divers ordres de classement (par exemple les ordres idéologiques, géographiques, chronologiques, etc.), on en multiplie les fiches.
4. – Les fiches ou feuillets s'organisent en Répertoires, disposés en Fichiers ou Classeurs, avec disposition verticale avec l'intermédiaire de fiches divisionnaires ou de dossiers.

5. – La Classification décimale exprime des classes dans un ordre relatif et non dans l'ordre absolu de nombres consécutifs. Elle fait fonction de pagination pour les Fichiers et Classeurs.

6. Deux méthodes générales sont en présence : fiches (feuilles) ou livres (registres). La première repose sur la mobilité des éléments composés, la seconde sur leur fixité. En combinant le système des fiches et feuilles avec le principe monographique, on obtient une coïncidence parfaite dans le document entre l'unité intellectuelle et l'unité physique du support écrit, entre le sectionnement de la pensée et les sections du livre dans le concret.

Traité de documentation

## 532 Le livre universel

Traité de documentation

Machine

## 212 Analyse des caractéristiques du Livre et du Document.

Il en est du livre comme des machines. Dans les premiers temps, chaque machine était considérée comme un tout, composé de parties qui lui étaient propres. À de rares exceptions près, les yeux de l'esprit ne distinguaient pas encore, dans les machines, le groupe de précision que nous désignons aujourd'hui sous le nom de mécanisme. Une machine était un moulin, un brocard était un procédé et pas autre chose. C'est qu'en réalité, il faut que la pensée sur un sujet donné ait déjà fait bien des progrès pour être à même de distinguer ce qu'il a de général dans ce qui est propre à ce sujet : c'est la première distinction entre la pensée scientifique et la pensée ordinaire. (Reuleaux. Cinématique, p. 11.)

## 251.322 Les notes

L'élément matériel premier de tout travail intellectuel est la note. Les savants en dépouillant un ouvrage prennent parfois autant de notes que de pages. Observer le principe monographique. Un élément, une fiche ; une fiche, un élément. On peut employer plusieurs fiches si la place manque sur une seule. Il est préférable de n'écrire que sur un côté de la fiche, en vue du découpage et du collage ultérieur. Mais des exceptions sont possibles. Dans l'élaboration de la pensée et de l'écrit, les notes sont à la fois des jalons et des représentants de réalités existantes. Impossible de les négliger : elles s'affirment être et force est bien d'en tenir compte. Aussi le répertoire est comparable à une « machine à penser ».

## 413 Moyens matériels : Matières et outillage ; Mobilier ; Installations.

La machine est un prolongement a) des organes de perception de l'homme (sens) ; b) des organes qui conservent et combinent les données perçues (mémoire et raisonnement) ; c) des organes d'action et d'expression (mains, pieds, corps, tête, voix). Le but de la machine est d'aider, remplacer ou intensifier la puissance de l'homme dans ces trois directions.

La machine est appelée à s'appliquer aux trois opérations : a) Écrire (machines à écrire, à imprimer, à photographier), b) Lire (gramophone, machines à projeter), c) Pensée (enregistrer les observations, thermomètre, baromètre-enregistreur : combiner les données : machines à calculer et à résoudre les équations, faisant les quatre opérations arithmétiques fondamentales, établissant les moyennes et les proportions). Sous nos yeux est en voie de se constituer une immense machinerie pour le travail intellectuel. Elle se constitue par la combinaison des diverses machines particulières existantes dont, malgré l'individualisme et le particularisme des inventeurs, les liaisons nécessaires s'entrevoient. Cette machinerie est aujourd'hui à peu près exclusivement au service de l'industrie, du commerce, de la finance. Demain on la mettra au service de l'administration et du travail scientifique et alors ce seront de

merveilleux résultats généraux qui en seront recueillis. 413.121.1 **Dictier**  
 . – Machine pour la fixation de la parole. Le dictaphone enregistre selon les principes du phonographe. Il a été inventé une machine à sténographe en écriture lisible, la sténotype. 413.121.2 **Écrire** : – Les machines à écrire sont devenues des instruments ultra-perfectionnés. Le clavier s'universalise ; les machines sont sans bruit ; on peut les emporter en de petites valises de peu de poids ; on en a rendu interchangeables les parties de manière à remplacer les éléments visés sans devoir sacrifier tout le bâti. 413.123.1 **Calculer** : – Les plus fondamentales des opérations intellectuelles se font aujourd'hui par machines ; ce sont les opérations du calcul : additionner, soustraire, multiplier, diviser, extraire les racines. Le choix des machines est grand, depuis la simple règle à calcul jusqu'à la machine agencée.

### 413.13 Inventions à faire

Il n'est question ci-après que des inventions désirées dans le domaine de la Bibliographie et de la Documentation. L'invention est la mise en œuvre de l'imagination créatrice guidée par les principes scientifiques. Elle peut porter soit sur une machine ou appareil, sur un dispositif, sur une méthode ou sur un mode d'organisation et de coopération. 4. Écriture. Intensifier la rapidité d'écriture à l'aide des machines. 5. Lecture. – Imaginer une machine, un dispositif ou une méthode permettant d'accroître la rapidité soit de la lecture ou soit de la prise de connaissance du contenu d'un texte, d'un livre, d'un document quelconque. 6. Machines à sélectionner (machines à statistiquer). – Possibilités avec les machines à sélectionner dites machines à statistiquer (Hollerith, Power) de rechercher les possibilités suivantes : a) Se servir de simple papier. (Suggestion : on pourrait réserver au bas de chaque lettre, feuille de correspondance, rapport, note, relevé quelconque, un emplacement réservé au cadre de perforation. Par suite les documents originaux pourraient servir eux-mêmes à réaliser mécaniquement toutes les opérations de classement et de récupération ultérieure.) Pouvoir sélectionner, parmi un

ensemble de fiches diverses, celles qui portent un numéro individuel particulier et obtenir mécaniquement leur mise en ordre selon la série progressive des numéros.7. Écriture et lecture directe. – Transformation mécanique de la parole en écriture lisible et inversement de l'écriture en parole. (Suggestion : se baser sur une écriture phonétique, photographie d'une part, gramophone d'autre part. Transformer les inscriptions sur les disques en lettres et les lettres en sons.)8. Télélecture.9. Téléscription. – Comme application particulière de la télémécanique, réaliser la possibilité : a) d'écrire facilement à distance ; b) d'ajouter à distance des inscriptions à des textes existants ; c) d'opérer ces inscriptions sans déplacer les textes des livres ou des classeurs. (Suggestion : le téléphotographe ; le téléphonographe Zoller qui permet à tout téléphoneur d'écrire en chiffres à distance le message destiné à son correspondant qui ne répond pas).10. Mobilier. – a) Améliorer la table de travail quant à la possibilité d'accès et de classement des documents y déposés et de l'agencement avec elle des machines et instruments auxiliaires du travail intellectuel.11. Atelier de travail intellectuel.Relier les uns aux autres en une série continue les divers appareils déjà inventés pour le travail de bureau.Coordonner entr'eux les appareils au point de vue des formats, de la réduction des espaces, de la combinaison de diverses machines en une seule, du synchronisme opérateur de plusieurs machines.13. Machine à traduire.à mesure que parle l'orateur, les traducteurs, au lieu de résumer oralement les paroles entendues, feraient le résumé analytique par écrit sur des bandes de papier qui seraient immédiatement projetées sur un écran. Le dispositif est simple. Derrière le bureau de assemblée, ou de la tribune des orateurs, est placée une toile blanche dans un encadrement avec le recul nécessaire pour la projection en pleine lumière (méthode connue). Les traducteurs sont assis devant le bureau en tel nombre qu'il est désiré avoir de traductions en langues différentes. Chacun est installé à son écritoire sur lequel se déroule automatiquement une bande de papier transparent ou de cellulose et cela à une vitesse qu'il peut régler selon qu'il est nécessaire pour suivre la parole. Les bandes passent immédiatement dans la lanterne qui les projettent sur la toile. Le texte peut venir s'y accumuler en plusieurs lignes en disposant à cet effet de plusieurs lanternes ou d'une. Il y aurait autant d'écrans que de langues traduites. Le téléautographe peut venir en aide. L'appareil ici décrit est utilisable aussi pour les professeurs et conférenciers et destiné alors à remplacer l'écriture ou le dessin au tableau noir.

## 52 LES PROBLÈMES DE LA DOCUMENTATION.

Ici la Table de Travail n'est plus chargée d'aucun livre. À leur place se dresse un écran et à portée un téléphone. Là-bas au loin, dans un édifice immense, sont tous les livres et tous les renseignements, avec tout l'espace que requiert leur enregistrement et leur manutention, avec tout l'appareil de ses catalogues, bibliographies et index, avec toute la redistribution des données sur fiches, feuilles et en dossiers, avec le choix et la combinaison opérés par un personnel permanent bien qualifié. Le lieu d'emménagement et de classement devient aussi un lieu de distribution, à distance avec ou sans fil, télévision ou télétaographie. De là on fait apparaître sur l'écran la page à lire pour connaître la réponse aux questions posées par téléphone, avec ou sans fil. Un écran serait double, quadruple ou décuple s'il s'agissait de multiplier les textes et les documents à confronter simultanément ; il y aurait un haut parleur si la vue devrait être aidée par une donnée ouïe, si la vision devrait être complétée par une audition. Une telle hypothèse, un Wells certes l'aimerait. Utopie aujourd'hui parce qu'elle n'existe encore nulle part, mais elle pourrait bien devenir la réalité de demain pourvu que se perfectionnent encore nos méthodes et notre instrumentation. Et ce perfectionnement pourrait aller peut-être jusqu'à rendre automatique l'appel des documents sur

l'écran (simples numéros de classification, de livres, de pages) ; automatique aussi la projection consécutive, pourvu que toutes les données aient été réduites en leurs éléments analytiques et disposées pour être mises en œuvre par les machines à sélection.

Manuel

## THIS IS A DRAFT

*Le Traité de documentation* s'apparente plutôt à un *manuel* en cela qu'il suggère une série de principes, de faits et de règles d'organisation de la documentation <sup>[2]</sup>, laissant une part à l'interprétation et à la réappropriation personnelle, tout autant qu'à l'adaptation de ces règles en fonction des cas. Otlet qui tentera sans cesse de définir "l'unité documentaire", vise alors à faire "entrer la documentation en action, formant un homme nouveau" <sup>[3]</sup>, *une entité documentaire individuelle*. Ainsi, il s'oppose à la notion de 'formulaire'.

## Présentation

Comme il ne saurait s'agir d'une standardisation et d'une mécanisation totales du travail C'est à chacun à composer un « Manuel de Documentation » car celui-ci, s'il contient de nombreuses formules, n'a cependant en réalité rien d'un Formulaire.

Manuscrit

Medium

## 211 3. Le Biblion.

Il y a désormais un terme générique (Biblion ou Bibliogramme ou Document) qui couvre à la fois toutes les espèces : volumes, brochures, revues, articles, cartes, diagrammes, photographies, estampes, brevets, statistiques, voire même disques phonographiques, verres ou films cinématographiques.

Le « Biblion » sera pour nous l'unité intellectuelle et abstraite mais que l'on peut retrouver concrètement et réellement mais revêtu de modalités diverses. Dans le cosmos (ensemble des choses) le livre ou Document prend place parmi les choses corporelles (non incorporelles), artificielles (non naturelles), et ayant une utilité intellectuelle (non matérielle). Le Livre est un moyen de produire des utilités intellectuelles.

Mensonge

## -0 Page de titre

### LE LIVRE SUR LE LIVRE

## 165 Sources.

1. La Bibliologie possède un recueil important de Bibliographie dans *l'Internationale Bibliographie des Buch und Bibliothekswesen* : il paraît régulièrement depuis 1926, année où il se sépara du « Zentralblatt » et de ses suppléments. <sup>[4]</sup>
2. La Bibliologie possède aussi des recueils de matériaux, récents ouvrages ou périodiques qui sont à la base de toutes les considérations sur le livre. M. F. C. Lonchamp a publié un *Manuel du Bibliophile français* en 4 volumes, 1600 p. avec 385 illustrations. C'est un ouvrage d'ensemble, historique et bibliographique sur tout le livre et ses arts, depuis les origines jusqu'à nos jours. (1470-1921). (Imprimerie, illustration, reliure, ex-libris, etc.).
3. Les listes bibliographiques placées *in fine* de cet ouvrage, ainsi que les notes inframarginales au cours de l'exposé, indiquent les principales contributions. Tout l'ensemble constitue à ce jour la source des sciences bibliologiques et documentaires.

Traité de documentation

## 251.26 Comment on écrit.

Traité de documentation

# Index alphabétique

Abréviation	222.22
Abstraction	513.2
Acquisitions	262.42
Administration (Documentation)	424.4
Aération	414.7
Affiches	242.34
Allégories	222.02
Almanach	241.32
Alphabet	222 14
Amour du Livre	258.2
Analyse et synthèse	132
Analyses (résumé)	255.5
Annuaire	241.33
Anthologie	241.84
Anticipations	521
Architecture	213.75
Archives	242.4
Archives administratives	424.4
Archives anciennes	422.5
Art	243.7
Associations	163
Atlas	242.28
Atlas encyclopédique	422.34
Auteurs	251.2
Autodidaxie	257.94
Avenir du Livre	521
Biblio-économie	4
Bibliographie	255
Bibliothéconomie	262.4
Bibliothèques	262
Bibliologie	1
Bibliologie pédagogique	157
Bibliologie pure	142

Bibliologie technologique	156
Bibliométrie	124
Biblion	211.3
Bibliothécaire	115.1
Bibliothéchnie	4
Bibliothèque	282
Bibliothèque Mondiale	422.24
Biologie	512.5
Bouquinerie	253.234
Brochures	241.11
Bureaux	424.4
But	411.41
Cachets	242.63
Calligraphie	222.151
Caractères typographiques	222.153 - 222.43
Caractéristiques du Livre	212
Cartes	242.2
Cartes à Jouer	242.362
Cartes postales illustrées	212.361
C. D. (Classification décimale)	412.36
Catalogue	241.5 - 255
Censure	256.4
Cinéma	213.5
Cinémathèque	243.39
Circulation du Livre	253
Citations	255.6
Cité Mondiale	425.2
Classeurs	412.8
Classification	224.5 - 412.3
Classification décimale	412.36
Codification	422.35
Collections	241.1
Colportage	253.232
Commentaires des textes	241.44
Commerce extérieur	253.27
Composition	251.33
Composition littéraire	224.1
Composition mécanique	252.7

Comptabilité	253.284
Conservation du livre	259.1
Contrat d'édition	253.14
Convention	417.2
Coopération	411.55
Critique	256.1
Cryptographie	222.163
Dactylographie	222.152
Décoration	222.33
Définitions du livre	211.5
Dépôt	421.3
Description du livre	255
Dessin	242.32
Destruction du livre	259.2
Dictionnaire	241.22
Diffusion du livre	254
Disques	243.2
Distribution	253
Document	411.1
Documentation	411.2
Documentation administrative	422.4
Documentologie	1
Dossiers documentaires	422.31
Douane	253.273
Droit	281.4
Droit du titre	231.19
Échange	421.3
Écriture	222.1
Écriture des aveugles	222 164
Écrivains	251.27
Édition	253.1
Édition mondiale	421.12
Éléments graphiques	222
Éléments intellectuels	224
Éléments linguistiques. Langues	223
Encouragement au livre	164
Encres	222.142
Encyclopédie	241.22

Enluminure	242.13
Enseignement	157 - 162
Enseignement par soi-même	257.94
Ensembles à réaliser	42
Ensembles de livres	3
Enveloppe du livre	221.3
Épigraphe	242.6
Époques (Livres aux diverses)	323
Équation du livre	212.5
Espèces de livres	24
Estampes	242.3
Esthétique du livre	222.4
Étalages	253.282
Études	16
Ex-libris	242.363
Exportation	253.271
Exposés	224
Évolution du livre	323
Exposition	243.1
Facture Intellectuelle	251
Facture matérielle	252
Faux	259.29
Fêtes	213.6
Feu	259.26
Feuilles encyclopédiques	422.33
Fiches	412.6
Fichiers	422.32
Film	243.3
Film parlant	243.35
Finances	417.1
Foires aux livres	253 235
Fonction du livre	25
Fonds	262.3
Formats	221.22
Formes	221.21
Fundamenta	0
Graphie en général	222.0
Graphologie	222.152

Gravures	242.3
Histoire de la Bibliologie	17
Histoire des Bibliothèques	262 12
Histoire du Livre	323
Histoire littéraire	256.1
Iconographie	242.3
Idéographie	222.161
I. I. B.	424.1
Illustration	222.3
Illusion	513.4
Institut Intern. de Documentation	424.1
Images	222.3
Imprimerie	252
Imprimeurs	252.3
Incunables	242.19
Influence du livre	241.3 - 258.1
Influence	241.327
Inscriptions	212.61
Installations	413.3
Instruments intellectuels	159
Inventaires	255
Journaux	211.32
Justification	222.45
Langues	223
Langues internationales	223.7
Lecteurs	211.328
Lecture	257
Librairie	253.2 - 421.3
Librairie ancienne	253.234
Linguistique	152
Littérature	324
Liturgie	243.6
Livre proprement dit	241.14
Livre universel	422.3
Locaux	213.342 - 253.281 - 414
Logique bibliologique	154
Lois bibliologique	51
Machines	413 12

Manuscrit (auteur)	251.33
Manuscrits	242.1
Matériel	243.1 - 413.1
Matériel didactique	243.1
Mathé-bibliologie	124.4
Mathématiques	512.2
Matières (Livre dans les diverses)	321
Matières premières	413.4
Mécanique	512.3
Médailles	242.62
Messagerie	253.233
Mesure des livres	124.2
Métaphysique	512.8
Métaphysique	512.8
Méthodes	412
Monnaies	242.62
Monument. Figures	242.6
Motifs décoratifs	222.33
Mundaneum	425.2
Musée	243.1 - 422.6
Musique	242.5
Nomenclature	122
Notation	222.21
Notation musicale	242.55
Notes	257.7
Notices bibliographiques	231.18
Notices catalographiques	255.85
Notion du livre	211
Objets	243.1
Œuvre	251.2
Œuvres d'art	243.7
Offices de Documentation	261
Opérations	25 - 416
Opinion publique	241.323 - 258.12
Organisation mondiale	425.2
Organisation de la documentation	4
Organisation Travail Intellectuel.	425.1
Organismes de la Documentation	26

Orthographe	223.6
Outillage	243.1 - 413
Ouvrages d'ensemble	241.2
Palais Mondial	425.2
Paléographie	222.151
Papier	221.1
Papyrus	242.18
Parole	223.21
Parole et l'Écrit	223.2
Parties du livre	23
Partitions musicales	242 56
Pays (Livre dans les divers)	322
Personnes	415
Philologie bibliographique	152
Phonogramme	243.2
Photographie	242.37
Physico-chimie	512.4
Plagiat	211.86
Plan	242.27 - 411.42
Poste	253.32
Presse	241.32
Presses	252.8
Prix	253.26
Problème	14 - 411.3
Projection	242.38
Propagande	258.12
Psychologie	512.6
Psychologie bibliologique	155
Publications	421.11
Public. Lecteurs	241.328
Radiophonie	243.4
Radio-téléphotographie	243.52
Recueils de textes	241.4
Recherches	161 - 251.32
Recherches bibliographiques	261.3
Rédaction	251.33
Références	412.7
Registres	412.6

Règlements	417.3
Règles	412.1
Règles bibliographiques	255.85
Reliure	221.31
Répartition du livre	254
Répertoires	412.8 - 422.32
Répertoire Bibliograph. universel	422.1
Reproduction du livre	252
Réseau universel	424
Résumé (Analyses)	255.5
Résumé de l'ouvrage	6
Rhétorique	224.1
Rognage des livres	221.33
Romans	258.14
Sceaux	242.63
Schémas	222.32
Science	154 - 411.44
Sculpture	243.77
Services de documentation	261
Signalisation	22.03 - 223.92
Social	513.5
Sociologie	512.7
Sociologie bibliologique	153
Sources (Bibliologie)	165
Spectacles	243.6
Standardisation	411.54
Statistique	124.3
Sténographie	222.162
Structure du livre	23
Style	224.2
Substituts du livre	243
Supports (substances)	221.18
Symboles	222.02
Synthèse	132
Synthèse bibliologique	5
Systèmes bibliologiques	133
Taxonomie	412.38
Télégraphie	253.33

Téléphones	253.34
Téléphotographie	243.52
Télévision	243.5
Terminologie, biologie	122
Terminologie scientifique	223.8
Théâtre	243.6
Théologie	512.8
Titre	231.1
Traductions	223.91 - 241.83
Traité	241.21
Transports	253.3
Travail intellectuel	251.1 - 425
T. S. F.	243.4
Universalité	411.52
Utilisation du livre	257
Ventes publiques	253.236
Vie	158
Vocabulaire	223.13
Vol	259.29

Traité de documentation

Multiple

Normalisation

Organisme/organisme

Outil

Page manquante

Plus petit document

Pyramide

Signe

Source

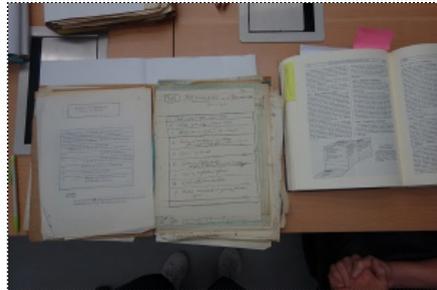
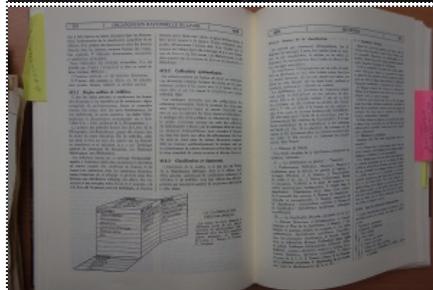
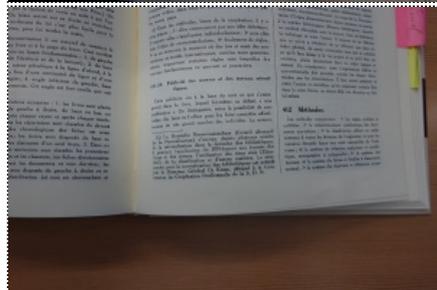
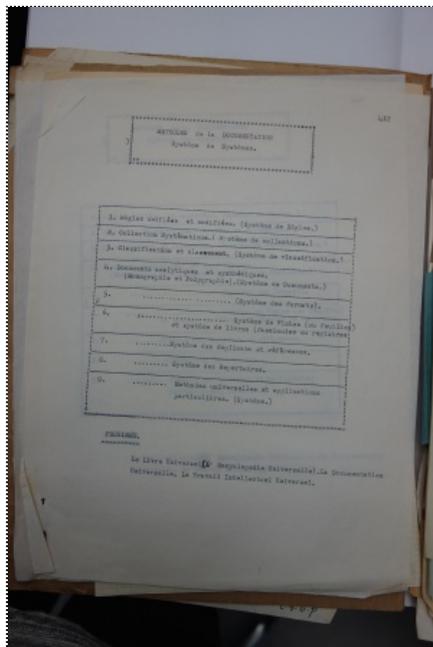
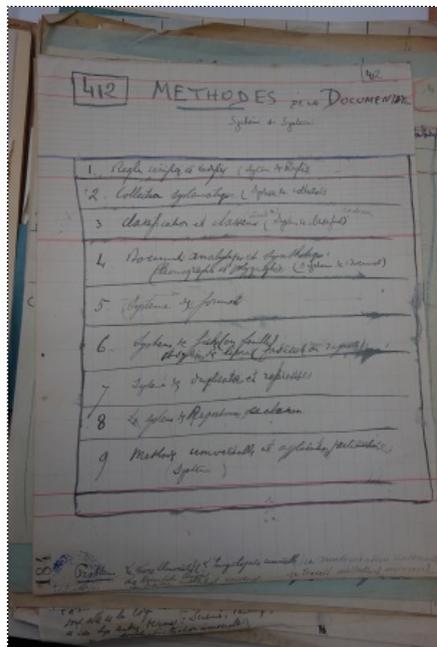
Standard

Symétrie

Synesthésie

Système de systèmes

# 412 Méthodes.



The part "caption" of the query was not understood. Results might not be as expected.

## 412.36 La Classification décimale.

*Caractéristique.* – La Classification décimale répond aux dix caractéristiques de la définition suivante : 1° Classification systématique dans sa disposition et encyclopédique dans son contenu.  
2° Notation décimale, dont les nombres se combinent entre eux selon certaines fonctions correspondant aux aspects fondamentaux des documents.  
3° Classification exposée dans des Tables à doubles entrées, l'une méthodique et l'autre alphabétique.  
4° Permettant à volonté une indexation sommaire ou détaillée.  
5° D'application universelle à toutes espèces de documents et objets.  
6° À toutes les collections ou parties d'un organisme documentaire.  
7° Appropriée aux besoins de la science spéculative et à ceux de l'activité pratique.  
8° Susceptible à la fois d'invariabilité et de développement illimité.  
9° Instrument prenant place dans l'Organisation internationale de la Documentation.  
10° La Documentation conçue elle-même comme base de l'Organisation mondiale du Travail intellectuel (voir Publication n° 51 de l'Institut International de Bibliographie).  
La Classification décimale, elle, se présente comme une vaste systématique des connaissances, sorte de « table de matières des tables de matières » de tous les traités et périodiques spéciaux. Mais comme il serait impossible de retrouver dans semblables classifications la place assignée à un sujet par rapport à un autre sujet, un numérotage marquant l'ordre, s'impose. Ce numérotage est décimal, ce qu'un exemple fera bien comprendre. Voici l'allotropie, elle sera classée ainsi :

5<sup>e</sup> classe Sciences naturelles.  
4<sup>e</sup> groupe Chimie pure.  
1<sup>re</sup> division Théories chimiques.  
7<sup>e</sup> subdivision Allotropie  
soit : 541.7.

Ce nombre 541.7 est dit décimal car le savoir tout entier est constitué par l'unité, dont chaque science est une fraction, et chaque question particulière est une décimale d'un ordre plus ou moins subdivisé. La classification est encore dite décimale, par ce que c'est en dix classes puis, dans chacune d'elles, en dix groupes, ou moins puis dans chaque groupe en dix

divisions ou moins que l'on répartit toutes les matières.</div>  
Table

L'écriture d'Otlet se caractérise par des écrits fragmentaires qu'il organise ensuite afin de développer le sens de sa pensée. Pour le *Traité de documentation*, les archives ont entre autres révélé que cette pratique d'organisation des contenus passait la plupart du temps par un agencement sous forme de tables, de tableaux ou de schémas. Ces tableaux pouvant parfois devenir tridimensionnels, pyramidaux et souvent basés sur un système décimale.

En ce sens, la table des matières pourrait être considérée comme la table des tables (voir aussi: le système des systèmes)

### 1. hiérarchie (nomenclature et typographie)

La table systématique des matières, malgré une série d'incohérences, décrit une organisation des parties du *Traité* dans un ordre numérique croissant et hiérarchisé. Ainsi, les codes de classification listés décrivent une gradation des sujets allant du général au particulier, même si tous ne sont pas traités de façon systématique et sur le même nombre de niveaux. En tout, on dénombre au maximum sept niveaux de contenu.

*exemple*

niveau 1 2	Le Livre et le Document.
niveau 2 24	Espèces. Classes. Familles d'ouvrages.
niveau 3 241	Documents dits bibliographiques
niveau 4 (241.3)	(-)
niveau 5 (241).32	Journaux
niveau 6 (241).324	Caractéristiques
niveau 7 (241).(324).1.	Espèces de presse

Les ( ) représentent la numérotation qu'Otlet ne reprend pas dans la nomenclature de la Table systématique des matières. Pour des raisons de facilité de lecture probablement. Visuellement, il utilise des graisses et des typographies de tailles différentes permettant d'identifier les niveaux, mais qu'il réduit au nombre de 5 et parfois utilisant une hiérarchie visuelle différente que par rapport à leur emplacement dans le livre. Ainsi, tout d'un coup, la section 243.39 Documentation. Cinémathèque. Cinécatagraphie (5<sup>e</sup> niveau) prend l'importance d'un chapitre de second rang comme 21. Le livre en général. Le 4<sup>e</sup> niveau de cet exemple est inexistant dans l'ouvrage. S'agit-il tout simplement d'un oubli ou n'a-t-il pas encore été développé au moment de la sortie du livre?

### 2. Numérotation

Comme nombreuses de ses idées déclinées sous une forme numérotée, Otlet opte pour une numérotation décimale (base 10), à l'instar de la classification décimale universelle. Dans la table, il ne note cependant pas de façon systématique le numéro entier des parties, ce qui ne permet pas toujours de contextualiser où l'on se trouve – voir le tableau des niveaux plus haut – mais bien à l'intérieur de l'ouvrage, ce qui permet à tout moment de voir à quel niveau on se trouve en fonction du nombre de chiffres. Cette codification abstraite ne permet cependant pas de se situer aisément une fois dans la lecture.

### 3. Coquilles

De Nombreuses coquilles subsistent dans la liste numérotée de la table, bien que certaines d'entre elles soient corrigées à l'intérieur de l'ouvrage. Les types de coquille sont:

A. le **trou** (un partie manque dans la suite pour faire le lien avec une partie subordonnée)

*exemple*

- 2. Le livre et le document
  - 24 Espèces. Classes. Familles d'ouvrage
    - 241 Documents dits bibliographiques
      - 241.2 Ouvrages d'ensemble
        - 241.22 Encyclopédie. Dictionnaire
          - 241.227 Desiderata. Méthode
          - 241.31 Revues. Périodiques proprement dits

Il y a un trou dans la nomenclature. Logiquement il faudrait retrouver le titre intermédiaire décrivant le passage vers la presse

- ◦ ■ ■ ■ 241.22 Encyclopédie. Dictionnaire
  - 241.227 Desiderata. Méthode
  - **241.3 MANQUANT (Presse)**
    - 241.31 Revues. Périodiques proprement dits

ou il y a erreur de numérotation :

- .1 Définition générale
- .2 Les plus petits documents
- .3 Le Biblion
- .5 Définitions littéraires du Livre

B. la **répétition**: plusieurs sections comportent la même adresse numérotée l'un à la suite de l'autre (ex: (222.1).151 voir ci-après) ou deux sujets sont répétés (ex: (243).381 et (243)382 = Point de vue commercial)

C. dans une suite numérotée, Otlet repart dans une **direction inversée** de la numérotation *exemple*:

- .14
- .15
  - .151
  - .151 > doublon
- .14 > retour en arrière
  - .141
  - .142
  - .143
- .15
  - .151 > triplé!
  - .152
  - .153

[4. **modèles et termes** A DEVELOPPER modèles récurrents: notions- généralités-caractéristiques-espèces-but... (à développer) > doublons analyse des fréquences (listes des mots)]

La table des matières ne nous permet pas d'entrer dans le *Traité* avec une vision panoptique du livre. Elle témoigne d'un arrangement de fragments distribués pour pouvoir exister dans le médium du livre. Mais les parties ainsi structurées s'apparentent clairement par leur disposition numérotée à des fiches autonomes, à des unités documentaires qui bien que certaines fonctionnant par groupes, forment des entités satellitaires plutôt qu'ordonnées dans une logique linéaire d'écriture apparentée au médium du livre. Bien que très détaillée, la table des matières ne reprend pas tous les fragments d'Otlet dans l'ordre qu'il aurait souhaité les présenter. Il aurait sans doute bien souhaité un 8<sup>e</sup> niveau de lecture, qui est sans doute celui que représente l'index alphabétique

. En effet, celui-ci ne remplit pas la fonction d'une série de termes croisés se retrouvant à plusieurs endroits du livre, mais constitue une liste de notions autonomes, issues de la table des matières avec leur numérotation assignée, parfois désignées autrement. Ainsi, pour « 231.19 Régime juridique du titre » on retrouve « Droit – du titre 231.19 » en index. Dans son Index alphabétique, Otlet décontextualise des notions qui une fois classées alphabétiquement retrouvent leur géolocalisation exacte dans le livre et permettent une entrée dans les contenus de manière transversale. Cela lui permet de rassembler notamment sous une même discipline plusieurs parties du livre réparties à des endroits différents.

Histoire de la Bibliologie..... 17

- des Bibliothèques..... 262.12
- du Livre..... 323
- littéraire..... 256.1

Ce n'est d'ailleurs sans doute pas par hasard qu'Otlet oppose graphiquement et de manière symétrique la pagination de l'ouvrage aux numéros de section correspondants, comme pour déjà envisager une description spatiale du livre, non plus déterminée par les pages mais par l'action du classement. L'idée étant de se repérer et de retrouver à tout moment l'information par sa numérotation, comme dans les livres classés et rangés dans les rayons d'une bibliothèque.

Ainsi de manière ébauchée et parfois non systématique, Otlet nous plonge dans le livre document <sup>[5]</sup>, celui dessiné par les données, comme meta-document, expérimentation concrète de ses idées, non seulement dans le système d'écriture – de la note au livre – mais également dans la pensée de son contenant, envisagé comme un *dispositif* de lecture. Ce qui vient confirmer cette absence de conception linéaire de son écriture est le fait surprenant –prêtant à une certaine confusion– d'avoir intitulé et/ou gardé le même titre de section pour les chapitres principaux 2. et 3. Ce qui tend à prétendre encore une fois que les notions ne sont pas affaires de corrélation ou de contextualisation mais de classement, peu importe leur localisation dans le livre ou dans la bibliothèque. Les deux chapitres parlent bien –et de façon assumée à en voir le têtiers de pages– du Livre et du Document mais l'un comme une description du médium-livre et de ses composants, de sa structure et de ses documents annexés –jusqu'à ses substituts en passant par sa réalisation et sa diffusion–, tandis que le second est déjà ce qui préfigure à une anticipation du livre "nouveau", à savoir comment des méthodes de dépouillement, de classification et de mise en relation vont créer des « 42 éléments ou ensembles à réaliser ». On pourra déplorer le caractère inachevé, fait à la hâte, truffé de coquilles, du *Traité* de documentation, mais on pourra aussi le considérer comme une expérience en puissance d'une pensée en devenir qui repose sur sa propre

démonstration. Ce livre est le témoin de cette expérience qui ne demande aujourd'hui plus qu'à être analysé, annoté, commenté.

Traité de documentation

## 411.1 Les documents.

2° L'Image (Icône). Elle reproduit la réalité. On distingue la reproduction directe de la réalité. Elle s'opère par l'un des procédés suivants : tableau, aquarelle (en couleurs) isolé ou mobile ou fixe (fresque), plafond, encadrement dans une paroi dans un objet, dessin (noir ou couleur), gravure, photographie, sculpture.

Les écrits (Bibliion). On distingue qu'ils sont ou relatifs directement à la réalité ou bien relatifs à une image, et alors ils sont : a) ou relatifs à une reproduction de la réalité, soit tableau, dessin, gravure, photographie, sculpture ; b) ou relatifs à une reproduction d'une reproduction faite à son tour par tableau, dessin, gravure, photographie ou sculpture. 1. Réalité.

2. Reproduction de la réalité.

3. Écrit sur une reproduction de la réalité. 1. Choses elles-mêmes.

2. La mention de chose dans la classification.

3. Le catalogue général inventoriant les choses en elles-mêmes ou appartenant à des collections déterminées.

4. Le catalogue (général ou particulier) de documents relatifs aux choses. 1. Auteur de l'original.

2. Auteur de la reproduction.

## 412.31 Notion de la classification.

On entend par classement bibliographique, l'art de disposer les ouvrages d'après leur matière (sujet ou contenu) et par classification, le tableau ou les tables qui disposent les connaissances dans l'ordre où doivent l'être les ouvrages eux-mêmes.

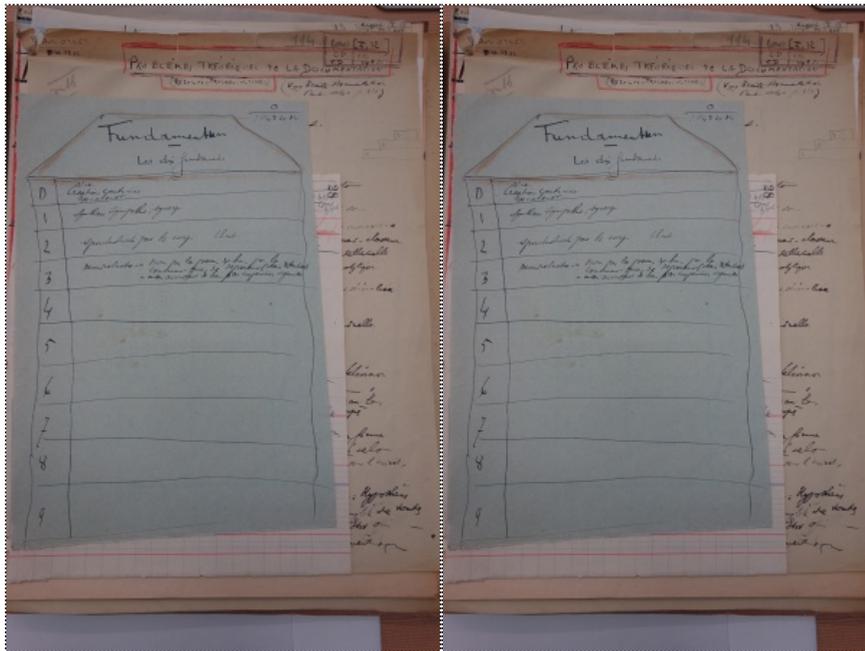
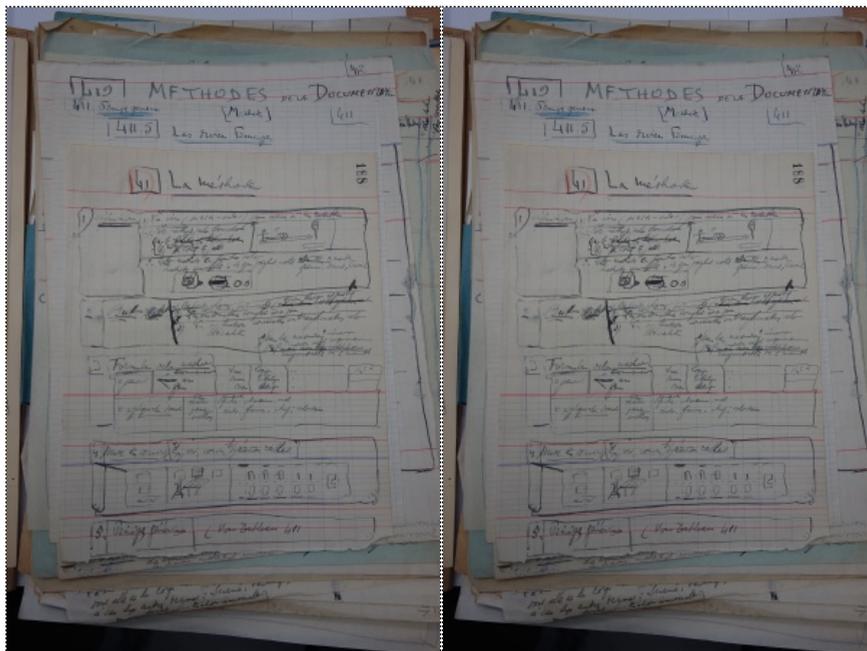


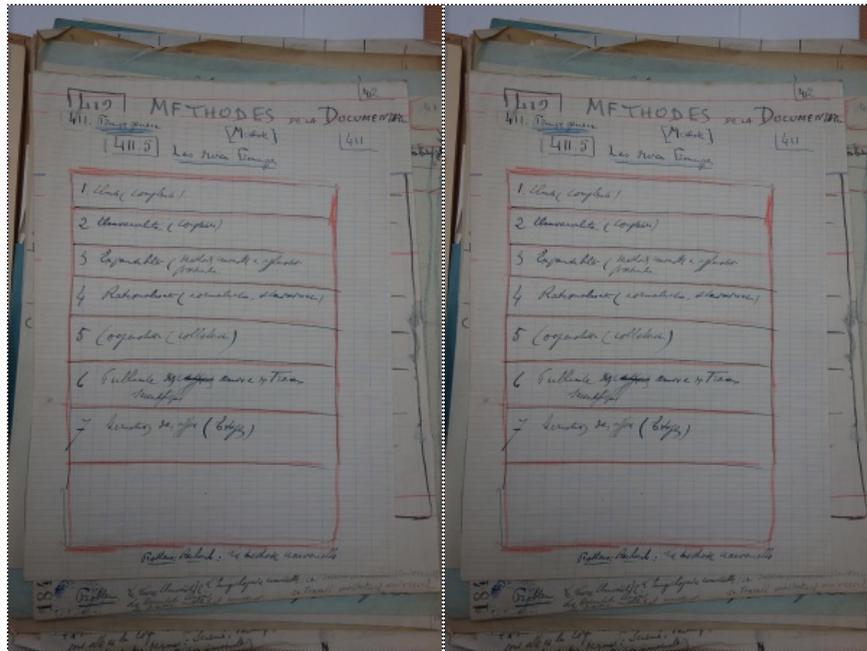
Table des 10 Fondamentaux - Archives Mundaneum-2105-09-28 Traité de documentation



Archives Mundaneum-2105-09-28

Traité de documentation

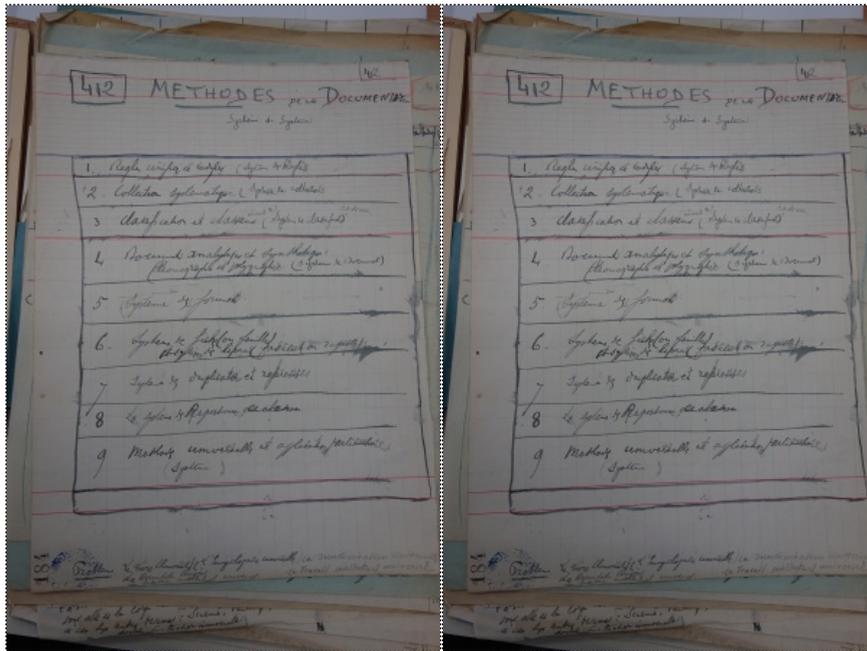
## 41 PRINCIPES GÉNÉRAUX ET MÉTHODE D'ORGANISATION



Archives Mundaneum-2105-09-28

Traité de documentation

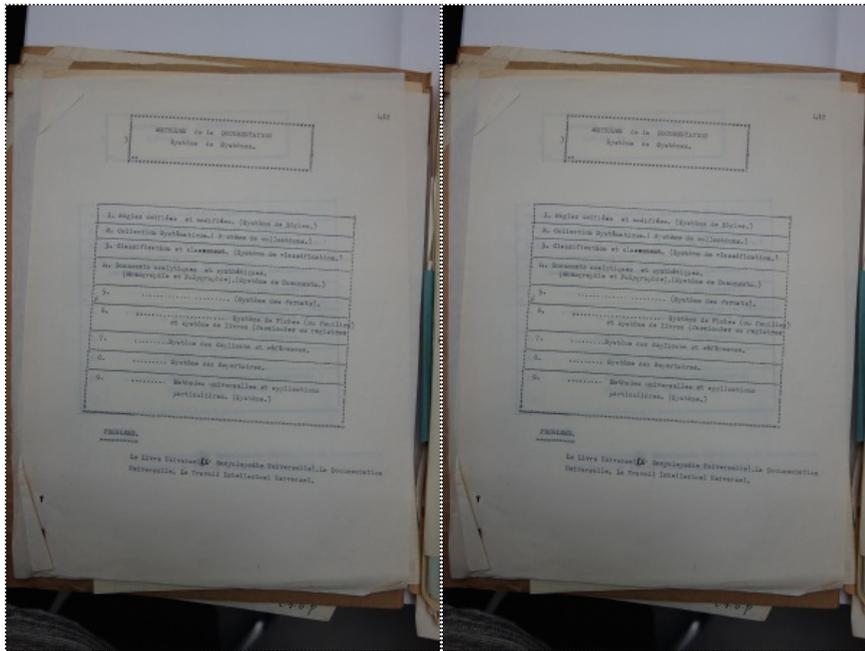
411.5 Des divers principes.



Archives Mundaneum-2105-09-28

Traité de documentation

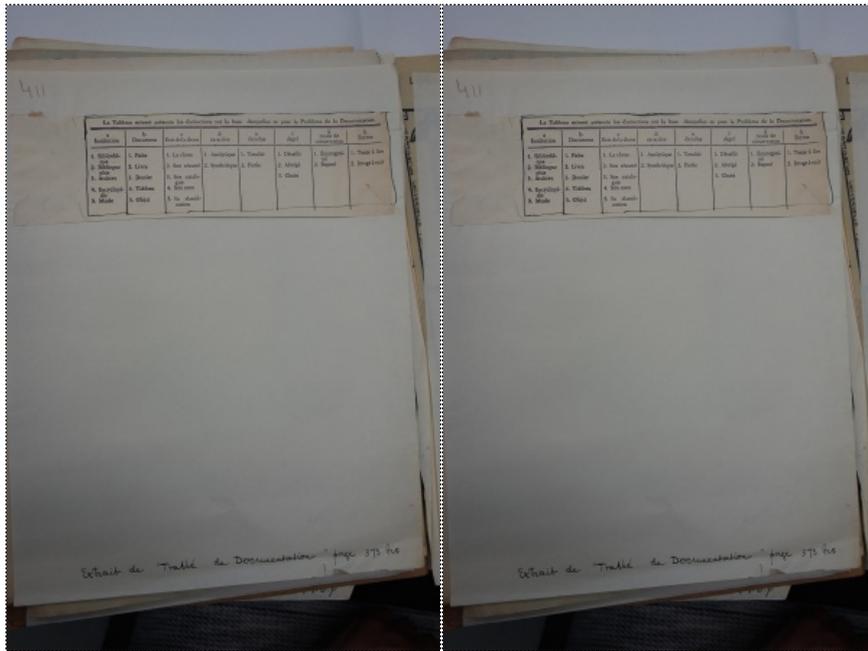
412 Méthodes.



Archives Mundaneum-2105-09-28

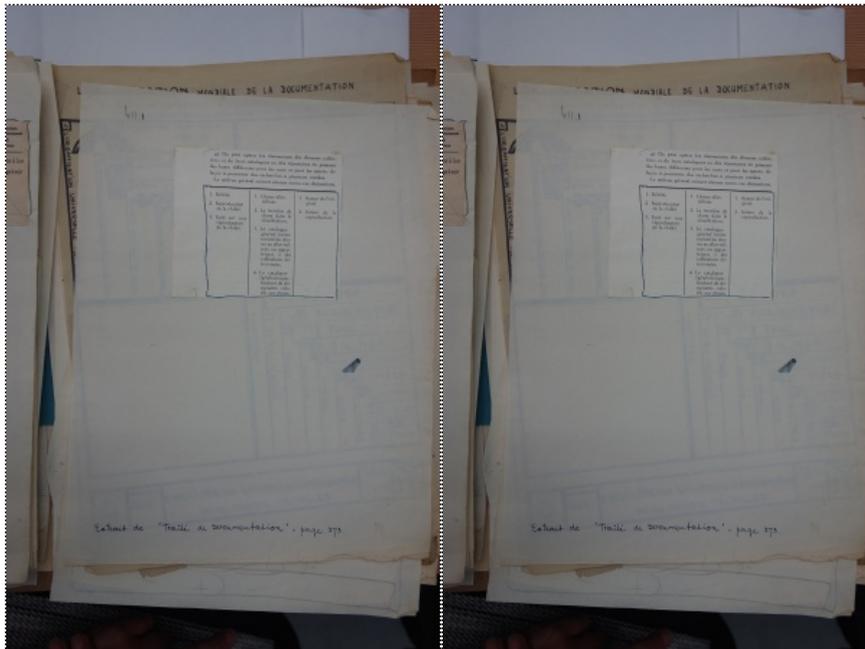
Traité de documentation

412 Méthodes.



Archives Mundaneum-2105-09-28

Traité de documentation



Archives Mundaneum-2105-09-28

Traité de documentation

411.1 Les documents.

## Errata

**ANNEXE ERRATA : ( Page omise ).**

373 bis.

## Index alphabétique

Abréviation

222.22

Abstraction	513.2
Acquisitions	262.42
Administration (Documentation)	424.4
Aération	414.7
Affiches	242.34
Allégories	222.02
Almanach	241.32
Alphabet	222 14
Amour du Livre	258.2
Analyse et synthèse	132
Analyses (résumé)	255.5
Annuaire	241.33
Anthologie	241.84
Anticipations	521
Architecture	213.75
Archives	242.4
Archives administratives	424.4
Archives anciennes	422.5
Art	243.7
Associations	163
Atlas	242.28
Atlas encyclopédique	422.34
Auteurs	251.2
Autodidaxie	257.94
Avenir du Livre	521
Biblio-économie	4
Bibliographie	255
Bibliothéconomie	262.4
Bibliothèques	262
Bibliologie	1
Bibliologie pédagogique	157
Bibliologie pure	142
Bibliologie technologique	156
Bibliométrie	124
<u>Biblion</u>	211.3
Bibliothécaire	115.1
Bibliothéchnie	4
Bibliothèque	282

Bibliothèque Mondiale	422.24
Biologie	512.5
Bouquinerie	253.234
Brochures	241.11
Bureaux	424.4
But	411.41
Cachets	242.63
Calligraphie	222.151
Caractères typographiques	222.153 - 222.43
Caractéristiques du Livre	212
Cartes	242.2
Cartes à Jouer	242.362
Cartes postales illustrées	212.361
C. D. (Classification décimale)	412.36
Catalogue	241.5 - 255
Censure	256.4
Cinéma	213.5
Cinémathèque	243.39
Circulation du Livre	253
Citations	255.6
Cité Mondiale	425.2
Classeurs	412.8
Classification	224.5 - 412.3
Classification décimale	412.36
Codification	422.35
Collections	241.1
Colportage	253.232
Commentaires des textes	241.44
Commerce extérieur	253.27
Composition	251.33
Composition littéraire	224.1
Composition mécanique	252.7
Comptabilité	253.284
Conservation du livre	259.1
Contrat d'édition	253.14
Convention	417.2
Coopération	411.55
Critique	256.1

Cryptographie	222.163
Dactylographie	222.152
Décoration	222.33
Définitions du livre	211.5
Dépôt	421.3
Description du livre	255
Dessin	242.32
Destruction du livre	259.2
Dictionnaire	241.22
Diffusion du livre	254
Disques	243.2
Distribution	253
Document	411.1
Documentation	411.2
Documentation administrative	422.4
Documentologie	1
Dossiers documentaires	422.31
Douane	253.273
Droit	281.4
Droit du titre	231.19
Échange	421.3
Écriture	222.1
Écriture des aveugles	222 164
Écrivains	251.27
Édition	253.1
Édition mondiale	421.12
Éléments graphiques	222
Éléments intellectuels	224
Éléments linguistiques. Langues	223
Encouragement au livre	164
Encres	222.142
Encyclopédie	241.22
Enluminure	242.13
Enseignement	157 - 162
Enseignement par soi-même	257.94
Ensembles à réaliser	42
Ensembles de livres	3
Enveloppe du livre	221.3

Épigraphe	242.6
Époques (Livres aux diverses)	323
Équation du livre	212.5
Espèces de livres	24
Estampes	242.3
Esthétique du livre	222.4
Étalages	253.282
Études	16
Ex-libris	242.363
Exportation	253.271
Exposés	224
Évolution du livre	323
Exposition	243.1
Facture Intellectuelle	251
Facture matérielle	252
Faux	259.29
Fêtes	213.6
Feu	259.26
Feuilles encyclopédiques	422.33
Fiches	412.6
Fichiers	422.32
Film	243.3
Film parlant	243.35
Finances	417.1
Foires aux livres	253 235
Fonction du livre	25
Fonds	262.3
Formats	221.22
Formes	221.21
Fundamenta	0
Graphie en général	222.0
Graphologie	222.152
Gravures	242.3
Histoire de la Bibliologie	17
Histoire des Bibliothèques	262 12
Histoire du Livre	323
Histoire littéraire	256.1
Iconographie	242.3

Idéographie	222.161
I. I. B.	424.1
Illustration	222.3
Illusion	513.4
Institut Intern. de Documentation	424.1
Images	222.3
Imprimerie	252
Imprimeurs	252.3
Incunables	242.19
Influence du livre	241.3 - 258.1
Influence	241.327
Inscriptions	212.61
Installations	413.3
Instruments intellectuels	159
Inventaires	255
Journaux	211.32
Justification	222.45
Langues	223
Langues internationales	223.7
Lecteurs	211.328
Lecture	257
Librairie	253.2 - 421.3
Librairie ancienne	253.234
Linguistique	152
Littérature	324
Liturgie	243.6
Livre proprement dit	241.14
Livre universel	422.3
Locaux	213.342 - 253.281 - 414
Logique bibliologique	154
Lois bibliologique	51
Machines	413.12
Manuscrit (auteur)	251.33
Manuscrits	242.1
Matériel	243.1 - 413.1
Matériel didactique	243.1
Mathé-bibliologie	124.4
Mathématiques	512.2

Matières (Livre dans les diverses)	321
Matières premières	413.4
Mécanique	512.3
Médailles	242.62
Messagerie	253.233
Mesure des livres	124.2
Métaphysique	512.8
Métaphychie	512.8
Méthodes	412
Monnaies	242.62
Monument. Figures	242.6
Motifs décoratifs	222.33
Mundaneum	425.2
Musée	243.1 - 422.6
Musique	242.5
Nomenclature	122
Notation	222.21
Notation musicale	242.55
Notes	257.7
Notices bibliographiques	231.18
Notices catalographiques	255.85
Notion du livre	211
Objets	243.1
Œuvre	251.2
Œuvres d'art	243.7
Offices de Documentation	261
Opérations	25 - 416
Opinion publique	241.323 - 258.12
Organisation mondiale	425.2
Organisation de la documentation	4
Organisation Travail Intellectuel.	425.1
Organismes de la Documentation	26
Orthographe	223.6
Outillage	243.1 - 413
Ouvrages d'ensemble	241.2
Palais Mondial	425.2
Paléographie	222.151
Papier	221.1

Papyrus	242.18
Parole	223.21
Parole et l'Écrit	223.2
Parties du livre	23
Partitions musicales	242 56
Pays (Livre dans les divers)	322
Personnes	415
Philologie bibliographique	152
Phonogramme	243.2
Photographie	242.37
Physico-chimie	512.4
Plagiat	211.86
Plan	242.27 - 411.42
Poste	253.32
Presse	241.32
Presses	252.8
Prix	253.26
Problème	14 - 411.3
Projection	242.38
Propagande	258.12
Psychologie	512.6
Psychologie bibliologique	155
Publications	421.11
Public. Lecteurs	241.328
Radiophonie	243.4
Radio-téléphotographie	243.52
Recueils de textes	241.4
Recherches	161 - 251.32
Recherches bibliographiques	261.3
Rédaction	251.33
Références	412.7
Registres	412.6
Règlements	417.3
Règles	412.1
Règles bibliographiques	255.85
Reliure	221.31
Répartition du livre	254
Répertoires	412.8 - 422.32

Répertoire Bibliograph. universel	422.1
Reproduction du livre	252
Réseau universel	424
Résumé (Analyses)	255.5
Résumé de l'ouvrage	6
Rhétorique	224.1
Rognage des livres	221.33
Romans	258.14
Sceaux	242.63
Schémas	222.32
Science	154 - 411.44
Sculpture	243.77
Services de documentation	261
Signalisation	22.03 - 223.92
Social	513.5
Sociologie	512.7
Sociologie bibliologique	153
Sources (Bibliologie)	165
Spectacles	243.6
Standardisation	411.54
Statistique	124.3
Sténographie	222.162
Structure du livre	23
Style	224.2
Substituts du livre	243
Supports (substances)	221.18
Symboles	222.02
Synthèse	132
Synthèse bibliologique	5
Systèmes bibliologiques	133
Taxonomie	412.38
Télégraphie	253.33
Téléphones	253.34
Téléphotographie	243.52
Télévision	243.5
Terminologie, biologie	122
Terminologie scientifique	223.8
Théâtre	243.6



Titre

## -0 Page de titre

LE LIVRE SUR LE LIVRE

## 231.18 Les titres et les notices bibliographiques

La description bibliographique du titre a donné lieu à ces questions : Droit de l'abréger – ou de le modifier pour le rectifier – ou de le développer pour l'expliquer dans les catalogues. (Discussion à la Société royale de Londres.)



Traité de documentation

## Faux titre

TRAITÉ  
DE  
DOCUMENTATION

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# LE LIVRE SUR LE LIVRE

---

THÉORIE ET PRATIQUE

PAR

PAUL OTLET

Les Livres et les Documents. – La Lecture, la Consultation et la Documentation. – Rédaction, Multiplication, Description, Classement, Conservation, Utilisation des documents. – Édition et Librairie, Bibliographie, Bibliothèque, Encyclopédie, Archives, Muséographie documentaire, Documentation administrative. – Organismes, organisation, coopération. – Office et Institut International de Bibliographie et de Documentation. – Réseau Universel d'Information et de Documentation.

[002 (02)]



EDITIONES MUNDANEUM  
PALAIS MONDIAL  
BRUXELLES  
1934

Traité de documentation

Ubiquité

Unité

Otlet distingue l'unité matérielle (substance ou matière du document), l'unité intellectuelle (l'idée) qu'il tend à abstraire et subdiviser jusqu'à sa plus petite expression, et l'unité documentaire qui s'apparente à l'unité (unicité) – ou entité – que constitue un traitement documentaire d'un fond en particulier composé

d'unités multiples. Entre les deux, il imagine une échelle sur laquelle viendrait glisser un curseur, allant du "néant" à la "totalité".

Volapük

## 223.6 Orthographe

(...)

4. Depuis le XVI<sup>e</sup> siècle des efforts nombreux ont été faits en vue d'une réforme de l'orthographe française. Ils ont rencontré de l'opposition.

L'orthographe, disent les opposants, est une forme conventionalisée de l'écriture. Elle a l'avantage de s'imposer aux irrégularités des dialectes et aux changements historiques des sons. Elle lie les forces et les expressions d'une civilisation. Sans orthographe ou avec une orthographe phonétique, Shakespeare et la Bible ancienne seraient des œuvres étrangères pour les Anglais d'aujourd'hui. Le langage littéraire comme lien d'une civilisation et voix d'une nation doit être regardé d'abord comme un langage écrit, bien qu'il ne doive pas rester sans relation avec le parler pour devenir vivant.

Les grammairiens ont donc tenté un effort systématique pour établir un moyen de relation commun et bien authentique entre les communautés à dialectes divers d'une nation.

M. Brunetière a adressé à la réforme deux reproches : elle changerait la « figure » des mots et en altérerait l'« harmonie » et, ce faisant, elle transformerait le français en une sorte de **volapük**.</onlyinclude> M. Renard réplique qu'au XVI<sup>e</sup> et XVII<sup>e</sup> siècle l'orthographe avait une autre figure, que dans les éditions d'aujourd'hui on la modernise et que Brunetière lui-même, dans son édition des « Sermons » de Bossuet, n'a pas respecté l'ancienne orthographe.

À la fin du XVIII<sup>e</sup> siècle, l'Académie a simplifié en bloc 5.000 mots sur les 10.000 que comptait la langue. Et nul ne protesta.

(...)

Traité de documentation

## De Indexalist

The Indexalist (English)

Matthew Fuller

Ik sprak voor het eerst met de patiënt in de laatste week van die augustus. De zon was zacht die avond in hoe ze schaduwen tekende over de lijnen van zijn gezicht. De ogen stardden zachtjes halverwege de ruimte in, alsof ze een lijn aanbrachten op een doorschijnende pagina die midden in de lucht hing, de handen tikten een paar muziekmaten op benen bedekt met de bruine plooien van een badstof kamerjas. Hij zag er uit als iemand die iets heel indrukwekkends had gezien, maar nog niet de woorden had gevonden om het uit te drukken. Terwijl ik de patiënt in de eropvolgende weken beter leerde kennen begreep ik dat dit niet was door een gebrek aan moeite.

Toen hij jong was had hij wat met de wereldtaal Volapük gerommeld. Een spraak ontworpen om de onverenigbaarheid van tongen af te schaffen en een standaard te stellen waardoor de wetenschappelijke omgang met maximale efficiëntie en minimale wrijving tussen de beweging van breinen, laboratoria en publicaties kon worden uitgevoerd. Biologische termen in het Latijn, de prachtige lijst van elementen, metrische meeteenheden, de nomenclatuur van hemellichamen van wolken tot planeten, anatomische delen en medische aandoeningen hadden allemaal hun eigen benoemingssysteem zonder specifieke tongval. Het was een poging om spraak en gegevens tot rede te brengen maar wanneer de werkelijkheid zich tegen deze vroege maatregel verzette, konden andere middelen worden ingezet.

Dat rommelen, dacht hij, was een beetje meer dan dat geworden. Hij had zich op tijdschriften in de wereldtaal geabonneerd, schreef brieven aan collega's en in ruil ontving hij die van hen. Een paar woorden in de taal waren op zijn tong blijven hangen, woorden die hij regelmatig uitspuugde in de geel-behangen zitkamer van het sanatorium, met een walging die naargeestig tastbaar was.

Uit mijn eigen gegevens en het samenraapsel van de aantekeningen van voorgaande artsen bleek ook iets anders, iets diepgaander waar de taal enkel op zinspeelde. Het postwezen hoefde geen specifieke spraak te adopteren, maar had zijn eigen formules om hen te integreren in geadresseerde, adresregel, stad en land. Zoals de post het oppervlak van de aarde ordende was er het gevoel dat de patiënt een ontmoeting met een fundamentele organisatievorm had doorstaan die zijn ziel in kaart had gebracht. Veel opwindender dan de kwestie van de taal was inderdaad het systeem waarin linguïstische symbolen worden ingeschreven. Voor overdenking van de lezer volgen hier enkele uitspraken die kenmerkend waren voor datgene waar de patient over leek te piekeren:

"Het systeem van de index-kaart sprak tot mijn ziel. Het volstaat te zeggen dat ik in het gebruik ervan de hoogste vorm van spiritueel plezier voel, een organisatorische efficiëntie. Een diepgaande intellectuele bloei waarin elke gedachte in een honingzoete stroom van ideevorming en bevredigde nieuwsgierigheid bewoog tussen verkondiging, getuigenis, referentie en articulatie." Dit gevoel van de ziel die als een vraag over tijdperken doolt, over vormen van kennis en de dicht aaneengesloten landschappen van de uitgestrekte planeet en de kosmos kwam steeds terug. Een gevoel dat er in hem een onverklaarbare kracht was die altijd aan zijn aanraking ontsnapte. "Bij elke verwijzing stond weer een andere verwijzing, de één nog interessanter dan de ander. Elk vormde de top van een piramide van weer verdere literatuurstudie, zwanger met de dreiging om af te dwalen. Elk was een strakgespannen koord dat indien niet in acht genomen de auteur in de val van een fout zou lokken, een vondst al uitgevonden en opgeschreven." Hij noemt ook een aantal maal de manier waarop het meubilair zijn gedachten leek te ondersteunen – het gemak waarmee een verwijzing gesuggereerd werd door de manier waarop het bureau lijnde met de tekst die rustte op de pagina's van het knipsel, het tijdschrift, de krant, de blauwdruk of het boek, waarboven nog meer kaartenbakken klaarstonden in hun kast. Ze werden allemaal geïntegreerd in het systeem. En toch, tussen de rusteloze herinneringen bevond zich een element van rouw in zijn contemplatieve stemmingen. "De opeenstapeling van alle onderzoeksvelden en denkvlakken in één systeem stoot

diegenen af voor wie een dergelijke harmonieuze vaart verdacht is." Deze gedachte werd uitgedrukt met een blik die niet echt beschuldigend was, maar die bleef hangen met de indruk dat er nog een nadere verklaring zou volgen, en nog een, klaar in de wachtlijst.

Terwijl ik het vertrouwen van de patiënt won leek het of hij mij beschouwde als een soort junior medewerker, een assistent voor zijn natuurlijke rol als manager. Een fortuinlijke, zei het wat dubieuze jonge man die hij misschien kon gidsen naar een staat van efficiëntie en volledige toegang tot informatie. In zijn wereld waren de oude methodes niet corrupt noch vermoeid. In zijn hoofd bewogen ideeën waarschijnlijk sneller dan nu over de hele wereld. Een register te hebben van gedachten die een periode van meerdere jaren beslaat is een kostbaar bezit waarvan de waarde bijna niet valt te berekenen. Dat het elke vraag kan beantwoorden in relatie tot iedere gedachte die men eerder heeft onderzocht is nog het minste van zijn verdiensten. Belangrijker is het feit dat het voortdurend de aandacht vestigt op zaken die een dergelijke aandacht vragen.

Veel van zijn betogen gingen over de optimale inrichting van het systeem, dat het een kunst was om de kaarten uit te leggen. Zoals de patiënt nader toelichtte werd het probleem van losse kaarten die gemakkelijk verloren kunnen raken ondervangen door ze van één tot tien te nummeren met behulp van tabs. Wanneer ze in de kaartenbak worden geplaatst volgen de tabs elkaar van links naar rechts op en kan het ontbreken van een enkele kaart dus gemakkelijk worden gedetecteerd. De kaarten worden daarnaast tussen gekleurde infoches gezet. Als een alternatief voor tabs op de kaarten kunnen ook zogenaamde signaalvlaggen worden gebruikt. In dat geval worden opvallende metalen clips aan de bovenkant van de kaart bevestigd die als aanwijzer fungeren. Om het systeem te gebruiken in relatie tot de dagen van de maand worden de nummers 1 tot 31 op de bovenrand van de kaarten gedrukt. Een metalen clip wordt geplaatst als signaal dat deze kaart behandeld moet worden op de gemarkeerde dag. In een grotere organisatie kan een aanvullende kaart geplaatst worden die de verantwoordelijke aanwijst die de kaart zal behandelen op de aangegeven dag. Er waren ontelbare manieren om met de kaarten te werken, speciale technieken om ze te integreren in om het even welke soort organisatie of onderzoek. Door indexen op indexen toe te passen konden informatiereserves worden aangeboord om de kennis en de mogelijkheden van de mensheid uit te breiden.

Terwijl hij me verder aanspoorde begon ik zelf met vergelijkbare methoden te experimenteren. 's Nachts haalde ik gegevens uit de administratie van het sanatorium en bracht die over op index-kaarten. De voordelen van het systeem zijn overweldigend. Kaarten die met de juiste wiskundige mate van nauwkeurigheid zijn gesneden kunnen vervolgens zonder moeite in bakken worden gezet en geplaatst in kasten met standaardafmetingen die op hun beurt eenvoudig worden uitgebreid. De kaarten kunnen worden toegewezen aan om het even hoeveel onderzoekers die er ieder onafhankelijk en gelijktijdig mee aan de slag kunnen gaan. Het gebonden boek daarentegen kan maar door één persoon tegelijk worden gebruikt en moet op een plank blijven staan om zelf door een indexkaartsysteem te worden verwezen. Ik begon een structuur op te zetten met rijen spiegels aan kettingen en katrollen en met door hefbomen aangedreven scharnierende mechanische armen zodat ik de lades vanaf iedere plek in het sanatorium kon openen om heimelijk mijn bestanden te raadplegen. De helderheid van het beeld wordt helaas nog te veel verstoord door lichtverstrooiing in het systeem.

Verder moet worden overwogen dat een systeem dat op die manier in staat is oneindig uit te breiden de noodzaak ondervangt om een onderzoeker te hinderen met meubels of apparatuur van een groter formaat dan onmiddellijk nodig is. De continue en ordelijke opvolging van de kaarten kan vervolgens worden uitgebreid tot het domein van het meubilair, de gedragsregels voor bedrijfsvoering en het dagelijks leven. Argumentatie, referentie en de ordening van ideeën verschijnen wanneer ze een chaotische wereld

omarmen en dan onderling communiceren om op hun beurt de wereld te veranderen in iets wat lijkt op het denkproces, een eindeloos proces van raadplegen, herformuleren, toevoegen en sorteren.

Voor de patiënt stroomden ideeën als een levenskracht, ongestoord door onnatuurlijke limieten. Denken werd met het juiste gebruik van het systeem een deel van de stroom van het leven zélf. Gedachten verplaatsten zich via de kaarten niet alleen op het oppervlakkige niveau van de beweging van de vingers en het mechanisch schuiven en bundelen ervan, maar op het meest diepgaande niveau van de beweging tussen de werkelijkheid en de ideeën die we er over hebben. De organisatorische gratie van rangschikking, classificatie en indexering beroerde de restanten van zijn zenuwstelsel tot op de laatste dag.

## The Indexalist

De Indexalist (Nederlands)

Matthew Fuller

I first spoke to the patient in the last week of that August. That evening the sun was tender in drawing its shadows across the lines of his face. The eyes gazed softly into a close middle distance, as if composing a line upon a translucent page hung in the middle of the air, the hands tapping out a stanza or two of music on legs covered by the brown folds of a towelling dressing gown. He had the air of someone who had seen something of great amazement but yet lacked the means to put it into language. As I got to know the patient over the next few weeks I learned that this was not for the want of effort.

In his youth he had dabbled with the world-speak language Volapük, one designed to do away with the incompatibility of tongues, to establish a standard in which scientific intercourse might be conducted with maximum efficiency and with minimal friction in movement between minds, laboratories and publications. Latin biological names, the magnificent table of elements, metric units of measurement, the nomenclature of celestial objects from clouds to planets, anatomical parts and medical conditions all had their own systems of naming beyond any specific tongue. This was an attempt to bring reason into speech and record, but there were other means to do so when reality resisted these early measures.

The dabbling, he reflected, had become a little more than that. He had subscribed to journals in the language, he wrote letters to colleagues and received them in return. A few words of world-speak remained readily on his tongue, words that he spat out regularly into the yellow-wallpapered lounge of the sanatorium with a disgust that was lugubriously palpable.

According to my records, and in piecing together the notes of previous doctors, there was something else however, something more profound that the language only hinted at. Just as the postal system did not require the adoption of any language in particular but had its formats that integrated them into addressee, address line, postal town and country, something that organised the span of the earth, so there was a sense of the patient as having sustained an encounter with a fundamental form of organisation that mapped out his soul. More thrilling than the question of language indeed was that of the system of organisation upon

which linguistic symbols are inscribed. I present for the reader's contemplation some statements typical of those he seemed to mull over.

"The index card system spoke to my soul. Suffice it to say that in its use I enjoyed the highest form of spiritual pleasure, and organisational efficiency, a profound flowering of intellect in which every thought moved between its enunciation, evidence, reference and articulation in a mellifluous flow of ideation and the gratification of curiosity." This sense of the soul as a roving enquiry moving across eras, across forms of knowledge and through the serried landscapes of the vast planet and cosmos was returned to over and over, a sense that an inexplicable force was within him yet always escaping his touch.

"At every reference stood another reference, each more interesting than the last. Each the apex of a pyramid of further reading, pregnant with the threat of digression, each a thin high wire which, if not observed might lead the author into the fall of error, a finding already found against and written up." He mentions too, a number of times, the way the furniture seemed to assist his thoughts - the ease of reference implied by the way in which the desk aligned with the text resting upon the pages of the off-print, journal, newspaper, blueprint or book above which further drawers of cards stood ready in their cabinet. All were integrated into the system. And yet, amidst these frenetic recollections there was a note of mourning in his contemplative moods, "The superposition of all planes of enquiry and of thought in one system repels those for whom such harmonious speed is suspicious." This thought was delivered with a stare that was not exactly one of accusation, but that lingered with the impression that there was a further statement to follow it, and another, queued up ready to follow.

As I gained the trust of the patient, there was a sense in which he estimated me as something of a junior collaborator, a clerk to his natural role as manager. A lucky, if slightly doubtful, young man whom he might mentor into efficiency and a state of full access to information. For his world, there was not the corruption and tiredness of the old methods. Ideas moved faster in his mind than they might now across the world. To possess a register of thoughts covering a period of some years is to have an asset, the value of which is almost incalculable. That it can answer any question respecting any thought about which one has had an enquiry is but the smallest of its merits. More important is the fact that it continually calls attention to matters requiring such attention.

Much of his discourse was about the optimum means of arrangement of the system, there was an art to laying out the cards. As the patient further explained, to meet the objection that loose cards may easily be mislaid, cards may be tabbed with numbers from one to ten. When arranged in the drawer, these tabs proceed from left to right across the drawer and the absence of a single card can thus easily be detected. The cards are further arranged between coloured guide cards. As an alternative to tabbed cards, signal flags may be used. Here, metal clips may be attached to the top end of the card and that stand out like guides. For use of the system in relation to dates of the month, the card is printed with the numbers 1 to 31 at the top. The metal clip is placed as a signal to indicate the card is to receive attention on the specified day. Within a large organisation a further card can be drawn up to assign responsibility for processing that date's cards. There were numerous means of working the cards, special techniques for integrating them into any type of research or organisation, means by which indexes operating on indexes could open mines of information and expand the knowledge and capabilities of mankind.

As he pressed me further, I began to experiment with such methods myself by withdrawing data from the sanatorium's records and transferring it to cards in the night. The advantages of the system are overwhelming. Cards, cut to the right mathematical degree of accuracy, arrayed readily in drawers, set in cabinets of standard sizes that may be added to at ease, may be apportioned out amongst any number of enquirers, all of whom may work on them independently and simultaneously. The bound book, by

contrast, may only be used by one person at a time and that must stay upon a shelf itself referred to by an index card system. I began to set up a structure of rows of mirrors on chains and pulleys and a set of levered and hinged mechanical arms to allow me to open the drawers and to privately consult my files from any location within the sanatorium. The clarity of the image is however so far too much effaced by the diffusion of light across the system.

It must further be borne in mind that a system thus capable of indefinite expansion obviates the necessity for hampering a researcher with furniture or appliances of a larger size than are immediately required. The continuous and orderly sequence of the cards may be extended further into the domain of furniture and to the conduct of business and daily life. Reasoning, reference and the order of ideas emerging as they embrace and articulate a chaotic world and then communicate amongst themselves turning the world in turn into something resembling the process of thought in an endless process of consulting, rephrasing, adding and sorting.

For the patient, ideas flowed like a force of life, oblivious to any unnatural limitation. Thought became, with the proper use of the system, part of the stream of life itself. Thought moved through the cards not simply at the superficial level of the movement of fingers and the mechanical sliding and bunching of cards, but at the most profound depths of the movement between reality and our ideas of it. The organisational grace to be found in arrangement, classification and indexing still stirred the remnants of his nervous system until the last day.

Équation

1. *Traité de Documentation*, pp.12
2. Paul Otlet, *Traité de documentation*, op. cit., Présentation (hors pagination), 1934
3. Sylvie Fayet-Scribe, *Théorie et pratique par Paul Otlet*, op. cit., in Paul Otlet, *Traité de documentation*, op. cit., Préfaces, p. XVIII, Editions Les impressions nouvelles, 2015
4. HOECKER. R et VORSTIUS. J. Internationale Bibliographie des Buch und Bibliothekswesen, mit besonderer Berücksichtigung der Bibliographie. – In Kritischer Auswahl Zusammengestellt von R. Hoecker und J. Vorstius (Leipzig Harrassowitz).
5. C'est dans ce situ et ce processus que prend place le Livre-Document, C'est essentiellement une machine a produire des paroles et des images et par conséquent une machine à reproduire la réalité

# Disambiguation

# An experimental transcript

Sinziana Păltineanu

b|c|d|e|f|g|h|i|j|k|l|m|n|o|p|r|s|t|u|v|w|y|z

Note: The editor has had the good fortune of finding a whole box of handwritten index cards and various folded papers (from printed screenshots to boarding passes) in the storage space of an institute. Upon closer investigation, it has become evident that the mixed contents of the box make up one single document. Difficult to decipher due to messy handwriting, the manuscript poses further challenges to the reader because its fragments lack a pre-established order. Simply uploading high-quality facsimile images of the box contents here would not solve the problems of legibility and coherence. As an intermediary solution, the editor has opted to introduce below a selection of scanned images and transcribed text from the found box. The transcript is intended to be read as a document sample, as well as an attempt at manuscript reconstruction, following the original in the author's hand as closely as possible: pencilled in words in the otherwise black ink text are transcribed in brackets, whereas curly braces signal erasures, peculiar marks or illegible parts on the index cards. Despite shifts in handwriting styles, whereby letters sometimes appear extremely rushed and distorted in multiple idiosyncratic ways, the experts consulted unanimously declared that the manuscript was most likely authored by one and the same person. To date, the author remains unknown.

## q

I've been running with a word in my mouth, running with this burning untitled shape, and I just can't spit it out. Spit it with phlegm from a balcony, kiss it in a mirror, brush it away one morning. I've been running with a word in my mouth, running...

... it must have been only last month that I began half-chanting-half-mumbling this looped sequence of sentences on the staircase I regularly take down to work and back up to dream, yet it feels as if it were half a century ago. Tunneling through my memory, my tongue begins burning again and so I recollect that the subject matter was an agonizing, unutterable obsession I needed to sort out most urgently. Back then I knew no better way than to keep bringing it up obliquely until it would chemically dissolve itself into my blood or evaporate through the pores of my skin. To whisper the obsession away, I thought not entirely so naïvely, following a peculiar kind of vengeful logic, by emptying words of their pocket contents on a spiraling staircase. An anti-incantation, a verbal overdose, a semantic dilution or reduction – for the first time, I was ready to inflict harm on words! [And I am sure, the thought has crossed other lucid minds, too.]

n



During the first several days, as I was rushing up and down the stairs like a Tasmanian devil,

swirling those same sentences in my expunction ritual, I hardly noticed that the brown marbled staircase had a ravenous appetite for all my sound making and fuss: it cushioned the clump of my footsteps, it absorbed the vibrations of my vocal chords and of my fingers drumming on the handrail. All this unusual business must have carried on untroubled for some time until that Wed. [?] morning when I tried approaching the employee at the reception desk in the hideously large building where I live with a question about elevator safety. I may take the elevator once in a blue moon, but I could not ignore the new disquieting note I had been reading on all elevator doors that week:

m a k e / s u r e / t h e / e l e v a t o r / c a r / i s / s t a t i o n

t



Walking with a swagger, I entered the incandescent light field around the fancy semicircular, brown reception desk, pressed down my palms on it, bent forward and from what I found to be a comfortable inquiry angle, launched question mark after question mark: “Is everything alright with the elevators? Do you know how worrisome I find the new warning on the elevator doors? Has there been an accident? Or is this simply an insurance disclaimer-trick?” Too many floors, too many times reading the same message against my will, must have inflated my concern, so I breathed out the justification of my anxiety and waited for a reassuring head shake to erase the imprint of the elevator shaft from my mind. Oddly, not the faintest or most bored acknowledgment of my inquiry or presence came from across the desk. From where I was standing, I performed a quick check to see if any cables came out of the receptionist's ears. Nothing. Channels unobstructed, no ear mufflers, no micro-devices. Suspicion eliminated, I waved at him, emitted a few other sounds – all to no avail. My tunnel-visioned receptionist rolled his chair even closer to one of the many monitors under his hooked gaze, his visual field now narrowed to a very acute angle, sheltered by his high desk. How well I can still remember that at that exact moment I wished my face would turn into the widest, most expensive screen, with an imperative, hairy ticker at the bottom –

h e y t o u c h m y s c r e e n m y m u s t a c h e s c r e e n e l e v a t o r t o u

j

That's one of the first red flags I remember in this situation (here, really starting to come across more or less as a story): a feeling of being silenced by the building I inhabited. [Or to think about it the other way around: it's also plausible and less paranoid that upon hearing my flash sentences the building manifested a sense of phonophobia and consequently activated a strange defense mechanism. In any case, that day, I had been forewarned, but I failed to understand. As soon as I pushed the revolving door and left the building with a wry smile [on my face], the traffic outside wolfed down the warning.

e

The day I resigned myself to those forces – and I assume, I had unleashed them upon myself through my vengeful desire to hxxx *{here, a 3-cm erasure}* words until I could see carcass after carcass roll down the stairs [truth be said, a practice that differed from other people's doings only in my heightened degree of awareness, which entailed a partially malevolent but perhaps understandable defensive strategy on my part] – that gloomy day, the burning untitled shape I had been carrying in my mouth morphed into a permanent official of my cavity – a word implant in my jaw! No longer do I feel pain on my tongue, only a tinge of volcanic ash as an aftermath of this defeat.

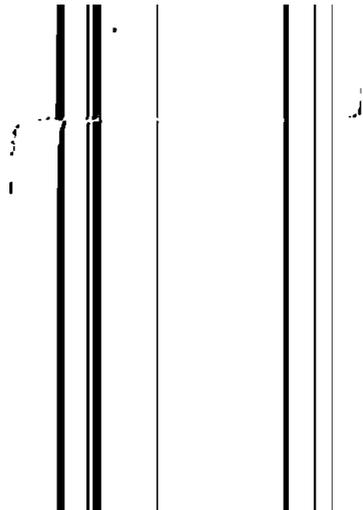
## u

I've been running with a word in my mouth, running with this burning untitled shape, and I just can't spit it out. Spit it with phlegm from a balcony, kiss it in a mirror, brush it away one morning. It has become my tooth, rooted in my nervous system. My word of mouth.

P



Since then, my present has turned into an obscure hole, and I can't climb out of it. Most of the time, I'm sitting at the bottom of this narrow oubliette, teeth in knees, scribbling notes with my body in a terribly twisted position. And when I'm not sitting, I'm forced

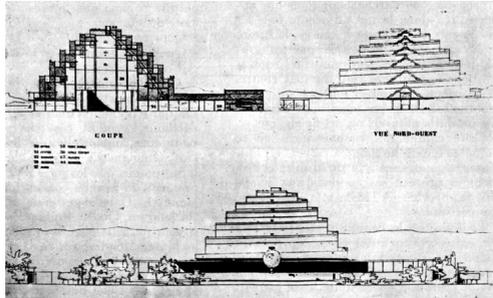


to jump. Agonizing thoughts numb my limbs so much so that I feel my legs turning to stone. On some days I look up, terrified. I can't even make out whether the diffuse opening is egg- or square-shaped, but there's definitely a peculiar tic-tac sequence interspersed with neighs that my pricked ears are picking up on. A sound umbrella, hovering somewhere up there, high above my imploded horizon.

*{illegible vertical lines resembling a bar code}*

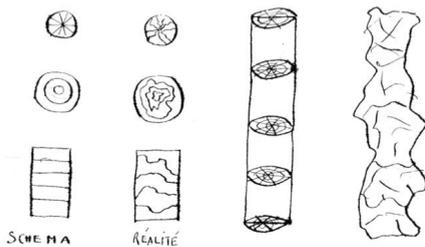
Hypotheses scanned and merged, I temporarily conclude that a horse-like creature with metal intestines must be galloping round and round the hole I'm in. When I first noticed the sound, its circular cadence was soft and unobtrusive, almost protective, but now the more laps the clock-horse is running, the deeper the ticking and the neighing sounds are drilling into the hole. I picture this as an ever rotating metal worm inside a mincing machine. If I point my chin up, it bores through my throat!

b



What if, in returning to that red flag in my reconstructive undertaking [instead of “red flag”, whose imperialist connotations strike me today, we cross it out and use “pyramid” to

LE SCHEMA ET LA REALITE



refer to such potentially revealing frames, when intuitions {*two words crossed out, but still legible: seem to*} give the alarm and converge before thoughts do], we posit that an elevator accident occurred not long after my unanswered query at the High Reception Desk, and that I – exceptionally – found myself in the elevator car that plummeted. Following this not entirely bleak hypothesis, the oubliette I’m trapped in translates to an explainable state of blackout and all the ticking and the drilling could easily find their counterparts in the host of medical devices (and their noise-making) that support a comatose person. What if what I am experiencing now is another kind of awareness, inside a coma, which will be gone once I wake up in a few hours or days on a hospital bed, flowers by my side, someone crying / loud as a horse / in the other corner of the room, next to a child’s bed?

[Plausible as this scenario might be, it’s still strange how the situation calls for reality-like insertions to occur through “what if”s...]

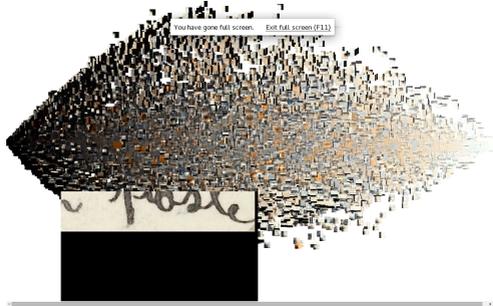
h

Have I fallen into a lucid coma or am I a hallucination, made in 1941 out of gouache and black pencil, paper, cardboard and purchased in 1966?

[To visualize the equation of my despair, the following elements are given: the above-whispered question escalates into a desperate shout and multiplies itself over a considerable stretch of time at the expense of my vocal chords. After all, I am not made of black pencil or cardboard or paper. Despite this conclusion, the effort has left me sulking for hours without being able to scribble anything, overwhelmed by a sensation of being pinched and pulled sideways by dark particles inside the mineral dampness of this open tomb. What's the use of a vertical territory if you can't sniff it all the way up?]

*{several overlapping thumbmarks in black ink, lower right corner}*

W



/ one gorgeous whale \  
my memory's biomorphic shadow  
can anyone write in woodworm language?  
how to teach the Cyrillic alphabet to woodworms?  
how many hypotheses to /re-stabilize  
\ one's situation?  
how many pyramids one on top of the other to the \coma/ surface?  
the denser the pyramid net, the more confusing the situation. true/  
false\fiction

## O



Hasty recordings of several escape attempts. A slew of tentacle-thoughts are rising towards the ethereal opening and here I am / hopeful and unwashed \ just beneath a submundane landscape of groping, shimmering arms, hungry to sense and to collect every memory detail in an effort of sense making, to draw skin over hypotheses and hypotheses over bones. It might be morning, it might be yesterday's morning out there or any other time in the past, when as I cracked the door to my workplace, I entered my co-workers' question game and paraverbal exchange:

Puckered lips open: "Listen, whose childhood dream was it to have one of their eye-bulbs replaced with a micro fish-eye lens implant?" Knitted eyebrows: "Someone whose neural pathways zigzagged phrenologist categories?" Microexpressionist: "How many semiotician-dentists and woodworm-writers have visited the Chaos Institute to date?" A ragged mane: "The same number as the number of neurological tools for brain mapping that the Institute owns?" *{one lengthy word crossed out, probably a name}*: "Would your brain topography get upset and wrinkle if you imagined all the bureaucrats' desks from the largest country on earth [by pop.] piled up in a pyramid?" Microexpressionist again: "Who wants to draft the call for asemic writers?" Puckered lips closes *{sic}* the door.

i



It's a humongous workplace, with a blue entrance door, cluttered with papers on both sides. See? Left hand on the entrance door handle, the woman presses it and the three of them [guiding co-worker, faceless cameraman, scarlet-haired interviewer] squeeze themselves inside all that paper. [Door shuts by itself.] Doesn't it feel like entering a paper sculpture? [, she herself appearing for a split second to have undergone a material transformation, to have turned into paper, the left side of her face glowing in a retro light. It's still her.] This is where we work, a hybrid site officially called The Institute for Chaos and Neuroplasticity – packed with folders, jammed with newspapers, stacks of private correspondence left and right, recording devices, boxes with photographs, xeroxed documents on shelves, {*several pea-sized inkblots*} printed screenshots and boarding passes – we keep it all, everything that museums or archives have no interest in, all orphaned papers, photographic plates and imperiled books or hard disks relatives might want to discard or even burn after someone's death. Exploring leftovers around here can go up and down to horrifying and overwhelming sensorial levels...

## Z

*{a two-centimeter line of rust from a pin in the upper left corner of the index card}*

Sociological-intelligence rumors have it that ours is the bureau for studying psychological attachment to “garbage” (we very much welcome researchers), while others refer to the Institute as the chaos-brewing place in the neighborhood because we employ absolutely no classification method for storing papers or other media. The chances of finding us? [Raised eyebrows and puckered lips as first responses to the scarlet-haired question.] Well, the incidence is just as low as finding a document or device you're looking for in our storage. Things are not lost; there are just different ways of finding them. A random stroll, a lucky find – be that on-line or off-line –, or a seductive word of mouth may be the entrance points into this experiential space, a manifesto for haphazardness, emotional intuitions, subversion of neural pathways, and non-productive attitudes. A dadaist archive? queried Scarlet Hair. Ours is definitely not an archive, there's no trace of pyramidal bureaucracy or taxonomy here, no nation state at its birth. Hence you won't find a reservoir for national or racial histories in here. Just imagine we changed perception scales, imagine a collective cut-up project that we, chaos workers, are bringing together without scissors or screwdrivers because all that gets through that blue door [and that is the only condition and standard] has already been shaped and fits in here. [Guiding co-worker speaks in a monotonous and plain GPS voice. Interview continues, but she forgets to mention that behind the blue door, in this very big box 1. everyone is an authorized user and 2. time rests unemployed.]

# k

Lately, several trucks loaded with gray matter have been adding extra hours of induced chaos to everyone's content. Although it is the Institute's policy to accept paper donations only from private individuals, it occasionally makes exceptions and takes on leftovers from nonprofit organizations.

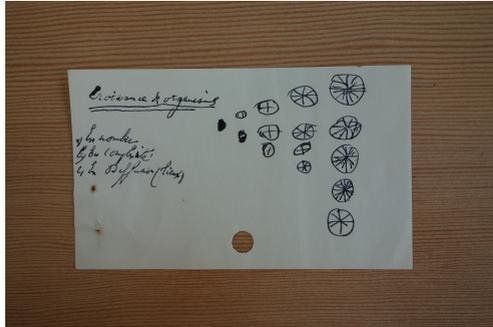
Each time this happens, an extended rite of passage follows so as to slightly delay and thereby ease the arrival of chaos bits: the most reliable chaos worker, Microexpressionist by metonymically selected feature, supervises the transfer of boxes at the very beginning of a long hallway [eyeballs moving left to right, head planted in an incredibly stiff neck]. Then, some fifty meters away, standing in front of the opened blue door, Puckered Lips welcomes newcomers into the chaos, his gestures those of a marshaller guiding a plane into a parking position. But once the gray [?] matter has passed over the threshold, once the last full suitcase or shoe box with USB sticks has landed, directions are no longer provided. Everyone's free to grow limbs and choose temporal neighbors.

# 1



... seated cross-legged at the longest desk ever, Ragged Mane is randomly extracting photodocuments from the freshest chaos segment with a metallic extension of two of her fingers [instead of a pince-nez, she's the one to carry a pair of tweezers in a small pocket at all times]. "Look what I've just grabbed," and she pushes a sepia photograph in front of Knitted Eyebrows, whose otherwise deadpan face instantaneously gets stamped this time with a question mark: "What is it?" "Another capture, of course! Two mustaches, one hat, three pairs of glasses, some blurred figures in the background, and one most fascinating detail!" – [...] takes out a magnifying glass and points with one of her flashy pink fingers to the handheld object under the gaze of four eyes on the left side of the photo. Then, Ragged Mane continues:] "That raised right index finger above a rectangular-shaped object... you see it?" "You mean [00:00 = insertion of a lengthy time frame = 00:47] could this mustachioed fellow be holding a touchscreen mobile phone in his left hand?" For several unrecorded skeptical moments, they interlock their eyes and knit their eyebrows closer together. Afterward, eyes split again and roll on the surface of the photograph like black-eyed peas on a kitchen table. "It's all specks and epoch details," a resigned voice breaks from the chaos silence, when, the same thought crosses their minds, and Ragged Mane and Knitted Eyebrows turn the photo over, almost certain to find an answer. [A simultaneous hunch.] In block letters it most clearly reads: "DOCUMENTING THE FILMING OF PEACEMAKERS / ANALOGUE PHOTOGRAPHY ON FILM SET / BERN, SWITZERLAND / 17.05.2008"

## X



/ meanwhile, the clock-horse has grown really nervous out there – it's drawing smaller and smaller circles / a spasmodic and repetitive activity causing dislocation / a fine powder

begins to float inside the oubliette in the slowest motion possible / my breathing has already been hampered, but now my lungs and brain get filled with an asphyxiating smell of old paper / hanging on my last tentacle-thought, on my tiptoes, refusing to choke and disintegrate / NOT READY TO BE RECYCLED / {messiest handwriting}

A Cyrillic cityscape is imagining how one day all the bureaucrats' desks from the largest country on earth get piled up in a pyramid. "This new shape is deflating the coherence of my horizon. [the cityscape worries] No matter!" Once the last desk is placed at the very top, the ground cracks a half-open mouth, a fissure the length of Rxxxx. On the outside it's spotted with straddled city topographies, inside, it's filled with a vernacular accumulation of anational dust without a trace of usable pasts.

{violent horizontal strokes over the last two lines, left and right from the hole at the bottom of the index card; indecipherable}

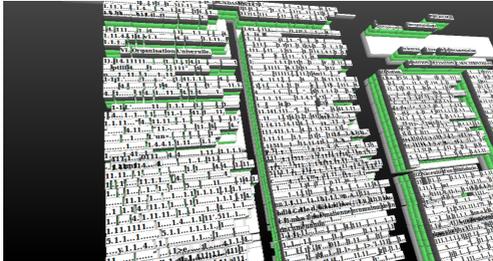
## m



“What's on TV this afternoon?” This plain but beautifully metamorphosed question has just landed with a bleep on the chaos couch, next to Ragged Mane, who usually loses no chance to retort [that is, here, to admonish too hard a fall]: “Doucement!” Under the weight of a short-lived feeling of guilt, {*name crossed out*} echoes back in a whisper – d – o – u – c – e – m – e – n – t –, and then, as if after a palatable word tasting, she clicks her tongue and with it, she searches for a point of

clarification: “Doucement is an anagram for documenté – which one do you actually mean?” [All conversations with {*name crossed out*} would suffer unsettling Meaning U-turns because she specialized in letter permutation.]

y



Gurgling sounds from a not-so-distant corner of the chaos dump make heads simultaneously rotate in the direction of the TV screen, where a documentary has just started with a drone's-eye view over a city of lined-up skyscrapers. Early on, the commentator breaks into unwitty superlatives and platitudes, while the soundtrack unnecessarily dramatizes a 3D layering of the city structure. Despite all this, the mood on the couch is patient, and viewers seem to absorb the vignettted film. "A city like no other, as atypical as Cappadocia," explains the low trepid voice from the box, "a city whose peculiarity owes first to the alignment of all its elements, where street follows street in a parallel fashion like in linear writing. Hence, reading the city acquires a literal dimension, skyscrapers echo clustered block letters on a line, and the pedestrian reader gets reduced to the size of a far-sighted microbe."

[Woodworm laughs]

# V



Minutes into the documentary, the micro-drone camera zooms into the silver district/chapter of the city to show another set of its features: instead of steel and glass, what from afar appeared to be ordinary skyscrapers turn out to be “300-meter-tall lofty towers of mailbox-like constructs of dried skin, sprayed on top with silver paint for rims, and decorated with huge love padlocks. A foreboding district for newlyweds?” [nauseating atmosphere] Unable to answer or to smell, the mosquito-sized drone blinks in the direction of the right page, and it speedily approaches another windowless urban variation: the vastest area of city towers – the Wood Drawers District. “Despite its vintage (here and there rundown) aura, the area is an exquisite, segregated space for library aficionados, designed out of genetically-engineered trees that grow naturally drawer-shaped with a remarkable capacity for self-(re)generation. In terms of real proportions, the size of a mailbox- or a drawer-apartment is comparable to that of a shipping container, from the alternative but old housing projects...” bla bla the furniture bla... [that chaos corner, so remote and so coal black / that whole atmosphere with blurred echoes beclouds my reasoning / and right now, I'm feeling nauseous and cursed with all the words in an unabridged dictionary / new deluxe edition, with black covers and golden characters]

d

In front of the place where, above a modest skyline, every single morning [scholars'] desks conjoin in the shape of a multi-storied pyramid, there's a sign that reads: right here you can bend forward, place your hands on your back, press down your spine with your thumbs and throw up an index card, throw out a reality version, take out a tooth. In fact, take out all that you need and once you feel relieved, exchange personas as if in an emergency situation. Then, behind vermillion curtains, replace pronouns at will.

[Might this have been a pipe dream? An intubated wish for character replacement? *{Name crossed out}* would whisper C E E H I N N O R T as place name]

I

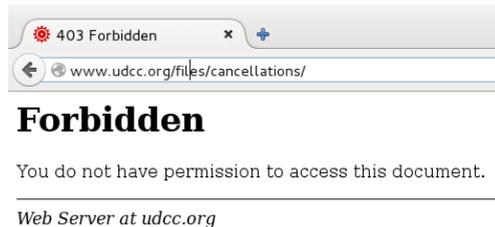


["gray - ...  
Other Color Terms -  
argentine, cerise, cerulean, cyan, ocher, perse,  
puce, taupe, vermillion"]

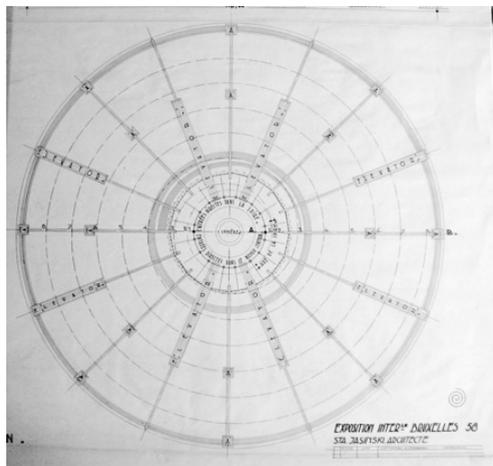
To be able to name everything and everyone, especially all the shades in a gray zone, and then to re-name, re-narrate/re-count, and re-photograph all of it. To treat the ensuing multilayered landscape with/as an infinitive verb and to scoop a place for yourself in the accordion of surfaces. For instance, take the first shot - you're being stared at, you're under

the distant gaze of three *{words crossed out; illegible}*. Pale, you might think, how pallid and lifeless they appear to be, but try to hold their gaze and notice how the interaction grows uncomfortable through persistence. Blink, if you must. Move your weight from one leg to the other, and become aware of how unflinching their concentration remains, as if their eyes are lured into a screen. And as you're trying to draw attention to yourself by making ampler, pantomimic gestures, your hands touch the dark inner edges of the monitor you're [boxed] in. Look out and around again and again...

g



Some {Same?} damned creature made only of arms and legs has been leaving a slew of black dots all over my corridors and staircases, ashes on my handrails, and larger spots of black liquid in front of my elevator doors on the southern track – my oldest and dearest vertically mobile installation, the one that has grown only ten floors high. If I were in shape, attuned and wired to my perception angles and

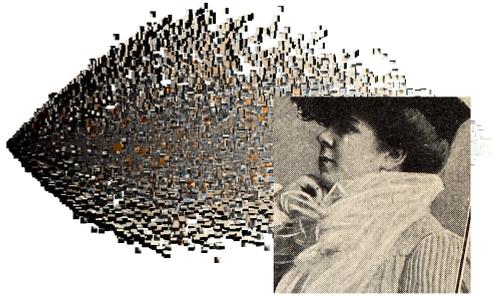


sensors, I could identify beyond precision that it is a 403 cabal plotting I begin fearing. Lately, it's all been going really awry. Having failed at the character recognition of this trickster creature, the following facts can be enumerated in view of overall [damage] re-evaluation, quantification, and intruder excision: emaciating architectural structure, increasingly deformed spiraling of brown marbled staircases, smudged finger- and footprints on all floors, soddened and blackened ceilings, alongside thousands of harrowing fingers and a detection of an insidious and undesirable multiplication of {word crossed out: white} hands [tbc].

C

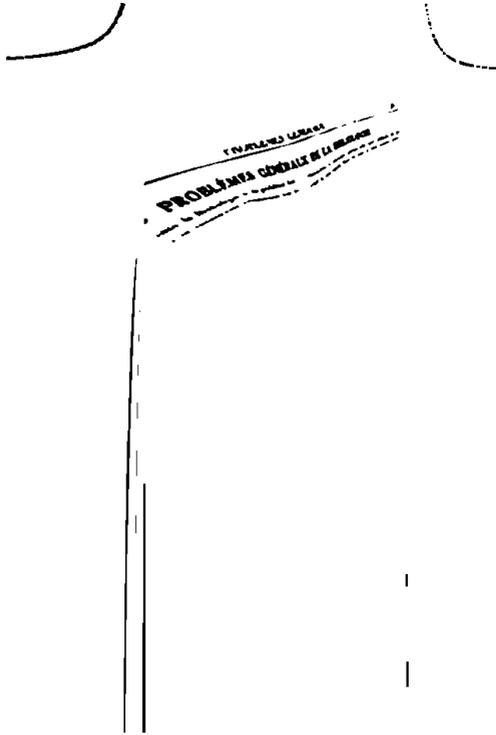


Out of the blue, the clock-horse dislocated particles expand in size, circle in all directions



like giant flies around a street lamp, and then in the most predictable fashion, they collide with my escapist reminiscences multiple times until I lose connection and the landscape above comes to a [menacing] stillness. [How does it look now? a scarlet-haired question.] I'm blinking, I'm moving my weight from one leg to the other, before I can attempt a description of the earth balls that stagnate in the air among translucent tentacles [they're almost gone] and floating dioramas of miniatures. Proportions have inverted, scraped surfaces have commingled and my U-shaped. reality. and. vision. are. stammering... I can't find my hands!

...



Ospal (talk)

) 09:27, 19 November 2015 (CET)

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b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
r	s	t	u	v	w	y	z							



# LES UTOPISTES and their common logos

THIS IS A DRAFT

Dennis Pohl

In itself this list is just a bag of words that orders the common terms used in the works of Le Corbusier and Paul Otlet with the help of text comparison. The quantity of similar words relates to the word-count of the texts, which means that each appearance has a different weight. Taken this into account, the appearance of the word “esprit” for instance, is more significant in *Vers une Architecture* (127 times) than in *Traité de documentation* (240 times), although the total amount of appearances is almost two times higher.

Beyond the mere quantified use of a common language, this list follows [confirms?] the intuition that there is something more to elaborate in the discourse between these two utopians. One possible reading can be found in “The Smart City”, an essay that traces their encounter.

Books taken into consideration:

- Le Corbusier, *Vers une Architecture*, Paris: les éditions G. Crès, 1923. Word-count: **32733**.
- Paul Otlet, *Traité de documentation: le livre sur le livre, théorie et pratique*, Bruxelles: Mundaneum, Palais Mondial, 1934. Word-count: **356854**.
- Le Corbusier, *Urbanisme*, Paris: les éditions G. Crès, 1925. Word-count: **37699**.
- Paul Otlet, *Monde: essai d'universalisme - Connaissance du Monde, Sentiment du Monde, Action organisée et Plan du Monde*, Bruxelles: Editions Mundeum 1935. Word-count: **140209**.

**architecture** appears **199** times in *Vers une Architecture*, **51** times in *Traité de documentation*, **26** times in *Urbanisme* and **11** times in *Monde*.

<b>esprit</b>	appears	<b>127</b> times in <i>Vers une Architecture</i> ,	<b>240</b> times in <i>Traité de documentation</i> ,	<b>36</b> times in <i>Urbanisme</i> and	<b>150</b> times in <i>Monde</i> .
<b>plan</b>	appears	<b>86</b> times in <i>Vers une Architecture</i> ,	<b>151</b> times in <i>Traité de documentation</i> ,	<b>32</b> times in <i>Urbanisme</i> and	<b>174</b> times in <i>Monde</i> .
<b>homme</b>	appears	<b>74</b> times in <i>Vers une Architecture</i> ,	<b>189</b> times in <i>Traité de documentation</i> ,	<b>66</b> times in <i>Urbanisme</i> and	<b>315</b> times in <i>Monde</i> .
<b>ordre</b>	appears	<b>59</b> times in <i>Vers une Architecture</i> ,	<b>421</b> times in <i>Traité de documentation</i> ,	<b>30</b> times in <i>Urbanisme</i> and	<b>128</b> times in <i>Monde</i> .
<b>série</b>	appears	<b>56</b> times in <i>Vers une Architecture</i> ,	<b>98</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>24</b> times in <i>Monde</i> .
<b>éléments</b>	appears	<b>55</b> times in <i>Vers une Architecture</i> ,	<b>252</b> times in <i>Traité de documentation</i> ,	<b>22</b> times in <i>Urbanisme</i> and	<b>104</b> times in <i>Monde</i> .
<b>époque</b>	appears	<b>53</b> times in <i>Vers une Architecture</i> ,	<b>88</b> times in <i>Traité de documentation</i> ,	<b>30</b> times in <i>Urbanisme</i> and	<b>44</b> times in <i>Monde</i> .
<b>problème</b>	appears	<b>53</b> times in <i>Vers une Architecture</i> ,	<b>92</b> times in <i>Traité de documentation</i> ,	<b>28</b> times in <i>Urbanisme</i> and	<b>88</b> times in <i>Monde</i> .
<b>faire</b>	appears	<b>51</b> times in <i>Vers une Architecture</i> ,	<b>410</b> times in <i>Traité de documentation</i> ,	<b>24</b> times in <i>Urbanisme</i> and	<b>137</b> times in <i>Monde</i> .
<b>construction</b>	appears	<b>50</b> times in <i>Vers une Architecture</i> ,	<b>24</b> times in <i>Traité de documentation</i> ,	<b>14</b> times in <i>Urbanisme</i> and	<b>8</b> times in <i>Monde</i> .
<b>état</b>	appears	<b>48</b> times in <i>Vers une Architecture</i> ,	<b>144</b> times in <i>Traité de documentation</i> ,	<b>18</b> times in <i>Urbanisme</i> and	<b>89</b> times in <i>Monde</i> .
<b>faut</b>	appears	<b>46</b> times in <i>Vers une Architecture</i> ,	<b>285</b> times in <i>Traité de documentation</i> ,	<b>54</b> times in <i>Urbanisme</i> and	<b>126</b> times in <i>Monde</i> .
<b>lumière</b>	appears	<b>45</b> times in <i>Vers une Architecture</i> ,	<b>77</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>38</b> times in <i>Monde</i> .
<b>art</b>	appears	<b>44</b> times in <i>Vers une Architecture</i> ,	<b>370</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>60</b> times in <i>Monde</i> .
<b>choses</b>	appears	<b>43</b> times in <i>Vers une Architecture</i> ,	<b>215</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>157</b> times in <i>Monde</i> .
<b>yeux</b>	appears	<b>41</b> times in <i>Vers une Architecture</i> ,	<b>76</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>8</b> times in <i>Monde</i> .
<b>grande</b>	appears	<b>40</b> times in <i>Vers une Architecture</i> ,	<b>202</b> times in <i>Traité de documentation</i> ,	<b>82</b> times in <i>Urbanisme</i> and	<b>69</b> times in <i>Monde</i> .
<b>nouveau</b>	appears	<b>39</b> times in <i>Vers une Architecture</i> ,	<b>98</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>43</b> times in <i>Monde</i> .
<b>ville</b>	appears	<b>38</b> times in <i>Vers une Architecture</i> ,	<b>30</b> times in <i>Traité de documentation</i> ,	<b>122</b> times in <i>Urbanisme</i> and	<b>11</b> times in <i>Monde</i> .
<b>grand</b>	appears	<b>34</b> times in <i>Vers une Architecture</i> ,	<b>276</b> times in <i>Traité de documentation</i> ,	<b>34</b> times in <i>Urbanisme</i> and	<b>89</b> times in <i>Monde</i> .
<b>chose</b>	appears	<b>34</b> times in <i>Vers une Architecture</i> ,	<b>110</b> times in <i>Traité de documentation</i> ,	<b>12</b> times in <i>Urbanisme</i> and	<b>52</b> times in <i>Monde</i> .

<b>villes</b>	appears	<b>33</b> times in <i>Vers une Architecture</i> ,	<b>34</b> times in <i>Traité de documentation</i> ,	<b>52</b> times in <i>Urbanisme</i> and	<b>38</b> times in <i>Monde</i> .
<b>était</b>	appears	<b>32</b> times in <i>Vers une Architecture</i> ,	<b>186</b> times in <i>Traité de documentation</i> ,	<b>32</b> times in <i>Urbanisme</i> and	<b>89</b> times in <i>Monde</i> .
<b>alors</b>	appears	<b>32</b> times in <i>Vers une Architecture</i> ,	<b>165</b> times in <i>Traité de documentation</i> ,	<b>38</b> times in <i>Urbanisme</i> and	<b>52</b> times in <i>Monde</i> .
<b>toutes</b>	appears	<b>32</b> times in <i>Vers une Architecture</i> ,	<b>591</b> times in <i>Traité de documentation</i> ,	<b>14</b> times in <i>Urbanisme</i> and	<b>259</b> times in <i>Monde</i> .
<b>place</b>	appears	<b>32</b> times in <i>Vers une Architecture</i> ,	<b>208</b> times in <i>Traité de documentation</i> ,	<b>14</b> times in <i>Urbanisme</i> and	<b>62</b> times in <i>Monde</i> .
<b>moderne</b>	appears	<b>31</b> times in <i>Vers une Architecture</i> ,	<b>79</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>35</b> times in <i>Monde</i> .
<b>sens</b>	appears	<b>31</b> times in <i>Vers une Architecture</i> ,	<b>176</b> times in <i>Traité de documentation</i> ,	<b>14</b> times in <i>Urbanisme</i> and	<b>64</b> times in <i>Monde</i> .
<b>entre</b>	appears	<b>29</b> times in <i>Vers une Architecture</i> ,	<b>342</b> times in <i>Traité de documentation</i> ,	<b>18</b> times in <i>Urbanisme</i> and	<b>246</b> times in <i>Monde</i> .
<b>sol</b>	appears	<b>28</b> times in <i>Vers une Architecture</i> ,	<b>10</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>24</b> times in <i>Monde</i> .
<b>travail</b>	appears	<b>27</b> times in <i>Vers une Architecture</i> ,	<b>403</b> times in <i>Traité de documentation</i> ,	<b>50</b> times in <i>Urbanisme</i> and	<b>177</b> times in <i>Monde</i> .
<b>encore</b>	appears	<b>25</b> times in <i>Vers une Architecture</i> ,	<b>197</b> times in <i>Traité de documentation</i> ,	<b>22</b> times in <i>Urbanisme</i> and	<b>106</b> times in <i>Monde</i> .
<b>surface</b>	appears	<b>25</b> times in <i>Vers une Architecture</i> ,	<b>51</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>19</b> times in <i>Monde</i> .
<b>grands</b>	appears	<b>24</b> times in <i>Vers une Architecture</i> ,	<b>187</b> times in <i>Traité de documentation</i> ,	<b>24</b> times in <i>Urbanisme</i> and	<b>88</b> times in <i>Monde</i> .
<b>font</b>	appears	<b>24</b> times in <i>Vers une Architecture</i> ,	<b>93</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>25</b> times in <i>Monde</i> .
<b>temps</b>	appears	<b>24</b> times in <i>Vers une Architecture</i> ,	<b>436</b> times in <i>Traité de documentation</i> ,	<b>22</b> times in <i>Urbanisme</i> and	<b>239</b> times in <i>Monde</i> .
<b>conception</b>	appears	<b>23</b> times in <i>Vers une Architecture</i> ,	<b>62</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>64</b> times in <i>Monde</i> .
<b>création</b>	appears	<b>22</b> times in <i>Vers une Architecture</i> ,	<b>82</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>48</b> times in <i>Monde</i> .
<b>toujours</b>	appears	<b>22</b> times in <i>Vers une Architecture</i> ,	<b>147</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>65</b> times in <i>Monde</i> .
<b>vie</b>	appears	<b>21</b> times in <i>Vers une Architecture</i> ,	<b>249</b> times in <i>Traité de documentation</i> ,	<b>26</b> times in <i>Urbanisme</i> and	<b>329</b> times in <i>Monde</i> .
<b>grandes</b>	appears	<b>21</b> times in <i>Vers une Architecture</i> ,	<b>182</b> times in <i>Traité de documentation</i> ,	<b>36</b> times in <i>Urbanisme</i> and	<b>93</b> times in <i>Monde</i> .
<b>paris</b>	appears	<b>20</b> times in <i>Vers une Architecture</i> ,	<b>192</b> times in <i>Traité de documentation</i> ,	<b>60</b> times in <i>Urbanisme</i> and	<b>16</b> times in <i>Monde</i> .

<b>mesure</b>	appears	<b>20</b> times in <i>Vers une Architecture</i> ,	<b>110</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>46</b> times in <i>Monde</i> .
<b>espace</b>	appears	<b>20</b> times in <i>Vers une Architecture</i> ,	<b>69</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>122</b> times in <i>Monde</i> .
<b>voir</b>	appears	<b>19</b> times in <i>Vers une Architecture</i> ,	<b>252</b> times in <i>Traité de documentation</i> ,	<b>14</b> times in <i>Urbanisme</i> and	<b>48</b> times in <i>Monde</i> .
<b>calcul</b>	appears	<b>19</b> times in <i>Vers une Architecture</i> ,	<b>15</b> times in <i>Traité de documentation</i> ,	<b>24</b> times in <i>Urbanisme</i> and	<b>21</b> times in <i>Monde</i> .
<b>outil</b>	appears	<b>19</b> times in <i>Vers une Architecture</i> ,	<b>12</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>5</b> times in <i>Monde</i> .
<b>humaine</b>	appears	<b>19</b> times in <i>Vers une Architecture</i> ,	<b>72</b> times in <i>Traité de documentation</i> ,	<b>14</b> times in <i>Urbanisme</i> and	<b>96</b> times in <i>Monde</i> .
<b>nature</b>	appears	<b>18</b> times in <i>Vers une Architecture</i> ,	<b>120</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>166</b> times in <i>Monde</i> .
<b>monde</b>	appears	<b>18</b> times in <i>Vers une Architecture</i> ,	<b>177</b> times in <i>Traité de documentation</i> ,	<b>26</b> times in <i>Urbanisme</i> and	<b>331</b> times in <i>Monde</i> .
<b>vue</b>	appears	<b>18</b> times in <i>Vers une Architecture</i> ,	<b>272</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>105</b> times in <i>Monde</i> .
<b>point</b>	appears	<b>18</b> times in <i>Vers une Architecture</i> ,	<b>278</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>133</b> times in <i>Monde</i> .
<b>devant</b>	appears	<b>18</b> times in <i>Vers une Architecture</i> ,	<b>75</b> times in <i>Traité de documentation</i> ,	<b>12</b> times in <i>Urbanisme</i> and	<b>43</b> times in <i>Monde</i> .
<b>très</b>	appears	<b>18</b> times in <i>Vers une Architecture</i> ,	<b>209</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>47</b> times in <i>Monde</i> .
<b>machine</b>	appears	<b>17</b> times in <i>Vers une Architecture</i> ,	<b>119</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>29</b> times in <i>Monde</i> .
<b>construire</b>	appears	<b>17</b> times in <i>Vers une Architecture</i> ,	<b>10</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>9</b> times in <i>Monde</i> .
<b>ans</b>	appears	<b>17</b> times in <i>Vers une Architecture</i> ,	<b>91</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>109</b> times in <i>Monde</i> .
<b>géométrie</b>	appears	<b>17</b> times in <i>Vers une Architecture</i> ,	<b>14</b> times in <i>Traité de documentation</i> ,	<b>24</b> times in <i>Urbanisme</i> and	<b>12</b> times in <i>Monde</i> .
<b>dire</b>	appears	<b>17</b> times in <i>Vers une Architecture</i> ,	<b>185</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>72</b> times in <i>Monde</i> .
<b>passé</b>	appears	<b>17</b> times in <i>Vers une Architecture</i> ,	<b>55</b> times in <i>Traité de documentation</i> ,	<b>12</b> times in <i>Urbanisme</i> and	<b>49</b> times in <i>Monde</i> .
<b>moyens</b>	appears	<b>16</b> times in <i>Vers une Architecture</i> ,	<b>125</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>59</b> times in <i>Monde</i> .
<b>besoin</b>	appears	<b>16</b> times in <i>Vers une Architecture</i> ,	<b>82</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>40</b> times in <i>Monde</i> .
<b>ensemble</b>	appears	<b>16</b> times in <i>Vers une Architecture</i> ,	<b>329</b> times in <i>Traité de documentation</i> ,	<b>14</b> times in <i>Urbanisme</i> and	<b>123</b> times in <i>Monde</i> .

<b>moins</b>	appears	16 times in <i>Vers une Architecture</i> ,	243 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	93 times in <i>Monde</i> .
<b>cela</b>	appears	16 times in <i>Vers une Architecture</i> ,	99 times in <i>Traité de documentation</i> ,	16 times in <i>Urbanisme</i> and	31 times in <i>Monde</i> .
<b>univers</b>	appears	15 times in <i>Vers une Architecture</i> ,	27 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	68 times in <i>Monde</i> .
<b>pratique</b>	appears	15 times in <i>Vers une Architecture</i> ,	98 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	28 times in <i>Monde</i> .
<b>mal</b>	appears	15 times in <i>Vers une Architecture</i> ,	33 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	26 times in <i>Monde</i> .
<b>trop</b>	appears	15 times in <i>Vers une Architecture</i> ,	93 times in <i>Traité de documentation</i> ,	16 times in <i>Urbanisme</i> and	28 times in <i>Monde</i> .
<b>vers</b>	appears	15 times in <i>Vers une Architecture</i> ,	156 times in <i>Traité de documentation</i> ,	28 times in <i>Urbanisme</i> and	100 times in <i>Monde</i> .
<b>plans</b>	appears	15 times in <i>Vers une Architecture</i> ,	60 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	27 times in <i>Monde</i> .
<b>heures</b>	appears	15 times in <i>Vers une Architecture</i> ,	45 times in <i>Traité de documentation</i> ,	20 times in <i>Urbanisme</i> and	16 times in <i>Monde</i> .
<b>heure</b>	appears	15 times in <i>Vers une Architecture</i> ,	58 times in <i>Traité de documentation</i> ,	32 times in <i>Urbanisme</i> and	28 times in <i>Monde</i> .
<b>face</b>	appears	15 times in <i>Vers une Architecture</i> ,	11 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	18 times in <i>Monde</i> .
<b>voit</b>	appears	14 times in <i>Vers une Architecture</i> ,	50 times in <i>Traité de documentation</i> ,	28 times in <i>Urbanisme</i> and	27 times in <i>Monde</i> .
<b>idées</b>	appears	14 times in <i>Vers une Architecture</i> ,	283 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	80 times in <i>Monde</i> .
<b>forme</b>	appears	14 times in <i>Vers une Architecture</i> ,	442 times in <i>Traité de documentation</i> ,	18 times in <i>Urbanisme</i> and	106 times in <i>Monde</i> .
<b>programme</b>	appears	14 times in <i>Vers une Architecture</i> ,	24 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	12 times in <i>Monde</i> .
<b>quelque</b>	appears	14 times in <i>Vers une Architecture</i> ,	132 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	64 times in <i>Monde</i> .
<b>jeu</b>	appears	14 times in <i>Vers une Architecture</i> ,	39 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	29 times in <i>Monde</i> .
<b>logique</b>	appears	14 times in <i>Vers une Architecture</i> ,	117 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	39 times in <i>Monde</i> .
<b>hauteur</b>	appears	14 times in <i>Vers une Architecture</i> ,	21 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>beauté</b>	appears	14 times in <i>Vers une Architecture</i> ,	34 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	21 times in <i>Monde</i> .
<b>nouvelle</b>	appears	13 times in <i>Vers une Architecture</i> ,	129 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	60 times in <i>Monde</i> .

<b>doit</b>	appears	13 times in <i>Vers une Architecture</i> ,	408 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	134 times in <i>Monde</i> .
<b>peuvent</b>	appears	13 times in <i>Vers une Architecture</i> ,	198 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	45 times in <i>Monde</i> .
<b>contre</b>	appears	13 times in <i>Vers une Architecture</i> ,	91 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	79 times in <i>Monde</i> .
<b>part</b>	appears	13 times in <i>Vers une Architecture</i> ,	214 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	77 times in <i>Monde</i> .
<b>produit</b>	appears	13 times in <i>Vers une Architecture</i> ,	81 times in <i>Traité de documentation</i> ,	24 times in <i>Urbanisme</i> and	38 times in <i>Monde</i> .
<b>jour</b>	appears	13 times in <i>Vers une Architecture</i> ,	216 times in <i>Traité de documentation</i> ,	22 times in <i>Urbanisme</i> and	69 times in <i>Monde</i> .
<b>idée</b>	appears	13 times in <i>Vers une Architecture</i> ,	168 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	75 times in <i>Monde</i> .
<b>piéd</b>	appears	13 times in <i>Vers une Architecture</i> ,	12 times in <i>Traité de documentation</i> ,	22 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>voilà</b>	appears	13 times in <i>Vers une Architecture</i> ,	13 times in <i>Traité de documentation</i> ,	20 times in <i>Urbanisme</i> and	23 times in <i>Monde</i> .
<b>avoir</b>	appears	13 times in <i>Vers une Architecture</i> ,	208 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	72 times in <i>Monde</i> .
<b>usines</b>	appears	13 times in <i>Vers une Architecture</i> ,	9 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	6 times in <i>Monde</i> .
<b>machines</b>	appears	12 times in <i>Vers une Architecture</i> ,	83 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	29 times in <i>Monde</i> .
<b>industrielle</b>	appears	12 times in <i>Vers une Architecture</i> ,	7 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	14 times in <i>Monde</i> .
<b>air</b>	appears	12 times in <i>Vers une Architecture</i> ,	12 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	16 times in <i>Monde</i> .
<b>quelques</b>	appears	12 times in <i>Vers une Architecture</i> ,	167 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	33 times in <i>Monde</i> .
<b>survant</b>	appears	12 times in <i>Vers une Architecture</i> ,	102 times in <i>Traité de documentation</i> ,	16 times in <i>Urbanisme</i> and	30 times in <i>Monde</i> .
<b>mécanique</b>	appears	12 times in <i>Vers une Architecture</i> ,	50 times in <i>Traité de documentation</i> ,	16 times in <i>Urbanisme</i> and	31 times in <i>Monde</i> .
<b>perfection</b>	appears	12 times in <i>Vers une Architecture</i> ,	14 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	7 times in <i>Monde</i> .
<b>fer</b>	appears	12 times in <i>Vers une Architecture</i> ,	30 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	14 times in <i>Monde</i> .
<b>louis</b>	appears	11 times in <i>Vers une Architecture</i> ,	33 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	10 times in <i>Monde</i> .
<b>première</b>	appears	11 times in <i>Vers une Architecture</i> ,	133 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	38 times in <i>Monde</i> .

<b>loin</b>	appears	11 times in <i>Vers une Architecture</i> ,	46 times in <i>Traité de documentation</i> ,	34 times in <i>Urbanisme</i> and	17 times in <i>Monde</i> .
<b>petit</b>	appears	11 times in <i>Vers une Architecture</i> ,	88 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	23 times in <i>Monde</i> .
<b>droite</b>	appears	11 times in <i>Vers une Architecture</i> ,	40 times in <i>Traité de documentation</i> ,	36 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>outillage</b>	appears	11 times in <i>Vers une Architecture</i> ,	28 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	6 times in <i>Monde</i> .
<b>quatre</b>	appears	11 times in <i>Vers une Architecture</i> ,	114 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	40 times in <i>Monde</i> .
<b>tel</b>	appears	11 times in <i>Vers une Architecture</i> ,	114 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	32 times in <i>Monde</i> .
<b>immenses</b>	appears	11 times in <i>Vers une Architecture</i> ,	22 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	12 times in <i>Monde</i> .
<b>moment</b>	appears	11 times in <i>Vers une Architecture</i> ,	105 times in <i>Traité de documentation</i> ,	18 times in <i>Urbanisme</i> and	36 times in <i>Monde</i> .
<b>compte</b>	appears	11 times in <i>Vers une Architecture</i> ,	96 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	37 times in <i>Monde</i> .
<b>nécessaire</b>	appears	11 times in <i>Vers une Architecture</i> ,	80 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	43 times in <i>Monde</i> .
<b>hommes</b>	appears	11 times in <i>Vers une Architecture</i> ,	122 times in <i>Traité de documentation</i> ,	30 times in <i>Urbanisme</i> and	144 times in <i>Monde</i> .
<b>partie</b>	appears	11 times in <i>Vers une Architecture</i> ,	222 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	58 times in <i>Monde</i> .
<b>grandeur</b>	appears	11 times in <i>Vers une Architecture</i> ,	34 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	19 times in <i>Monde</i> .
<b>crise</b>	appears	11 times in <i>Vers une Architecture</i> ,	8 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	45 times in <i>Monde</i> .
<b>fois</b>	appears	11 times in <i>Vers une Architecture</i> ,	208 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	77 times in <i>Monde</i> .
<b>telle</b>	appears	10 times in <i>Vers une Architecture</i> ,	105 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	28 times in <i>Monde</i> .
<b>système</b>	appears	10 times in <i>Vers une Architecture</i> ,	256 times in <i>Traité de documentation</i> ,	32 times in <i>Urbanisme</i> and	129 times in <i>Monde</i> .
<b>lieu</b>	appears	10 times in <i>Vers une Architecture</i> ,	384 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	89 times in <i>Monde</i> .
<b> cité</b>	appears	10 times in <i>Vers une Architecture</i> ,	29 times in <i>Traité de documentation</i> ,	34 times in <i>Urbanisme</i> and	35 times in <i>Monde</i> .
<b>créer</b>	appears	10 times in <i>Vers une Architecture</i> ,	57 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	25 times in <i>Monde</i> .
<b>pourrait</b>	appears	10 times in <i>Vers une Architecture</i> ,	93 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	32 times in <i>Monde</i> .

<b>or</b>	appears	10 times in <i>Vers une Architecture</i> ,	63 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	45 times in <i>Monde</i> .
<b>équilibre</b>	appears	10 times in <i>Vers une Architecture</i> ,	11 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	24 times in <i>Monde</i> .
<b>montre</b>	appears	10 times in <i>Vers une Architecture</i> ,	27 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	11 times in <i>Monde</i> .
<b>puis</b>	appears	10 times in <i>Vers une Architecture</i> ,	115 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	48 times in <i>Monde</i> .
<b>activité</b>	appears	10 times in <i>Vers une Architecture</i> ,	43 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	78 times in <i>Monde</i> .
<b>auto</b>	appears	10 times in <i>Vers une Architecture</i> ,	13 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	5 times in <i>Monde</i> .
<b>sentiment</b>	appears	10 times in <i>Vers une Architecture</i> ,	33 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	69 times in <i>Monde</i> .
<b>pensée</b>	appears	10 times in <i>Vers une Architecture</i> ,	291 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	127 times in <i>Monde</i> .
<b>humain</b>	appears	10 times in <i>Vers une Architecture</i> ,	45 times in <i>Traité de documentation</i> ,	16 times in <i>Urbanisme</i> and	61 times in <i>Monde</i> .
<b>créé</b>	appears	10 times in <i>Vers une Architecture</i> ,	26 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	18 times in <i>Monde</i> .
<b>hors</b>	appears	9 times in <i>Vers une Architecture</i> ,	36 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	12 times in <i>Monde</i> .
<b>conà</b>	appears	9 times in <i>Vers une Architecture</i> ,	49 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	20 times in <i>Monde</i> .
<b>chemins</b>	appears	9 times in <i>Vers une Architecture</i> ,	18 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	5 times in <i>Monde</i> .
<b>actuel</b>	appears	9 times in <i>Vers une Architecture</i> ,	27 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	22 times in <i>Monde</i> .
<b>haute</b>	appears	9 times in <i>Vers une Architecture</i> ,	34 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	13 times in <i>Monde</i> .
<b>étend</b>	appears	9 times in <i>Vers une Architecture</i> ,	23 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	11 times in <i>Monde</i> .
<b>haut</b>	appears	9 times in <i>Vers une Architecture</i> ,	71 times in <i>Traité de documentation</i> ,	18 times in <i>Urbanisme</i> and	24 times in <i>Monde</i> .
<b>beaucoup</b>	appears	9 times in <i>Vers une Architecture</i> ,	114 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	23 times in <i>Monde</i> .
<b>progrès</b>	appears	9 times in <i>Vers une Architecture</i> ,	133 times in <i>Traité de documentation</i> ,	14 times in <i>Urbanisme</i> and	73 times in <i>Monde</i> .
<b>trouve</b>	appears	9 times in <i>Vers une Architecture</i> ,	93 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	32 times in <i>Monde</i> .
<b>solution</b>	appears	8 times in <i>Vers une Architecture</i> ,	26 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	25 times in <i>Monde</i> .

<b>échelle</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>35</u> times in <i>Traité de documentation</i> ,	<u>14</u> times in <i>Urbanisme</i> and	<u>19</u> times in <i>Monde</i> .
<b>unique</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>60</u> times in <i>Traité de documentation</i> ,	<u>10</u> times in <i>Urbanisme</i> and	<u>23</u> times in <i>Monde</i> .
<b>avant</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>131</u> times in <i>Traité de documentation</i> ,	<u>6</u> times in <i>Urbanisme</i> and	<u>45</u> times in <i>Monde</i> .
<b>main</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>96</u> times in <i>Traité de documentation</i> ,	<u>10</u> times in <i>Urbanisme</i> and	<u>15</u> times in <i>Monde</i> .
<b>droits</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>22</u> times in <i>Traité de documentation</i> ,	<u>16</u> times in <i>Urbanisme</i> and	<u>37</u> times in <i>Monde</i> .
<b>cours</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>150</u> times in <i>Traité de documentation</i> ,	<u>8</u> times in <i>Urbanisme</i> and	<u>65</u> times in <i>Monde</i> .
<b>base</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>119</u> times in <i>Traité de documentation</i> ,	<u>6</u> times in <i>Urbanisme</i> and	<u>66</u> times in <i>Monde</i> .
<b>ciel</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>13</u> times in <i>Traité de documentation</i> ,	<u>48</u> times in <i>Urbanisme</i> and	<u>18</u> times in <i>Monde</i> .
<b>donne</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>148</u> times in <i>Traité de documentation</i> ,	<u>12</u> times in <i>Urbanisme</i> and	<u>44</u> times in <i>Monde</i> .
<b>immense</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>62</u> times in <i>Traité de documentation</i> ,	<u>6</u> times in <i>Urbanisme</i> and	<u>25</u> times in <i>Monde</i> .
<b>partout</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>48</u> times in <i>Traité de documentation</i> ,	<u>12</u> times in <i>Urbanisme</i> and	<u>28</u> times in <i>Monde</i> .
<b>passion</b>	appears	<u>8</u> times in <i>Vers une Architecture</i> ,	<u>6</u> times in <i>Traité de documentation</i> ,	<u>58</u> times in <i>Urbanisme</i> and	<u>14</u> times in <i>Monde</i> .
<b>actuelle</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>19</u> times in <i>Traité de documentation</i> ,	<u>8</u> times in <i>Urbanisme</i> and	<u>26</u> times in <i>Monde</i> .
<b>prix</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>133</u> times in <i>Traité de documentation</i> ,	<u>8</u> times in <i>Urbanisme</i> and	<u>35</u> times in <i>Monde</i> .
<b>demain</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>17</u> times in <i>Traité de documentation</i> ,	<u>6</u> times in <i>Urbanisme</i> and	<u>11</u> times in <i>Monde</i> .
<b>milieu</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>58</u> times in <i>Traité de documentation</i> ,	<u>20</u> times in <i>Urbanisme</i> and	<u>56</u> times in <i>Monde</i> .
<b>aise</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>71</u> times in <i>Traité de documentation</i> ,	<u>6</u> times in <i>Urbanisme</i> and	<u>12</u> times in <i>Monde</i> .
<b>seule</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>93</u> times in <i>Traité de documentation</i> ,	<u>8</u> times in <i>Urbanisme</i> and	<u>43</u> times in <i>Monde</i> .
<b>volonté</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>39</u> times in <i>Traité de documentation</i> ,	<u>8</u> times in <i>Urbanisme</i> and	<u>46</u> times in <i>Monde</i> .
<b>faites</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>45</u> times in <i>Traité de documentation</i> ,	<u>6</u> times in <i>Urbanisme</i> and	<u>12</u> times in <i>Monde</i> .
<b>petite</b>	appears	<u>7</u> times in <i>Vers une Architecture</i> ,	<u>28</u> times in <i>Traité de documentation</i> ,	<u>10</u> times in <i>Urbanisme</i> and	<u>18</u> times in <i>Monde</i> .

<b>cellule</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>9</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>7</b> times in <i>Monde</i> .
<b>constructions</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>8</b> times in <i>Traité de documentation</i> ,	<b>12</b> times in <i>Urbanisme</i> and	<b>5</b> times in <i>Monde</i> .
<b>culture</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>33</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>68</b> times in <i>Monde</i> .
<b>effet</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>78</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>32</b> times in <i>Monde</i> .
<b>travers</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>58</b> times in <i>Traité de documentation</i> ,	<b>18</b> times in <i>Urbanisme</i> and	<b>40</b> times in <i>Monde</i> .
<b>coup</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>34</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>14</b> times in <i>Monde</i> .
<b>désordre</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>9</b> times in <i>Traité de documentation</i> ,	<b>12</b> times in <i>Urbanisme</i> and	<b>12</b> times in <i>Monde</i> .
<b>souvent</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>207</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>30</b> times in <i>Monde</i> .
<b>années</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>89</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>42</b> times in <i>Monde</i> .
<b>centre</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>55</b> times in <i>Traité de documentation</i> ,	<b>50</b> times in <i>Urbanisme</i> and	<b>44</b> times in <i>Monde</i> .
<b>libre</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>48</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>45</b> times in <i>Monde</i> .
<b>terrain</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>11</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>6</b> times in <i>Monde</i> .
<b>chemin</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>19</b> times in <i>Traité de documentation</i> ,	<b>18</b> times in <i>Urbanisme</i> and	<b>9</b> times in <i>Monde</i> .
<b>table</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>113</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>9</b> times in <i>Monde</i> .
<b>chapitre</b>	appears	<b>7</b> times in <i>Vers une Architecture</i> ,	<b>35</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>9</b> times in <i>Monde</i> .
<b>histoire</b>	appears	<b>6</b> times in <i>Vers une Architecture</i> ,	<b>338</b> times in <i>Traité de documentation</i> ,	<b>10</b> times in <i>Urbanisme</i> and	<b>183</b> times in <i>Monde</i> .
<b>tels</b>	appears	<b>6</b> times in <i>Vers une Architecture</i> ,	<b>47</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>16</b> times in <i>Monde</i> .
<b>siècle</b>	appears	<b>6</b> times in <i>Vers une Architecture</i> ,	<b>283</b> times in <i>Traité de documentation</i> ,	<b>20</b> times in <i>Urbanisme</i> and	<b>93</b> times in <i>Monde</i> .
<b>autrement</b>	appears	<b>6</b> times in <i>Vers une Architecture</i> ,	<b>15</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>10</b> times in <i>Monde</i> .
<b>solutions</b>	appears	<b>6</b> times in <i>Vers une Architecture</i> ,	<b>10</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>10</b> times in <i>Monde</i> .
<b>dessus</b>	appears	<b>6</b> times in <i>Vers une Architecture</i> ,	<b>28</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>21</b> times in <i>Monde</i> .

<b>technique</b>	appears	6 times in <i>Vers une Architecture</i> ,	153 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	60 times in <i>Monde</i> .
<b>droit</b>	appears	6 times in <i>Vers une Architecture</i> ,	106 times in <i>Traité de documentation</i> ,	36 times in <i>Urbanisme</i> and	125 times in <i>Monde</i> .
<b>morale</b>	appears	6 times in <i>Vers une Architecture</i> ,	32 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	35 times in <i>Monde</i> .
<b>france</b>	appears	6 times in <i>Vers une Architecture</i> ,	190 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	57 times in <i>Monde</i> .
<b>nouvelles</b>	appears	6 times in <i>Vers une Architecture</i> ,	180 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	65 times in <i>Monde</i> .
<b>masse</b>	appears	6 times in <i>Vers une Architecture</i> ,	35 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	52 times in <i>Monde</i> .
<b>circulation</b>	appears	6 times in <i>Vers une Architecture</i> ,	27 times in <i>Traité de documentation</i> ,	44 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>esprits</b>	appears	6 times in <i>Vers une Architecture</i> ,	44 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	35 times in <i>Monde</i> .
<b>rapport</b>	appears	6 times in <i>Vers une Architecture</i> ,	106 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	33 times in <i>Monde</i> .
<b>vastes</b>	appears	6 times in <i>Vers une Architecture</i> ,	14 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	14 times in <i>Monde</i> .
<b>étant</b>	appears	6 times in <i>Vers une Architecture</i> ,	110 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	40 times in <i>Monde</i> .
<b>affaires</b>	appears	6 times in <i>Vers une Architecture</i> ,	42 times in <i>Traité de documentation</i> ,	30 times in <i>Urbanisme</i> and	19 times in <i>Monde</i> .
<b>chacun</b>	appears	6 times in <i>Vers une Architecture</i> ,	151 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	60 times in <i>Monde</i> .
<b>claire</b>	appears	6 times in <i>Vers une Architecture</i> ,	18 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	6 times in <i>Monde</i> .
<b>pleine</b>	appears	6 times in <i>Vers une Architecture</i> ,	12 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	6 times in <i>Monde</i> .
<b>cause</b>	appears	6 times in <i>Vers une Architecture</i> ,	47 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	26 times in <i>Monde</i> .
<b>qualité</b>	appears	6 times in <i>Vers une Architecture</i> ,	39 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>raison</b>	appears	6 times in <i>Vers une Architecture</i> ,	112 times in <i>Traité de documentation</i> ,	38 times in <i>Urbanisme</i> and	77 times in <i>Monde</i> .
<b>connaissance</b>	appears	5 times in <i>Vers une Architecture</i> ,	76 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	56 times in <i>Monde</i> .
<b>fin</b>	appears	5 times in <i>Vers une Architecture</i> ,	122 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	66 times in <i>Monde</i> .
<b>acquis</b>	appears	5 times in <i>Vers une Architecture</i> ,	21 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	11 times in <i>Monde</i> .

<b>guerre</b>	appears	5 times in <i>Vers une Architecture</i> ,	115 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	137 times in <i>Monde</i> .
<b>industriels</b>	appears	5 times in <i>Vers une Architecture</i> ,	18 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	9 times in <i>Monde</i> .
<b>enfin</b>	appears	5 times in <i>Vers une Architecture</i> ,	46 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	29 times in <i>Monde</i> .
<b>domaines</b>	appears	5 times in <i>Vers une Architecture</i> ,	42 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	38 times in <i>Monde</i> .
<b>petites</b>	appears	5 times in <i>Vers une Architecture</i> ,	25 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	12 times in <i>Monde</i> .
<b>pratiques</b>	appears	5 times in <i>Vers une Architecture</i> ,	44 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	11 times in <i>Monde</i> .
<b>règle</b>	appears	5 times in <i>Vers une Architecture</i> ,	22 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	5 times in <i>Monde</i> .
<b>gros</b>	appears	5 times in <i>Vers une Architecture</i> ,	25 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>poésie</b>	appears	5 times in <i>Vers une Architecture</i> ,	83 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	7 times in <i>Monde</i> .
<b>tour</b>	appears	5 times in <i>Vers une Architecture</i> ,	71 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	25 times in <i>Monde</i> .
<b>lequel</b>	appears	5 times in <i>Vers une Architecture</i> ,	67 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	19 times in <i>Monde</i> .
<b>aspect</b>	appears	5 times in <i>Vers une Architecture</i> ,	45 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	29 times in <i>Monde</i> .
<b>sécurité</b>	appears	5 times in <i>Vers une Architecture</i> ,	5 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	9 times in <i>Monde</i> .
<b>existence</b>	appears	5 times in <i>Vers une Architecture</i> ,	73 times in <i>Traité de documentation</i> ,	10 times in <i>Urbanisme</i> and	75 times in <i>Monde</i> .
<b>disposition</b>	appears	5 times in <i>Vers une Architecture</i> ,	83 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>principes</b>	appears	5 times in <i>Vers une Architecture</i> ,	132 times in <i>Traité de documentation</i> ,	12 times in <i>Urbanisme</i> and	53 times in <i>Monde</i> .
<b>résoudre</b>	appears	5 times in <i>Vers une Architecture</i> ,	18 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	8 times in <i>Monde</i> .
<b>services</b>	appears	5 times in <i>Vers une Architecture</i> ,	107 times in <i>Traité de documentation</i> ,	20 times in <i>Urbanisme</i> and	24 times in <i>Monde</i> .
<b>fond</b>	appears	5 times in <i>Vers une Architecture</i> ,	67 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	29 times in <i>Monde</i> .
<b>conditions</b>	appears	5 times in <i>Vers une Architecture</i> ,	111 times in <i>Traité de documentation</i> ,	8 times in <i>Urbanisme</i> and	57 times in <i>Monde</i> .
<b>organes</b>	appears	5 times in <i>Vers une Architecture</i> ,	74 times in <i>Traité de documentation</i> ,	6 times in <i>Urbanisme</i> and	21 times in <i>Monde</i> .

<b>exemple</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>143</b> times in <i>Traité de documentation</i> ,	<b>12</b> times in <i>Urbanisme</i> and	<b>30</b> times in <i>Monde</i> .
<b>tableau</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>106</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>24</b> times in <i>Monde</i> .
<b>masses</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>21</b> times in <i>Traité de documentation</i> ,	<b>12</b> times in <i>Urbanisme</i> and	<b>19</b> times in <i>Monde</i> .
<b>actuelles</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>6</b> times in <i>Traité de documentation</i> ,	<b>6</b> times in <i>Urbanisme</i> and	<b>6</b> times in <i>Monde</i> .
<b>cinquante</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>6</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>5</b> times in <i>Monde</i> .
<b>angle</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>18</b> times in <i>Traité de documentation</i> ,	<b>16</b> times in <i>Urbanisme</i> and	<b>7</b> times in <i>Monde</i> .
<b>rapide</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>53</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>16</b> times in <i>Monde</i> .
<b>moyen</b>	appears	5 times in <i>Vers une Architecture</i> ,	<b>268</b> times in <i>Traité de documentation</i> ,	<b>8</b> times in <i>Urbanisme</i> and	<b>97</b> times in <i>Monde</i> .

# X = Y

Dick Reckard

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## 0. Innovation of the same

The PR imagery produced by and around the Mundaneum (disambiguation: the institution in Mons) often suggests, through a series of 'samenesses', a essential continuity between Otlet's endeavour and Internet-related particular Google's. A good example is a scene from the "From industrial heartland to the Internet age", published by The Mundaneum drawers of Mundaneum (disambiguation: Otlet's Utopia) one of Google's data centres.

This approach is not limited to images: a recurring discourse that shapes place in the Mundaneum maintains that the dream of the Belgian utopian development of internetworked communications, and currently finds its and services of Google. Even though there are many connections and endeavours, one has to acknowledge that Otlet was an internationalist, projects were not profit oriented, and most importantly, that he was living in the context of modernism at the beginning of the 20<sup>th</sup> century. The construction detach Otlet and the Mundaneum from a specific historical frame, ignore and political milieus involved. It means that these narratives exclude the that are inevitable when considering such a complex figure in its entirety.

This is not surprising, seeing the parties that are involved in the discourse identities and differences suit the rhetorical tone of Silicon Valley. New example, are often described as groundbreaking, innovative and *different* other situations, those products could be advertised as *exactly the same* exists<sup>[1]</sup>. While novelty and difference surprise and amaze, sameness re example, Google Glass was marketed as revolutionary and innovative, blatant privacy issues, some defended it as just a camera and a phone difference duo fulfils a clear function: on the one hand, it suggests that alter the way we live dramatically, and we should be ready to give up and culture for the sake of innovation. On the other hand, it proposes change, and that society has always evolved through disruptions, und

From industrial heartland to Internet age



questionable groundbreaking new invention, there is a previous one with the same ideal, potentially with just as many critics... Great minds think alike, after all. This sort of a-historical attitude pervades technocapitalist milieus, creating a cartoonish view of the past, punctuated by great men and great inventions, a sort of technological variant of Carlyle's *Great Man Theory*. In this view, the Internet becomes the invention of a few father/genius figures, rather than the result of a long and complex interaction of diverging efforts and interests of academics, entrepreneurs and national governments. This instrumental reading of the past is largely consistent with the theoretical ground on which the *Californian Ideology*<sup>[2]</sup> is based, in which the conception of history is pervaded by various strains of technological determinism (from Marshall McLuhan to Alvin Toffler<sup>[3]</sup>) and capitalist individualism (in generic neoliberal terms, up to the fervent objectivism of Ayn Rand).

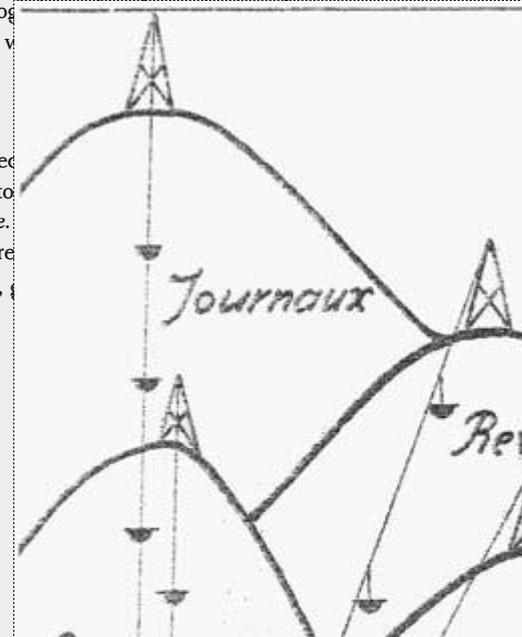
The appropriation of Paul Otlet's figure as Google's grandfather is a historical simplification, and the samenesses in this tale are not without fundament. Many concepts and ideals of documentation theories have reappeared in cybernetics and information theory, and are therefore present in the narrative of many IT corporations, as in Mountain View's case. With the intention of restoring a historical complexity, it might be more interesting to play *exactly the same game* ourselves, rather than try to dispel the advertised continuum of the *Google of paper*. Choosing to focus on other types of analogies in the story, we can maybe contribute a narrative that is more respectful to the complexity of the past, and more telling about the problems of the present.

The Following are three such *comparisons*, which focus on three aspects of continuity between the documentation theories and archival experiments Otlet was involved in, and the cybernetic theories and practices that Google's capitalist enterprise is an exponent of. The First one takes a look at the conditions of workers in information infrastructures, who are fundamental for these systems to work but often forgotten or displaced. Next, an account of the elements of distribution and control that appear both in the idea of a *Reseau Mundaneum*, and in the contemporary functioning of data centres, and the resulting interaction with other types of infrastructures. Finally, there is a brief analysis of the two approaches to the 'organization of world's knowledge', which examines their regimes of truth and the issues that come with them. Hopefully these three short pieces can provide some additional ingredients to adulterate the sterile recipe of the Google-Otlet sameness.

## a. Do androids dream of mechanical turks?

In a drawing titled *Laboratorium Mundaneum*, Paul Otlet depicted his project as a massive factory, processing books and other documents into end products, rolled out by a UDC locomotive. In fact, just like a factory, Mundaneum was dependent on the bureaucratic and logistical labour developed for industrial production. Looking at it and at other works, one might ask: who made up the workforce of these factories?

In his *Traité de Documentation*, Otlet describes extensively the thinking machines and tasks of intellectual work, and how the *chain* of documentation is broken down. In the subsection dedicated to the work, though, the only role described at length is the *Bibliothécaire*. He mentions what education the librarian should follow, which characteristics are relevant, and mentions the existence of "Bibliothécaire-adjoints, rédacteurs, copistes, et



The Radiated Book

be no further description nor depiction of the staff that would write, distribute and search the millions of index cards in order to keep the archive running, an impossible task for the Bibliothécaire alone.

A photograph from around 1930, taken in the *Palais Mondial*, where we see Paul Otlet together with the rest of the *equipe*, gives us a better answer. In this beautiful group picture, we notice that the workforce that kept the archival machine running was made up of women about them. As in telephone switching systems or early software development, discrimination led to the appointment of female workers for repetitive tasks, their knowledge and precision.

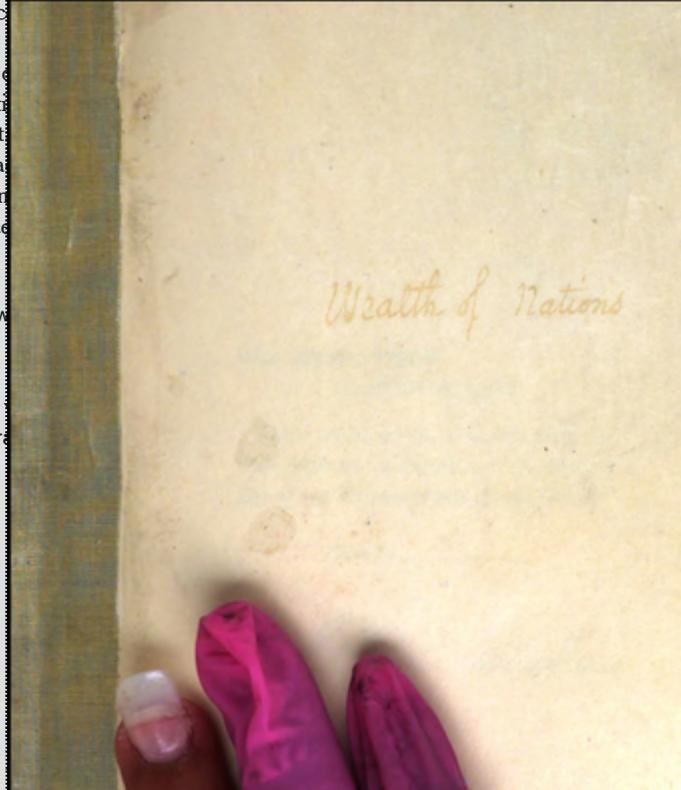
According to the ideal image described in *Traité*, all the tasks of collecting, translating, distributing, should be completely automated, without the necessity of human intervention. However, the Mundaneum hired dozens of women for these tasks. This human-run version of the system was not considered worth the cost, a temporary in-between phase that should be overcome as soon as possible. The project with its vulgarity.

Notwithstanding the incredible advancement of information technologies, humans still perform innumerable tasks in collecting, processing and distributing information today. All automatic repetitive tasks that *technology* should be able to do are still done by humans, based on human labour. And, unlike the industrial worker who is replaced by machines, the political movements and struggles, the role of many cognitive workers is still important. Computational linguistics, neural networks, optical character recognition are still based on humans performing huge amounts of repetitive intellectual tasks, *learn*, or which software can't do with the same *efficiency*. Automation has just shifted the where, when and who of labour.<sup>[6]</sup> Mechanical turks, of various kinds... The software we use requires a multitude of tasks which are still accomplished by humans. Who are they? When possible, work is outsourced to countries with lower wages, like India. In the western world it follows the same pattern: low income, ethnic minorities.

An interesting case of heteromated labour are the so-called Scanops<sup>[7]</sup>, a set of Google workers who have a different type of badge and are in the Mountain View complex secluded from the rest of the workers through strict access control schedules. Their work consists of scanning the pages of printed books, a task that is still more convenient to do by hand (especially in the case of damaged books). The workers are mostly women and ethnic minorities, and there is no mention of their work on the website or elsewhere; in fact the whole scanning process is kept secret. The reasons behind this type of labour can be justified by the need to protect the human element in machine work. This is even more obvious when compared to other workers in the project, such as designers and programmers, who are celebrated for their ingenuity.

However, here and there, evidence of the work of the human element is visible.<sup>[8]</sup>

Whether the tendency to hide the human role is due to the unfulfilled promise of automation, the bad publicity of low wages and precarious work, or to keep an aura of mystery around the project, it is clear that the human element is still present.



remains unclear, both in the case of Google Books and the *Palais Mondial*. Still, it is reassuring to know that the products hold traces of the work, that even with the progressive removal of human signs in automated processes, the workers' presence never disappears completely. This presence is proof of the materiality of information production, and becomes a sign of the economic and paradigmatic efficiency and profitability that are involved.

The computer scientists' view of the materiality of information production, in a webpage or the OCR scanned pages of a book, reflect a negligence to the processes and labor of writing, editing, design, layout, typesetting, and eventually publishing, collecting and cataloging [9]. (A bag but is language nothing of words)

## b. The (data) centre and the periphery

In 2013, while Prime Minister Di Rupo was celebrating the beginning of the second phase of construction of the Saint Ghislain data centre, a few hundred kilometres away a very similar situation started to unroll. In the municipality of Eemmond, in the Dutch province of Groningen, the local Groningen Sea Ports and NOM development were rumoured to have plans with another code named company, *Saturn*, to build a data centre in the small port of Eemshaven.

A few months later, when it was revealed that Google was behind *Saturn*, Harm Post, director of Groningen Sea Ports, commented: "Ten years ago Eemshaven became the laughing stock of ports and industrial development in the Netherlands, a planning failure of the pre building a very large data centre here, which is 'pure advertisement' for [10] Further details on tax cuts were not disclosed and, once finished, the 150 jobs in the region.

Yet another territory fortunately chosen by Google, just like Mons, but one thing, data centres need to interact with existing infrastructures and speaking, there are three prerequisites: being near a substantial source of water, for the massive cooling demands; being near Internet infrastructure connectivity. There is also a whole set of non-technical elements, that is an economical and political *climate*, which proved favourable both in Mons

The push behind constructing new sites in new locations, rather expanded the rapid growth of the importance of *Software as a service*, so-called cloud computing, which is the rental of computational power, the rise of the *SaaS* paradigm the geographical and topological placement of data centres has strategic importance to achieve lower latencies and more stable service. In the last years, Google has been pursuing a policy of end-to-end connection between data centres and interfaces. This includes buying leftover fibre networks [11], entering the market [12] and building new data centres, including the ones in Mons and Eemmond.

The spread of data centres around the world, along the main network cables across continents, represents a new phase in the diagram of the Internet. It should not be confused with the idea of decentralization that was a cornerstone value in the early stages of interconnected networks. [13] During the rapid development of the Internet and the Web, the new tenets of immediacy, unlimited storage and exponential growth led to the centralization of content in increasingly large server farms. Paradoxically, it is now the growing centralization of all kind of operations in specific buildings, that is fostering their distribution. The tension between centralization and distribution, and the dependence on neighbouring infrastructures as the



electrical grid, is not an exclusive feature of contemporary data storage and networking models. Again, similarities emerge from the history of the Mundaneum, illustrating how these issues relate closely to the logistic organization of production first implemented during the industrial revolution, and theorized within modernism.

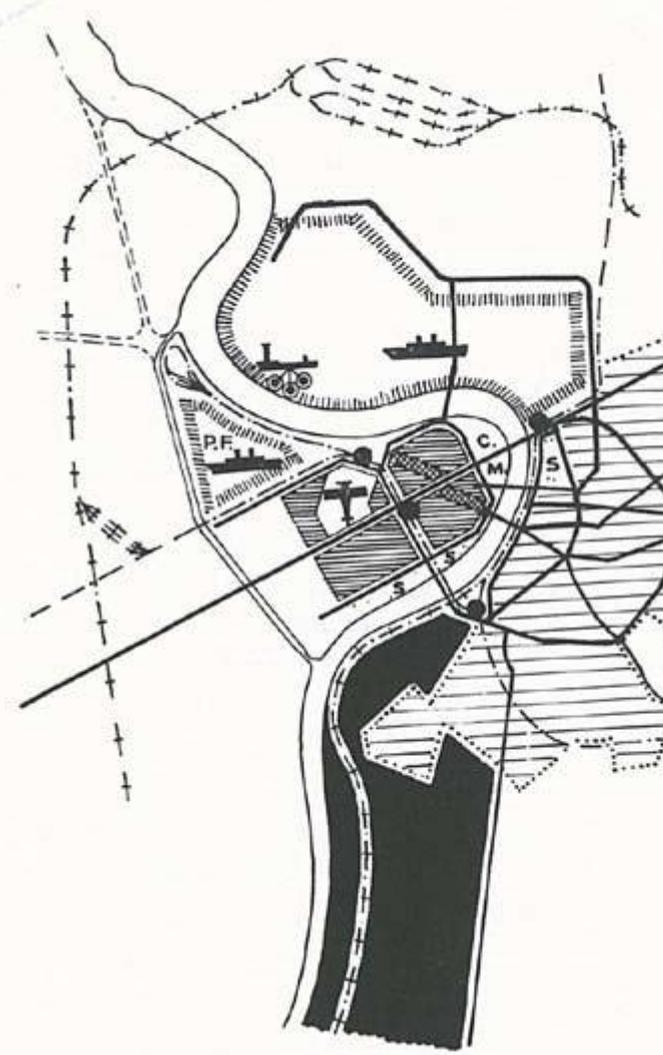
Centralization was seen by Otlet as the most efficient way to organize content, especially in view of international exchange<sup>[14]</sup>, which already caused problems related to space back then: the Mundaneum archive counted 16 million entries at its peak, occupying around 150 rooms. The cumbersome footprint, and the growing difficulty to find stable locations for it, concurred to the conviction that the project should be included in the plans of new modernist cities. In the beginning of the 1930s, when the Mundaneum started to lose the support of the Belgian government, Otlet thought of a new site for it as part of a proposed *Cité Mondiale*, which he tried in different locations with different approaches.

Between various attempts, he participated in the competition for the development of the Left Bank in Antwerp. The most famous modernist urbanists of the time were invited to plan the development from scratch. At the time, the left bank was completely vacant. Otlet lobbied for the insertion of a Mundaneum in the plans, stressing how it would create hundreds of jobs for the region. He also flattered the Flemish pride by insisting on how people from Antwerp were more hard working than the ones from Brussels, and how they would finally obtain their deserved recognition, when their city would be elevated to *World City* status.<sup>[15]</sup> He partly succeeded in his propaganda; aside from his own proposal, developed in collaboration with Le Corbusier, many other participants included Otlet's Mundaneum as a key facility in their plans. In these proposals, Otlet's archival infrastructure was shown in interaction with the existing city flows such as industrial docks, factories, the railway and the newly constructed stock market.<sup>[16]</sup> The modernist utopia of a planned living environment implied that methods (similar to those employed for managing the flows of coal and electricity) could be used for the organization

The *Traité de Documentation*, published in 1934, includes an extended *Network of Documentation*, that would coordinate the transfer of knowledge through documentation centres such as libraries or the Mundaneum<sup>[17]</sup>. In fact, it could simply be the first node of a wide network bound to expand to the rest of the world. The Mundaneum. The nodes of this network are explicitly described in relation to the city, those three essential organs of modern life which function unremittingly for all nations."<sup>[18]</sup> In the same period, in letter exchanges with Patrick Abercrombie, commenting on the potential of heliographies as a way to distribute knowledge, he proposed the *White Link*, a network to distribute copies throughout a series of Mundaneum nodes. The same piece of information would be serially produced and logistically distributed through the *moving Mundaneum* idea, facilitated by the railway system<sup>[20]</sup>. No world city was foreseen to be built next to a train station.

In Otlet's plans for a *Reseau Mundaneum* we can already detect some elements that would reappear in today's data centre scenario. First of all, a drive for centralization of materials that led to the monumental plans of World Cities. In parallel, a focus on international exchange, resulting in a vision of a distribution network. Thirdly, the placement of nodes along strategic intersections of industrial and logistic infrastructure.

While the plan for Antwerp was in the end rejected in favour of more traditional urban development, 80 years later the legacy of the relation between existing infrastructure and documentation storage is highlighted by the data ports plan in Eemshaven.



the privileged actors in these types of projects, the circulation of information increasingly respond to the same tenets that regulate the trade of coal or electricity. The very different welcome that traditional politics reserve for Google data centres is a symptom of a new dimension of power in which information infrastructure plays a vital role. The celebrations and tax cuts that politicians lavish on these projects cannot be explained with 150 jobs or *economic incentives* for a depressed region alone. They also indicate how party politics is increasingly confined to the periphery of other forms of power and therefore struggle to assure themselves a strategic positioning.

c. 025.45UDC; 161.225.22;  
004.659GOO:004.021PAG.

The Universal Decimal Classification<sup>[21]</sup> system, developed by Paul Otlet and Henri Lafontaine on the basis of the Dewey Decimal Classification system, is still considered one of their most important realizations, as well as a corner-stone in Otlet's overall vision. Its adoption, revision and use until today demonstrate a thoughtful and successful approach to the classification of knowledge.

The UDC differs from Dewey and other bibliographic systems as it has the potential to exceed the function of ordering alone. The complex notation system could classify phrases and thoughts in the same way as it would classify a book, going well beyond the sole function of classification, becoming a real language. One could in fact express whole sentences and statements in UDC format<sup>[22]</sup>. The fundamental idea behind it<sup>[23]</sup> was that books and documentation could be broken down into their constitutive sentences and boiled down to a set of universal concepts, regulated by the decimal system. This would allow to express objective truths in a numerical language, fostering international exchange beyond translation, making science's work easier by regulating knowledge with numbers. We have to understand the idea in the time it was originally conceived, a time shaped by positivism and the belief in the unhindered potential of science to obtain objective universal knowledge. Today, especially when we take into account the arbitrariness of the decimal structure, it sounds doubtful, if not preposterous.

However, the linguistic-numeric element of UDC, which enables to express fundamental meanings through numbers, plays a key role in the oeuvre of Paul Otlet. In his work we learn that numerical knowledge would be the first step towards a science of combining basic sentences to produce new meaning in a systematic way. When we look at *Monde*, Otlet's second publication from 1935, the continuous reference to multiple algebraic formulas that describe how the world is composed, suggests that we could at one point "solve" these equations, and modify the world accordingly.<sup>[24]</sup> As a complementary part to the *Traité de Documentation*, which described the systematic classification of knowledge, *Monde* set the basis for the transformation of this knowledge into new meaning.

Otlet wasn't the first to envision an *algebra of thought*. It has been a recurring *topos* in modern philosophy, under the influence of scientific positivism and in concurrence with the development of mathematics and physics. Even though one could trace it back to Ramon Llull and even earlier forms of combinatorics, the first to consistently undertake this scientific and philosophical challenge was Gottfried Leibniz. The German philosopher and mathematician, a precursor of the field of symbolic logic, which developed later in the 20th century, researched a method that reduced statements to minimum terms of meaning. He investigated a language which "... will be the greatest instrument of reason," for "when there

are disputes among persons, we can simply say: Let us calculate, without further ado, and see who is right".<sup>[25]</sup> His inquiry was divided in two phases. The first one, analytic, the *characteristica universalis*, was a universal conceptual language to express meanings, of which we only know that it worked with prime numbers. The second one, synthetic, the *calculus ratiocinator*, was the algebra that would allow operations between meanings, of which there is even less evidence. The idea of calculus was clearly related to the infinitesimal calculus, a fundamental development that Leibniz conceived in the field of mathematics, and which Newton concurrently developed and popularized. Even though not much remains of Leibniz's work on his *algebra of thought* was continued by mathematicians and logicians in the 20th century. Most famously, and curiously enough around the same time Otlet published *Traite and Monde*, logician Kurt Godel used the same idea of a translation into prime numbers to demonstrate his incompleteness theorem.<sup>[26]</sup> The fact that the *characteristica universalis* only made sense in the fields of logics and mathematics is due to the fundamental problem presented by a mathematical approach to truth beyond logical truth. While this problem was not yet evident at the time, it would emerge in the duality of language and categorization, as it did later with Otlet's UDC.

The relation between organizational and linguistic aspects of knowledge is also one of the open issues at the core of web search, which is, at first sight, less interested in objective truths. At the beginning of the Web, around the mid '90s, two main approaches to online search for information emerged: the web directory and web crawling. Some of the first search engines like Lycos or Yahoo!, started with a combination of the two. The web directory consisted of the human classification of websites into categories, done by an "editor"; crawling in the automatic accumulation of material by following links, with different rudimentary techniques to assess the content of a website. With the exponential growth of web content on the Internet, web directories were soon dropped in favour of the more efficient automatic crawling, which in turn generated at this point so many results that quality has become of key importance. Quality in the sense of the assessment of the webpage content in relation to keywords as well as the sorting of results according to their relevance.

Google's hegemony in the field has mainly been obtained by translating the relevance of a webpage into a numeric quantity according to a formula, the infamous PageRank algorithm. This value is calculated depending on the relational importance of the webpage where the word is placed, based on how many other websites link to that page. The classification part is long gone, and linguistic meaning is also structured along automated functions. What is left is reading the network formation in numerical form, capturing human opinions represented by hyperlinks, i.e. which word links to which webpage, and which webpage is generally more important. In the same way as UDC systematized documents via a notation format, the systematization of relational importance in numerical format brings functionality and efficiency. In this case rather than linguistic the translation is value-based, quantifying network attention independently from meaning. The interaction with the other infamous Google algorithm, Adsense, adds an economic value to the PageRank position. The influence and profit deriving from how high a search result is placed, means that the relevance of a word-website relation in Google search results translates to an actual relevance in reality.

Even though both Otlet and Google say they are tackling the task of *organizing knowledge*, we could posit that from an epistemological point of view the approaches that underlie their respective projects are opposite. UDC is an example of an analytic approach, which acquires new knowledge by breaking down existing knowledge into its components, based on objective truths. Its propositions could be exemplified with the sentences "Logic is a subdivision of Philosophy" or "PageRank is an algorithm, part of the Google search engine". PageRank, on the contrary, is a purely synthetic one, which starts from the form of the network, in principle devoid of intrinsic meaning or truth, and creates a model of the network's

relational truths. Its propositions could be exemplified with “Wikipedia is of the utmost relevance” or “The University of District Columbia is the most relevant meaning of the word 'UDC'”.

We (and Google) can read the model of reality created by the PageRank algorithm (and all the other algorithms that were added during the years<sup>[27]</sup>) in two different ways. It can be considered a device that 'just works' and does not pretend to be true but can give results which are useful in reality, a view we can call *pragmatic*, or instead, we can see this model as a growing and improving construction that aims to coincide with reality, a view we can call *utopian*. It's no coincidence that these two views fit the two stereotypical faces of Google, the idealistic Silicon Valley visionary one, and the cynical corporate capitalist one.

From our perspective, it is of relative importance which of the two sides we believe in. The key issue remains that such a structure has become so influential that it produces its own effects on reality, that its algorithmic truths are more and more considered as objective truths. While the utility and importance of a search engine like Google are out of the question, it is necessary to be alert about such concentrations of power. Especially if they are only controlled by a corporation, which, beyond mottoes and utopias, has by definition the single duty of to make profits and obey its stakeholders.

1. A good account of such phenomenon is described by David Columbia. <http://www.uncomputing.org/?p=221>
2. As described in the classic text looking at the ideological ground of Silicon Valley culture. <http://www.hrc.wmin.ac.uk/theory-californianideology-main.html>
3. For an account of Toffler's determinism, see <http://www.ukm.my/ijit/IJIT%20Vol%201%202012/7wan%20fariza.pdf>.
4. Otlet, Paul. *Traité de documentation: le livre sur le livre, théorie et pratique*. Editions Mundaneum, 1934: 393-394.
5. <http://gender.stanford.edu/news/2011/researcher-reveals-how-%E2%80%9Ccomputer-geeks%E2%80%9D-replaced-%E2%80%9Ccomputer-girls%E2%80%9D>
6. This process has been named “heteromation”, for a more thorough analysis see: Ekbia, Hamid, and Bonnie Nardi. “Heteromation and Its (dis)contents: The Invisible Division of Labor between Humans and Machines.” *First Monday* 19, no. 6 (May 23, 2014). <http://firstmonday.org/ojs/index.php/fm/article/view/5331>.
7. The name scanops was first introduced by artist Andrew Norman Wilson when he found out about this category of workers during his artistic residency at Google in Mountain View. See <http://www.andrewnormanwilson.com/WorkersGoogleplex.html>.
8. As collected by Krissy Wilson on her <http://theartofgooglebooks.tumblr.com>.
9. <http://informationobservatory.info/2015/10/27/google-books-fair-use-or-anti-democratic-preemption/#more-279>
10. <http://www.rtvnoord.nl/nieuws/139016/Keerpunt-in-de-geschiedenis-van-de-Emshaven>.
11. <http://www.cnet.com/news/google-wants-dark-fiber/>.
12. <http://spectrum.ieee.org/tech-talk/telecom/internet/google-new-brazil-us-internet-cable>.
13. See Baran, Paul. “On Distributed Communications.” *Product Page*, 1964. [http://www.rand.org/pubs/research\\_memoranda/RM3420.html](http://www.rand.org/pubs/research_memoranda/RM3420.html).
14. Pierce, Thomas. *Mettre des pierres autour des idées*. Paul Otlet, de Cité Mondiale en de modernistische stedenbouw in de jaren 1930. PhD dissertation, KULeuven, 2007: 34.
15. *Ibid*: 94-95.
16. *Ibid*: 113-117.
17. Otlet, Paul. *Traité de documentation: le livre sur le livre, théorie et pratique*. Editions Mundaneum, 1934.
18. Otlet, Paul. *Les Communications MUNDANEUM, Documentatio Universalis*, doc nr. 8438

19. Van Acker, Wouter. "Internationalist Utopias of Visual Education: The Graphic and Scenographic Transformation of the Universal Encyclopaedia in the Work of Paul Otlet, Patrick Geddes, and Otto Neurath." *Perspectives on Science* 19, no. 1 (January 19, 2011): 68-69.
20. Ibid: 66.
21. The Decimal part in the name means that any records can be further subdivided by tenths, virtually infinitely, according to an evolving scheme of depth and specialization. For example, 1 is "Philosophy", 16 is "Logic", 161 is "Fundamentals of Logic", 161.2 is "Statements", 161.22 is "Type of Statements", 161.225 is "Real and ideal judgements", 161.225.2 is "Ideal Judgements" and 161.225.22 is "Statements on equality, similarity and dissimilarity".
22. "The UDC and FID: A Historical Perspective." *The Library Quarterly* 37, no. 3 (July 1, 1967): 268-270.
23. TEMP: described in french by the word *depouillement*,
24. Otlet, Paul. *Monde, essai d'universalisme: connaissance du monde, sentiment du monde, action organisée et plan du monde*. Editions Mundaneum, 1935: XXI-XXII.
25. Leibniz, Gottfried Wilhelm, *The Art of Discovery* 1685, Wiener: 51.
26. [https://en.wikipedia.org/wiki/G%C3%B6del\\_numbering](https://en.wikipedia.org/wiki/G%C3%B6del_numbering)
27. A fascinating list of all the algorithmic components of Google search is at <https://moz.com/google-algorithm-change> .

# Madame C/Mevrouw C

Femke Snelting

## Madame C.01

When I arrived in Brussels that autumn, I was still very young. I thought that as an au-pair I would be helping out in the house, but instead I ended up working with the professor on finishing his book. At the time I arrived, the writing was done but his handwriting was so hard to decipher that the printer had a difficult time working with the manuscript. It became my job to correct the typeset proofs but often there were words that neither the printer nor I could decipher, so we had to ask. But the professor often had no time for us. So I did my best to make the text as comprehensible as possible.

On the title page of the final proofs from the printer, the professor wrote to me:

*After five months of work behind the same table, here it is. Now it is your turn to love the book, the pre-book and the spoken word, and to develop a good sense of documentation, of institution, and of Mundaneum.*<sup>[1]</sup>

## Madame C.02

She serves us coffee from a ceramic coffee pot and also a cake bought at the bakery next door. *It's all written in the files* she reminds us repeatedly, and tells us about one day in the sixties, when her husband returned home, telling her excitedly that he discovered the Mundaneum at Chaussée de Louvain in Brussels. Ever since, he would return to the same building, making friends with the friends of the Palais Mondial, those dedicated caretakers of the immense paper heritage.

*I haven't been there so often myself, she says. But I do remember there were cats, to keep the mice away from the paper. And my husband loved cats. So in the eighties, when he was finally in a position to save the archives, the cats had to be taken care of too. And the cats were written into the inventory.*

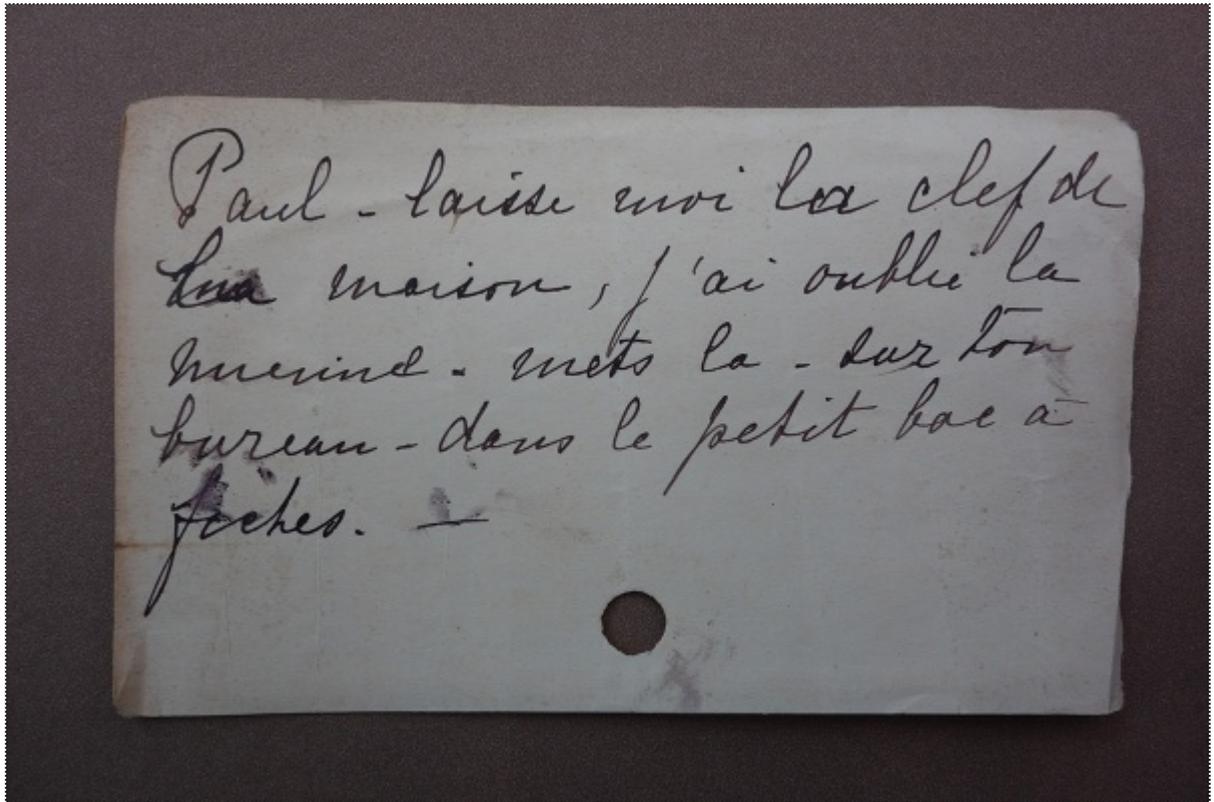
We finish our coffee and she takes us behind a curtain that separates the salon from a small office. She shows us four green binders that contain the meticulously filed papers of her late husband pertaining to the Mundaneum. In the third is the Donation act, dated April 4 1985, that describes the transfer of the archives from the Friends of the Palais Mondial to the Center for public reading of the French community.

In the document, the cats are nowhere to be found.<sup>[2]</sup>

## Madame C.O3

In a margarine box, between thousands of notes, tickets, postcards, letters, all folded to the size of an index card, we find this:

*Paul, leave me the key to mythe house, I forgot mine. Put it on your desk, in the small index card box.<sup>[3]</sup>*



1. Wilhelmina Coops came from The Netherlands to Brussels in 1932 to learn French. She was instrumental in transforming Le Traité de Documentation into a printed book.
2. Madame Canonne is a librarian, widow of André Canonne († 1990). She is custodian of the documents relating to the wanderings of The Mundaneum between the 1960s and its transfer to Mons in 1993.
3. Cato van Nederhasselt, second wife of Paul Otlet, collaborated with her husband on many projects. Her family fortune kept the Mundaneum running after other sources had dried up.

# Une histoire préemptif de l'Institut culturel de Google

Geraldine Juárez

## I. Organizing information is never innocent

Six years ago, Google, an Alphabet company, launched a new project: The Google Art Project. The official history, the one written by Google and distributed mainly through tailored press releases and corporate news bits, tells us that it all started as “a 20% project within Google in 2010 and had its first public showing in 2011. It was 17 museums, coming together in a very interesting online platform, to allow users to essentially explore art in a very new and different way.”<sup>[1]</sup>

While Google Books faced legal challenges and the European Commission launched its antitrust case against Google in 2010, the Google Art Project, not coincidentally, scaled up gradually, resulting in the Google Cultural Institute with headquarters in Paris, “whose mission is to make the world’s culture accessible online.”<sup>[2]</sup>

The Google Cultural Institute is strictly divided in Art Project, Historical Moments and World Wonders, roughly corresponding to fine art, world history and material culture. Technically, the Google Cultural Institute can be described as a database that powers a repository of high-resolution images of fine art, objects, documents and ephemera, as well as information about and from their ‘partners’ - the public museums, galleries and cultural institutions that provide this cultural material - such as 3D tour views and street-view maps. So far and counting, the Google Cultural Institute hosts 177 digital reproductions of selected paintings in gigapixel resolution and 320 3D versions of different objects, together with multiple thematic slide shows curated in collaboration with their partners or by their users.

According to their website, in their ‘Lab’ they develop the “new technology to help partners publish their collections online and reach new audiences, as seen in the Google Art Project, Historic Moments and World Wonders initiatives.” These services are offered – not by chance – as a philanthropic service to public institutions that increasingly need to justify their existence in face of cuts and other managerial demands of the austerity policies in Europe and elsewhere.

The Google Cultural Institute “would be unlikely, even unthinkable, absent the chronic and politically induced starvation of publicly funded cultural institutions even throughout the wealthy countries”<sup>[3]</sup>. It is important to understand that what Google is really doing is bankrolling the technical infrastructure and labour needed to turn culture into data so it can be easily managed and feed all kind of products needed in the neoliberal city to promote and exploit these cultural ‘assets’, in order to compete with other urban centres in the global stage, but also, to feed Google’s unstoppable accumulation of information.

The head of the Google Cultural Institute knows there are a lot of questions about their activities but Alphabet chose to label legitimate critiques as misunderstandings: “This is our biggest battle, this constant misunderstanding of why the Cultural Institute actually exists.”<sup>[4]</sup> The Google Cultural Institute, much like many other cultural endeavours of Google like Google Books and their Digital Revolution art exhibition, has been subject to a few but much needed critiques, such as *Powered by Google: Widening Access and Tightening Corporate Control* (Schiller & Yeo 2014), an in-depth account of the origins of this cultural intervention and its role in the resurgence of welfare capitalism, “where people are referred to corporations rather than states for such services as they receive; where corporate capital routinely arrogates to itself the right to broker public discourse; and where history and art remain saturated with the preferences and priorities of elite social classes.”<sup>[5]</sup>

Known as one, if not the first essay that dissects Google's use of information and the rhetoric of democratization behind it to reorganize cultural public institutions as a “site of profit-making”, Schiller & Yeo's text is fundamental to understand the evolution of the Google Cultural Institute within the historical context of digital capitalism, where the global dependency in communication and information technologies is directly linked to the current crisis of accumulation and where Google's archive fever “evinces a breath-taking cultural and ideological range.”<sup>[6]</sup>

## II. Who colonizes the colonizers?

The Google Cultural Institute is a complex subject of interest since it reflects the colonial impulses embedded in the scientific and economic desires that formed the very collections which the Google Cultural Institute now mediates and accumulates in its database.

Who colonizes the colonizers? It is a very difficult issue which I have raised before in an essay dedicated to the Google Cultural Institute, Alfred Russel Wallace and the colonial impulse behind archive fevers from the 19th but also the 21st century. I have no answer yet. But a critique of the Google Cultural Institute where their motivations are interpreted as merely colonialist would be misleading and counterproductive. It is not their goal to slave and exploit whole populations and its resources in order to impose a new ideology and civilise barbarians in the same sense and way that European countries did during the Colonization. Additionally, it would be unfair and disrespectful to all those who still have to deal with the endless effects of Colonization, that have exacerbated with the expansion of economic globalisation.

The conflation of technology and science that has produced the knowledge to create such an entity as Google and its derivatives, such as the Cultural Institute, together with the scale of its impact on a society where information technology is the dominant form of technology, makes technocolonialism a more accurate term to describe Google's cultural interventions from my perspective.

Although technocolonization shares many traits and elements with the colonial project, starting with the exploitation of materials needed to produce information and media technologies – and the related conflicts that this produces –, information technologies still differ from ships and canons. However, the commercial function of maritime technologies is the same as the free – as in free trade – services deployed by Google

or Facebook's drones beaming internet in Africa, although the networked aspect of information technologies is significantly different at the infrastructure level.

There is no official definition of technocolonialism, but it is important to understand it as a continuation of the idea of Enlightenment that gave birth to the impulse to collect, organise and manage information in the 19th century. My use of this term aims to emphasize and situate contemporary accumulation and management of information and data within a technoscientific landscape driven by "profit above else" as a "logical extension of the surplus value accumulated through colonialism and slavery."<sup>[7]</sup>

Unlike in colonial times, in contemporary technocolonialism the important narrative is not the supremacy of a specific human culture. Technological culture is the saviour. It doesn't matter if the culture is Muslim, French or Mayan, the goal is to have the best technologies to turn it into data, rank it, produce content from it and create experiences that can be monetized.

It only makes sense that Google, a company with a mission of to organise the world's information for profit, found ideal partners in the very institutions that were previously in charge of organising the world's knowledge. But as I pointed out before, it is paradoxical that the Google Cultural Institute is dedicated to collect information from museums created under Colonialism in order to elevate a certain culture and way of seeing the world above others. Today we know and are able to challenge the dominant narratives around cultural heritage, because these institutions have an actual record in history and not only a story produced for the 'about' section of a website, like in the case of the Google Cultural Institute.

"What museums should perhaps do is make visitors aware that this is not the only way of seeing things. That the museum – the installation, the arrangement, the collection – has a history, and that it also has an ideological baggage"<sup>[8]</sup>. But the Google Cultural Institute is not a museum, it is a database with an interface that enables to browse cultural content. Unlike the prestigious museums it collaborates with, it lacks a history situated in a specific cultural discourse. It is about fine art, world wonders and historical moments in a general sense. The Google Cultural Institute has a clear corporate and philanthropic mission but it lacks a point of view and a defined position towards the cultural material that it handles. This is not surprising since Google has always avoided to take a stand, it is all techno-determinism and the noble mission of organising the world's information to make the world better. But "brokering and hoarding information are a dangerous form of techno-colonialism."<sup>[8]</sup>

Searching for a cultural narrative beyond the Californian ideology, Alphabet's search engine found in Paul Otlet and the Mundaneum the perfect cover to insert their philanthropic services in the history of information science beyond Silicon Valley. After all, they understand that "ownership over the historical narratives and their material correlates becomes a tool for demonstrating and realizing economic claims".<sup>[9]</sup>

After establishing a data centre in the Belgian city of Mons, home of the Mundaneum, Google lent its support to "the Mons 2015 adventure, in particular by working with our longtime partners, the Mundaneum archive. More than a century ago, two visionary Belgians envisioned the World Wide Web's architecture of hyperlinks and indexation of information, not on computers, but on paper cards. Their creation was called the Mundaneum."<sup>[10]</sup> VERSION FRANCAISE

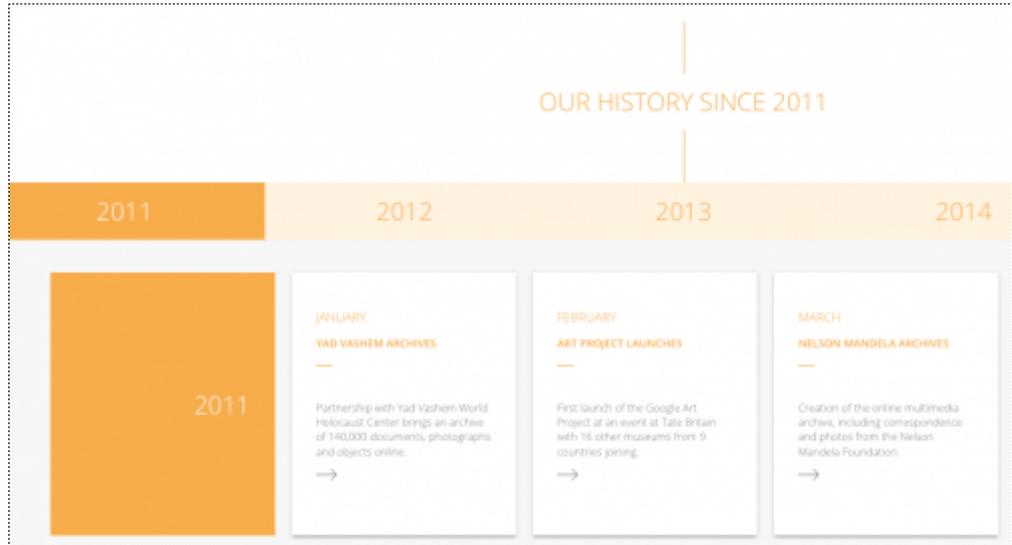


On the occasion of the 147th birthday of Paul Otlet, a Doodle in the homepage of the Alphabet spelled the name of its company using the 'drawers of the Mundaneum' to form the words G O O G L E: "Today's Doodle pays tribute to Paul's pioneering work on the Mundaneum. The collection of knowledge stored in the Mundaneum's drawers are the foundational work for everything that happens at Google. In early drafts, you can watch the concept come to life."<sup>[11]</sup>

### III. Google Cultural History

The dematerialisation of public collections using infrastructure and services bankrolled by private actors like the GCI, needs to be questioned and analyzed further in the context of heterotopic institutions, to understand the new forms taken by the endless tension between knowledge/power at the core of contemporary archivalism, where the architecture of the interface replaces and acts on behalf of the museum, and the body of the visitor is reduced to the fingers of a user capable of browsing endless cultural assets.

At a time when cultural institutions should be decolonised instead of googlified, it is vital to discuss a project such as the Google Cultural Institute and its continuous expansion – which is inversely proportional to the failure of the governments and the passivity of institutions seduced by gadgets<sup>[12]</sup>.



However, the dialogue is fragmented between limited academic accounts, corporate press releases, isolated artistic interventions, specialised conferences and news reports. Femke Snelting suggests that we must “find the patience to build a relation to these histories in ways that make sense.” To do so, we need to excavate and assemble a better account of the history of the Google Cultural Institute. Building upon Schiller & Yeo’s seminal text, the following timeline is my contribution to this task and an attempt to put together the pieces, by situating them in a broader economic and political context beyond the official history told by the Google Cultural Institute. A closer inspection of the events reveals that the escalation

of Alphabet's cultural interventions often emerge after a legal challenge against their economic hegemony in Europe was initiated.

2009

## Eric Schmidt visits Iraq



A news report from the Wall Street Journal<sup>[13]</sup> as well as an AP report on Youtube<sup>[14]</sup> confirm the new Google venture in the field of historical collections. The executive chairman of Alphabet declared: "I can think of no better use of our time and our resources to make the images and ideas from your civilization, from the very beginning of time, available to a billion people worldwide."

A detailed account and reflection of this visit, its background and agenda can be found in *Powered by Google: Widening Access and Tightening Corporate Control*. (Schiller & Yeo 2014)

## France reacts against Google Books

In relation to the Google Books dispute in Europe, Reuters reported in 2009 that France's ex-president Nicolas Sarkozy "pledged hundreds of millions of euros toward a separate digitization program, saying he would not permit France to be "stripped of our heritage to the benefit of a big company, no matter how friendly, big or American it is."<sup>[15]</sup>

Although the reactionary and nationalistic agenda of Sarkozy should not be celebrated, it is important to note that the first open attack on Google's cultural agenda came from the French government. Four years later, the Google Cultural Institute establishes its headquarters in Paris.

## 2010

### European Commission launches an antitrust investigation against Google.

*The European Commission has decided to open an antitrust investigation into allegations that Google Inc. has abused a dominant position in online search, in violation of European Union rules (Article 102 TFEU). The opening of formal proceedings follows complaints by search service providers about unfavourable treatment of their services in Google's unpaid and sponsored search results coupled with an alleged preferential placement of Google's own services. This initiation of proceedings does not imply that the Commission has proof of any infringements. It only signifies that the Commission will conduct an in-depth investigation of the case as a matter of priority.<sup>[16]</sup>*

### The Google Art Project starts as a 20% project under the direction of Amit Sood.

According to the Guardian<sup>[17]</sup>, and other news reports, Google's cultural project is started by passionate art "googlers".

## Google announces its plans to build a European Cultural Institute in France

Referring to France as one of the most important centres for culture and technology, Google CEO Eric Schmidt formally announces the creation of a centre "dedicated to technology, especially noting the promotion of past, present and future European cultures."<sup>[18]</sup>

### 2011

## Google Art Project Launches in Tate London.

In February the new 'product' is officially presented. The introduction<sup>[19]</sup> emphasises that it started as a 20% project, meaning a project that lacked corporate mandate.

According to the "Our Story"<sup>[20]</sup> section of the Google Cultural Institute, the history of the Google Art Project starts with the integration of 140,000 assets from the Yad Vashem World Holocaust Centre, followed by the inclusion of the Nelson Mandela Archives in the Historical Moments section of the Google Cultural Institute.

Later in August, Eric Schmidt declares that education should bring art and science together just like in "the glory days of the Victorian Era".<sup>[21]</sup>

### 2012

## EU data authorities initiate a new investigation into Google and their new terms of use.

At the request of the French authorities, the European Union initiates an investigation against Google, related to the breach of data privacy due to the new terms of use published by Google on 1 March 2012.<sup>[22]</sup>

## The Google Cultural Institute continues to digitalize cultural 'assets'.

According to the Google Cultural Institute website, 151 partners join the Google Art Project including France's Musée D'Orsay. The World Wonders section is launched including partnerships with the likes of UNESCO. By October, the platform is rebranded and re-launched including over 400+ partners.

2013

## Google Cultural Institute headquarters opens in Paris.

On 10 December, the new French headquarters open in 8 rue de Londres. The French Minister Aurélie Filippetti cancels her attendance as she doesn't "wish to appear as a guarantee for an operation that still raises a certain number of questions."<sup>[23]</sup>

## British tax authorities initiate investigation into Google's tax scheme

HM Customs and Revenue Committee inquiry brands Google's tax operations in the UK via Ireland as "devious, calculated and, in my view, unethical".<sup>[24]</sup>

2014

## European Court Of Justice rules on the “right to be forgotten” against Google.

The controversial ruling holds search engines responsible for the personal data that it handles and under European Law the court ruled “that the operator is, in certain circumstances, obliged to remove links to web pages that are published by third parties and contain information relating to a person from the list of results displayed following a search made on the basis of that person’s name. The Court makes it clear that such an obligation may also exist in a case where that name or information is not erased beforehand or simultaneously from those web pages, and even, as the case may be, when its publication in itself on those pages is lawful.”<sup>[25]</sup>

## Digital Revolution at Barbican UK

Google sponsors the exhibition *Digital Revolution*<sup>[26]</sup> and commission artworks under the brand “Dev-art: art made with code.”<sup>[27]</sup>. The exhibition later tours to the Tekniska Museet in Stockholm.<sup>[28]</sup>

## Google Cultural Institute's “The Lab” Opens

“Here creative experts and technology come together share ideas and build new ways to experience art and culture.”<sup>[29]</sup>

## Google expressed its plans to support the city of Mons, European Capital of Culture in 2015.

A press release from Google<sup>[30]</sup> describes the new partnership with the Belgian city of Mons as a result of their position as local employer and investor in the city, since one of their two major data centres in Europe is located there.

## 2015

## EU Commission sends Statement of Objections to Google.

*The European Commission has sent a Statement of Objections to Google alleging the company has abused its dominant position in the markets for general internet search services in the European Economic Area (EEA) by systematically favouring its own comparison shopping product in its general search results pages.”<sup>[31]</sup>*

Google rejects the accusations as “wrong as a matter of fact, law and economics”.<sup>[32]</sup>

## European Commission starts investigation into Android.

*The Commission will assess if, by entering into anticompetitive agreements and/or by abusing a possible dominant position, Google has illegally hindered the development and market access of rival mobile operating systems, mobile communication applications and services in the European Economic Area (EEA). This investigation is distinct and separate from the Commission investigation into Google’s search business.*

[33]

## Google Cultural Institute continues to expand.

According to the 'Our Story' section of the Google Cultural Institute, the Street Art project now has 10,000 assets. A new extension displays art from the Google Art Project in the Chrome browser and "art lovers can wear art on their wrists via Android art". By August, the project has more than 850 partners using their tools, 4.7 million assets in its collection and more than 1500 curated exhibitions.

[34] [34]



## Alphabet Inc. is established on October 2nd.

"Alphabet Inc. (commonly known as Alphabet) is an American multinational conglomerate created in 2015 as the parent company of Google and several other companies previously owned by or tied to Google."<sup>[35]</sup>

## Paul Otlet Doodle and Mundaneum-Google exhibitions.

Google creates a doodle for their homepage on the occasion of the 147th birthday of Paul Otlet<sup>[36]</sup> and produces the slide shows *Towards the Information Age*, *Mapping Knowledge* and *The 100th Anniversary of a Nobel Peace Prize*, all hosted by the Google Cultural Institute.

“The Mundaneum and Google have worked closely together to curate 9 exclusive online exhibitions for the Google Cultural Institute. The team behind the reopening of the Mundaneum this year also worked with the Cultural Institute engineers to launch a dedicated mobile app.”<sup>[37]</sup>

## Google Cultural Institute partners with the British Museum.

The British Museum announce a “unique partnership” where over 4,500 assets can be “seen online in just a few clicks”. In the official press release, the director of the museum, Neil McGregor, said “The world today has changed, the way we access information has been revolutionised by digital technology. This enables us to give the Enlightenment ideal on which the Museum was founded a new reality. It is now possible to make our collection accessible, explorable and enjoyable not just for those who physically visit, but to everybody with a computer or a mobile device.”<sup>[38]</sup>

## Google Cultural Institute adds a Performing Arts section.

Over 60 performing arts (dance, drama, music, opera) organizations and performers join the assets collection of the Google Cultural Institute<sup>[39]</sup>

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# A Pre-emptive History of the Google Cultural Institute

Geraldine Juárez

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According to their website, in their ‘Lab’ they develop the “new technology to help partners publish their collections online and reach new audiences, as seen in the Google Art Project, Historic Moments and World Wonders initiatives.” These services are offered – not by chance – as a philanthropic service to public institutions that increasingly need to justify their existence in face of cuts and other managerial demands of the austerity policies in Europe and elsewhere.

The Google Cultural Institute “would be unlikely, even unthinkable, absent the chronic and politically induced starvation of publicly funded cultural institutions even throughout the wealthy countries”<sup>[3]</sup>. It is important to understand that what Google is really doing is bankrolling the technical infrastructure and labour needed to turn culture into data so it can be easily managed and feed all kind of products needed in the neoliberal city to promote and exploit these cultural ‘assets’, in order to compete with other urban centres in the global stage, but also, to feed Google’s unstoppable accumulation of information.

The head of the Google Cultural Institute knows there are a lot of questions about their activities but Alphabet chose to label legitimate critiques as misunderstandings: “This is our biggest battle, this constant misunderstanding of why the Cultural Institute actually exists.”<sup>[4]</sup> The Google Cultural Institute, much like many other cultural endeavours of Google like Google Books and their Digital Revolution art exhibition, has been subject to a few but much needed critiques, such as *Powered by Google: Widening Access and Tightening Corporate Control* (Schiller & Yeo 2014), an in-depth account of the origins of this cultural intervention and its role in the resurgence of welfare capitalism, “where people are referred to corporations rather than states for such services as they receive; where corporate capital routinely arrogates to itself the right to broker public discourse; and where history and art remain saturated with the preferences and priorities of elite social classes.”<sup>[5]</sup>

Known as one, if not the first essay that dissects Google's use of information and the rhetoric of democratization behind it to reorganize cultural public institutions as a “site of profit-making”, Schiller & Yeo's text is fundamental to understand the evolution of the Google Cultural Institute within the historical context of digital capitalism, where the global dependency in communication and information technologies is directly linked to the current crisis of accumulation and where Google's archive fever “evinces a breathtaking cultural and ideological range.”<sup>[6]</sup>

## II. Who colonizes the colonizers?

The Google Cultural Institute is a complex subject of interest since it reflects the colonial impulses embedded in the scientific and economic desires that formed the very collections which the Google Cultural Institute now mediates and accumulates in its database.

Who colonizes the colonizers? It is a very difficult issue which I have raised before in an essay dedicated to the Google Cultural Institute, Alfred Russel Wallace and the colonial impulse behind archive fevers from the 19th but also the 21st century. I have no answer yet. But a critique of the Google Cultural Institute where their motivations are interpreted as merely colonialist would be misleading and counterproductive. It is not their goal to slave and exploit whole populations and its resources in order to impose a new ideology and civilise barbarians in the same sense and way that European countries did during the Colonization. Additionally, it would be unfair and disrespectful to all those who still have to deal with the endless effects of Colonization, that have exacerbated with the expansion of economic globalisation.

The conflation of technology and science that has produced the knowledge to create such an entity as Google and its derivatives, such as the Cultural Institute, together with the scale of its impact on a society where information technology is the dominant form of technology, makes technocolonialism a more accurate term to describe Google's cultural interventions from my perspective.

Although technocolonization shares many traits and elements with the colonial project, starting with the exploitation of materials needed to produce information and media technologies – and the related conflicts that this produces –, information technologies still differ from ships and canons. However, the commercial function of maritime technologies is the same as the free – as in free trade – services deployed by Google

or Facebook's drones beaming internet in Africa, although the networked aspect of information technologies is significantly different at the infrastructure level.

There is no official definition of technocolonialism, but it is important to understand it as a continuation of the idea of Enlightenment that gave birth to the impulse to collect, organise and manage information in the 19th century. My use of this term aims to emphasize and situate contemporary accumulation and management of information and data within a technoscientific landscape driven by "profit above else" as a "logical extension of the surplus value accumulated through colonialism and slavery."<sup>[7]</sup>

Unlike in colonial times, in contemporary technocolonialism the important narrative is not the supremacy of a specific human culture. Technological culture is the saviour. It doesn't matter if the culture is Muslim, French or Mayan, the goal is to have the best technologies to turn it into data, rank it, produce content from it and create experiences that can be monetized.

It only makes sense that Google, a company with a mission of to organise the world's information for profit, found ideal partners in the very institutions that were previously in charge of organising the world's knowledge. But as I pointed out before, it is paradoxical that the Google Cultural Institute is dedicated to collect information from museums created under Colonialism in order to elevate a certain culture and way of seeing the world above others. Today we know and are able to challenge the dominant narratives around cultural heritage, because these institutions have an actual record in history and not only a story produced for the 'about' section of a website, like in the case of the Google Cultural Institute.

"What museums should perhaps do is make visitors aware that this is not the only way of seeing things. That the museum – the installation, the arrangement, the collection – has a history, and that it also has an ideological baggage"<sup>[8]</sup>. But the Google Cultural Institute is not a museum, it is a database with an interface that enables to browse cultural content. Unlike the prestigious museums it collaborates with, it lacks a history situated in a specific cultural discourse. It is about fine art, world wonders and historical moments in a general sense. The Google Cultural Institute has a clear corporate and philanthropic mission but it lacks a point of view and a defined position towards the cultural material that it handles. This is not surprising since Google has always avoided to take a stand, it is all techno-determinism and the noble mission of organising the world's information to make the world better. But "brokering and hoarding information are a dangerous form of techno-colonialism."<sup>[8]</sup>

Searching for a cultural narrative beyond the Californian ideology, Alphabet's search engine found in Paul Otlet and the Mundaneum the perfect cover to insert their philanthropic services in the history of information science beyond Silicon Valley. After all, they understand that "ownership over the historical narratives and their material correlates becomes a tool for demonstrating and realizing economic claims".<sup>[9]</sup>

After establishing a data centre in the Belgian city of Mons, home of the Mundaneum, Google lent its support to "the Mons 2015 adventure, in particular by working with our longtime partners, the Mundaneum archive. More than a century ago, two visionary Belgians envisioned the World Wide Web's architecture of hyperlinks and indexation of information, not on computers, but on paper cards. Their creation was called the Mundaneum."<sup>[10]</sup>

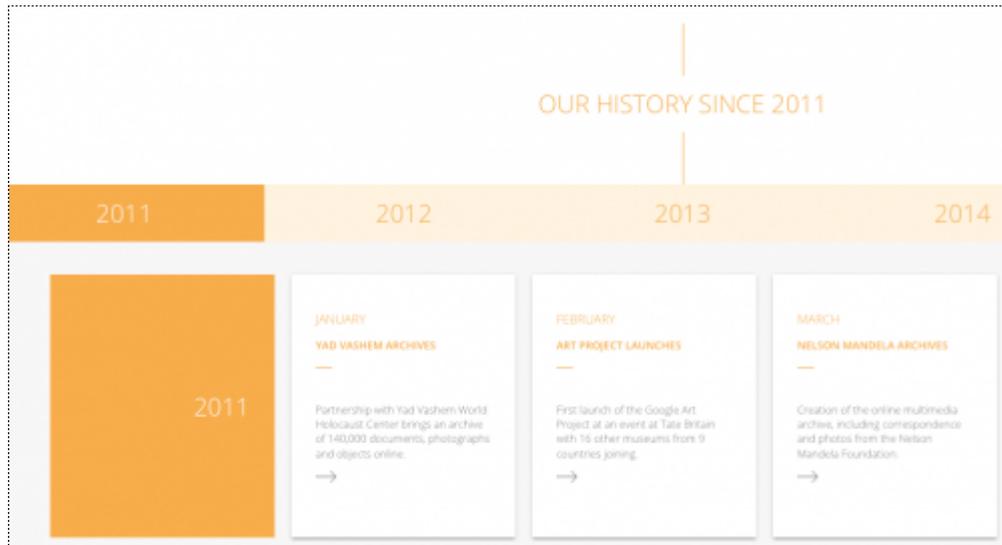


On the occasion of the 147th birthday of Paul Otlet, a Doodle in the homepage of the Alphabet spelled the name of its company using the 'drawers of the Mundaneum' to form the words G O O G L E: "Today's Doodle pays tribute to Paul's pioneering work on the Mundaneum. The collection of knowledge stored in the Mundaneum's drawers are the foundational work for everything that happens at Google. In early drafts, you can watch the concept come to life."<sup>[11]</sup>

### III. Google Cultural History

The dematerialisation of public collections using infrastructure and services bankrolled by private actors like the GCI, needs to be questioned and analyzed further in the context of heterotopic institutions, to understand the new forms taken by the endless tension between knowledge/power at the core of contemporary archivalism, where the architecture of the interface replaces and acts on behalf of the museum, and the body of the visitor is reduced to the fingers of a user capable of browsing endless cultural assets.

At a time when cultural institutions should be decolonised instead of googlified, it is vital to discuss a project such as the Google Cultural Institute and its continuous expansion – which is inversely proportional to the failure of the governments and the passivity of institutions seduced by gadgets<sup>[12]</sup>.



However, the dialogue is fragmented between limited academic accounts, corporate press releases, isolated artistic interventions, specialised conferences and news reports. Femke Snelting suggests that we must “find the patience to build a relation to these histories in ways that make sense.” To do so, we need to excavate and assemble a better account of the history of the Google Cultural Institute. Building upon Schiller & Yeo’s seminal text, the following timeline is my contribution to this task and an attempt to put together the pieces, by situating them in a broader economic and political context beyond the official history told by the Google Cultural Institute. A closer inspection of the events reveals that the escalation

of Alphabet's cultural interventions often emerge after a legal challenge against their economic hegemony in Europe was initiated.

2009

## Eric Schmidt visits Iraq



A news report from the Wall Street Journal<sup>[13]</sup> as well as an AP report on Youtube<sup>[14]</sup> confirm the new Google venture in the field of historical collections. The executive chairman of Alphabet declared: "I can think of no better use of our time and our resources to make the images and ideas from your civilization, from the very beginning of time, available to a billion people worldwide."

A detailed account and reflection of this visit, its background and agenda can be found in *Powered by Google: Widening Access and Tightening Corporate Control*. (Schiller & Yeo 2014)

## France reacts against Google Books

In relation to the Google Books dispute in Europe, Reuters reported in 2009 that France's ex-president Nicolas Sarkozy "pledged hundreds of millions of euros toward a separate digitization program, saying he would not permit France to be "stripped of our heritage to the benefit of a big company, no matter how friendly, big or American it is."<sup>[15]</sup>

Although the reactionary and nationalistic agenda of Sarkozy should not be celebrated, it is important to note that the first open attack on Google's cultural agenda came from the French government. Four years later, the Google Cultural Institute establishes its headquarters in Paris.

## 2010

### European Commission launches an antitrust investigation against Google.

*The European Commission has decided to open an antitrust investigation into allegations that Google Inc. has abused a dominant position in online search, in violation of European Union rules (Article 102 TFEU). The opening of formal proceedings follows complaints by search service providers about unfavourable treatment of their services in Google's unpaid and sponsored search results coupled with an alleged preferential placement of Google's own services. This initiation of proceedings does not imply that the Commission has proof of any infringements. It only signifies that the Commission will conduct an in-depth investigation of the case as a matter of priority.<sup>[16]</sup>*

### The Google Art Project starts as a 20% project under the direction of Amit Sood.

According to the Guardian<sup>[17]</sup>, and other news reports, Google's cultural project is started by passionate art "googlers".

## Google announces its plans to build a European Cultural Institute in France

Referring to France as one of the most important centres for culture and technology, Google CEO Eric Schmidt formally announces the creation of a centre "dedicated to technology, especially noting the promotion of past, present and future European cultures."<sup>[18]</sup>

### 2011

## Google Art Project Launches in Tate London.

In February the new 'product' is officially presented. The introduction<sup>[19]</sup> emphasises that it started as a 20% project, meaning a project that lacked corporate mandate.

According to the "Our Story"<sup>[20]</sup> section of the Google Cultural Institute, the history of the Google Art Project starts with the integration of 140,000 assets from the Yad Vashem World Holocaust Centre, followed by the inclusion of the Nelson Mandela Archives in the Historical Moments section of the Google Cultural Institute.

Later in August, Eric Schmidt declares that education should bring art and science together just like in "the glory days of the Victorian Era".<sup>[21]</sup>

### 2012

## EU data authorities initiate a new investigation into Google and their new terms of use.

At the request of the French authorities, the European Union initiates an investigation against Google, related to the breach of data privacy due to the new terms of use published by Google on 1 March 2012.<sup>[22]</sup>

## The Google Cultural Institute continues to digitalize cultural 'assets'.

According to the Google Cultural Institute website, 151 partners join the Google Art Project including France's Musée D'Orsay. The World Wonders section is launched including partnerships with the likes of UNESCO. By October, the platform is rebranded and re-launched including over 400+ partners.

2013

## Google Cultural Institute headquarters opens in Paris.

On 10 December, the new French headquarters open in 8 rue de Londres. The French Minister Aurélie Filippetti cancels her attendance as she doesn't "wish to appear as a guarantee for an operation that still raises a certain number of questions."<sup>[23]</sup>

## British tax authorities initiate investigation into Google's tax scheme

HM Customs and Revenue Committee inquiry brands Google's tax operations in the UK via Ireland as "devious, calculated and, in my view, unethical".<sup>[24]</sup>

2014

## European Court Of Justice rules on the “right to be forgotten” against Google.

The controversial ruling holds search engines responsible for the personal data that it handles and under European Law the court ruled “that the operator is, in certain circumstances, obliged to remove links to web pages that are published by third parties and contain information relating to a person from the list of results displayed following a search made on the basis of that person’s name. The Court makes it clear that such an obligation may also exist in a case where that name or information is not erased beforehand or simultaneously from those web pages, and even, as the case may be, when its publication in itself on those pages is lawful.”<sup>[25]</sup>

## Digital Revolution at Barbican UK

Google sponsors the exhibition *Digital Revolution*<sup>[26]</sup> and commission artworks under the brand “Dev-art: art made with code.”<sup>[27]</sup>. The exhibition later tours to the Tekniska Museet in Stockholm.<sup>[28]</sup>

## Google Cultural Institute's “The Lab” Opens

“Here creative experts and technology come together share ideas and build new ways to experience art and culture.”<sup>[29]</sup>

## Google expressed its plans to support the city of Mons, European Capital of Culture in 2015.

A press release from Google<sup>[30]</sup> describes the new partnership with the Belgian city of Mons as a result of their position as local employer and investor in the city, since one of their two major data centres in Europe is located there.

2015

## EU Commission sends Statement of Objections to Google.

*The European Commission has sent a Statement of Objections to Google alleging the company has abused its dominant position in the markets for general internet search services in the European Economic Area (EEA) by systematically favouring its own comparison shopping product in its general search results pages.”<sup>[31]</sup>*

Google rejects the accusations as “wrong as a matter of fact, law and economics”.<sup>[32]</sup>

## European Commission starts investigation into Android.

*The Commission will assess if, by entering into anticompetitive agreements and/or by abusing a possible dominant position, Google has illegally hindered the development and market access of rival mobile operating systems, mobile communication applications and*

services in the European Economic Area (EEA). This investigation is distinct and separate from the Commission investigation into Google's search business.<sup>[33]</sup>

## Google Cultural Institute continues to expand.

According to the 'Our Story' section of the Google Cultural Institute, the Street Art project now has 10,000 assets. A new extension displays art from the Google Art Project in the Chrome browser and "art lovers can wear art on their wrists via Android art". By August, the project has more than 850 partners using their tools, 4.7 million assets in its collection and more than 1500 curated exhibitions.

[34] [34]



## Alphabet Inc. is established on October 2nd.

“Alphabet Inc. (commonly known as Alphabet) is an American multinational conglomerate created in 2015 as the parent company of Google and several other companies previously owned by or tied to Google.”<sup>[35]</sup>

## Paul Otlet Doodle and Mundaneum-Google exhibitions.

Google creates a doodle for their homepage on the occasion of the 147th birthday of Paul Otlet<sup>[36]</sup> and produces the slide shows *Towards the Information Age*, *Mapping Knowledge* and *The 100th Anniversary of a Nobel Peace Prize*, all hosted by the Google Cultural Institute.

“The Mundaneum and Google have worked closely together to curate 9 exclusive online exhibitions for the Google Cultural Institute. The team behind the reopening of the Mundaneum this year also worked with the Cultural Institute engineers to launch a dedicated mobile app.”<sup>[37]</sup>

## Google Cultural Institute partners with the British Museum.

The British Museum announce a “unique partnership” where over 4,500 assets can be “seen online in just a few clicks”. In the official press release, the director of the museum, Neil McGregor, said “The world today has changed, the way we access information has been revolutionised by digital technology. This enables us to give the Enlightenment ideal on which the Museum was founded a new reality. It is now possible to make our collection accessible, explorable and enjoyable not just for those who physically visit, but to everybody with a computer or a mobile device.”<sup>[38]</sup>

## Google Cultural Institute adds a Performing Arts section.

Over 60 performing arts (dance, drama, music, opera) organizations and performers join the assets collection of the Google Cultural Institute <sup>[39]</sup>

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# Special:Disambiguation

## · Monothèque

- Menu
- 
- Skimming-Dépouiller
  - Agents + actors
  - Le traité de documentation
  - La Pyramide
  - Cross-readings
  - Timelines
  - Categories
  - Disambiguation
  - Recent Files
- Prototypes-Projets
  - Not dissimilar
  - Scraping culture
  - Location, location, location
  - Nous ne vivons pas dans ce monde là
  - À la recherche de l'UDC
  - Times in Brussels
  - L'Afrique aux <noirs>
- Search
- - Special pages
  - Printable version
  - Recent changes
- Log in
  
- Special page

## Special

# Disambiguation

The following is a list of all disambiguation pages on Mondotheque.

A page is treated as a disambiguation page if it contains the tag `__DISAMBIG__` (or an equivalent alias).

Showing below up to **15** results in range **#1** to **#15**.

View (previous 50 | next 50) ([20](#) | [50](#) | [100](#) | [250](#) | [500](#))

1. **Biblion** may refer to:

- **Biblion (category)**, a subcategory of the category: [Index Traité de documentation](#)
- **Biblion (Traité de documentation)**, term used by Paul Otlet to define all categories of books and documents in a section of [Traité de documentation](#)
- **Biblion (unity)**, the smallest document or intellectual unit

2. **Cultural Institute** may refer to:

- A **Cultural Institute (organisation)**, such as [The Mundaneum Archive Center](#) in Mons
- **Cultural Institute (project)**, a critical interrogation of cultural institutions in neo-liberal times, developed by amongst others [Geraldine Juárez](#)
- The **Google Cultural Institute**, a project offering "Technologies that make the world's culture accessible to anyone, anywhere."

3. **L'EVANGELISTE** may refer to:

- **Vint Cerf**, so-called "internet evangelist", or "father of the internet", working at [LA MÉGA-ENTREPRISE](#)
- **Jiddu Krishnamurti**, priest at the 'Order of the Star', a theosophist splinter group that Paul Otlet related to
- Sir **Tim Berners Lee**, "open data evangelist", heading the World Wide Web consortium (W3C)

4. **L'UTOPISTE** may refer to:

- **Paul Otlet**, documentalist, universalist, internationalist, indexalist . At times considered as the "father of information science", or "visionary inventor of the internet on paper"

- **Le Corbusier**, architect, universalist, internationalist. Worked with Paul Otlet on plans for a City of knowledge
  - **Otto Neurath**, philosopher of science, sociologist, and political economist. Hosted a branch of Mundaneum in The Hague
5. **LA CAPITALE** may refer to:
- **Brussels**, capital of Flanders and Europe
  - **Genève**, world civic center
6. **LA MANAGER** may refer to:
- **Delphine Jenart**, assistant director at the Mundaneum Archive Center in Mons.
  - **Bill Echikson**, former public relations officer at Google, coordinating communications for the European Union, and for all of Southern, Eastern Europe, Middle East and Africa. Handled the company's high profile antitrust and other policy-related issues in Europe.
7. **LA MÉGA-ENTREPRISE** may refer to:
- **Google inc**, or **Alphabet**, sometimes referred to as "Crystal Computing", "Project02", "Saturn" or "Green Box Computing"
  - **Carnegie Steel Company**, supporter of the Mundaneum in Brussels and the Peace Palace in The Hague
8. **LA RÉGION** may refer to:
- **Wallonia (Belgium)**, or La Wallonie. Former mining area, home-base of former prime minister Elio di Rupo, location of two Google datacenters and the Mundaneum Archive Center
  - **Groningen (The Netherlands)**, future location of a Google data center in Eemshaven
  - **Hamina (Finland)**, location of a Google data center
9. **LE BIOGRAPHE** is used for persons that are instrumental in constructing the narrative of Paul Otlet. It may refer to:
- **André Canonne**, librarian and director of the Centre de Lecture publique de la Communauté française (CLPCF). Discovers the Mundaneum in the 1960s. Publishes a second edition of the Traité de documentation (1989) and prepares the opening of the Mundaneum Centre in Brussels, Place Rogier
  - **Warden Boyd Rayward**, librarian scientist, discovers the Mundaneum in the 1970s. Writes the first biography of Paul Otlet in English: *The Universe of Information: the Work of Paul Otlet for Documentation and international Organization* (1975)
  - **Benoît Peeters** and **François Schuiten**, comics-writers and scenographers, discover the Mundaneum in the 1980s. The archivist in the graphic novel *Les Cités Obscures* (1983) is modelled on Paul Otlet
  - **Françoise Levie**, filmmaker, discovers the Mundaneum in the 1990s. Author of the fictionalised biography *The man who wanted to classify the world* (2002)

- **Alex Wright**, writer and journalist, discovers the Mundaneum in 2003. Author of *Cataloging the World: Paul Otlet and the Birth of the Information Age* (2014)

10. **LE DIRECTEUR** may refer to:

- **Harm Post**, director of Groningen Sea Ports, future location of a Google data center
- **Andrew Carnegie**, director of Carnegie Steel Company, sponsor of the Mundaneum
- **André Canonne**, director of the Centre de Lecture publique de la Communauté française (CLPCF) and guardian of the Mundaneum. See also: LE BIOGRAPHE
- **Jean-Paul Deplus**, president of the current Mundaneum association, but often referred to as **LE DIRECTEUR**
- **Amid Sood**, director (later 'founder') of the Google Cultural Institute and Google Art Project
- **Steve Crossan**, director (sometimes 'founder' or 'head') of the Google Cultural Institute

11. **LE POLITICIEN** may refer to:

- **Elio di Rupo**, former prime minister of Belgium and mayor of Mons
- **Henri Lafontaine**, Belgian lawyer and statesman, working with Paul Otlet to realise the Mundaneum
- **Nicolas Sarkozy**, former president of France, negotiating deals with LA MÉGA-ENTREPRISE

12. **LE ROI** may refer to:

- **Leopold II**, reigned as King of the Belgians from 1865 until 1909. Exploited Congo as a private colonial venture. Patron of the Mundaneum project
- **Albert II**, reigned as King of the Belgians from 1993 until his abdication in 2013. Visited LA MÉGA-ENTREPRISE in 2008

13. **Monde** may refer to:

- **Monde (Univers)**, means **world** in French and is used in many drawings and schemes by Paul Otlet. See for example: World + Brain and Mundaneum
- **Monde (Publication)**, *Essai d'universalisme*. Last book published by Paul Otlet (1935)
- **Mondialisation**, Term coined by Paul Otlet (1916)

14. **Mundaneum** may refer to:

- **Mundaneum (Utopia)**, a project designed by Paul Otlet and Henri Lafontaine
- **Mundaneum (Archive Centre)**, a cultural institution in Mons, housing the archives of Paul Otlet and Henri Lafontaine since 1993

15. **Urbanisme** may refer to:

- **Urban planning**, a technical and political process concerned with the use of land, protection and use of the environment, public welfare, and the design of the urban

environment, including air, water, and the infrastructure passing into and out of urban areas such as transportation, communications, and distribution networks.

- **Urbanisme (Publication)**, a book by Le Corbusier (1925).

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Location, location,  
location

# From Paper Mill to Google Data Center

ShinJoung Yeo

## THIS IS A DRAFT

Every second of every day, billions of people around the world are googling, mapping, liking, tweeting, reading, writing, watching, communicating, and working over the Internet. According to Cisco, global Internet traffic will surpass one *zettabyte* – nearly a trillion gigabytes! – in 2016, which equates to 667 trillion feature-length films.<sup>[1]</sup> Internet traffic is expected to double by 2019<sup>[2]</sup> as the internet ever increasingly weaves itself into the very fabric of many people’s daily lives.

Internet search giant Google – since August, 2015 a subsidiary of Alphabet Inc.<sup>[3]</sup> – is one of the major conduits of our social activities on the Web. It processes over 3.3 billion searches each and every day, 105 billion searches per month or 1.3 trillion per year,<sup>[4]</sup> and is responsible for over 88% Internet search activity around the globe.<sup>[5]</sup> Predicating its business on people’s everyday information activity – search – in 2015, Google generated \$74.54 billion dollars,<sup>[6]</sup> equivalent to or more than the GDP of some countries. The vast majority of Google’s revenue – \$ 67.39 billion dollars<sup>[7]</sup> – from advertising on its various platforms including Google search, YouTube, AdSense products, Chrome OS, Android etc.; the company is rapidly expanding its business to other sectors like cloud services, health, education, self-driving cars, internet of things, life sciences, and the like. Google’s lucrative internet business does not only generate profits. As Google’s chief economist Hal Varian states:

*...it also generates torrents of data about users’ tastes and habits, data that Google then sifts and processes in order to predict future consumer behavior, find ways to improve its products, and sell more ads. This is the heart and soul of Googlenomics. It’s a system of constant self-analysis: a data-fueled feedback loop that defines not only Google’s future but the future of anyone who does business online.<sup>[8]</sup>*

Google’s business model is emblematic of the “new economy” which is primarily built around data and information. The “new economy” – the term popularized in the 1990s during the first dot-com boom – is often distinguished by the mainstream discourse from the traditional industrial economy that demands large-scale investment of physical capital and produces material goods and instead emphasizes the unique nature of information and purports to be less resource-intensive. Originating in the 1960s, post-industrial theorists asserted the emergence of the “new” economy, claiming that the increase of highly-skilled information workers, widespread application of information technologies, along with the decrease of

manual labor, would bring a new mode of production and fundamental changes in exploitative capitalist social relations.<sup>[9]</sup>

Has the “new” economy challenged capitalist social relations and transcended the material world? Google and other Internet companies have been investing heavily in industrial-scale real estate around the world and continue to build large-scale physical infrastructure in the way of data centers where the world’s bits and bytes are stored, processed and delivered. The term “tube” or “cloud” or “weightless” often gives us a façade that our newly marketed social and cultural activities over the Internet transcend the physical realm and occur in the vapors of the Internet; far from this perception, however, every bit of information in the “new economy” is transmitted through and located in physical space, on very real and very large infrastructure encompassing existing power structures from phone lines and fiber optics to data centers to transnational undersea telecommunication cables.

There is much boosterism and celebration that the “new economy” holds the keys to individual freedom, liberty and democratic participation and will free labor from exploitation; however, the material/physical base that supports the economy and our everyday lives tells a very different story. My analysis presents an integral piece of the physical infrastructure behind the “new economy” and the space embedded in that infrastructure in order to elucidate that the “new economy” does not occur in an abstract place but rather is manifested in the concrete material world, one deeply embedded in capitalist development which reproduces structural inequality on a global scale. Specifically, the analysis will focus on Google’s growing large-scale data center infrastructure that is restructuring and reconfiguring previously declining industrial cities and towns as new production places within the US and around the world.

Today, data centers are found in nearly every sector of the economy: financial services, media, high-tech, education, retail, medical, government etc. The study of the development of data centers in each of these sectors could be separate projects in and of themselves; however, for this project, I will only look at Google as a window into the “new” economy, the company which has led the way in the internet sector in building out and linking up data centers as it expands its territory of profit.<sup>[10]</sup>

## Data Centres in Context

The concepts of “spatial fix” by critical geographer David Harvey<sup>[11]</sup> and “digital capitalism” by historian of communication and information Dan Schiller<sup>[12]</sup>

are useful to contextualize and place the emergence of large-scale data centers within capitalist development. Harvey illustrates the notion of spatial fix to explicate and situate the geographical dynamics and crisis tendency of capitalism with over-accumulation and under-consumption. Harvey’s spatial fix has dual meanings. One meaning is that it is necessary for capital to have a fixed space – physical infrastructure (transportation, communications, highways, power etc.) as well as a built environment – in order to facilitate capital’s geographical expansion. The other meaning is a fix or solution for capitalists’ crisis through geographical expansion and reorganization of space as capital searches for new markets and temporarily relocates to more profitable space – new accumulation sites and territories. This temporal spatial fix will lead capital to leave behind existing physical infrastructure and built environments as it shifts to new temporal fixed spaces in order to cultivate new markets.

Building on Harvey's work, Schiller introduced the concept of digital capitalism in response to the 1970's crisis of capitalism in which information became that "spatial-temporal fix" or "pole of growth."<sup>[13]</sup> To renew capitalist crisis from the worst economic downturn of the 1970s, a massive amount of information and communication technologies were introduced across the length and breadth of economic sectors as capitalism shifted to a more information-intensive economy – digital capitalism. Today digital capitalism grips every sector, as it has expanded and extended beyond information industries and reorganized the entire economy from manufacturing production to finance to science to education to arts and health and impacts every iota of people's social lives.<sup>[14]</sup> Current growth of large-scale data centers by Internet companies and their reoccupation of industrial towns needs to be situated within the context of the development of digital capitalism.

## From Manufacturing Factory to Data Factory

Large-scale data centers – sometimes called "server farms" in an oddly quaint allusion to the pre-industrial agrarian society – are centralized facilities that primarily contain large numbers of servers and computer equipment used for data processing, data storage, and high-speed telecommunications. In a sense, data centers are similar to the capitalist factory system; but instead of a linear process of input of raw materials to output of material goods for mass consumption, they input mass data in order to facilitate and expand the endless cycle of commodification – an Ouroboros-like machine. As the factory system enables the production of more goods at a lower cost through automation and control of labor to maximize profit, data centers have been developed to process large quantities of bits and bytes as fast as possible and at as low a cost as possible through automation and centralization. The data center is a hyper-automated digital factory system that enables the operation of hundreds of thousands of servers through centralization in order to conduct business around the clock and around the globe. Compared to traditional industrial factories that produce material goods and generally employ entire towns if not cities, large-scale data centers each generally employ fewer than 100 full-time employees – most of these employees are either engineers or security guards. In a way, data centers are the ultimate automated factory. Moreover, the owner of a traditional factory needs to acquire/purchase/extract raw materials to produce commodities; however, much of the raw data for a data center are freely drawn from the labor and everyday activities of Internet users without a direct cost to the data center. The factory system is to industrial capitalism what data centers are becoming to digital capitalism.

## The Growth of Google's Data Factories

Today, there is a growing arms race among leading Internet companies – Google, Microsoft, Amazon, Facebook, IBM – in building out large-scale data centers around the globe.<sup>[15]</sup> Among these companies, Google has so far been leading in terms of scale and capital investment. In 2014, the company spent \$11 billion for real estate purchases, production equipment, and data center construction,<sup>[16]</sup> compared to Amazon which spent \$4.9 billion and Facebook with \$1.8 billion in the same year.<sup>[17]</sup>

Until 2002, Google rented only one collocation facility in Santa Clara, California to house about 300 servers.<sup>[18]</sup> However, by 2003 the company had started to purchase entire collocation buildings that were cheaply available due to overexpansion during the dot.com era. Google soon began to design and build its own data centers containing thousands of custom-built servers as Google expanded its services and global market and responded to competitive pressures. Initially, Google was highly secretive about its data center locations and related technologies; a former Google employee called this Google's "Manhattan project." However, in 2012, Google began to open up its data centers. While this seems like Google's had a change of heart and wants to be more transparent about their data centers to the public, it is in reality more about Google's self-serving public relations onslaught to show how its cloud infrastructure is superior to Google's competitors and to secure future cloud clients.<sup>[19]</sup>

As of 2016, Google has data centers in 14 locations around the globe – eight in Americas, two in Asia and four in Europe – with an unknown number of collocated centers – ones in which space, servers, and infrastructure are shared with other companies – in undisclosed locations. The sheer size of Google's data centers is reflected in its server chip consumption. In all, Google supposedly accounts for 5% of all server chips sold in the world,<sup>[20]</sup> and it is even affecting the price of chips as the company is one of biggest chip buyers. Google's recent allying with Qualcomm for its new chip has become a threat to Intel – Google has been the largest customer of the world's largest chip maker for quite some time.<sup>[21]</sup> According to Steven Levy, Google admitted that, "it is the largest computing manufacturer in the world – making its own servers requires it to build more units every year than the industry giants HP, Dell, and Lenovo."<sup>[22]</sup> Moreover, Google has been amassing cheap "dark fibre" – fibre optic cables that were laid down during the 1990s dot.com boom by now-defunct telecom firms betting on increased internet traffic<sup>[23]</sup> - constructing Google's fibre optic cables in US cities,<sup>[24]</sup> and investing in building massive undersea cables to maintain its dominance and expand its markets by controlling Internet infrastructure.<sup>[25]</sup>

With its own customized servers and software, Google is building a massive data center network infrastructure, delivering its service at unprecedented speeds around the clock and around the world. According to one report, Google's global network of data centers, with a capacity to deliver 1-petabit-per-second bandwidth, is powerful enough to read all of the scanned books in the Library of Congress in a fraction of a second.<sup>[26]</sup> *New York Times* columnist Pascal Zachary once reported:

*... I believe that the physical network is Google's "secret sauce," its premier competitive advantage. While a brilliant lone wolf can conceive of a dazzling algorithm, only a super wealthy and well-managed organization can run what is arguably the most valuable computer network on the planet. Without the computer network, Google is nothing.<sup>[27]</sup>*

Where then is Google's secret sauce physically located? Despite its massiveness, Google's data center infrastructure and locations have been invisible to millions of everyday Google users around the globe – users assume that Google is ubiquitous, the largest cloud in the 'net.' However, this infrastructure is no longer unnoticed since the infrastructure needed to support the "new economy" is beginning to occupy and transform our landscapes and building a new fixed network of global digital production space.

# New Network of Digital Production Space: Restructuring Industrial cities

While Google's data traffic and exchange extends well beyond geographic boundaries, its physical plants are fixed in places where digital goods and services are processed and produced. For the production of material goods, access to cheap labor has long been one of the primary criteria for companies to select their places of production; but for data centers, a large quantity of cheap labor is not as important since they require only a small number of employees. The common characteristics necessary for data center sites have so far been: good fiber-optic infrastructure; cheap and reliable power sources for cooling and running servers, geographical diversity for redundancy and speed, cheap land, and locations close to target markets.<sup>[28]</sup> Today, if one finds geographical areas in the world with some combination of these factors, there will likely be data centers there or in the planning stages for the near future.

Given these criteria, there has been an emerging trend of reconfiguration and conversion to data centers of former industrial sites such as paper mills, printing plants, steel plants, textile mills, auto plants, aluminum plants and coal plants. In the United States, and in particular rust belt regions of the upper Northeast, Great Lakes and Midwest regions – previously hubs of manufacturing industries and heart lands of both industrial capitalism and labor movements – are turning (or attempting to turn) into hotspots for large-scale data centers for Internet companies.<sup>[29]</sup> These cities are the remains of past crises of industrial capitalism as well as of long labor struggles.

The reasons that former industrial sites in the US and other parts of the world are attractive for data center conversion is that, starting in the 1970s, many factories had closed or moved their operations overseas in search of ever-cheaper labor and concomitantly weak or nonexistent labor laws, leaving behind solid physical plants and industrial infrastructures of power, water and cooling systems once used to drive industrial machines and production lines and now perfectly fit for data center development.<sup>[30]</sup> Especially, finding cheap energy is crucial for companies like Google since data center energy costs are a major expenditure.

Moreover, many communities surrounding former industrial sites have struggled and become distressed with increasing poverty, high unemployment and little labor power. Thus, under the guise of “economic development,” many state and local governments have been eager to lure data centers by offering lavish subsidies for IT companies. For at least the last five years, state after state has legislated tax breaks for data centers and about a dozen states have created customized incentives programs for data center operations.<sup>[31]</sup> State incentives range from full or partial exemptions of sales/use taxes on equipment, construction materials, and in some cases purchases of electricity and backup fuel.<sup>[32]</sup> This kind of corporate-centric economic development is far from the construction of democratic cities that prioritize social needs and collective interests, and reflects the environmental and long-term sustainability of communities; but rather the goal is to, “create a good business climate and therefore to optimize conditions for capital accumulation no matter what the consequences for employment or social and environmental well-being.”<sup>[33]</sup>

Google's first large-scale data center site is located in one of these struggling former industrial towns. In 2006, Google opened its first data center in The Dalles – now nicknamed Googleville – a town of a little over 15,000 located alongside the Columbia River and about 80 miles east of Portland, Oregon. It is an ideal site in the sense that it is close to a major metropolitan corridor (Seattle-Tacoma-Portland) to serve business interests and large urban population centers; yet, cheap land, little organized labor, and the promise of cheap electrical power from the Bonneville Power Administration, a federal governmental agency, as well as a 15-year property tax exemption. In addition, The Dalles had already built a fiber-optic loop as part of its economic development hoping to attract the IT industry.<sup>[34]</sup>

Not long ago, the residents of The Dalles and communities up and down the Columbia River gorge relied on the aluminum industry, an industry which required massive amounts of – in this case hydroelectric – power. Energy makes up 40 percent of the cost of aluminum production<sup>[35]</sup> and was boosted by the war economies of World War II and the Korean war as aluminum was used for various war products, especially aircraft. However, starting in 1980, aluminum smelter plants began to close and move out of the area, laid off their workers and left their installed infrastructure behind.

Since then, The Dalles, like other industrial towns, has suffered from high unemployment, poverty, aging population and budget-strapped schools, etc. Thus, the decision for Google to build a data center the size of two football fields (68,680-square-foot storage buildings) in order to take advantage of the preinstalled fiber optic infrastructure, relatively cheap hydropower from the Dalles Dam, and tax benefits was presented as the new hope for the distressed town and a large employment opportunity for the town's population.<sup>[36]</sup>

There was much community excitement that Google's arrival would mean an economic revival for the struggling city and a better life for the poor, but no one could discuss about it at the time of negotiations with Google because local officials involved in negotiations had all signed nondisclosure agreements (NDAs);<sup>[37]</sup> they were required not to mention Google in any way but were instead instructed to refer to the project as "Project 02."<sup>[38]</sup> Google insisted that the information it shared with representatives of The Dalles not be subject to public records disclosures.<sup>[39]</sup> While public subsidies were a necessary precondition of building the data center,<sup>[40]</sup> there were no transparency or open public debates on alternative visions of development that reflects collective community interests.

Google's highly anticipated data center in The Dalles opened in 2006, but it "opened" only in the sense that it became operational. To this day, Google's data center site is off-limits to the community and is well-guarded, including multiple CCTV cameras which survey the grounds around the clock. Google might boast of its corporate culture as "open" and "non-hierarchical" but this does not extend to the data centers within the community where Google benefits as it extracts resources. Not only was the building process secretive, but access to the data center itself is highly restricted. Data centers are well secured with several guards, gates and checkpoints. Google's data center has reshaped the landscape into a pseudo-militarized zone as it is not far off from a top-secret military compound – access denied.

This kind of landscape is reproduced in other parts of the US as well. New data center hubs have begun to emerge in other rural communities; one of them is in southwestern North Carolina where the leading tech giants – Google, Facebook, Apple, Disney and American Express – have built data centers in close

proximity to each other. The cluster of data centers is referred to as the “NC Data Center Corridor,”<sup>[41]</sup> a neologism used to market the area.

At one time, the southwestern part of North Carolina had heavy concentration of highly labor-intensive textiles and furniture industries that exploited the region’s cheap labor supply and where workers fought long and hard for better working conditions and wages. However, over the last 25 years, factories have closed and slowly moved out of the area and been relocated to Asia and Latin America.<sup>[42]</sup> As a result – and mirroring the situation in The Dalles – the area has suffered a series of layoffs, chronically high unemployment rates and poverty, but now is being rebranded as a center of the “new economy” geared toward attracting high-tech industries. For many towns, abandoned manufacturing plants are no longer an eyesore but rather are becoming major selling points to the IT industry. Rich Miller, editor of *Data Center Knowledge*, stated, “one of the things that’s driving the competitiveness of our area is the power capacity built for manufacturers in the past 50 years.”<sup>[43]</sup>

In 2008, Google opened a \$600 million data center in Lenoir, NC, a town in Caldwell County (population 18,228<sup>[44]</sup>

). Lenoir was once known as the furniture capital of the South but lost 1,120 jobs in 2006.<sup>[45]</sup> More than 300,000 furniture jobs moved away from the United States during 2000 as factories relocate to China for cheaper labor and operational costs.<sup>[46]</sup> In order to lure Google, Caldwell County and the City of Lenoir gave Google a 100 percent waiver on business property taxes, an 80 percent waiver on real estate property taxes over the next 30 years,<sup>[47]</sup> and various other incentives. Former NC Governor Mike Easley announced that, “this company will provide hundreds of good-paying, knowledge-based jobs that North Carolina’s citizens want;”<sup>[48]</sup> yet, he addressed neither the cost of attracting Google for taxpayers – including those laid-off factory workers – nor the environmental impact of the data center. In 2013, Google expanded its operation in Lenoir with an additional \$600 million investment, and as of 2015, it has 250 employees in its 220-plus acre data center site.<sup>[49]</sup>

The company continues its crusade of giving “hope” to distressed communities and now “saving” the environment from the old coal-fueled industrial economy. Google’s latest project in the US is in Widows Creek, Alabama where the company is converting a coal burning power plant commissioned in 1952 – which has been polluting the area for years – to its 14<sup>th</sup> data center powered by renewable power. Shifting from coal to renewable energy seems to demonstrate how Google has gone “green” and is being a different kind of corporation that cares for the environment. However, this is a highly calculated business decision given that relying on renewable energy is more economical over the long term than coal – which is more volatile as commodity prices greatly fluctuate.<sup>[50]</sup> Google is gobbling up renewable energy deals around the world to procure cheap energy and power its data centers.<sup>[51]</sup> However, Google’s “green” public relations also camouflage environmental damages that are brought by the data center’s enormous power consumption, e-waste from hardware, rare earth mining and the environmental damage over the entire supply chain.<sup>[52]</sup>

The trend of reoccupation of industrial sites by data centers is not confined to the US. Google’s Internet business operates across territories and more than 50% of its revenues come from outside the US. As Google’s domestic search market share has stabilized at around 60% share, the company has aggressively moved to build data centers around the world for its global expansion. One of Google’s most ambitious data center projects outside the US was in Hamina, Finland where Google converted a paper mill to a data center.

In 2008, Stora Enso, the Finnish paper maker, in which the Finnish Government held 16% of the company's shares and controlled 34% of the company, shut down its Summa paper mill on the site close to the city of Hamina in Southeastern Finland despite workers' resistance against the closure.<sup>[53]</sup> The company shed 985 jobs including 485 from the Summa plant.<sup>[54]</sup> Shortly after closing the plant, Stora Enso sold the 53 year-old paper mill site to Google for roughly \$52 million which included 410 acres of land and the paper mill and its infrastructure itself.

Whitewashing the workers' struggles, the *Helsinki Times* reported that, "everyone was excited about Google coming to Finland. The news that the Internet giant had bought the old Stora Enso mill in Hamina for a data centre was great news for a community stunned by job losses and a slowing economy."<sup>[55]</sup>

However, the local elites recognized that jobs created by Google would not drastically affect the city's unemployment rate or alleviate the economic plight for many people in the community, so they justified their decision by arguing that connecting Google's logo to the city's image would result in increased investments in the area.<sup>[56]</sup> The facility had roughly 125 full-time employees when Google announced its Hamina operation's expansion in 2013.<sup>[57]</sup> The data center is monitored by Google's customary CCTV cameras and motion detectors; even Google staff only have access to the server halls after passing biometric authentication using iris recognition scanners.<sup>[58]</sup>

Like Google's other data centers, Google's decision to build a data center in Hamina is not merely because of favorable existing infrastructure or natural resources. The location of Hamina as its first Nordic data center is vital and strategic in terms of extending Google's reach into geographically dispersed markets, speed and management of data traffic. Hamina is located close to the border with Russia and the area has long been known for good Internet connectivity via Scandinavian telecommunications giant TeliaSonera, whose services and international connections run right through the area of Hamina and reach into Russia as well as to Sweden and Western Europe.<sup>[59]</sup> Eastern Europe has a growing Internet market and Russia is one of the few countries where Google does not dominate the search market. Yandex, Russia's native language search engine, controls the Russian search market with over 60% share.<sup>[60]</sup> By locating its infrastructure in Hamina, Google is establishing its strategic global digital production beach-head for both the Nordic and Russian markets.

As Google is trying to maintain its global dominance and expand its business, the company has continued to build out its data center operations on European soil. Besides Finland, Google has built data centers in Dublin, Ireland, and St. Ghislain and Mons in Belgium, which respectively had expanded their operations after their initial construction. However, the stories of each of these data centers is similar: aluminum smelting plant town The Dalles, Oregon and Lenoir North Carolina in the US, paper mill town Hamina, Finland, coal-mining town Ghislain-Mons, Belgium and a warehouse converted data center in Dublin, Ireland. Each of these were once industrial production sites and/or sites for the extraction of environmental resources turned into data centers creating temporal production spaces to accelerate digital capitalism. Google's latest venture in Europe is in a seaport town of Eemshaven, Netherlands which hosts several power stations as well as the transatlantic fiber-optic cable which links the US and Europe.

To many struggling communities around the world, the building of Google's large-scale data centers has been presented by the company and by political elites as an opportunity to participate in the "new economy" – as well as a veiled threat of being left behind from the "new economy" – as if this would magically lead to the creation of prosperity and equality. In reality, these cities and towns are being

reorganized and reoccupied for corporate interests, re-integrated into sites of capital accumulation and re-emerged as new networks of production for capitalist development.

## Conclusion

Is the current physical landscape that supports the “new economy” outside of capitalist social relations? Does the process of the redevelopment of struggling former industrial cities by building Google data centers under the slogan of participation in the “new economy” really meet social needs, and express democratic values? The “new economy” is boasted about as if it is radically different from past industrial capitalist development, the solution to myriad social problems that hold the potential for growth outside of the capitalist realm; however, the “new economy” operates deeply within the logic of capitalist development – constant technological innovation, relocation and reconstruction of new physical production places to link geographically dispersed markets, reduction of labor costs, removal of obstacles that hinder its growth and continuous expansion. Google’s purely market-driven data centers illustrate that the “new economy” built on data and information does not bypass physical infrastructures and physical places for the production and distribution of digital commodities. Rather, it is firmly anchored in the physical world and simply establishes new infrastructures on top of existing industrial ones and a new network of production places to meet the needs of the processes of digital commodities at the expense of environmental, labor and social well-being.

We celebrate the democratic possibilities of the “networked information economy” providing for alternative space free from capitalist practices; however, it is vital to recognize that this “new economy” in which we put our hopes is supported by, built on, and firmly planted in our material world. The question that we need to ask ourselves is: given that our communities and physical infrastructures continue to be configured to assist the reproduction of the social relations of capitalism, how far can our “new economy” deliver on the democracy and social justice for which we all strive?

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# House, City, World, Nation, Globe

THIS IS A DRAFT

Natacha Roussel

This timeline starts in Brussels and is an attempt to situate some of the events in the life, death and revival of the Mundaneum in relation to both local and international events. By connecting several geographic locations at different scales, this small research provokes correlations in time and space that could help formulate questions about the ways local events repeatedly mirror and recompose global situations. Hopefully, it can also help to see which contextual elements in the first iteration of the Mundaneum were different from the current situation of our information economy.

The ambitious project of the Mundaneum was imagined by Paul Otlet with support of Henri La Fontaine at the end of the 19th century. At that time colonialism was at its height, bringing a steady stream of income to occidental countries which created a sense of security that made everything seem possible. According to some of the most forward thinking persons of the time it felt as if the intellectual and material benefits of rational thinking could universally become the source of all goods. Far from any actual move towards independence, the first tensions between colonial/commercial powers were starting to manifest themselves. Already some conflicts erupted, mainly to defend commercial interests such as during the Fashoda crisis and the Boers war. The sense of strength brought to colonial powers by the large influx of money was however quickly tempered by World War I that was about to shake up modern European society.

In this context Henri La Fontaine, energised by Paul Otlet's encompassing view of classification systems and standards, strongly associates the Mundaneum project with an ideal of world peace. This was a conscious process of thought; they believed that this universal archive of all knowledge represented a resource for the promotion of education towards the development of better social relations. While Otlet and La Fontaine were not directly concerned with economical and colonial issues, their ideals were nevertheless fed by the wealth of the epoch. The Mundaneum archives were furthermore established with a clear intention, and a major effort was done to include documents that referred to often neglected topics or that could be considered as alternative thinking, such as the well known archives of the feminist movement in Belgium and information on anarchism and pacifism. In line with the general dynamism caused by a growing wealth in Europe at the turn of the century, the Mundaneum project seemed to be always growing in size and ambition. It also clearly appears that the project was embedded in the international and 'politico-economical' context of its time and in many aspects linked to a larger movement that engaged civil society towards a proto-structure of networked society. Via the development of infrastructures for communication and international regulations, Henri La Fontaine was part of several

international initiatives. For example he launched the 'Bureau International de la paix' as early as 1907 and a few years after, in 1910, the 'International Union of Associations'. Overall his interventions helped to root the process of archive collection in a larger network of associations and regulatory structures. Otlet's view of archives and organisation extended to all domains and La Fontaine asserted that general peace could be achieved through social development by the means of education and access to knowledge. Their common view was nurtured by an acute perception of their epoch, they observed and often contributed to most of the major experiments that were triggered by the ongoing reflection about the new organisation modalities of society.

The ever ambitious process of building the Mundaneum archives took place in the context of a growing internationalisation of society, while at the same time the social gap was increasing due to the expansion of industrial society. Furthermore, the internationalisation of finances and relations did not only belong to industrial society, it also acted as a motivation to structure social and political networks, affirming them via political negotiations and the institution of civil society organisations. Several broad structures dedicated to the regulation of international relations were created simultaneous with the worldwide spreading of an industrial economy. They aimed to formulate a world view that would be based on international agreements and communication systems regulated by governments and structured via civil society organisations, rather than leaving everything to individual and commercial initiatives. Otlet and La Fontaine spent a large part of their lives attempting to formulate a mondial society. La Fontaine clearly supported international networks of civil society organisations, Otlet, according to Vincent Capdepuyl<sup>[1]</sup>, was the first person to use the French term Mondialisation far ahead of his time, advocating what would become after World War II an important movement that claimed to work for the development of an international regulatory system. Otlet also mentioned that this Mondialisation process was directly related to the necessity of a new repartition and the regulation of natural goods (think: diamonds and gold ...), he writes:

*« Un droit nouveau doit remplacer alors le droit ancien pour préparer et organiser une nouvelle répartition. La "question sociale" a posé le problème à l'intérieur ; "la question internationale" pose le même problème à l'extérieur entre peuples. Notre époque a poursuivi une certaine socialisation de biens. [...] Il s'agit, si l'on peut employer cette expression, de socialiser le droit international, comme on a socialisé le droit privé, et de prendre à l'égard des richesses naturelles des mesures de "mondialisation". »<sup>[2]</sup>.*

The approaches of La Fontaine and Otlet already bear certain differences, as one (La Fontaine) emphasises an organisation based on local civil society structures which implies direct participation, while the other (Otlet) focuses more on management and global organisation managed by a regulatory framework. It is interesting to look at these early concepts that were participating to a larger movement called 'the first mondialisation', and understand how they differ from current forms of globalisation which equally involve private and public instances and various infrastructures.

The project of Otlet and La Fontaine took place in an era of international agreements over communication networks. It is known and often a subject of fascination that the global project of the Mundaneum also involved the conception of a technical infrastructure and communication systems that were conceived in between the two World Wars. Some of them such as the Mondothèque were imagined as prospective possibilities, but others were already implemented at the time and formed the basis of an international communication network, consisting of postal services and telegraph networks. It is less acknowledged that the epoch was also a time of international agreements between countries, structuring and normalising international life; some of these structures still form the basis of our actual global economy, but they are all

challenged by private capitalist structures. The existing postal and telegraph networks covered the entire planet, and agreements that regulated the price of the stamp allowing for postal services to be used internationally, were recent. They certainly were the first ones during where international agreements regulated commercial interests to the benefit of individual communication. Henri Lafontaine directly participated in these processes by asking for the postal franchise to be waived for the transport of documents between international libraries, to the benefit of among others the Mundaneum. Lafontaine was also an important promoter of larger international movements that involved civil society organisations; he was the main responsible for the 'Union internationale des associations', that acted as a network of information-sharing, setting up modalities for exchange to the general benefit of civil society. Furthermore, concerns were raised to rethink social organisation that was harmed by industrial economy and this issue was addressed in Brussels by the brand new discipline of sociology. The 'Ecole de Bruxelles'<sup>[3]</sup> in which Otlet and La Fontaine both took part was already very early on trying to formulate a legal discourse that could help address social inequalities, and eventually come up with regulations that could help 're-engineer' social organisation.

The Mundaneum project differentiates itself from contemporary enterprises such as Google, not only by its intentions, but also by its organisational context as it clearly inscribed itself in an international regulatory framework that was dedicated to the promotion of local civil society. How can we understand the similarities and differences between the development of the Mundaneum project and the current knowledge economy? The timeline below attempts to re-situate the different events related to the rise and fall of the Mundaneum in order to help situate the differences between past and contemporary processes.

DATE	EVENT	TYPE	SCALE
1865	The <b>International Union of telegraph</b> , is set up it is an important element of the organisation of a mondial communication network and will further become the <b>International Telecommunication Union (UTI)</b> <sup>[4]</sup> that is still active in regulating and standardizing radio-communication.	STANDARD	<u>WORLD</u>
1870	Franco-Prussian war.	EVENT	<u>WORLD</u>
1874	The ONU creates the <b>General Postal Union</b> <sup>[5]</sup> and aims to federate international postal distribution.	STANDARD	<u>WORLD</u>
1875	<b>General Conference on Weights and Measures</b> in Sèvres, France.	STANDARD	<u>WORLD</u>
1882	<b>Triple Alliance</b> , renewed in 1902.	EVENT	<u>WORLD</u>
1889	<u>Henri Lafontaine</u> creates <b>La Société Belge de l'arbitrage et de la paix</b> .	EVENT	NATION
1890's	First colonial wars (Fachoda crisis, Boers war ...).	EVENT	<u>WORLD</u>
1890	<u>Henri Lafontaine</u> meets <u>Paul Otlet</u> .	PERSON	<u>CITY</u>
1891	<b>Franco-Russian entente</b> ', preliminary to the <b>Triple entente</b> that will be signed in 1907.	EVENT	<u>WORLD</u>
1891	<u>Henri Lafontaine</u> publishes an essay <i>Pour une bibliographie de la paix</i> .	PUBLICATION	NATION

1893	Otlet and Lafontaine start together the <b>Office International de Bibliologie Sociologique</b> (OIBS).	ASSOCIATION	<u>CITY</u>
1894	Henri Lafontaine is elected senator of the province of Hainaut and later senator of the province of Liège-Brabant.	EVENT	NATION
1895 2-4 September	First <b>Conférence de Bibliographie</b> at which it is decided to create the <b>Institut International de Bibliographie</b> (IIB) founded by <u>Henri La Fontaine</u> .	ASSOCIATION	<u>CITY</u>
1900	<b>Congrès bibliographique international</b> in Paris.	EVENT	<u>WORLD</u>
1903	Creation of the international <b>Women's suffrage alliance</b> (IWSA) that will later become the <b>International Alliance of Women</b> .	ASSOCIATION	<u>WORLD</u>
1904	<b>Entente cordiale</b> between France and England which defines their mutual zone of colonial influence in Africa.	EVENT	<u>WORLD</u>
1905	First Moroccan crisis.	EVENT	<u>WORLD</u>
1907 June	Otlet and Lafontaine organise a <b>Central Office for International Associations</b> that will become the <b>International Union of Associations</b> (IUA) at the first <b>Congrès mondial des associations internationales</b> in Brussels in May 1910.	ASSOCIATION	<u>CITY</u>
1907	Henri Lafontaine is elected president of the <b>Bureau international de la paix</b> that he previously initiated.	PERSON	NATION
1908 July	<b>Congrès bibliographique international</b> in Brussels.	EVENT	<u>CITY</u>
1910 May	Official Creation of the <b>International union of associations</b> (IUA). In 1914, it federates 230 organizations, a little more than half of them still exist. The IUA promotes internationalist aspirations and desire for peace.	ASSOCIATION	<u>WORLD</u>
1910 25-27 August	<b>Le Congrès International de Bibliographie et de Documentation</b> deals with issues of international cooperation between non-governmental organizations and with the structure of universal documentation.	ASSOCIATION	<u>WORLD</u>
1911	More than 600 people and institutions are listed as IIB members or refer to their methods, specifically the UDC.	ASSOCIATION	<u>WORLD</u>
1913	Henri Lafontaine is awarded the Nobel Price for Peace.	EVENT	<u>WORLD</u>
1914	Germany declares war to France and invades Belgium.	EVENT	<u>WORLD</u>
1916	Lafontaine publishes <i>The great solution: magnissima charta</i> while in exile in the United States.	PUBLICATION	<u>WORLD</u>
1919	Opening of the <b>Mundaneum</b> or <b>Palais Mondial</b> at the <u>Cinquantenaire</u> park.	EVENT	<u>CITY</u>

1919 June 28	The <b>Traité de Versailles</b> marks the end of World War I and creation of the <b>Société Des Nations</b> (SDN) that will later become the <b>United Nations</b> (UN).	EVENT	<u>WORLD</u>
1924	Creation (within the IIB), of the <b>Central Classification Commission</b> focusing on the development of the <b>Universal Decimal Classification</b> (UDC).	ASSOCIATION	NATION
1931	The IIB becomes the <b>International Institute of documentation</b> (IID) and in 1938 and is named <b>International Federation of documentation</b> (IDF).	ASSOCIATION	<u>WORLD</u>
1934	Publication of Otlet's book <i>Traité de documentation</i> .	PUBLICATION	<u>WORLD</u>
1934	The <b>Mundaneum</b> is closed after a governmental decision. A part of the archives are moved to <u>Rue Féris 44</u> , Brussels, home of Paul Otlet.	MOVE	HOUSE
1939 September	Invasion of Poland by Germany, start of World War II.	EVENT	<u>WORLD</u>
1941	Some files from the <b>Mundaneum</b> collections concerning international associations, are transferred to Germany. They are assumed to have propaganda value.	MOVE	<u>WORLD</u>
1944	Death of Paul Otlet. He is buried in <u>Etterbeek cemetery</u> .	EVENT	<u>CITY</u>
1947	The <b>International Telecommunication Union</b> (UTI) is attached to the UN.	STANDARD	GLOBE
1956	Two separate ITU committees, the <b>Consultive Committee for International Telephony</b> (CCIF) and the <b>Consultive Committee for International Telegraphy</b> (CCIT) are joined to form the <b>CCITT</b> , an institute to create standards, recommendations and models for telecommunications.	STANDARD	GLOBE
1963	<b>American Standard Code for Information Interchange</b> (ASCII) is developed.	STANDARD	GLOBE
1966	The <b>ARPANET</b> project is initiated.	ASSOCIATION	NATION
1974	<b>Telenet</b> , the first public version of the Internet founded.	STANDARD	<u>WORLD</u>
1986	First meeting of the <b>Internet Engineering Task Force</b> (IETF), the US-located informal organization that promotes open standards along the lines of "rough consensus and running code".	STANDARD	GLOBE
1992	Creation of <b>The Internet Society</b> , an American association with international vocation.	STANDARD	<u>WORLD</u>

1993	Elio Di Rupo organises the transport of the <b>Mundaneum</b> archives from Brussels to <u>76 rue de Nimy</u> in Mons.	MOVE	NATION
2012	Failure of the <b>World Conference on International Telecommunications</b> (WCIT) to reach an international agreement on Internet regulation.	STANDARD	GLOBE

### Additional timelines

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- <https://www.reseau-canope.fr/savoirscdi/societe-de-linformation/le-monde-du-livre-et-de-la-presse/histoire-du-livre-et-de-la-documentation/biographies/paul-otlet.html>
- <http://monoskop.org/Otlet>
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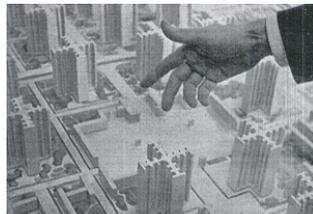
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# The Smart City - City of Knowledge

Dennis Pohl

In Paul Otlet

's words the Mundaneum is “an idea, an institution, a method, a material corpus of works and collections, a building, a network.”<sup>[1]</sup> It became a lifelong project that he tried to establish together with Henri La Fontaine in the beginning of the 20th century. The collaboration with Le Corbusier was limited to the architectural draft of a centre of information, science, and education, leading to the idea of a “World Civic Center” in Geneva. Nevertheless the dialectical discourse between both Utopians did not restrict itself to a commissioned design, but reveals the relation between a specific positivist conception of knowledge and architecture; the system of information and the spatial distribution according to efficiency principles. A notion that lays the foundation for what is now called *the Smart City*.

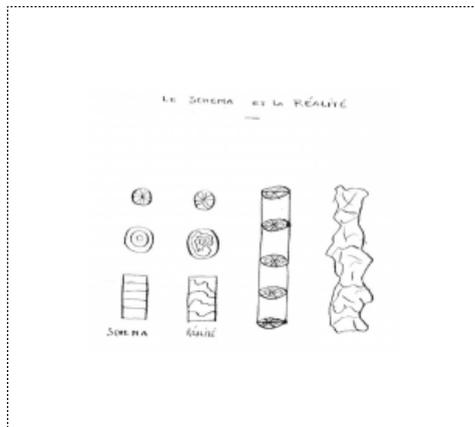


UNE NOUVELLE VILLE  
REPLACE  
UNE ANCIENNE VILLE

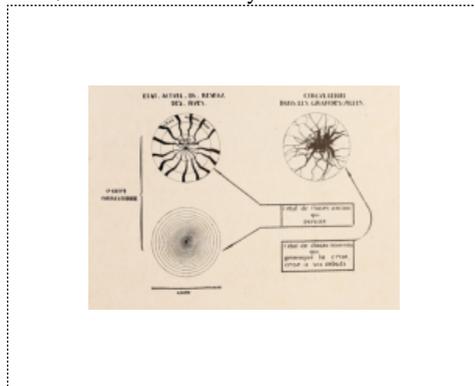
# Formulating the Mundaneum

*"We're on the verge of a historic moment for cities" [2]*

*"We are at the beginning of a historic transformation in cities. At a time when the concerns about urban equity, costs, health and the environment are intensifying, unprecedented technological change is going to enable cities to be more efficient, responsive, flexible and resilient." [3]*



## Otlet, Scheme and Reality



## Corbusier, Current and Ideal traffic circulation

In 1927 Le Corbusier participated in the design competition for the headquarters of the League of Nations, but his designs were rejected. It was then that he first met his later *cher ami* Paul Otlet. Both

were already familiar with each other's ideas and writings, as evidenced by their use of schemes, but also through the epistemic assumptions that underlie their world views.

Before meeting Le Corbusier, Otlet was fascinated by the idea of urbanism as a science, which systematically organizes all elements of life in infrastructures of flows. He was convinced to work with Van der Swaelmen, who had already planned a world city on the site of Tervuren near Brussels in 1919.<sup>[4]</sup>

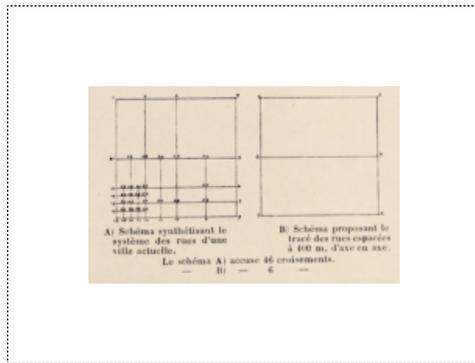


Van der Swaelmen - Tervuren, 1916

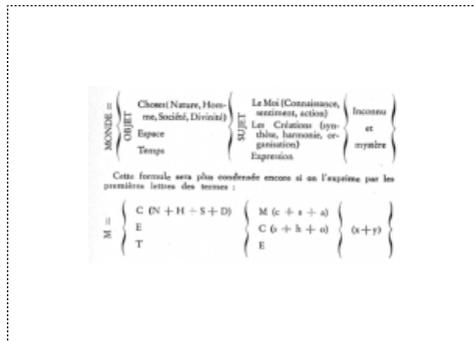
For Otlet it was the first time two notions from different practices came together, namely an environment ordered and structured according to principles of rationalization and taylorization. On the one hand, rationalization as an epistemic practice that reduces all relationships to those of definable means and ends. On the other hand, taylorization as the possibility to analyze and synthesize workflows according to economic efficiency and productivity. Nowadays, both principles are used synonymously: if all modes of production are reduced to labour, then its efficiency can be rationally determined through means and ends.

*"By improving urban technology, it's possible to significantly improve the lives of billions of people around the world. [...] we want to supercharge existing efforts in areas such as housing, energy, transportation and government to solve real problems that city-dwellers face every day."<sup>[5]</sup>*

In the meantime, in 1922, Le Corbusier developed his theoretical model of the *Plan Voisin*, which served as a blueprint for a vision of Paris with 3 million inhabitants. In the 1925 publication *Urbanisme* his main objective is to construct "a theoretically water-tight formula to arrive at the fundamental principles of modern town planning."<sup>[6]</sup> For Le Corbusier "statistics are merciless things," because they "show the past and foreshadow the future"<sup>[7]</sup>, therefore such a formula must be based on the objectivity of diagrams, data and maps.



Corbusier - scheme for the traffic circulation



Otlet's Formula

Moreover, they “give us an exact picture of our present state and also of former states; [...] (through statistics) we are enabled to penetrate the future and make those truths our own which otherwise we could only have guessed at.”<sup>[8]</sup> Based on the analysis of statistical proofs he concluded that the ancient city of Paris had to be demolished in order to be replaced by a new one. Nevertheless, he didn't arrive at a concrete formula but rather at a rough scheme.

A formula that includes every atomic entity was instead developed by his later friend Otlet as an answer to the question he posted in *Monde*, on whether the world can be expressed by a determined unifying entity. This is Otlet's dream: a “permanent and complete representation of the entire world,”<sup>[9]</sup> located in one place.

Early on Otlet understood the active potential of Architecture and Urbanism as a *dispositif*, a strategic apparatus, that places an individual in a specific environment and shapes his understanding of the world.

<sup>[10]</sup> A world that can be determined by ascertainable facts through knowledge. He thought of his *Traité de documentation: le livre sur le livre, théorie et pratique* as an “architecture of ideas”, a manual to collect and organize the world's knowledge, hand in hand with contemporary architectural developments.

As new modernist forms and use of materials propagated the abundance of decorative elements, Otlet believed in the possibility of language as a model of “raw data”, reducing it to essential information and unambiguous facts, while removing all inefficient assets of ambiguity or subjectivity.

Tim Berners-Lee: [...] Make a beautiful website, but first give us the unadulterated data, we want the data. We want unadulterated data. OK, we have to ask for raw data now. And I'm going to ask you to practice that, OK? Can you say "raw"?

Audience: Raw.

Tim Berners-Lee: Can you say "data"?

Audience: Data.

TBL: Can you say "now"?

“Information, from which has been removed all dross and foreign elements, will be set out in a quite analytical way. It will be recorded on separate leaves or cards rather than being confined in volumes,” which will allow the standardized annotation of hypertext for the Universal Decimal Classification (UDC).<sup>[11]</sup> Furthermore, the “regulation through architecture and its tendency of a total urbanism would help towards a better understanding of the book *Traité de documentation* and its right functional and holistic desiderata.”<sup>[12]</sup> An abstraction would enable Otlet to constitute the “equation of urbanism” as a type of sociology (S):  $U = u(S)$ , because according to his definition, urbanism “is an art of distributing public space in order to raise general human happiness; urbanization is the result of all activities which a society employs in order to reach its proposed goal; [and] a material expression of its organization.”<sup>[13]</sup> The scientific position, which determines all characteristic values of a certain region by a systematic classification and observation, was developed by the Scottish biologist and town planner Patrick Geddes, who was invited by Paul Otlet for the 1913 world exhibition in Gent to present his *Town Planning Exhibition* to an international audience.<sup>[14]</sup> What Geddes inevitably takes further is the positivist belief in a totality of science, which he unfolds from the ideas of Auguste Comte, Frederic Le Play and Elisée Reclus in order to reach a unified understanding of an urban development in a special context. This position would allow to represent the complexity of an inhabited environment through data.<sup>[15]</sup>

## Thinking the Mundaneum

The only person that Otlet considered capable of the architectural realization of the Mundaneum was Le Corbusier, whom he approached for the first time in spring 1928. In one of the first letters he addressed the need to link “the idea and the building, in all its symbolic representation. [...] *Mundaneum opus maximum*.” Aside from being a centre of documentation, information, science and education, the complex should link the Union of International Associations (UIA), which was founded by La Fontaine and Otlet in 1907, and the League of Nations. “A material and moral representation of *The greatest Society of the nations* (humanity);” an international city located on an extraterritorial area in Geneva.<sup>[16]</sup> Despite their different backgrounds, they easily understood each other, since they “did frequently use similar terms such as plan, analysis, classification, abstraction, standardization and synthesis, not only to bring conceptual order into their disciplines and knowledge organization, but also in human action.”<sup>[17]</sup> Moreover, the appearance of common terms in their most significant publications is striking. Such as spirit, mankind, elements, work, system and history, just to name a few. These circumstances led both Utopians to think the Mundaneum as a system, rather than a singular central type of building; it was meant to include as many resources in the development process as possible. Because the Mundaneum is “an idea, an institution, a method, a material corpus of works and collections, a building, a network,”<sup>[18]</sup> it had to be conceptualized as an “organic plan with the possibility to expand on different scales with the multiplication of each part.”<sup>[19]</sup> The possibility of expansion and an organic redistribution of elements adapted to new necessities and needs, is what guarantees the system efficiency, namely by constantly integrating more resources. By designing and standardizing forms of life up to the smallest element, modernism propagated a new form of living which would ensure the utmost efficiency. Otlet supported and encouraged Le Corbusier with his words: “The twentieth century is called upon to build a whole new civilization. From efficiency to efficiency, from rationalization to rationalization, it must so raise itself that it reaches total efficiency and rationalization. [...] Architecture is one of the best bases not only of reconstruction (the deforming and skimpy name given to the whole of post-war activities) but of intellectual and social

construction to which our era should dare to lay claim.”<sup>[20]</sup> Like the *Wohnmaschine*, in Corbusier’s famous housing project *Unité d’habitation*, the distribution of elements is shaped according to man’s needs. The premise which underlies this notion is that man’s needs and desires can be determined, normalized and standardized following geometrical models of objectivity.

“making transportation more efficient and lowering the cost of living, reducing energy usage and helping government operate more efficiently”<sup>[21]</sup>

## Building the Mundaneum

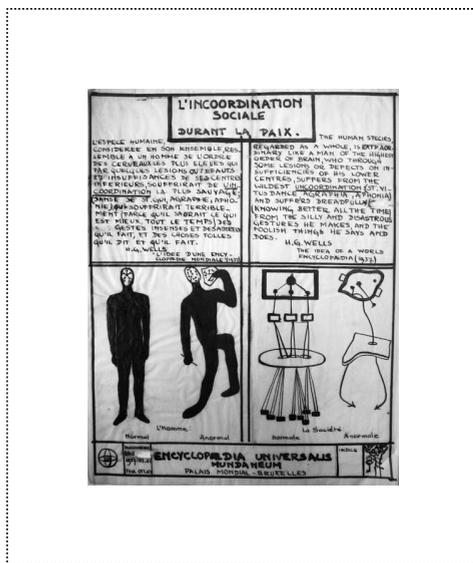
In the first working phase, from March to September 1928, the plans for the Mundaneum seemed more a commissioned work than a collaboration. In the 3rd person singular, Otlet submitted descriptions and organizational schemes which would represent the institutional structures in a diagrammatic manner. In exchange, Le Corbusier drafted the architectural plans and detailed descriptions, which led to the publication N° 128 *Mundaneum*, printed by International Associations in Brussels.<sup>[22]</sup> Le Corbusier seemed a little less enthusiastic about the Mundaneum project than Otlet, mainly because of his scepticism towards the League of Nations, which he called a “misguided” and “pre-machinist creation.”<sup>[23]</sup>

The rejection of his proposal for the Palace for the League of Nations in 1927, expressed with anger in a public announcement, might also play a role. However, the second phase, from September 1928 to August 1929, was marked by a strong friendship evidenced by the rise of the international debate after their first publications, letters starting with *cher ami* and their agreement to advance the project to the next level by including more stakeholders and developing the *Cité mondiale*. This led to the second publication by Paul Otlet, *La Cité mondiale* in February 1929, which unexpectedly traumatized the diplomatic environment in Geneva. Although both tried to organize personal meetings with key stakeholders, the project didn’t find support for its realization, especially after Switzerland had withdrawn its offer of providing extraterritorial land for *Cité mondiale*. Instead, Le Corbusier focussed on his *Ville Radieuse* concept, which was presented at the 3rd CIAM meeting in Brussels in 1930.<sup>[24]</sup> He considered *Cité mondiale* as “a closed case”, and withdrew himself from the political environment by considering himself without any political color, “since the groups that gather around our ideas are, militaristic bourgeois, communists, monarchists, socialists, radicals, League of Nations and fascists. When all colors are mixed, only white is the result. That stands for prudence, neutrality, decantation and the human search for truth.”<sup>[25]</sup>

## Governing the Mundaneum

Le Corbusier considered himself and his work “apolitical” or “above politics”.<sup>[26]</sup> Otlet, however, was more aware of the political force of this project. “Yet it is important to predict. To know in order to predict and to predict in order to control, was Comte’s positive philosophy. Prediction doesn’t cost a thing, was added by a master of contemporary urbanism (Le Corbusier).”<sup>[27]</sup> Lobbying for the *Cité mondiale* project, That prediction doesn’t cost anything and is “preparing the ways for the coming years”, Le

Corbusier wrote to Arthur Fontaine and Albert Thomas from the International Labor Organization that prediction is free and “preparing the ways for the coming years”.<sup>[28]</sup> Free because statistical data is always available, but he didn't seem to consider that prediction is a form of governing. A similar premise underlies the present domination of the smart city ideologies, where large amounts of data are used to predict for the sake of efficiency. Although most of the actors behind these ideas consider themselves apolitical, the governmental aspect is more than obvious. A form of control and government, which is not only biopolitical but rather epistemic. The data is not only used to standardize units for architecture, but also to determine categories of knowledge that restrict life to the normality of what can be classified. What becomes clear in this juxtaposition of Le Corbusier's and Paul Otlet's work is that the standardization of architecture goes hand in hand with an epistemic standardization because it limits what can be thought, experienced and lived to what is already there. This architecture has to be considered as an “epistemic object”, which exemplifies the cultural logic of its time.<sup>[29]</sup> By its presence it brings the abstract cultural logic underlying its conception into the everyday experience, and becomes with material, form and function an actor that performs an epistemic practice on its inhabitants and users. In this case: the conception that everything can be known, represented and (pre)determined through data.



1. Paul Otlet, *Monde: essai d'universalisme - Connaissance du Monde, Sentiment du Monde, Action organisée et Plan du Monde*, (Bruxelles: Editions Mundeum 1935): 448.
2. Steve Lohr, *Sidewalk Labs, a Start-Up Created by Google, Has Bold Aims to Improve City Living New*, in York Times 11.06.15, [http://www.nytimes.com/2015/06/11/technology/sidewalk-labs-a-start-up-created-by-google-has-bold-aims-to-improve-city-living.html?\\_r=0](http://www.nytimes.com/2015/06/11/technology/sidewalk-labs-a-start-up-created-by-google-has-bold-aims-to-improve-city-living.html?_r=0), quoted here is Dan Doctoroff, founder of Google Sidewalk Labs
3. Dan Doctoroff, 10.06.2015, <http://www.sidewalkinc.com/relevant>
4. Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. (Venezia: Marsilio, 1982): 128; See also: L. Van der Swaelmen, *Préliminaires d'art civique* (Leyde 1916): 164 – 299.
5. Larry Page, Press release, 10.06.2015, <http://www.sidewalkinc.com/>
6. Le Corbusier, “A Contemporary City” in *The City of Tomorrow and its Planning*, (New York: Dover Publications 1987): 164.

7. *ibid.*: 105 & 126.
8. *ibid.*: 108.
9. Rayward, W Boyd, "Visions of Xanadu: Paul Otlet (1868–1944) and Hypertext" in *Journal of the American Society for Information Science*, (Volume 45, Issue 4, May 1994): 235.
10. The french term *dispositif* or translated apparatus, refers to Michel Foucault's description of a merely strategic function, "a thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions – in short, the said as much as the unsaid." This distinction allows to go beyond the mere object, and rather deconstruct all elements involved in the production conditions and relate them to the distribution of power. See: Michel Foucault, "Confessions of the Flesh (1977) interview", in *Power/Knowledge Selected Interviews and Other Writings*, Colin Gordon (Ed.), (New York: Pantheon Books 1980): 194 – 200.
11. Bernd Frohmann, "The role of facts in Paul Otlet's modernist project of documentation", in *European Modernism and the Information Society*, Rayward, W.B. (Ed.), (London: Ashgate Publishers 2008): 79.
12. "La régularisation de l'architecture et sa tendance à l'urbanisme total aident à mieux comprendre le livre et ses propres desiderata fonctionnels et intégraux." See: Paul Otlet, *Traité de documentation*, (Bruxelles: Mundaneum, Palais Mondial, 1934): 329.
13. "L'urbanisme est l'art d'aménager l'espace collectif en vue d'accroître le bonheur humain général; l'urbanisation est le résultat de toute l'activité qu'une Société déploie pour arriver au but qu'elle se propose; l'expression matérielle (corporelle) de son organisation." *ibid.*: 205.
14. Thomas Pearce, *Mettre des pierres autour des idées, Paul Otlet, de Cité Mondiale en de modernistische stedenbouw in de jaren 1930*, (KU Leuven: PhD Thesis 2007): 39.
15. Volker Welter, *Biopolis Patrick Geddes and the City of Life*. (Cambridge, Mass: MIT 2003).
16. Letter from Paul Otlet to Le Corbusier and Pierre Jeanneret, Brussels 2nd April 1928. See: Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. (Venezia: Marsilio, 1982): 221-223.
17. W. Boyd Rayward (Ed.), *European Modernism and the Information Society*. (London: Ashgate Publishers 2008): 129.
18. "Le Mundaneum est une Idée, une Institution, une Méthode, un Corps matériel de travaux et collections, un Edifice, un Réseau." See: Paul Otlet, *Monde: essai d'universalisme - Connaissance du Monde, Sentiment du Monde, Action organisée et Plan du Monde*, (Bruxelles: Editions Mundeum 1935): 448.
19. Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. (Venezia: Marsilio, 1982): 223.
20. Le Corbusier, *Radiant City*, (New York: The Orion Press 1964): 27.
21. <http://www.sidewalkinc.com/>
22. Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. (Venezia: Marsilio, 1982): 128
23. *ibid.*: 232.
24. *ibid.*: 129.
25. *ibid.*: 255.
26. Eric Paul Mumford, *The CIAM Discourse on Urbanism, 1928-1960*, (Cambridge: MIT Press, 2002): 20.
27. "Savoir, pour prévoir afin de pouvoir, a été la lumineuse formule de Comte. Prévoir ne coûte rien, a ajouté un maître de l'urbanisme contemporain (Le Corbusier)." See: Paul Otlet, *Monde: essai d'universalisme - Connaissance du Monde, Sentiment du Monde, Action organisée et Plan du Monde*, (Bruxelles: Editions Mundeum 1935): 407.
28. Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. (Venezia: Marsilio, 1982): 241.
29. Considering architecture as an object of knowledge formation, the term "epistemic object" by the German philosopher Günter Abel, helps bring forth the epistemic characteristic of architecture. Epistemic objects according to Abel are these, on which our knowledge and empiric curiosity are focused. They are objects that perform an active contribution to what can be

thought and how it can be thought. Moreover because one cannot avoid architecture, it determines our boundaries (of thinking). See: Günter Abel, *Epistemische Objekte – was sind sie und was macht sie so wertvoll?*, in: Hingst, Kai-Michael; Liatsi, Maria (ed.), (Tübingen: Pragmata, 2008).

# The itinerant archive

The project of the Mundaneum and its protagonists is undoubtedly linked to the context of Brussels. Residency of King Leopold II, who supported the awakening of his countries desire for greatness by a steady stream of capital flowing in from his private colonies in Congo, 19th century Brussels formed fertile ground for an ambitious institutional project with internationalist ambitions such as the Mundaneum. Its tragic demise was unfortunately equally at home in Brussels as it fell prey to a complex entanglements of dis-interested management and provincial politics, finally letting the remains of the archive slip out of the city. This tour through Brussels is a kind of itinerant monument to the Mundaneum in Brussels. It takes you along the many temporary locations of the archives, guided by the words of care-takers, discoverers and biographers that have crossed it's path. Following the increasingly dispersed and dwindling collection through the city and centuries, you won't find any traces of its passage, though you might discover many unknown corners of Brussels.

Avenue Rogier 67#Temporary\_storage

Chaussée d'Etterbeek 180#Google\_Belgium

Chaussée de Louvain 969#Les\_Amis\_du\_Mundaneum

Cimetière d'Ixelles#Grave\_of\_Paul\_Otlet

Koning Albert II-laan 28-30#World\_Trade\_Center\_(WTC)

Geo                      Place

Avenue Rogier  
67

Chaussée  
d'Etterbeek  
180

Chaussée de  
Louvain 969

Cimetière  
d'Ixelles

Koning Albert  
II-laan 28-30

Parc Leopold - Avenue du Maelbeek 3#Anatomical\_theatre

Parc Leopold -  
Avenue du  
Maelbeek 3

Parc du Cinquantenaire 11#Palais\_Mondial

Parc du  
Cinquantenaire  
11

Place Rogier#Metro\_Rogier\_-2

Place Rogier

Rue Fetis 44#Home\_of\_Paul\_Otlet

Rue Fetis 44

Rue Otlet#Rue\_Otlet

Rue Otlet

Rue Piers 101#Imprimerie\_Van\_Keerberghen

Rue Piers 101

Rue du Musée

Rue du Musée

1#Office\_Central\_de\_Documentation\_pour\_les\_Questions\_Concernant\_la\_Femme\_1

Square Vergote#Home\_of\_Henri\_Lafontaine\_and\_Mathilde\_Lhoest

Square  
Vergote

## 1919: Musée international

Outre le *Répertoire bibliographique universel* et un *Musée de la presse* qui comptera jusqu'à 200.000 spécimens de journaux du monde entier, on y trouvera quelque 50 salles, sorte de musée de l'humanité technique et scientifique. Cette décennie représente l'âge d'or pour le Mundaneum, même si le gros de ses collections fut constitué entre 1895 et 1914, avant l'existence du Palais Mondial. L'accroissement des collections ne se fera, par la suite, plus jamais dans les mêmes proportions.<sup>[1]</sup>

En 1920, le Musée international et les institutions créées par Paul Otlet et Henri La Fontaine occupent une centaine de salles. L'ensemble sera désormais appelé *Palais Mondial* ou *Mundaneum*. Dans les années 1920, Paul Otlet et Henri La Fontaine mettront également sur pied l'*Encyclopedia Universalis Mundaneum*, encyclopédie illustrée composée de tableaux sur planches mobiles.<sup>[2]</sup>

### Geo

### Place

Parc du Cinquantenaire 11#Palais\_Mondial Parc du Cinquantenaire 11

Start at Parc du Cinquantenaire 11, Brussels in front of the entrance of what is now Autoworld.

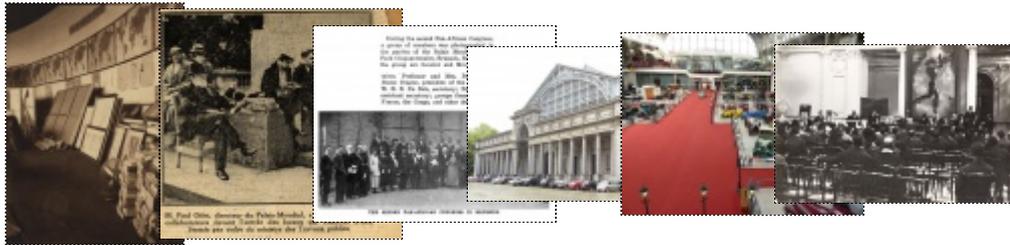
In 1919, significantly delayed by World War I, the *Musée international* finally opened. The project had been conceptualised by Paul Otlet and Henri Lafontaine already ten years earlier as a mix between a documentation center, conference venue and educational display. It occupied the left wing of the magnificent buildings erected in the Parc Cinquantenaire for the *Grand Concours International des Sciences et de l'industrie*.

Museology merged with the International Institute of Bibliography (IIB) which had its offices in the same building. The ever-expanding index card catalog had been open to the public during business hours since 1914. The project would be later known as the *World Palace* or *Mundaneum*. Simultaneously, Paul Otlet and Henri La Fontaine started to work on their *Encyclopaedia Universalis Mundana*, an illustrated encyclopaedia in the form of a mobile exhibition.

*Encyclopaedia Universalis Mundana*, an internationalisation of society, while at the same time the social gap was increasing due to the expansion of industrial society. Furthermore, the internationalisation of finances and relations did not only concern industrial society, it also acted as a motivation to structure social and political networks, among others via political negotiations and the institution of civil society organisations. (House, City, World, Nation, Globe)

Walk under the colonnade to your right, and you will recognise the former entrance of *Le Palais Mondial*.

Only a few years after its delayed opening, the ambitious project started to lose support from the Belgium government, preferring to use the vast exhibition spaces for commercial activities. In 1922 and 1924, Le Palais Mondial was temporarily closed to make space for a rubber fair.



Exhibition materials of Le Palais Mondial moved to the hallway to make space for a Rubber Fair (Foire du caoutchouc)

"M. Paul Otlet, director of the Palais Mondial, 'camps' with his colleagues in front of the entrance of the premises that are about to be closed by the Ministry of public works"

The Second Pan-African Congress in Brussels (1922)

800px-Autoworld Cinquantaire

Autoworld interior, ca. 2013

Deuxième Congrès Panafricain, au Palais Mondial, à Bruxelles en septembre 1921. In the background, "Prométhée," a painting by Jean Delville.



Hqdefault

Mondotheque  
visits the  
former  
Palais  
Mondial.  
With  
Sebastian  
Luetgert,  
Marcell  
Mars,  
Robert  
M.  
Ochshorn,  
Peter  
Westenberg,  
Donatella  
Portoghese,  
Femke  
Snelting  
and  
Flèche

Paul  
Olet at  
The  
repertory  
of the  
International  
Office of  
Bibliography  
installed  
in the  
Cinquantenaire

Middleages

Paul  
Olet  
with  
Henri  
and  
Mathilde  
Lafontaine  
in front of  
Palais  
Mondial

Mondial4



Mundaneumteam	Quinzaine internationale (durant laquelle est organisée l'Université internationale)	Pan African Congress, Brussels (1921). In the background, "Prométhée," a painting by Jean Delville	Parc du Cinquantenaire, 1880 National Exhibition	Shoemodels
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## 1934: Mundaneum moved to home of Paul Otlet

Si dans de telles conditions le Palais Mondial devait définitivement rester fermé, il semble bien qu'il n'y aurait plus place dans notre Civilisation pour une institution d'un caractère universel, inspirée de l'idéal indiqué en ces mots à son entrée : Par la Liberté, l'Égalité et la Fraternité mondiales – dans la Foi, l'Espérance et la Charité humaines – vers le Travail, le Progrès et la Paix de tous !<sup>[3]</sup>

Cato, my wife, has been absolutely devoted to my work. Her savings and jewels testify to it; her invaded house testify to it; her collaboration testifies to it; her wish to see it finished after me testifies to it; her modest little fortune has served for the constitution of my work and of my thought.<sup>[4]</sup>

### Geo Place

Rue Fétis 44#Home\_of\_Paul\_Otlet Rue Fétis 44

Walk under the Arc de Triumph and exit the Cinquantenaire park on your left. On Avenue des Nerviens-Nervierslaan turn left into Rue Sainte Gertrude-Sint Geertruidestraat. Turn left onto Rue Colonel Van Gele-Kolonel Van Gelestraat and right onto Rue Louis Hap-Louis Hapstraat. Turn left onto Avenue d'Auderghem-Oudergemselaan and right onto Rue Fétis-Fétisstraat.

The ministry of public works decided to close the Mundaneum in 1934 to make place for the extension of the Royal Museum of Art and History. An outraged Otlet posted in front of the closed entrance with

his colleagues, but to no avail. The official address of the Mundaneum was 'temporarily' transferred to his house at Rue Fétis 44 where he lived with his second wife Cato Van Nederhasselt.

Part of the archives were moved Rue Fétis, but many boxes and most of the card-indexes remained stored in the Cinquantenaire building. Paul Otlet continued a program of lectures and meetings in other places, including in his home.



Paul  
Otlet à  
son  
bureau,  
avec  
Georges  
Lorphèvre  
et théière

## 1941: Mundaneum in Parc Léopold

*The upper galleries ... are one big pile of rubbish, one inspector noted in his report. It is an impossible mess, and high time for this all to be cleared away. The Nazis evidently struggled to make sense of the curious spectacle before them. The institute and its goals cannot be clearly defined. It is some sort of ... 'museum for the whole world,' displayed through the most embarrassing and cheap and primitive methods.* [5]

Distributed in two large workrooms, in corridors, under stairs, and in attic rooms and a glass-roofed dissecting theatre at the top of the building, this residue gradually fell prey to the dust and damp darkness of the building in its lower regions, and to weather and pigeons admitted through broken panes of glass in the roof in the upper rooms. On the ground floor of the building was a dimly lit, small, steeply-raked lecture theatre. On either side of its dais loomed busts of the founders.<sup>[6]</sup>

Derrière les vitres sales, j'aperçus un amoncellement de livres, de liasses de papiers contenus par des ficelles, des dossiers dressés sur des étagères de fortune. Des feuilles volantes échappées des cartons s'amoncelaient dans les angles de l'immense pièce, du papier pelure froissé se mêlait au gravat et à la poussière. Des récipients de fortune avaient été placés entre les caisses et servaient à récolter l'eau de

pluie. Un pigeon avait réussi à pénétrer à l'intérieur et se cognait inlassablement contre l'immense baie vitrée qui fermait le bâtiment.<sup>[7]</sup>

Annually in this room in the years after Otlet's death until the late 1960's, the busts garlanded with floral wreaths for the occasion, Otlet and La Fontaine's colleagues and disciples, Les Amis du Palais Mondial, met in a ceremony of remembrance. And it was Otlet, theorist and visionary, who held their imaginations most in beneficial thrall as they continued to work after his death, just as they had in those last days of his life, among the mouldering, discarded collections of the Mundaneum, themselves gradually overtaken by age, their numbers dwindling.<sup>[8]</sup>

Parc Leopold - Avenue du Maelbeek  
3#Anatomical\_theatre

### Geo

Parc Leopold - Avenue du  
Maelbeek 3

### Place

Exit the Rue Fétis-Fétisstraat onto Chaussee de Wavre-Steenweg op Waver, turn right and follow into the Rue de l'Etang-Vijverstraat. Turn right on Rue Gray straat, cross Place Jourdan plein into Parc Leopold park. Right at the entrance is the building of l'Institut d'Anatomie Raoul Warocqué.

In 1941, the Nazi-Germans occupying Belgium wanted to use the space still used to store the collections of the Mundaneum in the Palais du Cinquantenaire. Everything was moved to the Parc Léopold except for tons of periodicals, which were simply destroyed, and a vast quantity of files on the international associations, which were assumed to have propaganda value for the German war effort. This part of the archive was transferred back to Berlin and apparently re-appeared in the Stanford archives many years later. It must have been taken there by American soldiers after World War II.

Until the 1970's, the Mundaneum (or what was left of it) would remain here, in the Parc Léopold. Georges Lorphèvre and André Colet continued to carry on the work of the Mundaneum with the help of a few ageing Amis du Palais Mondial. It is here that both the Belgian librarian André Canonne and the Australian scholar Warden Boyd Rayward come across the archive for the very first time.



1941-  
munda-  
parc  
leopold

1972-  
maalbeck  
01

800px-  
Parc  
Leopold-  
Bruxelles03

Levie 1

Levie 2

Tumblr  
mabayc8d011qhe01n

## 2009: offices Google Belgium

A natural affinity exists between Google's modern project of making the world's information accessible and the Mundaneum project of two early 20th century Belgians. Otlet and La Fontaine imagined organizing all the world's information - on paper cards. While their dream was discarded, the Internet brought it back to reality and it's little wonder that many now describe the Mundaneum as *the paper Google*. Together, we are showing the way to marry our paper past with our digital future. <sup>[9]</sup>

### Geo

### Place

Chaussée d'Etterbeek 180#Google\_Belgium Chaussée d'Etterbeek 180

Exit the park onto Steenweg op Etterbeek-Chaussée d'Etterbeek and walk left to number 176-180.

In 2009, Google Belgium opened its offices at the Chaussée d'Etterbeek 180, only a short walk away from the last location that Paul Otlet has been able to work on the Mundaneum project. Celebrating the discovery of its "European roots", the company has insisted on the connection between the project of Paul Otlet, and their own mission to *organize the world's information and make it universally accessible and useful*. To celebrate the desired connection to the Forefather of documentation,

the building is said to have a Mundaneum room. In the lobby, a vitrine with one of the drawers filled with UDC-index cards, on loan from the Mundaneum archive center in Mons.



Biographers	6591510	6850843018	Elio di	Jean-Paul
Warden	PhoDoc1	c0999bf201	Rupo and	Deplus,
Boyd	BDA	z	Sylvia	Elio di
Rayward,	0018		Van	Rupo and
Françoise	rupo.jpg		Peteghem,	Sylvia
Levie and	0ML1ICYR		2012	Van
Alex				Peteghem
Wright at				sign the
Alex				collaboration
Wright's				agreement
lecture				between
"Cataloging				Google
the world:				and
Paul				Mundaneum,
Otlet and				2012
the Birth				
of the				
Information				
Age",				
held in				
Brussels,				
at Google				
Offices,				
December				
4, 2014				

## 1944: Grave of Paul Otlet

When I am no more, my documentary instrument (my papers) should be kept together, and, in order that their links should become more apparent, should be sorted, fixed in successive order by a consecutive numbering of all the cards (like the pages of a book).<sup>[10]</sup>

Geo

Place

Cimetière d'Ixelles#Grave\_of\_Paul\_Otlet Cimetière d'Ixelles

OPTIONAL: Continue on Steenweg op Etterbeek-Chaussée d'Etterbeek toward Rue Belliard-Belliardstraat. Turn left until you reach Rue de Trèves-Trierstraat. Turn right onto Luxemburgplein-Place du Luxembourg and take **bus 95** direction Wiener.

Paul Otlet dies in 1944 when he is 76 years old. His grave at the cemetery of Ixelles is decorated with a globe and the inscription "Il ne fut rien sinon Mundanéen" (He was nothing if not Mundanéen).

Exit the cemetery and walk toward Avenue de la Couronne-Kroonlaan. At the roundabout, turn left onto Boondaalsesteenweg-Chaussée de Boondael. Turn left onto Boulevard Général Jacques-Generaal Jacqueslaan and take **tram 25** direction Rogier.

Halfway your tram-journey you will pass Square Vergote (Stop: Georges Henri), where Henri Lafontaine and Mathilde Lhoest used to live. Henri Lafontaine supported Otlet's projects all his life.

Get off at the stop Coteaux and follow Rue Rogier-Rogierstraat until number 67.



Inscription:	Tomb at
"Il ne fut	the grave
rien sinon	of Paul
Munanéen"	Otlet

## 1981: Storage at Avenue Rogier 67

C'est à ce moment que le conseil d'administration, pour sauver les activités (expositions, prêts gratuits, visites, congrès, exposés, etc.) vendit quelques pièces. Il n'y a donc pas eu de vol de documents, contrairement à ce que certains affirment, garantit de Louvroy.<sup>[11]</sup>

In fact, not one of the thousands of objects contained in the hundred galleries of the Cinquantenaire has survived into the present, not a single maquette, not a single telegraph machine, not a single flag, though there are many photographs of the exhibition rooms.<sup>[12]</sup>

Mais je me souviens avoir vu à Bruxelles des meubles d'Otlet dans des caves inondées. On dit aussi que des pans entiers de collections ont fait le bonheur des amateurs sur les brocantes. Sans compter que le

papier se conserve mal et que des dépôts mal surveillés ont pollué des documents aujourd'hui irrécupérables.<sup>[13]</sup>

**Geo**                      **Place**

Avenue Rogier 67#Temporary\_storage Avenue Rogier 67

This part of the walk takes about 45", and will take you from the Elsene-Ixelles neighbourhood through St-Joost-Saint-Josse to Schaarbeek-Schaerbeek; from high to low Brussels.

Continue on Steenweg op Etterbeek-Chaussée d'Etterbeek, cross Rue Belliard-Belliardstraat and continue onto Jean Reyplein-Place Jean Rey. Take a left onto Steenweg op Etterbeek-Chaussée d'Etterbeek. If you prefer, you can take a train at Bruxelles Schumann Station to North Station, or continue following Etterbeek-Chaussée d'Etterbeek onto Maria-Louizasquare-Square Marie-Louise. Continue straight onto Gutenbergsquare-Square Gutenberg, Rue Bonneels-Bonneelsstraat which becomes Rue Braemt-Braemtstraat at some point. Cross Chaussée de Louvain-Leuvense Steenweg and turn left onto Rue des Moissons-Oogststraat. Continue onto Houwaertplein-Place Houwaert and Dwars Straat-Rue Traversière. Continue onto Chaussée de Haecht-Haachtsesteenweg and follow onto Rue Botanique-Kruidtuinstraat. Take a slight right onto Groenstraat-Rue Verte, turn left onto Rue de Quatrecht-Kwatrechtstraat and under the North Station railroad tracks. Turn right onto Rue du Progrès-Vooruitgangstraat. Avenue Rogier-Rogierstraat is the first street on your left.

In 1972, we find Les Amis du Mundaneum at Chaussée de Louvain 969. Apparently, the City of Brussels has moved the Mundaneum out of Parc Léopold, into a parking garage, 'a building rented by the ministry of Finances', 'in the direction of the Saint-Josse-ten-Node station'.<sup>[14]</sup> 10 years later, the collection (or what is left of it) is moved to the back-house of this building at Avenue Rogier 67. Andre Canonne who has become director of the ...



Storage  
place of  
the  
Mundaneum  
at  
Avenue  
Rogier

# 1985: Espace Mundaneum under Place Rogier

On peut donc croire sauvées les collections du "Mundaneum" et a bon droit espérer la fin de leur interminable errance. Au moment ou nous écrivons ces lignes, des travaux d'aménagement d'un "Espace Mundaneum" sont en voie d'achèvement au cour de Bruxelles.<sup>[15]</sup>

L'acte fut signé par le ministre Philippe Monfils, président de l'exécutif. Son prédécesseur, Philippe Moureaux, n'était pas du même avis. Il avait même acheté pour 8 millions un immeuble de la rue Saint-Josse pour y installer le musée. Il fallait en effet sauver les collections, enfouies dans l'arrière-cour d'une maison de repos de l'avenue Rogier! (...) L'étage moins deux, propriété de la commune de Saint-Josse, fut cédé par un bail emphytéotique de 30 ans à la Communauté, avec un loyer de 800.000 F par mois. (...) Mais le Mundaneum est aussi en passe de devenir une mystérieuse affaire en forme de pyramide. A l'étage moins un, la commune de Saint-Josse et la société française «Les Pyramides» négocient la construction d'un Centre de congrès (il remplace celui d'un piano-bar luxueux) d'ampleur. Le montant de l'investissement est évalué à 150 millions (...) Et puis, ce musée fantôme n'est pas fermé pour tout le monde. Il ouvre ses portes! Pas pour y accueillir des visiteurs. On organise des soirées dansantes, des banquets dans la grande salle. Deux partenaires (dont un traiteur) ont signé des contrats avec l'ASBL Centre de lecture publique de la communauté française. Contrats reconfirmés il y a quinze jours et courant pendant 3 ans encore!<sup>[16]</sup>

Mais curieusement, les collections sont toujours avenue Rogier, malgré l'achat d'un local rue Saint-Josse par la Communauté française, et malgré le transfert officiel (jamais réalisé) au «musée» du niveau - 2 de la place Rogier. Les seules choses qu'il contient sont les caisses de livres rétrocédées par la Bibliothèque Royale qui ne savait qu'en faire.<sup>[17]</sup>

## Geo Place

Place Rogier#Metro\_Rogier\_-2 Place Rogier

Follow Avenue Rogier-Rogierlaan. Turn left onto Brabantstraat-Rue de Brabant until you cross under the railroad tracks. Rogierplein-Place Rogier is on your right hand, marked by a large overhead construction of a tilted white dish.

In 1985, Andre Canonne convinced Les Amis du Palais Mondial to transfer the collection to la Centre de lecture publique de la Communauté française. It was agreed upon that the Mundaneum should stay in Brussels.

In 1990, the operation of moving the archives from their temporary storage in Avenue Rogier and the Royal Library of Belgium to Place Rogier had finally started under the guidance of André Canonne. Unfortunately, Canonne died just weeks after, and the museum never materialised. In the following three years, the collection remained stored in the same location but without much supervision. It was reported that doors were left unlocked and Metro passengers helped themselves to handfulls of documents.

The collection had in the mean time attracted the attention of Elio di Rupo, at that time minister of education at la Communauté française. It was the beginning of the end of The Mundaneum as an itinerant archive in Brussels.



Sitting on  
the  
pyramid  
at Metro  
Place  
Rogier,  
early  
2000

*The face  
of the  
earth  
would be  
much  
altered if  
brick  
architecture  
were  
ousted  
everywhere  
by glass  
architecture.  
It would  
be as if  
the earth  
were  
adorned  
with  
sparkling  
jewels  
and  
enamels.  
Such  
glory is  
unimaginable.  
We  
should  
then have  
a paradise  
on earth,  
and no  
need to  
watch in  
longing  
expectation  
for the  
paradise  
in heaven.*

Metro  
Place  
Rogier in  
2008

Place  
Rogier,  
Brussels  
around  
2005

Place  
Rogier,  
Brussels  
with sign  
"Pyramides"

Archives  
of the  
Mundaneum  
below  
Place  
Rogier,  
1990's

You can end the walk here, or add two optional destinations:

# 1934: Imprimerie van Keerberghen in Rue Piers

Geo Place

Rue Piers 101#Imprimerie\_Van\_Keerberghen Rue Piers 101

OPTIONAL: (from Rue Piers, 20") Follow the Boulevard du Jardin Botanique-Kruidtuinlaan onto Boulevard Baudouin-Boudewijnlaan onto Boulevard d'Anvers-Antwerpselaan, down in the direction of the canal. At the Saintelette bridge, cross the canal and take a slight left into Rue Adolphe Lavallée-Adolphe Lavalléestraat. Turn left onto Rue Piers-Piersstraat. Alternatively, at Rogier you can take a Metro to Ribaucourt station.

At number 101 we can still find Imprimerie Van Keerberghen, the printer that produced and distributed Le Traité de Documentation.



Copper  
 plaque on  
 the front  
 door of  
 Imprimerie  
 Van  
 Keerberghen,  
 Brussels  
 (2015)

Photo0006

## Rue Otlet

Geo Place

Rue Otlet#Rue\_Otlet Rue Otlet

OPTIONAL: (from Rue Piers, ca. 30") Follow Rue Piers-Piersstraat and turn left into Chaussée de Merchtem-Merchtemsesteenweg and follow until Chaussée de Gand-Steenweg op Gent, turn left. Turn right onto Rue Ransfort-Ransfortstraat and cross Chaussée de Ninove-Ninoofsesteenweg. Turn left to follow the canal onto Mariemontkaai-Quai de Mariemont and left at Rue de Manchester-Manchesterstraat to cross the water. Continue onto Rue de Liverpool-Liverpoolstraat, cross Chaussee de Mons-Bergense Steenweg and continue onto Dokter De Meersmanstraat-Rue Dr de Meersman until you meet Rue Otlet-Otletstraat.

(from Place Rogier, ca. 30") Follow Boulevard du Jardin Botanique-Kruidtuinlaan and turn left onto Adolphe Maxlaan-Boulevard Adolphe Max and De Brouckèreplein-Place De Brouckère. Continue onto Anspachlaan-Boulevard Anspach, turn right onto Rue du Marché aux Poulets-Kiekenmarkt. Turn left onto Rue des Poissonniers-Visverkopersstraat and continue onto Arteveldestraat-Rue Van Artevelde. Continue straight onto Anderlechtschesteenweg-Rue d'Anderlecht, continue onto Bergensesteenweg-Chaussée de Mons. Turn left onto Rue Otlet-Otletstraat. Alternatively you can take tram 51 or 81 to Porte D'Anderlecht-Anderlechtsepoort.

Although it is said that this dreary street is named in honor of Paul Otlet, it already mysteriously appears on a map dated 1894 when Otlet was not even 26 years old <sup>[18]</sup> and again on a map from 1910, when the Mundaneum had not yet opened it's doors.<sup>[19]</sup>



Rue Otlet on Plan de Bruxelles et ses faubourgs avec liste des rues published by Grand Bazar du Boulevard Anspach (1910)	Brussels renders homage to Paul Otlet with this dreary street in Anderlecht	Rue Otlet on Cram's Pentagone Atlas (1894)
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# Outside Brussels

<u>Geo</u>	<u>Date</u>	<u>Place</u>
<u>Boulder#Google_Campus</u>		
<u>Changhua#Google_Campus</u>		
<u>Eemshaven#Google_data_center</u>		
<u>Hamina#Google_data_center</u>		
<u>Hong Kong#Google_data_center</u>		
<u>Rue de Ghlin#Google_Data_Center</u>	2007	<u>Rue de Ghlin</u>
<u>Rue de Nimy 76#Mundaneum_archive_center</u>	1993	<u>Rue de Nimy 76</u>
<u>Solitude 3#Akademie_Schloss_Solitude</u>	2015	<u>Solitude 3</u>
<u>The Dalles#Google_data_center</u>		

## 1998: The Mundaneum resurrected

**Bernard Anselme**, le nouveau ministre-président de la Communauté française, négocia le transfert à Mons, au grand dam de politiques bruxellois furieux de voir cette prestigieuse collection quitter la capitale. (...) Cornaqué par **Charles Picqué** et **Elio Di Rupo**, le transfert à Mons n'a pas mis fin aux ennuis du Mundaneum. On créa en Hainaut une nouvelle ASBL chargée d'assurer le relais. C'était sans compter avec l'ASBL Cèlès, héritage indépendant du CLPCF, évoqué plus haut, que la Communauté avait fini par dissoudre. Cette association s'est toujours considérée comme propriétaire des collections, au point de s'opposer régulièrement à leur exploitation publique. Les faits lui ont donné raison: au début du mois de mai, le Cèlès a obtenu du ministère de la Culture que cinquante millions lui soient versés en contrepartie du droit de propriété.<sup>[20]</sup>

The reestablishment of the Mundaneum in Mons as a museum and archive is in my view a major event in the intellectual life of Belgium. Its opening attracted considerable international interest at the time.<sup>[21]</sup>

Et puis un jour, par hasard, je découvris le musée du nouveau Mundaneum à Mons lors des journées du Patrimoine. Le décor constitué de meubles à fichiers, surmonté par une mappemonde géante qui pivotait lentement, mis en scène par Benoît Peeters et François Schuiten, n'avait rien à voir avec ma propre vision du Mundaneum quelque trente ans plus tôt.<sup>[22]</sup>

In 1993, after some armwrestling between different fractions of the Parti Socialiste, the collections are moved from Place Rogier to former departement store *L'indépendance* in Mons, 40 kilometres from Brussels and home to Elio Di Rupo. The Mundaneum Archive Center opens here in 1998.

Salle André Canonne

## 2007: Crystal computing

Jean-Paul Deplus, échevin (adjoint) à la culture de la ville, affiche ses ambitions. « Ce lieu est une illustration saisissante de ce que des utopistes visionnaires ont apporté à la civilisation. Ils ont inventé Google avant la lettre. Non seulement ils l'ont fait avec les seuls outils dont ils disposaient, c'est-à-dire de l'encre et du papier, mais leur imagination était si féconde que l'on a retrouvé les dessins et croquis de ce qui préfigure Internet un siècle plus tard. » Et Jean-Pol Baras d'ajouter « Et qui vient de s'installer à Mons ? Un "data center" de Google ... Drôle de hasard, non ? »<sup>[23]</sup>

Google Data Center I and II

Geo Place

Rue de Ghlin#Google\_Data\_Center Rue de Ghlin



Crystal  
computing  
aka  
Google in  
Saint  
Ghislain,  
Belgium

Crystal  
computing  
by night

GBL  
010

Elio di  
Rupo,  
Rudy  
Demotte  
and  
others  
playing  
table  
football at  
Google  
Community  
Day

Mondo  
DSCN1075

Mondo  
IMG  
1022



Mondo  
IMG  
1024

Mondo  
IMG  
1028

Screenshot  
from  
Google  
Streetview:  
Streetview  
cars  
parked at  
the  
Google  
data-  
center,  
Saint  
Ghislain

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23. 'Le Mundaneum, Google de papier'

# Cross-readings

# Les Pyramides

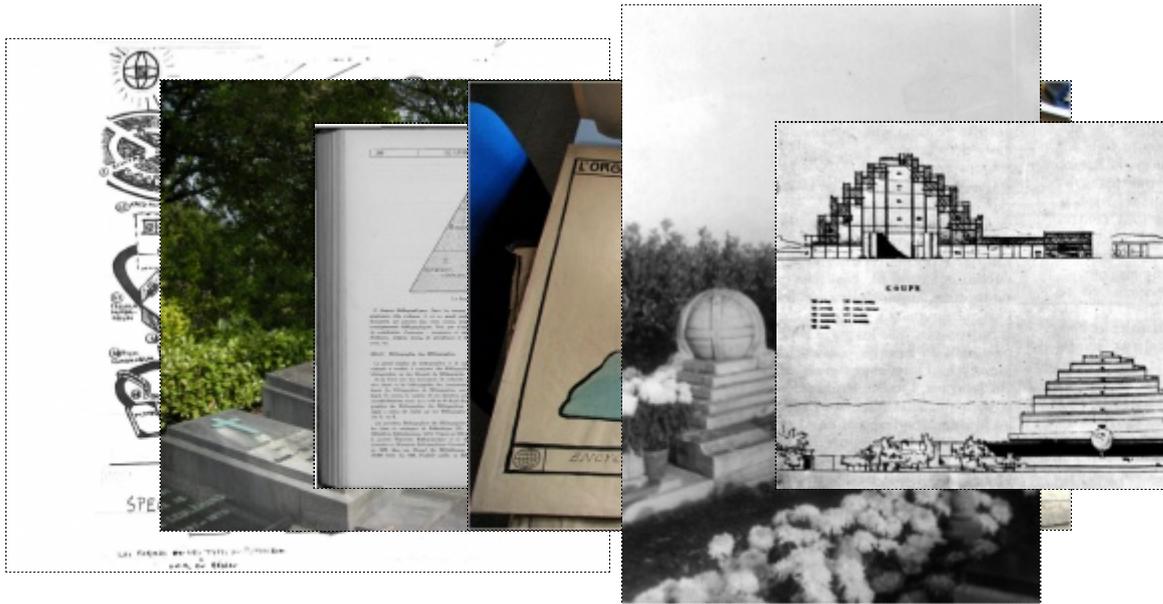
"A pyramid is a structure whose outer surfaces are triangular and converge to a single point at the top"<sup>[1]</sup>

A slew of pyramids can be found in all of Paul Otlet's drawers. Knowledge schemes and diagrams, drawings and drafts, designs, prototypes and architectural plans (including works by Le Corbusier and Maurice Heymans) employ the pyramid to provide structure, hierarchy, precise path and finally access to the world's synthesized knowledge. At specific temporal cross-sections, these plans were criticized for their proximity to occultism or monumentalism. Today their rich esoteric symbolism is still readily apparent and gives reason to search for possible spiritual or mystical underpinnings of the Mundaneum.

## Pyramide

Paul Otlet (1926):

*“Une immense pyramide est à construire. Au sommet y travaillent Penseurs, Sociologues et grands Artistes. Le sommet doit rejoindre la base où s’agitent les masses, mais la base aussi doit être disposée de manière qu’elle puisse rejoindre le sommet.”<sup>[2]</sup>*



Paul Otlet, Species Mundaneum. Mons. Mundaneum, Personal papers of Paul Otlet (MDN). Fonds Encyclopaedia Universalis Mundaneum (EUM), document No. 8506.

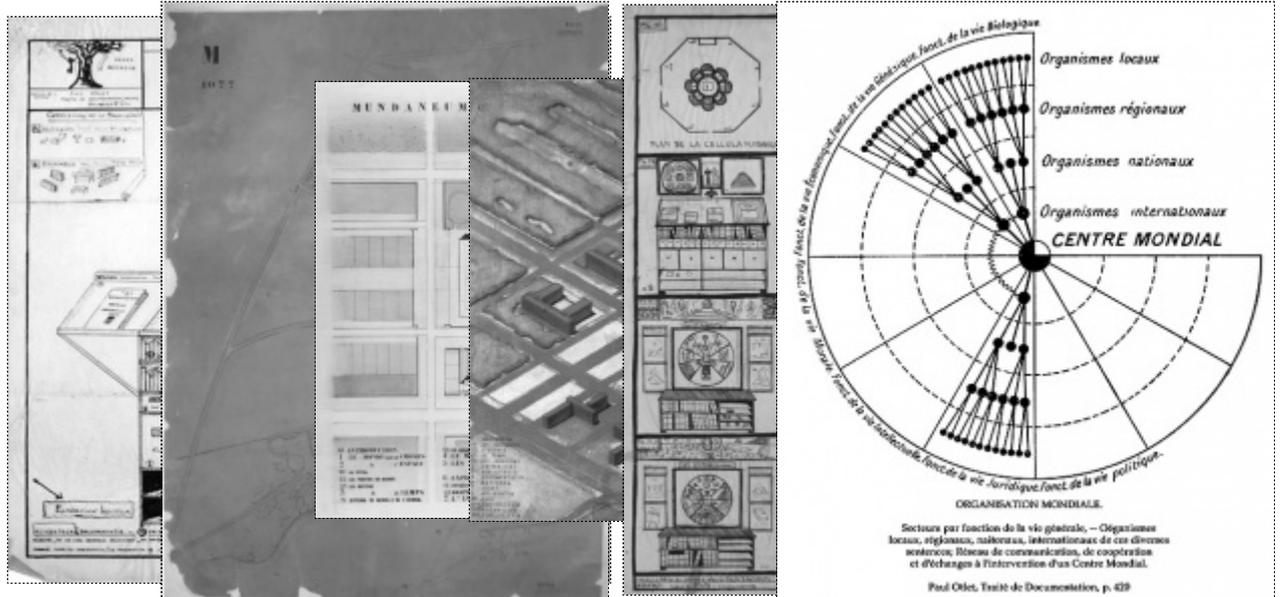
Inscription: "Il ne fut rien sinon Mundanéen"

La Pyramide des Bibliographies. In: Paul Otlet, *Traité de documentation: le livre sur le livre, théorie et pratique* (Bruxelles: Editions Mundaneum, 1934), 290.

"*Qui scit ubi scientia habenti est proximus*" *Who knows where science is, is about to have it.* The librarian is helped by collaborators: Bibliothecaire-adjoints, rédacteurs, copistes, gens de service."

Tomb at the grave of Paul Otlet

Design for the Mundaneum, Section and facades by Le Corbusier



Sketch for La  
Mondothèque. Paul  
Otlet, 1935?

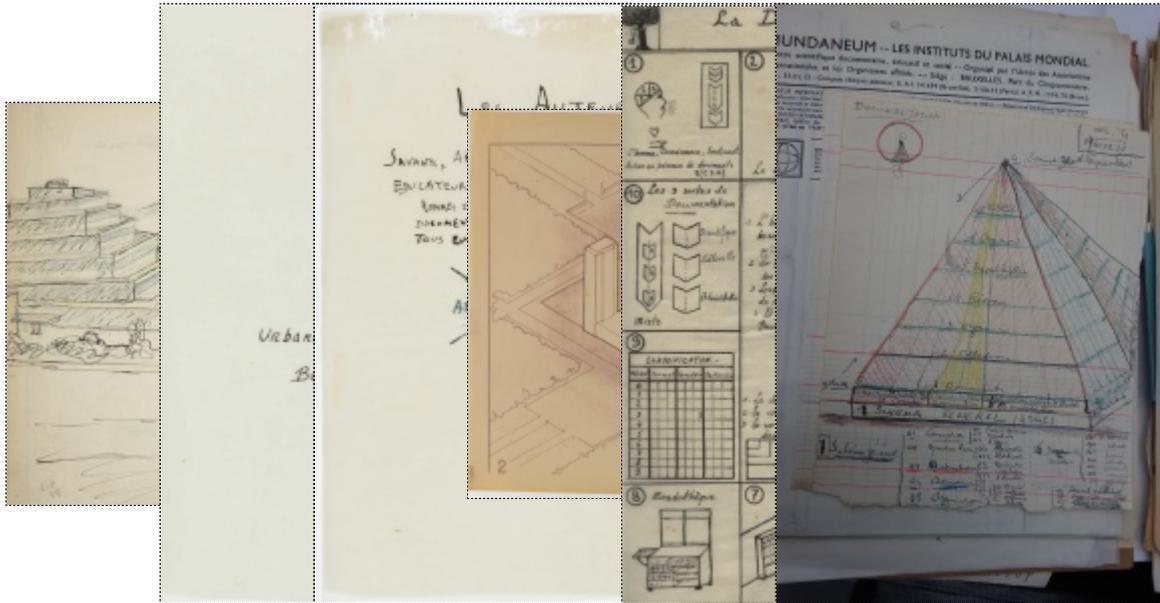
*An axonometric view of the Mundaneum gives the effect of an aerial photograph of an archeological site – Egyptian, Babylonian, Assyrian, ancient American (Mayan and Aztec) or Peruvian. These historical reminiscences are striking. Remember the important building works of the Mayas, who were the zenith of ancient American civilization. These well-known ruins (Uxmal, Chichen-Itza, Palenque on the Yucatan peninsula, and Copan in Guatemala) represent a "metaphysical architecture" of special cities of religious cults and burial grounds, cities of rulers and priests; pyramids, cathedrals of the sun, moon and stars; holy places of individual gods; graduating pyramids and terraced palaces with architectural objects conceived in*

Plan of the  
Mundaneum by  
M.C. Heymans

Perspective of the  
Mundaneum by  
M.C. Heymans

Paul Otlet, Cellula  
Mundaneum  
(1936).  
Mundaneum, Mons.  
Personal papers of  
Paul Otlet (MDN).  
Fonds Affiches  
(AFF).

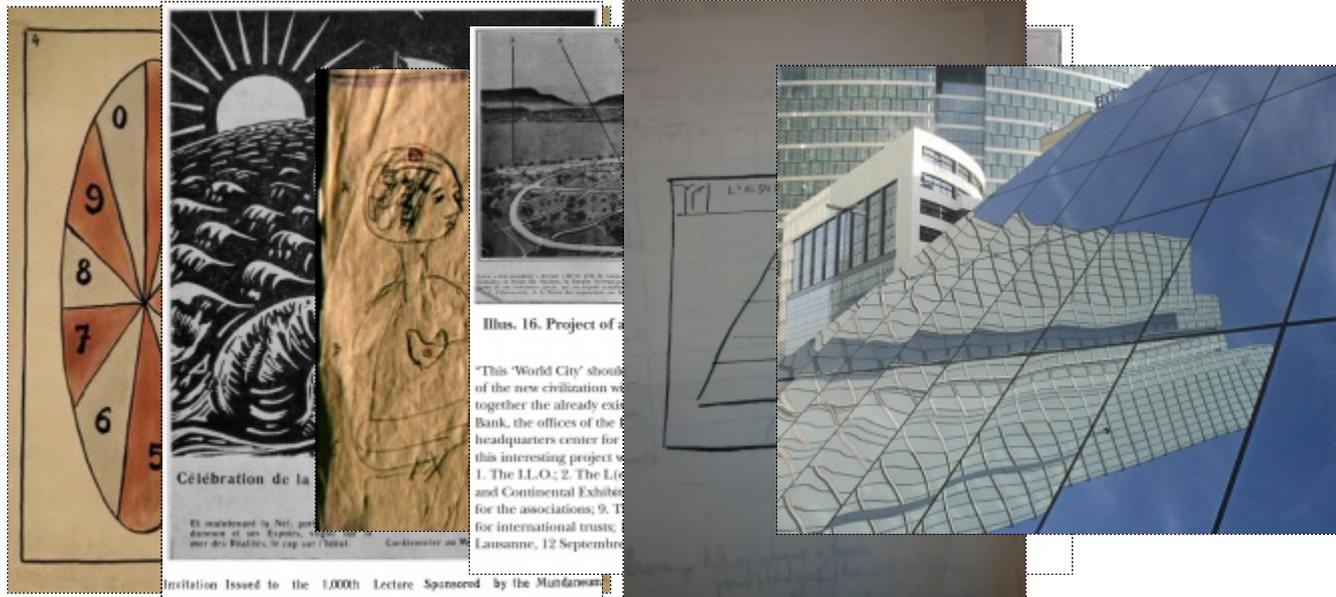
*As soon as all forms of life are categorized, classified and determined, individuals will become numeric "dividuals" in sets, subsets or classes.*



Sketch for  
Mundaneum World  
City. Le Corbusier,  
1929

Atlas Bruxelles –  
Urbaneum -  
Belganeum -  
Mundaneum. Page  
de garde du chapitre  
991 de l'Atlas de  
Bruxelles.

*The universe (which  
others call the  
Library) is composed  
of an indefinite and  
perhaps infinite  
number of triangular  
galleries, with vast  
air shafts between,  
surrounded by very  
low railings. From  
any of the triangles  
one can see,  
interminably, the  
upper and lower  
floors. The  
distribution of the  
galleries is invariable.*



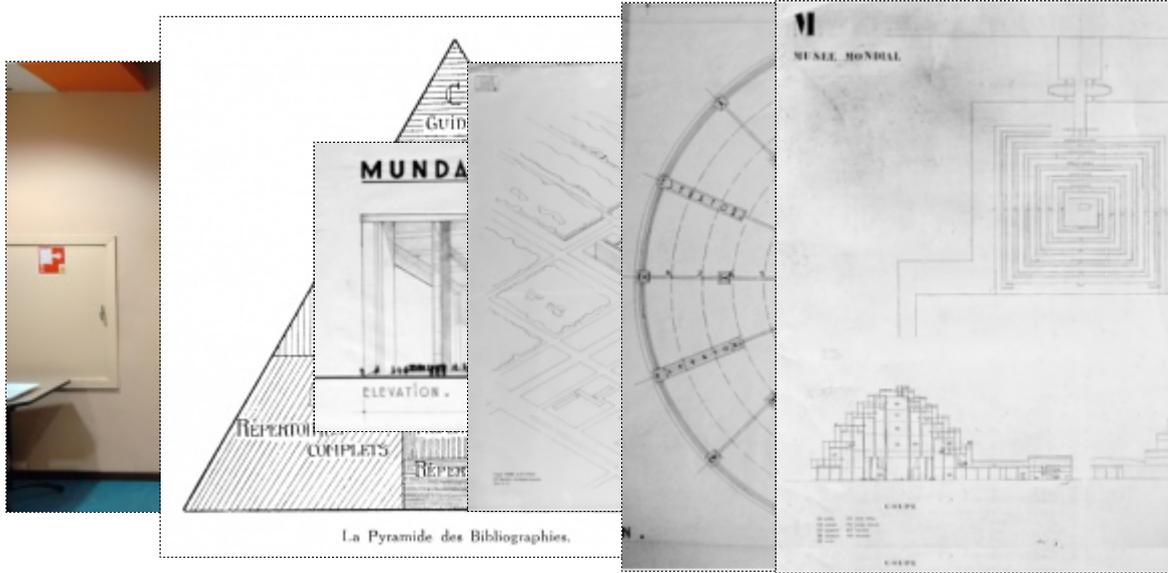
*The ship wherein Theseus and the youth of Athens returned had thirty oars, and was preserved by the Athenians down even to the time of Demetrius Phalereus, for they took away the old planks as they decayed, putting in new and stronger timber in their place, insomuch that this ship became a standing example among the philosophers, for the logical question of things that grow; one side holding that the ship remained the same, and the other contending that it was not the same.*

Universal Decimal Classification: hierarchy

World City by Le Corbusier & Jeanneret

Paul Otlet personal papers. Picture taken during a Mondotheque visit of the Mundaneum archives, 11 September 2015

*The face of the earth would be much altered if brick architecture were ousted everywhere by glass architecture. It would be as if the earth were adorned with sparkling jewels and enamels. Such glory is unimaginable. We should then have a paradise on earth, and no need to watch in longing expectation for the paradise in heaven.*



"Alimentation. – La base de notre alimentation repose en principe sur un trépied. 1° Protides (viandes, azotes). 2° Glycides (légumineux, hydrates de carbone). 3° Lipides (graisses). Mais il faut encore pour présider au cycle de la vie et en assurer la régularité, des vitamines : c'est à elles qu'est due la croissance des jeunes, l'équilibre nutritif des adultes et une certaine jeunesse chez les vieillards."

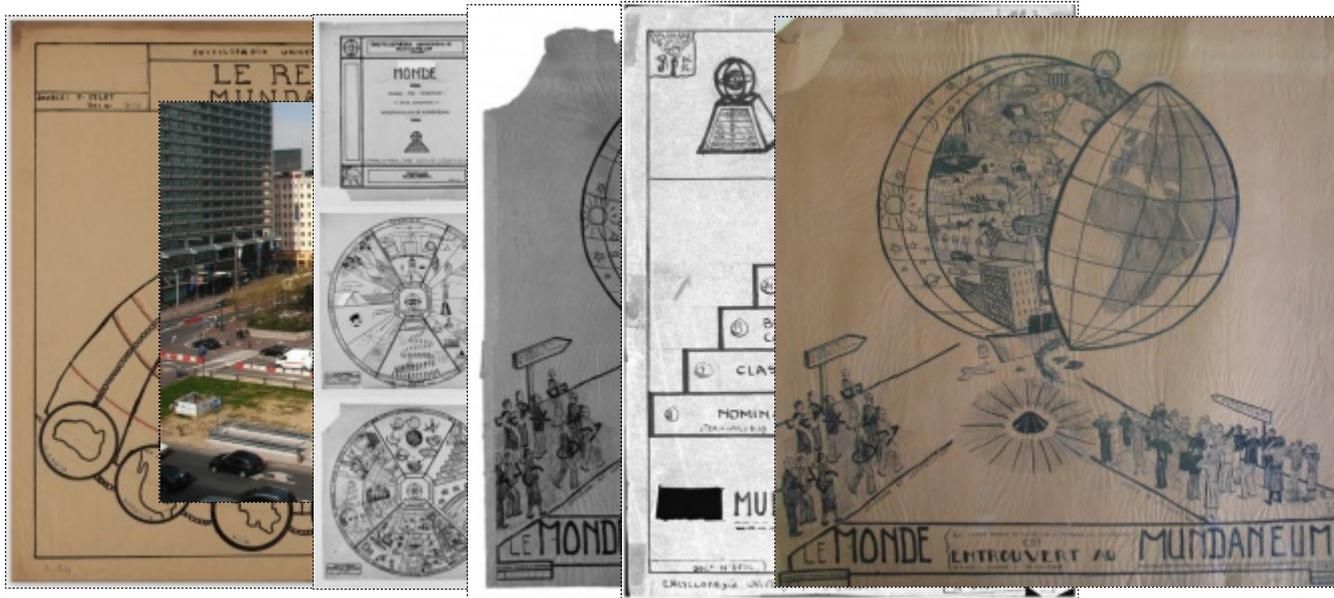
Traité de documentation - La pyramide des bibliographies

Inverted pyramid and floor plan by Stanislas Jasinski

Architectural vision of the Mundaneum by M.C. Heymans

Section by Stanislas Jasinski

Le Corbusier, Musée Mondial (1929), FLC, doc nr. 24510



Le reseau  
Mundaneum. From  
Paul Otlet,  
Encyclopaedia  
Universalis  
Mundaneum

Metro Place Rogier  
in 2008

Paul Otlet, Atlas  
Monde (1936).  
MDN, AFF, scan  
nr.  
Mundaneum\_032;  
Mundaneum\_034;  
Mundaneum\_036;  
Mundaneum\_038;  
Mundaneum\_040;  
Mundaneum\_042;  
Mundaneum\_044;  
Mundaneum\_046;  
Mundaneum\_049  
(sic!)

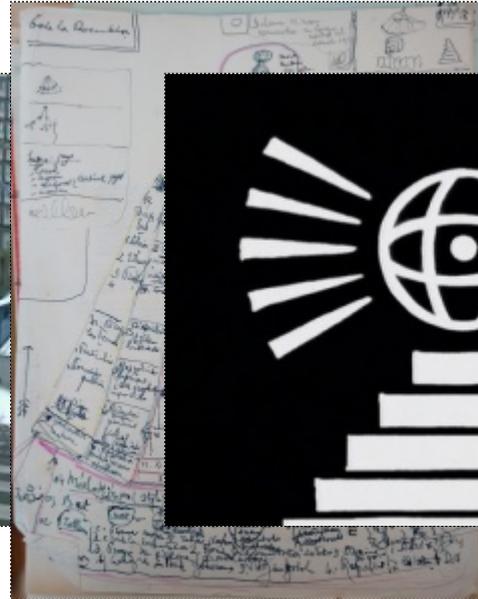
Paul Otlet, Le  
Monde en son  
ensemble (1936).  
Mundaneum, Mons.  
MDN, AFF, scan  
nr.  
MUND-00009061\_20081001\_M4017

Paul Otlet,  
Mundaneum.  
Documentatio  
Partes. MDN,  
EUM, doc nr.  
8506, scan nr.

*The "Sacrarium," is  
something like a  
temple of ethics,  
philosophy, and  
religion. A great  
globe, modeled and  
colored, in a scale 1  
= 1,000,000 with  
the planetarium  
inside, is situated in  
front of the museum  
building.*



**LE MUNDANEUM :**  
 sur la montagne des Livres — expression de la Nécessité  
 toujours cherchée, toujours produite par l'Humanaité, 4  
 millions et en tout lieux — s'élevait en degrés les  
 des cinq types qui le constituent : Musée, Bibliothèque  
 ans, Association, Laboratoire. Du Monde il veut dans  
 l'attente et désirable représentation, et, pour telle  
 peine à coopérer les Associations Internationales, en  
 qu'onnes et les lectures sont dédiées.  
 Puiseront les esprits du Mundaneum aider à amplifier et à élar-  
 ger la Vie, la Science et la Civilisation Universelle.  
 1938.12. Paul OTLET.



See Cross-readings,  
 Rayward, Warden  
 Boyd (who  
 translated and  
 adapted),  
*Mundaneum:*  
*Archives of*  
*Knowledge*  
 , Urbana-Campaign,  
 Ill. : Graduate  
 School of Library  
 and Information  
 Science, University  
 of Illinois at Urbana-  
 Champaign, 2010.  
 Original: Charlotte  
 Dubray et al.,  
 Mundaneum: Les  
 Archives de la  
 Connaissance,  
 Bruxelles: Les  
 Impressions  
 Nouvelles, 2008.  
 (p. 37)

Place Rogier,  
 Brussels around  
 2005

Place Rogier,  
 Brussels with sign  
 "Pyramides"

Toute la  
 Documentation. A  
 late sketch from  
 1937 showing all  
 the complexity of the  
 pyramid of  
 documentation. An  
 evolutionary element  
 works its way up,  
 and in the conclusive  
 level one can read a  
 synthesis: "Homo  
 Loquens, Homo  
 Scribens, Societas  
 Documentalis".

Logo of the  
 Mundaneum

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  -
1. <https://en.wikipedia.org/wiki/Pyramid>
  2. Paul Otlet, L'Éducation et les Instituts du Palais Mondial (Mundaneum). Bruxelles: Union des Associations Internationales, 1926, p. 10. ("A great pyramid should be constructed. At the top are to be found Thinkers, Sociologists and great Artists. But the top must be joined to the base where the masses are found, and the bases must have control of a path to the top.")

# Transclusionism

This page documents some of the contraptions at work in the Mondotheque wiki. The name "transclusionism" refers to the term "transclusion" coined by Ted Nelson and used in Mediawiki to refer to inclusion of the same piece of text in between different pages.

## How to transclude labeled sections between texts:

To create transclusions between different texts, you need to select a section of text that will form a connection between the pages, based on a common subject:

- Think of a category that is the common ground for the link. For example if two texts refer to a similar issue or specific concept (eg. 'rawdata'), formulate it **without spaces** or using underscores (eg. 'raw\_data', not 'raw data');
- Edit the two or more pages which you want to link, adding `{{RT|rawdata}}` `<section begin=rawdata />` before the text section, and `<section end=rawdata />` at the end (take care of the closing `'/>'`);
- All the text sections in other wiki pages which are selected along the same common ground will be transcluded on the side of the text.

## How it works:

The `<section>` code is used by the 'Labeled Section Transclusion' extension, which looks for the tagged sections in a text, to transclude them into another text based on the assigned labels.

The `{{RT|rawdata}}` instead, creates the side links by transcluding the `Template:RT` page, substituting the word `rawdata` in its internal code, in place of `{{{1}}}`. This is the commented content of `Template:RT`:

```
<div class="side">                                     # Puts the trancluded sections
                                                         #
{{#ask:                                                 # Searches semantically for all
  [[Category:{{{1}}}]]|
```

```

format=array | name=results # the requested category, puts them in an array
}}
{{#loop: loopers # Starts a loop,
| 0 # Going from 0 to
| {{#arraysize: results}} # the amount of pages
| {{#ifeq: {{FULLPAGENAME: # If the pagename
| {{#arrayindex: results | {{#var:loopers}} }} # of the current element
| }} #
| {{FULLPAGENAME}} # is the same as the
| # It will skip the
reference);
| {{#lst: # Otherwise it se

{{#arrayindex: results | {{#var:loopers}} }} # current page in the loop
| {{{1}}} }} # all the occurrences
([[{{#arrayindex: results | {{#var:loopers}} }}
]]) # Adds the name of the current page in loop;
<br /><br />
> # Adds some space after the
}} # End of pagename i
}} # End of loop;
</
div> # Closes div;
[[category:{{{1}}}
]] # Adds the page to the label category.

```

## Necessaire:

Currently on top of MediaWiki and SemanticMediaWiki, the following extensions needed to be installed for the contraption to work:

- Labeled Section Transclusion to be able to select specific sections of the texts and make connections between them;
- Parser Functions to be able to operate statements like if in the wiki pseudo-language;
- Arrays to create lists of objects, for example as a result of semantic queries;
- Loops to loop between the arrays above;
- Variables as it's needed by some of the above.

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Cross-readings. Not a bibliography.

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