

(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.

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## **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 its 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. [1]

- [Liebers P1016847.JPG](#)
- [Liebers P1016859.JPG](#)
- [Liebers P1016861.JPG](#)
- [Liebers P1016869.JPG](#)

[...] 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]

[Liebers P1016851.JPG](#)

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

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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]

- [Liebers P1016884.JPG](#)
- [Liebers P1016852.JPG](#)
- [Liebers P1016880.JPG](#)

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 (Choliam = 3,4, Choliambos

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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.

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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"?

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]

## 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. <sup>[9]</sup>

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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>.

"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) blinds 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\\_berniers\\_lee\\_on\\_the\\_next\\_web/transcript?language=en](http://www.ted.com/talks/tim_berniers_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>
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## Book of words

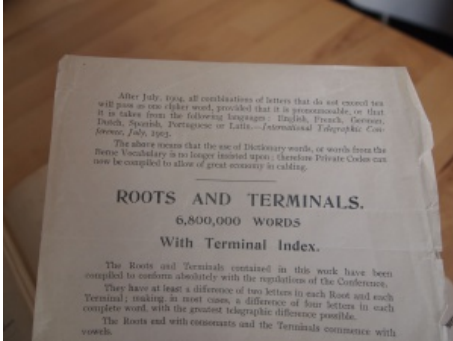
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"Unstructured" to the computer scientist, means non-conformant to particular forms of machine reading. "Structuring" then is a social process by which particular (additional) conventions are agreed upon and employed. Computer scientists often view text through the eyes of their particular reading algorithm, and

in the process (voluntarily) blinds 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>

#### 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.

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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.

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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<sup>[3]</sup>

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 extortionate 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.
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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|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**

M2.JPG

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 e d / o n / y o u r / f l

**t**

IMG 0076.jpg IMG 0077.jpg

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 muffers, 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 c h d o w n s

## 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, t]hat 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

[Absence 1.jpg](#) [DSC04476low.jpg](#) [GBL 010.png](#)

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

[2919380315 ace106c949 o.jpg](#) [8-schema.png](#)

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 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**

[MondoRMOScape03.png](#)

/ 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**

[Phrenology.jpg](#)

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 aseismic writers?" Puckered lips closes *{sic}* the door.

## **i**

[Otlet boeken.png](#) [Coworker.png](#) [Tumblr mabanxfm6n1qhe01n.jpg](#)

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.

## l

[Henri La Fontaine au Congrès universel de la paix, Berlin, 1924.jpg](#)

... 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

[DSC04568low.jpg](#)

/ 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 Rxssxx. 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

[Letters.png](#)

"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

[Screenshot from 2015-10-28 10-44-14.png](#)

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

[M1.JPG 5343895975 cb5e769ebc o.jpg](#)

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 vermilion 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]

## r

[Screenshot 5c.jpg](#)

[“gray – ...  
Other Color Terms –  
argentine, cerise, cerulean, cyan, ocher, perse, puce, taupe, vermilion”]

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

[UDC Cancellations Forbidden.png](#) [Le corbusier pyramide spiral.png](#) [Screenshot RBU.jpg](#)

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

[Screenshot photo.jpg](#) [MondoRMOScrape02.png](#)

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!

...

[014 2R.png](#) [Archives MundaneumDSC04616.jpg](#)

--Ospal (talk) 09:27, 19 November 2015 (CET) *Here is where the transcript ENDS, where the black text lines dribble back into the box. For information on document location or transcription method, kindly contact the editor.*

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

[Liz Soltan](#)

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[Sînziana Păltineanu](#)

**a|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 naively, 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 e d / o n / y o u r / f l

**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 muffers, 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 c h d o w n s

**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, t]hat 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.

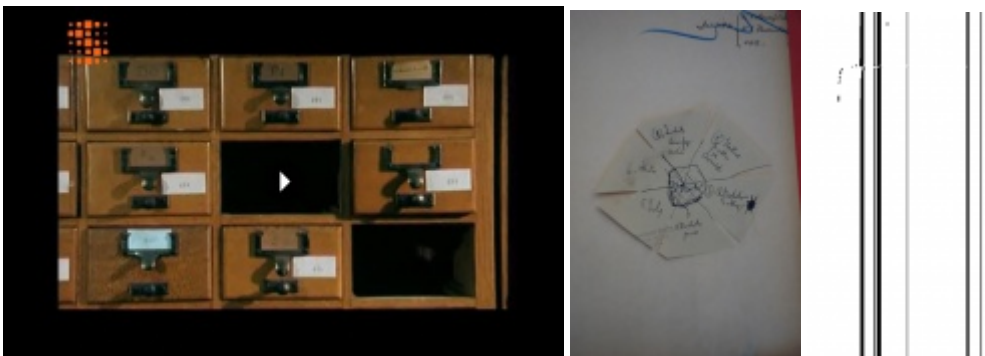
**e**

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**

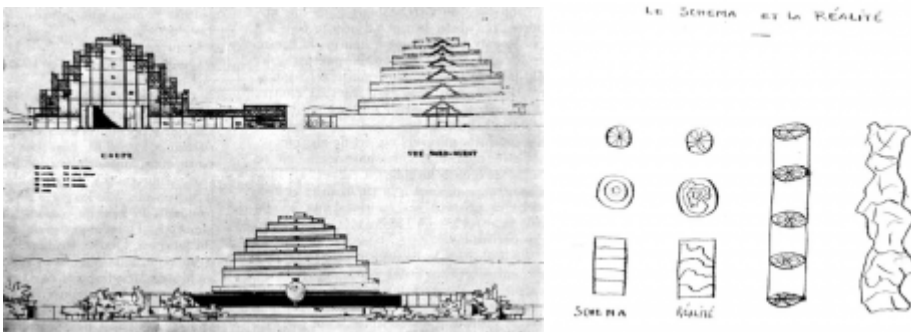


Since then, my present has turned into an obscure hole, and I can't climb out of it. Most of the time, I'm sitting at the bottom of this narrow oubliette, teeth in knees, scribbling notes with my body in a terribly twisted position. And when I'm not sitting, I'm forced to jump. Agonizing thoughts numb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

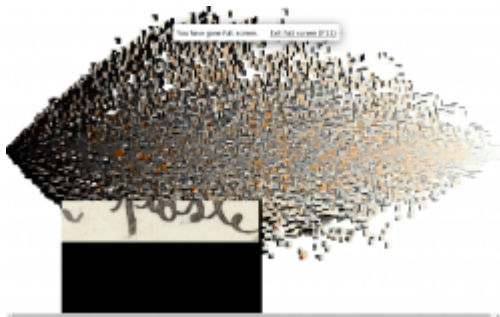
**h**

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.

## l



... 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:

**x**

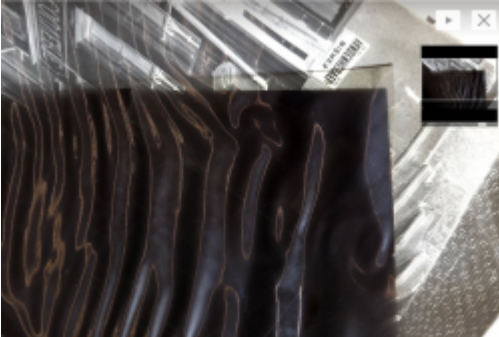


/ meanwhile, the clock-horse has grown really nervous out there - it's drawing smaller and smaller circles / a spasmodic and repetitive activity causing dislocation / a fine powder begins to float inside the oubliette in the slowest motion possible / my breathing has already been hampered, but now my 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 Rxssxx. 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.

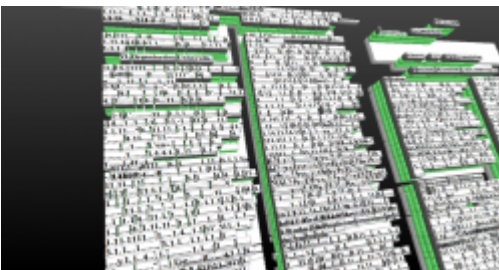
{violent horizontal strokes over the last two lines, left and right from the hole at the bottom of the index card; indecipherable}

**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 vermilion 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]

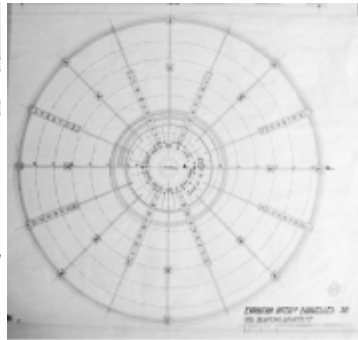
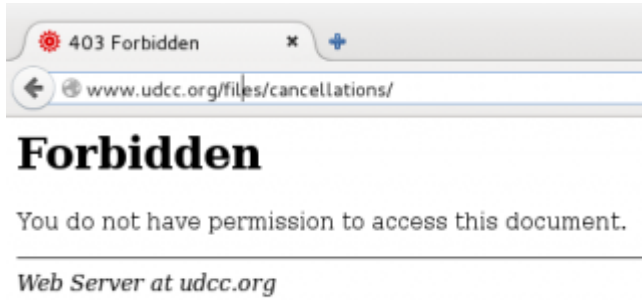
**r**



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

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!

...



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

Liz Soltan

**THIS IS A DRAFT**

Dennis Pohl

LES UTOPISTES and their common *logos*. In itself this list is just a bag of words, since the common use of the beneath mentioned words according to the quantity of appearance in the works of Le Corbusier and Paul Otlet, have been ordered by a text comparison. The quantity of appearing words in each work relates mainly to the general amount of words, which gives a different value to each work. Taken this into account, the appearance of the word "esprit" for instance has a higher significance in *Vers une Architecture* than in *Traité de documentation*, although the amount of appearances is almost two times higher in the latter. Beyond the mere quantified use of a common language, this list gives just an intuition that there is something more to elaborate in the discourse between the two utopians. One possible reading is tracing their encounter in "The Smart City".

Books here taken into consideration are: 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 Mundaneum 1935. Word-count: 140209.

|                            |         |  |  |   |                                    |
|----------------------------|---------|--|--|---|------------------------------------|
| <b><u>architecture</u></b> | appears | <b>199</b> times in <i>Vers une Architecture</i> , | <b>51</b> times in <i>Traité de documentation</i> ,  | <b>26</b> times in <i>Urbanisme</i> and | <b>11</b> times in <i>Monde</i> .  |
| <b><u>esprit</u></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><u>plan</u></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><u>homme</u></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><u>ordre</u></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><u>série</u></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><u>éléments</u></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><u>époque</u></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><u>problème</u></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><u>faire</u></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><u>construction</u></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><u>état</u></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><u>faut</u></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><u>lumière</u></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><u>art</u></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><u>choses</u></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><u>yeux</u></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><u>grande</u></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><u>nouveau</u></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><u>ville</u></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><u>grand</u></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><u>chose</u></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><u>villes</u></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><u>était</u></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><u>alors</u></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><u>toutes</u></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><u>place</u></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><u>moderne</u></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><u>sens</u></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><u>entre</u></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><u>sol</u></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><u>travail</u></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><u>encore</u></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><u>surface</u></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><u>grands</u></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><u>font</u></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><u>temps</u></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><u>conception</u></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><u>création</u></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><u>toujours</u></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><u>vie</u></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><u>grandes</u></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><u>paris</u></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><u>mesure</u></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><u>espace</u></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><u>voir</u></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><u>calcul</u></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><u>outil</u></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><u>humaine</u></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><u>nature</u></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><u>monde</u></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><u>vue</u></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><u>point</u></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><u>devant</u></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><u>très</u></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><u>machine</u></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><u>construire</u></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><u>ans</u></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><u>géométrie</u></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><u>dire</u></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><u>passé</u></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><u>moyens</u></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><u>besoin</u></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><u>ensemble</u></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><u>moins</u></b>      | appears | <b>16</b> times in <i>Vers une Architecture</i> , | <b>243</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>93</b> times in <i>Monde</i> .  |
| <b><u>cela</u></b>       | appears | <b>16</b> times in <i>Vers une Architecture</i> , | <b>99</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>31</b> times in <i>Monde</i> .  |
| <b><u>univers</u></b>    | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>68</b> times in <i>Monde</i> .  |
| <b><u>pratique</u></b>   | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>98</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>28</b> times in <i>Monde</i> .  |
| <b><u>mal</u></b>        | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>33</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>26</b> times in <i>Monde</i> .  |
| <b><u>trop</u></b>       | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>93</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>28</b> times in <i>Monde</i> .  |
| <b><u>vers</u></b>       | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>156</b> times in <i>Traité de documentation</i> , | <b>28</b> times in <i>Urbanisme</i> and | <b>100</b> times in <i>Monde</i> . |
| <b><u>plans</u></b>      | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>60</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>27</b> times in <i>Monde</i> .  |
| <b><u>heures</u></b>     | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>20</b> times in <i>Urbanisme</i> and | <b>16</b> times in <i>Monde</i> .  |

|                            |         |   |  |   |                                    |
|----------------------------|---------|---|--|---|------------------------------------|
| <b><u>heure</u></b>        | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>58</b> times in <i>Traité de documentation</i> ,  | <b>32</b> times in <i>Urbanisme</i> and | <b>28</b> times in <i>Monde</i> .  |
| <b><u>face</u></b>         | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>11</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>18</b> times in <i>Monde</i> .  |
| <b><u>voit</u></b>         | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>50</b> times in <i>Traité de documentation</i> ,  | <b>28</b> times in <i>Urbanisme</i> and | <b>27</b> times in <i>Monde</i> .  |
| <b><u>idées</u></b>        | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>283</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>80</b> times in <i>Monde</i> .  |
| <b><u>forme</u></b>        | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>442</b> times in <i>Traité de documentation</i> , | <b>18</b> times in <i>Urbanisme</i> and | <b>106</b> times in <i>Monde</i> . |
| <b><u>programme</u></b>    | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>24</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> .  |
| <b><u>quelque</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>132</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>64</b> times in <i>Monde</i> .  |
| <b><u>jeu</u></b>          | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>39</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>logique</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>117</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>39</b> times in <i>Monde</i> .  |
| <b><u>hauteur</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>21</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>beauté</u></b>       | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>34</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>21</b> times in <i>Monde</i> .  |
| <b><u>nouvelle</u></b>     | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>129</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><u>doit</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>408</b> times in <i>Traité de documentation</i> , | <b>14</b> times in <i>Urbanisme</i> and | <b>134</b> times in <i>Monde</i> . |
| <b><u>peuvent</u></b>      | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>198</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>45</b> times in <i>Monde</i> .  |
| <b><u>contre</u></b>       | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>91</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>79</b> times in <i>Monde</i> .  |
| <b><u>part</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>214</b> times in <i>Traité de documentation</i> , | <b>14</b> times in <i>Urbanisme</i> and | <b>77</b> times in <i>Monde</i> .  |
| <b><u>produit</u></b>      | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>81</b> times in <i>Traité de documentation</i> ,  | <b>24</b> times in <i>Urbanisme</i> and | <b>38</b> times in <i>Monde</i> .  |
| <b><u>jour</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>216</b> times in <i>Traité de documentation</i> , | <b>22</b> times in <i>Urbanisme</i> and | <b>69</b> times in <i>Monde</i> .  |
| <b><u>idée</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>168</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>75</b> times in <i>Monde</i> .  |
| <b><u>piéd</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>12</b> times in <i>Traité de documentation</i> ,  | <b>22</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>voilà</u></b>        | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>13</b> times in <i>Traité de documentation</i> ,  | <b>20</b> times in <i>Urbanisme</i> and | <b>23</b> times in <i>Monde</i> .  |
| <b><u>avoir</u></b>        | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>208</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>72</b> times in <i>Monde</i> .  |
| <b><u>usines</u></b>       | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>9</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><u>machines</u></b>     | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>83</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>29</b> times in <i>Monde</i> .  |
| <b><u>industrielle</u></b> | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>7</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><u>air</u></b>          | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>12</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>16</b> times in <i>Monde</i> .  |
| <b><u>quelques</u></b>     | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>167</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>33</b> times in <i>Monde</i> .  |
| <b><u>suisant</u></b>      | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>102</b> times in <i>Traité de documentation</i> , | <b>16</b> times in <i>Urbanisme</i> and | <b>30</b> times in <i>Monde</i> .  |
| <b><u>mécanique</u></b>    | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>50</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>31</b> times in <i>Monde</i> .  |
| <b><u>perfection</u></b>   | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>14</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><u>fer</u></b>          | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>30</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>14</b> times in <i>Monde</i> .  |
| <b><u>louis</u></b>        | appears | <b>11</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>10</b> times in <i>Monde</i> .  |



|                          |         |   |  |   |                                    |
|--------------------------|---------|---|--|---|------------------------------------|
| <b><u>première</u></b>   | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>133</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>38</b> times in <i>Monde</i> .  |
| <b><u>loin</u></b>       | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>46</b> times in <i>Traité de documentation</i> ,  | <b>34</b> times in <i>Urbanisme</i> and | <b>17</b> times in <i>Monde</i> .  |
| <b><u>petit</u></b>      | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>88</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>23</b> times in <i>Monde</i> .  |
| <b><u>droite</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>40</b> times in <i>Traité de documentation</i> ,  | <b>36</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>outillage</u></b>  | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>28</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>6</b> times in <i>Monde</i> .   |
| <b><u>quatre</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>114</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>40</b> times in <i>Monde</i> .  |
| <b><u>tel</u></b>        | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>114</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>32</b> times in <i>Monde</i> .  |
| <b><u>immenses</u></b>   | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>22</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> .  |
| <b><u>moment</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>105</b> times in <i>Traité de documentation</i> , | <b>18</b> times in <i>Urbanisme</i> and | <b>36</b> times in <i>Monde</i> .  |
| <b><u>compte</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>96</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>37</b> times in <i>Monde</i> .  |
| <b><u>nécessaire</u></b> | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>80</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><u>hommes</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>122</b> times in <i>Traité de documentation</i> , | <b>30</b> times in <i>Urbanisme</i> and | <b>144</b> times in <i>Monde</i> . |
| <b><u>partie</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>222</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>58</b> times in <i>Monde</i> .  |
| <b><u>grandeur</u></b>   | appears | <b>11</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>19</b> times in <i>Monde</i> .  |
| <b><u>crise</u></b>      | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>8</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><u>fois</u></b>       | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>208</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>77</b> times in <i>Monde</i> .  |
| <b><u>telle</u></b>      | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>105</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>28</b> times in <i>Monde</i> .  |
| <b><u>système</u></b>    | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>256</b> times in <i>Traité de documentation</i> , | <b>32</b> times in <i>Urbanisme</i> and | <b>129</b> times in <i>Monde</i> . |
| <b><u>lieu</u></b>       | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>384</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>89</b> times in <i>Monde</i> .  |
| <b><u> cité</u></b>      | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>29</b> times in <i>Traité de documentation</i> ,  | <b>34</b> times in <i>Urbanisme</i> and | <b>35</b> times in <i>Monde</i> .  |
| <b><u>créer</u></b>      | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>57</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><u>pourrait</u></b>   | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>93</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>32</b> times in <i>Monde</i> .  |
| <b><u>or</u></b>         | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>63</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>45</b> times in <i>Monde</i> .  |
| <b><u>équilibre</u></b>  | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>11</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><u>montre</u></b>     | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> .  |
| <b><u>puis</u></b>       | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>115</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>48</b> times in <i>Monde</i> .  |
| <b><u>activité</u></b>   | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>43</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>78</b> times in <i>Monde</i> .  |
| <b><u>auto</u></b>       | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>13</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><u>sentiment</u></b>  | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>33</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>69</b> times in <i>Monde</i> .  |
| <b><u>pensée</u></b>     | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>291</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>127</b> times in <i>Monde</i> . |
| <b><u>humain</u></b>     | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>61</b> times in <i>Monde</i> .  |
| <b><u>créée</u></b>      | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>26</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>18</b> times in <i>Monde</i> .  |

|                 |         |  |  |   |                                   |
|-----------------|---------|--|--|---|-----------------------------------|
| <b>hors</b>     | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>36</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>12</b> times in <i>Monde</i> . |
| <b>conà</b>     | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>49</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>20</b> times in <i>Monde</i> . |
| <b>chemins</b>  | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>18</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>actuel</b>   | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>22</b> times in <i>Monde</i> . |
| <b>haute</b>    | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>34</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>13</b> times in <i>Monde</i> . |
| <b>étend</b>    | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>23</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>11</b> times in <i>Monde</i> . |
| <b>haut</b>     | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>71</b> times in <i>Traité de documentation</i> ,  | <b>18</b> times in <i>Urbanisme</i> and | <b>24</b> times in <i>Monde</i> . |
| <b>beaucoup</b> | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>114</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>23</b> times in <i>Monde</i> . |
| <b>progrès</b>  | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>133</b> times in <i>Traité de documentation</i> , | <b>14</b> times in <i>Urbanisme</i> and | <b>73</b> times in <i>Monde</i> . |
| <b>trouve</b>   | appears | <b>9</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>32</b> times in <i>Monde</i> . |
| <b>solution</b> | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>26</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>25</b> times in <i>Monde</i> . |
| <b>échelle</b>  | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>35</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>19</b> times in <i>Monde</i> . |
| <b>unique</b>   | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>60</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>23</b> times in <i>Monde</i> . |
| <b>avant</b>    | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>131</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>main</b>     | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>96</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>15</b> times in <i>Monde</i> . |
| <b>droits</b>   | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>22</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>37</b> times in <i>Monde</i> . |
| <b>cours</b>    | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>150</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>65</b> times in <i>Monde</i> . |
| <b>base</b>     | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>119</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>66</b> times in <i>Monde</i> . |
| <b>ciel</b>     | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>13</b> times in <i>Traité de documentation</i> ,  | <b>48</b> times in <i>Urbanisme</i> and | <b>18</b> times in <i>Monde</i> . |
| <b>donne</b>    | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>148</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>44</b> times in <i>Monde</i> . |
| <b>immense</b>  | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>62</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>25</b> times in <i>Monde</i> . |
| <b>partout</b>  | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>48</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>28</b> times in <i>Monde</i> . |
| <b>passion</b>  | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>6</b> times in <i>Traité de documentation</i> ,   | <b>58</b> times in <i>Urbanisme</i> and | <b>14</b> times in <i>Monde</i> . |
| <b>actuelle</b> | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>19</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>26</b> times in <i>Monde</i> . |
| <b>prix</b>     | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>133</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>35</b> times in <i>Monde</i> . |
| <b>demain</b>   | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>17</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> . |
| <b>milieu</b>   | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>58</b> times in <i>Traité de documentation</i> ,  | <b>20</b> times in <i>Urbanisme</i> and | <b>56</b> times in <i>Monde</i> . |
| <b>aise</b>     | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>71</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> . |
| <b>seule</b>    | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>93</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>43</b> times in <i>Monde</i> . |
| <b>volonté</b>  | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>39</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>46</b> times in <i>Monde</i> . |
| <b>faites</b>   | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> . |
| <b>petite</b>   | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>28</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>18</b> times in <i>Monde</i> . |

|                             |         |  |  |   |                                    |
|-----------------------------|---------|--|--|---|------------------------------------|
| <b><u>cellule</u></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><u>constructions</u></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><u>culture</u></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><u>effet</u></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><u>travers</u></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><u>coup</u></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><u>désordre</u></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><u>souvent</u></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><u>années</u></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><u>centre</u></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><u>libre</u></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><u>terrain</u></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><u>chemin</u></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><u>table</u></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><u>chapitre</u></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><u>histoire</u></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><u>tels</u></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><u>siècle</u></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><u>autrement</u></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><u>solutions</u></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><u>dessus</u></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><u>technique</u></b>     | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>153</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>60</b> times in <i>Monde</i> .  |
| <b><u>droit</u></b>         | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>106</b> times in <i>Traité de documentation</i> , | <b>36</b> times in <i>Urbanisme</i> and | <b>125</b> times in <i>Monde</i> . |
| <b><u>morale</u></b>        | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>32</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>35</b> times in <i>Monde</i> .  |
| <b><u>france</u></b>        | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>190</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>57</b> times in <i>Monde</i> .  |
| <b><u>nouvelles</u></b>     | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>180</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>65</b> times in <i>Monde</i> .  |
| <b><u>masse</u></b>         | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>35</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>52</b> times in <i>Monde</i> .  |
| <b><u>circulation</u></b>   | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>44</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>esprits</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>44</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>35</b> times in <i>Monde</i> .  |
| <b><u>rapport</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>106</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>33</b> times in <i>Monde</i> .  |
| <b><u>vastes</u></b>        | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>14</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>14</b> times in <i>Monde</i> .  |
| <b><u>étant</u></b>         | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>110</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>40</b> times in <i>Monde</i> .  |

|                            |         |  |  |   |                                    |
|----------------------------|---------|--|--|---|------------------------------------|
| <b><u>affaires</u></b>     | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>42</b> times in <i>Traité de documentation</i> ,  | <b>30</b> times in <i>Urbanisme</i> and | <b>19</b> times in <i>Monde</i> .  |
| <b><u>chacun</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>151</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><u>claire</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>18</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><u>pleine</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>12</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>6</b> times in <i>Monde</i> .   |
| <b><u>cause</u></b>        | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>47</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>26</b> times in <i>Monde</i> .  |
| <b><u>qualité</u></b>      | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>39</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><u>raison</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>112</b> times in <i>Traité de documentation</i> , | <b>38</b> times in <i>Urbanisme</i> and | <b>77</b> times in <i>Monde</i> .  |
| <b><u>connaissance</u></b> | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>76</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>56</b> times in <i>Monde</i> .  |
| <b><u>fin</u></b>          | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>122</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>66</b> times in <i>Monde</i> .  |
| <b><u>acquis</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>21</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> .  |
| <b><u>guerre</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>115</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>137</b> times in <i>Monde</i> . |
| <b><u>industriels</u></b>  | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>18</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><u>enfin</u></b>        | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>46</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>domaines</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>42</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>38</b> times in <i>Monde</i> .  |
| <b><u>petites</u></b>      | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>25</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> .  |
| <b><u>pratiques</u></b>    | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>44</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> .  |
| <b><u>règle</u></b>        | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>22</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>5</b> times in <i>Monde</i> .   |
| <b><u>gros</u></b>         | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>25</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><u>poésie</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>83</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>7</b> times in <i>Monde</i> .   |
| <b><u>tour</u></b>         | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>71</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>25</b> times in <i>Monde</i> .  |
| <b><u>lequel</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>67</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>19</b> times in <i>Monde</i> .  |
| <b><u>aspect</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>sécurité</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>5</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><u>existence</u></b>    | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>73</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>75</b> times in <i>Monde</i> .  |
| <b><u>disposition</u></b>  | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>83</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><u>principes</u></b>    | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>132</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>53</b> times in <i>Monde</i> .  |
| <b><u>résoudre</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>18</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><u>services</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>107</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><u>fond</u></b>         | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>67</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>conditions</u></b>   | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>111</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>57</b> times in <i>Monde</i> .  |
| <b><u>organes</u></b>      | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>74</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>21</b> times in <i>Monde</i> .  |
| <b><u>exemple</u></b>      | appears | <b>5</b> 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><u>tableau</u></b>   | appears | <b>5</b> 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><u>masses</u></b>    | appears | <b>5</b> 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><u>actuelles</u></b> | appears | <b>5</b> 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><u>cinquante</u></b> | appears | <b>5</b> 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><u>angle</u></b>     | appears | <b>5</b> 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><u>rapide</u></b>    | appears | <b>5</b> 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><u>moyen</u></b>     | appears | <b>5</b> 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> . |

## THIS IS A DRAFT

Dennis Pohl

LES UTOPISTES and their common *logos*. In itself this list is just a bag of words, since the common use of the beneath mentioned words according to the quantity of appearance in the works of Le Corbusier and Paul Otlet, have been ordered by a text comparison. The quantity of appearing words in each work relates mainly to the general amount of words, which gives a different value to each work. Taken this into account, the appearance of the word "esprit" for instance has a higher significance in *Vers une Architecture* than in *Traité de documentation*, although the amount of appearances is almost two times higher in the latter. Beyond the mere quantified use of a common language, this list gives just an intuition that there is something more to elaborate in the discourse between the two utopians. One possible reading is tracing their encounter in "The Smart City".

Books here taken into consideration are: 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.

|                            |         |  |  |   |                                    |
|----------------------------|---------|--|--|---|------------------------------------|
| <b><u>architecture</u></b> | appears | <b>199</b> times in <i>Vers une Architecture</i> , | <b>51</b> times in <i>Traité de documentation</i> ,  | <b>26</b> times in <i>Urbanisme</i> and | <b>11</b> times in <i>Monde</i> .  |
| <b><u>esprit</u></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><u>plan</u></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><u>homme</u></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><u>ordre</u></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><u>série</u></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><u>éléments</u></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><u>époque</u></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><u>problème</u></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><u>faire</u></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><u>construction</u></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><u>état</u></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><u>faut</u></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><u>lumière</u></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><u>art</u></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><u>choses</u></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><u>yeux</u></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><u>grande</u></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><u>nouveau</u></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><u>ville</u></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><u>grand</u></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><u>chose</u></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><u>villes</u></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><u>était</u></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><u>alors</u></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><u>toutes</u></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><u>place</u></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><u>moderne</u></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><u>sens</u></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><u>entre</u></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><u>sol</u></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><u>travail</u></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><u>encore</u></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><u>surface</u></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><u>grands</u></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><u>font</u></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><u>temps</u></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><u>conception</u></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><u>création</u></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><u>toujours</u></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><u>vie</u></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><u>grandes</u></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><u>paris</u></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><u>mesure</u></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><u>espace</u></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><u>voir</u></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><u>calcul</u></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><u>outil</u></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><u>humaine</u></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><u>nature</u></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><u>monde</u></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><u>vue</u></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><u>point</u></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><u>devant</u></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><u>très</u></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><u>machine</u></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><u>construire</u></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><u>ans</u></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><u>géométrie</u></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><u>dire</u></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><u>passé</u></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><u>moyens</u></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><u>besoin</u></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><u>ensemble</u></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><u>moins</u></b>      | appears | <b>16</b> times in <i>Vers une Architecture</i> , | <b>243</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>93</b> times in <i>Monde</i> .  |
| <b><u>cela</u></b>       | appears | <b>16</b> times in <i>Vers une Architecture</i> , | <b>99</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>31</b> times in <i>Monde</i> .  |
| <b><u>univers</u></b>    | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>68</b> times in <i>Monde</i> .  |
| <b><u>pratique</u></b>   | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>98</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>28</b> times in <i>Monde</i> .  |
| <b><u>mal</u></b>        | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>33</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>26</b> times in <i>Monde</i> .  |
| <b><u>trop</u></b>       | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>93</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>28</b> times in <i>Monde</i> .  |
| <b><u>vers</u></b>       | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>156</b> times in <i>Traité de documentation</i> , | <b>28</b> times in <i>Urbanisme</i> and | <b>100</b> times in <i>Monde</i> . |
| <b><u>plans</u></b>      | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>60</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>27</b> times in <i>Monde</i> .  |
| <b><u>heures</u></b>     | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>20</b> times in <i>Urbanisme</i> and | <b>16</b> times in <i>Monde</i> .  |
| <b><u>heure</u></b>      | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>58</b> times in <i>Traité de documentation</i> ,  | <b>32</b> times in <i>Urbanisme</i> and | <b>28</b> times in <i>Monde</i> .  |
| <b><u>face</u></b>       | appears | <b>15</b> times in <i>Vers une Architecture</i> , | <b>11</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>18</b> times in <i>Monde</i> .  |
| <b><u>voit</u></b>       | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>50</b> times in <i>Traité de documentation</i> ,  | <b>28</b> times in <i>Urbanisme</i> and | <b>27</b> times in <i>Monde</i> .  |
| <b><u>idées</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>283</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>80</b> times in <i>Monde</i> .  |
| <b><u>forme</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>442</b> times in <i>Traité de documentation</i> , | <b>18</b> times in <i>Urbanisme</i> and | <b>106</b> times in <i>Monde</i> . |
| <b><u>programme</u></b>  | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>24</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> .  |

|                            |         |   |  |   |                                    |
|----------------------------|---------|---|--|---|------------------------------------|
| <b><u>quelque</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>132</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>64</b> times in <i>Monde</i> .  |
| <b><u>jeu</u></b>          | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>39</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>logique</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>117</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>39</b> times in <i>Monde</i> .  |
| <b><u>hauteur</u></b>      | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>21</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>beauté</u></b>       | appears | <b>14</b> times in <i>Vers une Architecture</i> , | <b>34</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>21</b> times in <i>Monde</i> .  |
| <b><u>nouvelle</u></b>     | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>129</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><u>doit</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>408</b> times in <i>Traité de documentation</i> , | <b>14</b> times in <i>Urbanisme</i> and | <b>134</b> times in <i>Monde</i> . |
| <b><u>peuvent</u></b>      | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>198</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>45</b> times in <i>Monde</i> .  |
| <b><u>contre</u></b>       | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>91</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>79</b> times in <i>Monde</i> .  |
| <b><u>part</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>214</b> times in <i>Traité de documentation</i> , | <b>14</b> times in <i>Urbanisme</i> and | <b>77</b> times in <i>Monde</i> .  |
| <b><u>produit</u></b>      | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>81</b> times in <i>Traité de documentation</i> ,  | <b>24</b> times in <i>Urbanisme</i> and | <b>38</b> times in <i>Monde</i> .  |
| <b><u>jour</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>216</b> times in <i>Traité de documentation</i> , | <b>22</b> times in <i>Urbanisme</i> and | <b>69</b> times in <i>Monde</i> .  |
| <b><u>idée</u></b>         | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>168</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>75</b> times in <i>Monde</i> .  |
| <b><u>ped</u></b>          | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>12</b> times in <i>Traité de documentation</i> ,  | <b>22</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>voilà</u></b>        | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>13</b> times in <i>Traité de documentation</i> ,  | <b>20</b> times in <i>Urbanisme</i> and | <b>23</b> times in <i>Monde</i> .  |
| <b><u>avoir</u></b>        | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>208</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>72</b> times in <i>Monde</i> .  |
| <b><u>usines</u></b>       | appears | <b>13</b> times in <i>Vers une Architecture</i> , | <b>9</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><u>machines</u></b>     | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>83</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>29</b> times in <i>Monde</i> .  |
| <b><u>industrielle</u></b> | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>7</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><u>air</u></b>          | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>12</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>16</b> times in <i>Monde</i> .  |
| <b><u>quelques</u></b>     | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>167</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>33</b> times in <i>Monde</i> .  |
| <b><u>suisant</u></b>      | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>102</b> times in <i>Traité de documentation</i> , | <b>16</b> times in <i>Urbanisme</i> and | <b>30</b> times in <i>Monde</i> .  |
| <b><u>mécanique</u></b>    | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>50</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>31</b> times in <i>Monde</i> .  |
| <b><u>perfection</u></b>   | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>14</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><u>fer</u></b>          | appears | <b>12</b> times in <i>Vers une Architecture</i> , | <b>30</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>14</b> times in <i>Monde</i> .  |
| <b><u>louis</u></b>        | appears | <b>11</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>10</b> times in <i>Monde</i> .  |
| <b><u>première</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>133</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>38</b> times in <i>Monde</i> .  |
| <b><u>loin</u></b>         | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>46</b> times in <i>Traité de documentation</i> ,  | <b>34</b> times in <i>Urbanisme</i> and | <b>17</b> times in <i>Monde</i> .  |
| <b><u>petit</u></b>        | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>88</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>23</b> times in <i>Monde</i> .  |
| <b><u>droite</u></b>       | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>40</b> times in <i>Traité de documentation</i> ,  | <b>36</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>ouillage</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>28</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>6</b> times in <i>Monde</i> .   |
| <b><u>quatre</u></b>       | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>114</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>40</b> times in <i>Monde</i> .  |



|                          |         |   |  |   |                                    |
|--------------------------|---------|---|--|---|------------------------------------|
| <b><u>tel</u></b>        | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>114</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>32</b> times in <i>Monde</i> .  |
| <b><u>immenses</u></b>   | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>22</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> .  |
| <b><u>moment</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>105</b> times in <i>Traité de documentation</i> , | <b>18</b> times in <i>Urbanisme</i> and | <b>36</b> times in <i>Monde</i> .  |
| <b><u>compte</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>96</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>37</b> times in <i>Monde</i> .  |
| <b><u>nécessaire</u></b> | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>80</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><u>hommes</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>122</b> times in <i>Traité de documentation</i> , | <b>30</b> times in <i>Urbanisme</i> and | <b>144</b> times in <i>Monde</i> . |
| <b><u>partie</u></b>     | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>222</b> times in <i>Traité de documentation</i> , | <b>10</b> times in <i>Urbanisme</i> and | <b>58</b> times in <i>Monde</i> .  |
| <b><u>grandeur</u></b>   | appears | <b>11</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>19</b> times in <i>Monde</i> .  |
| <b><u>crise</u></b>      | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>8</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><u>fois</u></b>       | appears | <b>11</b> times in <i>Vers une Architecture</i> , | <b>208</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>77</b> times in <i>Monde</i> .  |
| <b><u>telle</u></b>      | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>105</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>28</b> times in <i>Monde</i> .  |
| <b><u>système</u></b>    | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>256</b> times in <i>Traité de documentation</i> , | <b>32</b> times in <i>Urbanisme</i> and | <b>129</b> times in <i>Monde</i> . |
| <b><u>lieu</u></b>       | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>384</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>89</b> times in <i>Monde</i> .  |
| <b><u> cité</u></b>      | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>29</b> times in <i>Traité de documentation</i> ,  | <b>34</b> times in <i>Urbanisme</i> and | <b>35</b> times in <i>Monde</i> .  |
| <b><u>créer</u></b>      | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>57</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><u>pourrait</u></b>   | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>93</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>32</b> times in <i>Monde</i> .  |
| <b><u>or</u></b>         | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>63</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>45</b> times in <i>Monde</i> .  |
| <b><u>équilibre</u></b>  | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>11</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><u>montre</u></b>     | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> .  |
| <b><u>puis</u></b>       | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>115</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>48</b> times in <i>Monde</i> .  |
| <b><u>activité</u></b>   | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>43</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>78</b> times in <i>Monde</i> .  |
| <b><u>auto</u></b>       | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>13</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><u>sentiment</u></b>  | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>33</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>69</b> times in <i>Monde</i> .  |
| <b><u>pensée</u></b>     | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>291</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>127</b> times in <i>Monde</i> . |
| <b><u>humain</u></b>     | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>61</b> times in <i>Monde</i> .  |
| <b><u>créé</u></b>       | appears | <b>10</b> times in <i>Vers une Architecture</i> , | <b>26</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>18</b> times in <i>Monde</i> .  |
| <b><u>hors</u></b>       | appears | <b>9</b> times in <i>Vers une Architecture</i> ,  | <b>36</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>12</b> times in <i>Monde</i> .  |
| <b><u>conà</u></b>       | appears | <b>9</b> times in <i>Vers une Architecture</i> ,  | <b>49</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>20</b> times in <i>Monde</i> .  |
| <b><u>chemins</u></b>    | appears | <b>9</b> times in <i>Vers une Architecture</i> ,  | <b>18</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><u>actuel</u></b>     | appears | <b>9</b> times in <i>Vers une Architecture</i> ,  | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>22</b> times in <i>Monde</i> .  |
| <b><u>haute</u></b>      | appears | <b>9</b> times in <i>Vers une Architecture</i> ,  | <b>34</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>13</b> times in <i>Monde</i> .  |
| <b><u>étend</u></b>      | appears | <b>9</b> times in <i>Vers une Architecture</i> ,  | <b>23</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>11</b> times in <i>Monde</i> .  |

|                      |         |  |  |   |                                   |
|----------------------|---------|--|--|---|-----------------------------------|
| <b>haut</b>          | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>71</b> times in <i>Traité de documentation</i> ,  | <b>18</b> times in <i>Urbanisme</i> and | <b>24</b> times in <i>Monde</i> . |
| <b>beaucoup</b>      | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>114</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>23</b> times in <i>Monde</i> . |
| <b>progrès</b>       | appears | <b>9</b> times in <i>Vers une Architecture</i> , | <b>133</b> times in <i>Traité de documentation</i> , | <b>14</b> times in <i>Urbanisme</i> and | <b>73</b> times in <i>Monde</i> . |
| <b>trouve</b>        | appears | <b>9</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>32</b> times in <i>Monde</i> . |
| <b>solution</b>      | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>26</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>25</b> times in <i>Monde</i> . |
| <b>échelle</b>       | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>35</b> times in <i>Traité de documentation</i> ,  | <b>14</b> times in <i>Urbanisme</i> and | <b>19</b> times in <i>Monde</i> . |
| <b>unique</b>        | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>60</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>23</b> times in <i>Monde</i> . |
| <b>avant</b>         | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>131</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>main</b>          | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>96</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>15</b> times in <i>Monde</i> . |
| <b>droits</b>        | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>22</b> times in <i>Traité de documentation</i> ,  | <b>16</b> times in <i>Urbanisme</i> and | <b>37</b> times in <i>Monde</i> . |
| <b>cours</b>         | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>150</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>65</b> times in <i>Monde</i> . |
| <b>base</b>          | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>119</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>66</b> times in <i>Monde</i> . |
| <b>ciel</b>          | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>13</b> times in <i>Traité de documentation</i> ,  | <b>48</b> times in <i>Urbanisme</i> and | <b>18</b> times in <i>Monde</i> . |
| <b>donne</b>         | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>148</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>44</b> times in <i>Monde</i> . |
| <b>immense</b>       | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>62</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>25</b> times in <i>Monde</i> . |
| <b>partout</b>       | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>48</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>28</b> times in <i>Monde</i> . |
| <b>passion</b>       | appears | <b>8</b> times in <i>Vers une Architecture</i> , | <b>6</b> times in <i>Traité de documentation</i> ,   | <b>58</b> times in <i>Urbanisme</i> and | <b>14</b> times in <i>Monde</i> . |
| <b>actuelle</b>      | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>19</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>26</b> times in <i>Monde</i> . |
| <b>prix</b>          | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>133</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>35</b> times in <i>Monde</i> . |
| <b>demain</b>        | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>17</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> . |
| <b>milieu</b>        | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>58</b> times in <i>Traité de documentation</i> ,  | <b>20</b> times in <i>Urbanisme</i> and | <b>56</b> times in <i>Monde</i> . |
| <b>aise</b>          | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>71</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> . |
| <b>seule</b>         | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>93</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>43</b> times in <i>Monde</i> . |
| <b>volonté</b>       | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>39</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>46</b> times in <i>Monde</i> . |
| <b>faites</b>        | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> . |
| <b>petite</b>        | appears | <b>7</b> times in <i>Vers une Architecture</i> , | <b>28</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>18</b> 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><u>désordre</u></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><u>souvent</u></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><u>années</u></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><u>centre</u></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><u>libre</u></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><u>terrain</u></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><u>chemin</u></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><u>table</u></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><u>chapitre</u></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><u>histoire</u></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><u>tels</u></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><u>siècle</u></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><u>autrement</u></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><u>solutions</u></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><u>dessus</u></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><u>technique</u></b>   | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>153</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>60</b> times in <i>Monde</i> .  |
| <b><u>droit</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>106</b> times in <i>Traité de documentation</i> , | <b>36</b> times in <i>Urbanisme</i> and | <b>125</b> times in <i>Monde</i> . |
| <b><u>morale</u></b>      | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>32</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>35</b> times in <i>Monde</i> .  |
| <b><u>france</u></b>      | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>190</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>57</b> times in <i>Monde</i> .  |
| <b><u>nouvelles</u></b>   | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>180</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>65</b> times in <i>Monde</i> .  |
| <b><u>masse</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>35</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>52</b> times in <i>Monde</i> .  |
| <b><u>circulation</u></b> | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>27</b> times in <i>Traité de documentation</i> ,  | <b>44</b> times in <i>Urbanisme</i> and | <b>8</b> times in <i>Monde</i> .   |
| <b><u>esprits</u></b>     | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>44</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>35</b> times in <i>Monde</i> .  |
| <b><u>rapport</u></b>     | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>106</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>33</b> times in <i>Monde</i> .  |
| <b><u>vastes</u></b>      | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>14</b> times in <i>Traité de documentation</i> ,  | <b>12</b> times in <i>Urbanisme</i> and | <b>14</b> times in <i>Monde</i> .  |
| <b><u>étant</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>110</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>40</b> times in <i>Monde</i> .  |
| <b><u>affaires</u></b>    | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>42</b> times in <i>Traité de documentation</i> ,  | <b>30</b> times in <i>Urbanisme</i> and | <b>19</b> times in <i>Monde</i> .  |
| <b><u>chacun</u></b>      | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>151</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><u>claire</u></b>      | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>18</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><u>pleine</u></b>      | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>12</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>6</b> times in <i>Monde</i> .   |
| <b><u>cause</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>47</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>26</b> times in <i>Monde</i> .  |
| <b><u>qualité</u></b>     | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>39</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><u>raison</u></b>       | appears | <b>6</b> times in <i>Vers une Architecture</i> , | <b>112</b> times in <i>Traité de documentation</i> , | <b>38</b> times in <i>Urbanisme</i> and | <b>77</b> times in <i>Monde</i> .  |
| <b><u>connaissance</u></b> | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>76</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>56</b> times in <i>Monde</i> .  |
| <b><u>fin</u></b>          | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>122</b> times in <i>Traité de documentation</i> , | <b>6</b> times in <i>Urbanisme</i> and  | <b>66</b> times in <i>Monde</i> .  |
| <b><u>acquis</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>21</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> .  |
| <b><u>guerre</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>115</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>137</b> times in <i>Monde</i> . |
| <b><u>industriels</u></b>  | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>18</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><u>enfin</u></b>        | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>46</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>domaines</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>42</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>38</b> times in <i>Monde</i> .  |
| <b><u>petites</u></b>      | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>25</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>12</b> times in <i>Monde</i> .  |
| <b><u>pratiques</u></b>    | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>44</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>11</b> times in <i>Monde</i> .  |
| <b><u>règle</u></b>        | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>22</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>5</b> times in <i>Monde</i> .   |
| <b><u>gros</u></b>         | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>25</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><u>poésie</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>83</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>7</b> times in <i>Monde</i> .   |
| <b><u>tour</u></b>         | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>71</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>25</b> times in <i>Monde</i> .  |
| <b><u>lequel</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>67</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>19</b> times in <i>Monde</i> .  |
| <b><u>aspect</u></b>       | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>45</b> times in <i>Traité de documentation</i> ,  | <b>8</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>sécurité</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>5</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><u>existence</u></b>    | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>73</b> times in <i>Traité de documentation</i> ,  | <b>10</b> times in <i>Urbanisme</i> and | <b>75</b> times in <i>Monde</i> .  |
| <b><u>disposition</u></b>  | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>83</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><u>principes</u></b>    | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>132</b> times in <i>Traité de documentation</i> , | <b>12</b> times in <i>Urbanisme</i> and | <b>53</b> times in <i>Monde</i> .  |
| <b><u>résoudre</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>18</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><u>services</u></b>     | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>107</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><u>fond</u></b>         | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>67</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>29</b> times in <i>Monde</i> .  |
| <b><u>conditions</u></b>   | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>111</b> times in <i>Traité de documentation</i> , | <b>8</b> times in <i>Urbanisme</i> and  | <b>57</b> times in <i>Monde</i> .  |
| <b><u>organes</u></b>      | appears | <b>5</b> times in <i>Vers une Architecture</i> , | <b>74</b> times in <i>Traité de documentation</i> ,  | <b>6</b> times in <i>Urbanisme</i> and  | <b>21</b> times in <i>Monde</i> .  |
| <b><u>exemple</u></b>      | appears | <b>5</b> 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><u>tableau</u></b>      | appears | <b>5</b> 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><u>masses</u></b>       | appears | <b>5</b> 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><u>actuelles</u></b>    | appears | <b>5</b> 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><u>cinquante</u></b>    | appears | <b>5</b> 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><u>angle</u></b>        | appears | <b>5</b> 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><u>rapide</u></b>       | appears | <b>5</b> 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> .  |

moyen appears **5** times in *Vers une Architecture*, **268** times in *Traité de documentation*, **8** times in *Urbanisme* and **97** times in *Monde*.

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 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>

[Doodle.png](#)

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>.

[Ojhr.png](#)

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**

[Schmidt.png](#)

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.

### **Transparency International reveals Google as second biggest corporate lobbyists operating in Brussels.** <sup>[34]</sup>

Lobby.png

### **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>

## 2016

1. ↑ Caines, Matthew. “Arts head: Amit Sood, director, Google Cultural Institute” *The Guardian*. Dec 3, 2013. <http://www.theguardian.com/culture-professionals-network/culture-professionals-blog/2013/dec/03/amit-sood-google-cultural-institute-art-project>
2. ↑ Google Paris. Accessed Dec 22, 2016 <http://www.google.se/about/careers/locations/paris/>

3. ↑ Schiller, Dan & Yeo, Shinjoung. "Powered By Google: Widening Access And Tightening Corporate Control." (In Aceti, D. L. (Ed.). Red Art: New Utopias in Data Capitalism: Leonardo Electronic Almanac, Vol. 20, No. 1. London: Goldsmiths University Press. 2014):48
4. ↑ Down, Maureen. "The Google Art Heist". The New York Times. Sept 12, 2015 <http://www.nytimes.com/2015/09/13/opinion/sunday/the-google-art-heist.html>
5. ↑ Schiller, Dan & Shinjoung Yeo. "Powered By Google: Widening Access And Tightening Corporate Control.", 48
6. ↑ Schiller, Dan & Yeo, Shinjoung. "Powered By Google: Widening Access And Tightening Corporate Control.", 48
7. ↑ Davis, Heather & Turpin, Etienne, eds. Art in the Anthropocene (London: Open Humanities Press. 2015), 7
8. ↑ Bush, Randy. Psg.com On techno-colonialism. (blog) June 13, 2015. Accessed Dec 22, 2015 <https://psg.com/on-technocolonialism.html>
9. ↑ Starzmann, Maria Theresia. "Cultural Imperialism and Heritage Politics in the Event of Armed Conflict: Prospects for an 'Activist Archaeology'". Archeologies. Vol. 4 No. 3 (2008):376
10. ↑ Echikson, William. Partnering in Belgium to create a capital of culture (blog) March 20, 2014. Accessed Dec 22, 2015 <http://googlepolicyeurope.blogspot.se/2014/03/partnering-in-belgium-to-create-capital.html>
11. ↑ Google. Mundaneum co-founder Paul Otlet's 147th Birthday (blog) August 23, 2015. Accessed Dec 22, 2015 <http://www.google.com/doodles/mundaneum-co-founder-paul-otlets-147th-birthday>
12. ↑ eg. <https://www.google.com/culturalinstitute/thelab/#experiments>
13. ↑ Lavallee, Andrew. "Google CEO: A New Iraq Means Business Opportunities." Wall Street Journal. Nov 24, 2009 <http://blogs.wsj.com/digits/2009/11/24/google-ceo-a-new-iraq-means-business-opportunities/>
14. ↑ Associated Press. Google Documents Iraqi Museum Treasures (on-line video November 24, 2009) <https://www.youtube.com/watch?v=vqtgtdBvA9k>
15. ↑ Jarry, Emmanuel. "France's Sarkozy takes on Google in books dispute." Reuters. December 8, 2009. <http://www.reuters.com/article/us-france-google-sarkozy-idUSTRE5B73E320091208>
16. ↑ European Commission. Antitrust: Commission probes allegations of antitrust violations by Google (Brussels 2010) [http://europa.eu/rapid/press-release\\_IP-10-1624\\_en.htm](http://europa.eu/rapid/press-release_IP-10-1624_en.htm)
17. ↑ Caines, Matthew. "Arts head: Amit Sood, director, Google Cultural Institute" The Guardian. December 3, 2013. <http://www.theguardian.com/culture-professionals-network/culture-professionals-blog/2013/dec/03/amit-sood-google-cultural-institute-art-project>
18. ↑ Cyrus, Farivar. "Google to build R&D facility and 'European cultural center' in France." Deutsche Welle. September 9, 2010. <http://www.dw.com/en/google-to-build-rd-facility-and-european-cultural-center-in-france/a-5993560>
19. ↑ Google Art Project. Art Project V1 - Launch Event at Tate Britain. (on-line video February 1, 2011) <https://www.youtube.com/watch?v=NsynsSWVvnM>
20. ↑ Google Cultural Institute. Accessed Dec 18, 2015. <https://www.google.com/culturalinstitute/about/partners/>
21. ↑ Robinson, James. "Eric Schmidt, chairman of Google, condemns British education system" The Guardian. August 26, 2011 <http://www.theguardian.com/technology/2011/aug/26/eric-schmidt-chairman-google-education>
22. ↑ European Commission. Letter addressed to Google by the Article 29 Group (Brussels 2012) [http://ec.europa.eu/justice/data-protection/article-29/documentation/other-document/files/2012/20121016\\_letter\\_to\\_google\\_en.pdf](http://ec.europa.eu/justice/data-protection/article-29/documentation/other-document/files/2012/20121016_letter_to_google_en.pdf)
23. ↑ Willsher, Kim. "Google Cultural Institute's Paris opening snubbed by French minister." The Guardian. December 10, 2013 <http://www.theguardian.com/world/2013/dec/10/google-cultural-institute-france-minister-snub>
24. ↑ Bowers, Simon & Syal, Rajeev. "MP on Google tax avoidance scheme: 'I think that you do evil'". The Guardian. May 16, 2013. <http://www.theguardian.com/technology/2013/may/16/google-told-by-mp-you-do-do-evil>
25. ↑ Court of Justice of the European Union. Press-release No 70/14 (Luxembourg, 2014) <http://curia.europa.eu/jcms/upload/docs/application/pdf/2014-05/cp140070en.pdf>
26. ↑ Barbican. "Digital Revolution." Accessed December 15, 2015 <https://www.barbican.org.uk/bie/upcoming-digital-revolution>
27. ↑ Google. "Dev Art". Accessed December 15, 2015 <https://devart.withgoogle.com/>
28. ↑ Tekniska Museet. "Digital Revolution." Accessed December 15, 2015 <http://www.tekniskamuseet.se/1/5554.html>
29. ↑ Google Cultural Institute. Accessed December 15, 2015. <https://www.google.com/culturalinstitute/thelab/>
30. ↑ Echikson, William. Partnering in Belgium to create a capital of culture (blog) March 20, 2014. Accessed Dec 22, 2015 <http://googlepolicyeurope.blogspot.se/2014/03/partnering-in-belgium-to-create-capital.html>
31. ↑ European Commission. Antitrust: Commission sends Statement of Objections to Google on comparison shopping service; opens separate formal investigation on Android. (Brussels 2015) [http://europa.eu/rapid/press-release\\_IP-15-4780\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4780_en.htm)
32. ↑ Yun Chee, Foo. "Google rejects 'unfounded' EU antitrust charges of market abuse" Reuters. (August 27, 2015) <http://www.reuters.com/article/us-google-eu-antitrust-idUSKCN0QW20F20150827>
33. ↑ European Commission. Antitrust: Commission sends Statement

34. ↑ Transparency International. Lobby meetings with EU policy-makers dominated by corporate interests (blog) June 24, 2015. Accessed December 22, 2015. [http://www.transparency.org/news/pressrelease/lobby\\_meetings\\_with\\_eu\\_policy\\_makers\\_dominated\\_by\\_corporate\\_interests](http://www.transparency.org/news/pressrelease/lobby_meetings_with_eu_policy_makers_dominated_by_corporate_interests)
  35. ↑ Wikipedia, The Free Encyclopedia. s.v. "Alphabet Inc," (accessed Jan 25, 2016, [https://en.wikipedia.org/wiki/Alphabet\\_Inc](https://en.wikipedia.org/wiki/Alphabet_Inc)).
  36. ↑ Google. Mundaneum co-founder Paul Otlet's 147th Birthday (blog) August 23, 2015. Accessed Dec 22, 2015 <http://www.google.com/doodles/mundaneum-co-founder-paul-otlets-147th-birthday>
  37. ↑ Google. Mundaneum co-founder Paul Otlet's 147th Birthday
  38. ↑ The British Museum. The British Museum's unparalleled world collection at your fingertips. (blog) November 12, 2015. Accessed December 22, 2015. [https://www.britishmuseum.org/about\\_us/news\\_and\\_press/press\\_releases/2015/with\\_google.aspx](https://www.britishmuseum.org/about_us/news_and_press/press_releases/2015/with_google.aspx)
  39. ↑ Sood, Amit. Step on stage with the Google Cultural Institute (blog) December 1, 2015. Accessed December 22, 2015. <https://googleblog.blogspot.se/2015/12/step-on-stage-with-google-cultural.html>
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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 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>

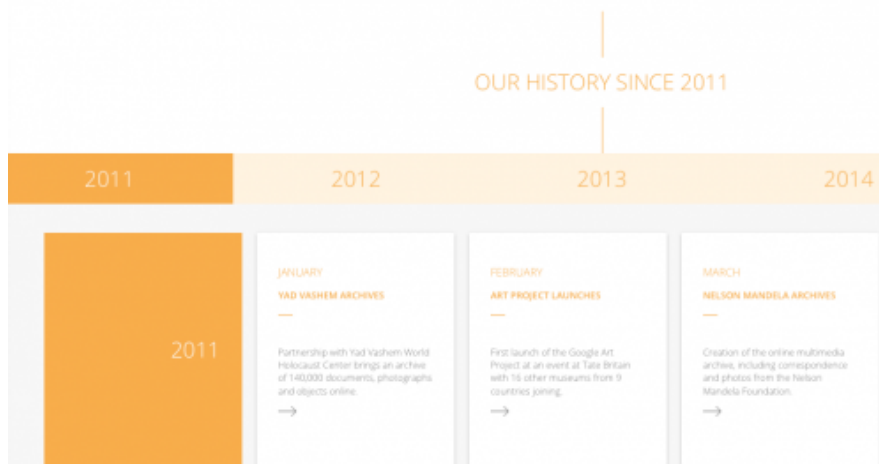


On the occasion of the 147th birthday of Paul Otlet, a Doodle in the homepage of the Alphabet spelled the name of its company using the 'drawers of the Mundaneum' to form the words G O O G L E: "Today's Doodle pays tribute to Paul's pioneering work on the Mundaneum. The collection of knowledge stored 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



#### Google Documents Iraqi Museum Treasures

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.

### Transparency International reveals Google as second biggest corporate lobbyists operating in Brussels. <sup>[34]</sup>



### 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>

## 2016

1. ↑ Caines, Matthew. "Arts head: Amit Sood, director, Google Cultural Institute" *The Guardian*. Dec 3, 2013. <http://www.theguardian.com/culture-professionals-network/culture-professionals-blog/2013/dec/03/amit-sood-google-cultural-institute-art-project>
2. ↑ Google Paris. Accessed Dec 22, 2016 <http://www.google.se/about/careers/locations/paris/>
3. ↑ Schiller, Dan & Yeo, Shinjoung. "Powered By Google: Widening Access And Tightening Corporate Control." (In Aceti, D. L. (Ed.). *Red Art: New Utopias in Data Capitalism: Leonardo Electronic Almanac*, Vol. 20, No. 1. London: Goldsmiths University Press. 2014):48
4. ↑ Down, Maureen. "The Google Art Heist". *The New York Times*. Sept 12, 2015 <http://www.nytimes.com/2015/09/13/opinion/sunday/the-google-art-heist.html>
5. ↑ Schiller, Dan & Shinjoung Yeo. "Powered By Google: Widening Access And Tightening Corporate Control.", 48
6. ↑ Schiller, Dan & Yeo, Shinjoung. "Powered By Google: Widening Access And Tightening Corporate Control.", 48
7. ↑ Davis, Heather & Turpin, Etienne, eds. *Art in the Anthropocene* (London: Open Humanities Press. 2015), 7
8. ↑ Bush, Randy. *Psg.com On techno-colonialism*. (blog) June 13, 2015. Accessed Dec 22, 2015 <https://psg.com/on-technocolonialism.html>
9. ↑ Starzmann, Maria Theresia. "Cultural Imperialism and Heritage Politics in the Event of Armed Conflict: Prospects for an 'Activist Archaeology'". *Archeologies*. Vol. 4 No. 3 (2008):376
10. ↑ Echikson, William. *Partnering in Belgium to create a capital of culture* (blog) March 20, 2014. Accessed Dec 22, 2015 <http://googlepolicyeurope.blogspot.se/2014/03/partnering-in-belgium-to-create-capital.html>
11. ↑ Google. *Mundaneum co-founder Paul Otlet's 147th Birthday* (blog) August 23, 2015. Accessed Dec 22, 2015 <http://www.google.com/doodles/mundaneum-co-founder-paul-otlets-147th-birthday>
12. ↑ eg. <https://www.google.com/culturalinstitute/thelab/#experiments>
13. ↑ Lavallee, Andrew. "Google CEO: A New Iraq Means Business Opportunities." *Wall Street Journal*. Nov 24, 2009 <http://blogs.wsj.com/digits/2009/11/24/google-ceo-a-new-iraq-means-business-opportunities/>
14. ↑ Associated Press. *Google Documents Iraqi Museum Treasures* (on-line video November 24, 2009) <https://www.youtube.com/watch?v=vqtgtdBvA9k>
15. ↑ Jarry, Emmanuel. "France's Sarkozy takes on Google in books dispute." *Reuters*. December 8, 2009. <http://www.reuters.com/article/us-france-google-sarkozy-idUSTRE5B73E320091208>
16. ↑ European Commission. *Antitrust: Commission probes allegations of antitrust violations by Google* (Brussels 2010) [http://europa.eu/rapid/press-release\\_IP-10-1624\\_en.htm](http://europa.eu/rapid/press-release_IP-10-1624_en.htm)
17. ↑ Caines, Matthew. "Arts head: Amit Sood, director, Google Cultural Institute" *The Guardian*. December 3, 2013. <http://www.theguardian.com/culture-professionals-network/culture-professionals-blog/2013/dec/03/amit-sood-google-cultural-institute-art-project>
18. ↑ Cyrus, Farivar. "Google to build R&D facility and 'European cultural center' in France." *Deutsche Welle*. September 9, 2010. <http://www.dw.com/en/google-to-build-rd-facility-and-european-cultural-center-in-france/a-5993560>
19. ↑ Google Art Project. *Art Project V1 - Launch Event at Tate Britain*. (on-line video February 1, 2011) <https://www.youtube.com/watch?v=NsynsSWVvnM>

20. ↑ Google Cultural Institute. Accessed Dec 18, 2015. <https://www.google.com/culturalinstitute/about/partners/>
21. ↑ Robinson, James. "Eric Schmidt, chairman of Google, condemns British education system" The Guardian. August 26, 2011 <http://www.theguardian.com/technology/2011/aug/26/eric-schmidt-chairman-google-education>
22. ↑ European Commission. Letter addressed to Google by the Article 29 Group (Brussels 2012) [http://ec.europa.eu/justice/data-protection/article-29/documentation/other-document/files/2012/20121016\\_letter\\_to\\_google\\_en.pdf](http://ec.europa.eu/justice/data-protection/article-29/documentation/other-document/files/2012/20121016_letter_to_google_en.pdf)
23. ↑ Willsher, Kim. "Google Cultural Institute's Paris opening snubbed by French minister." The Guardian. December 10, 2013 <http://www.theguardian.com/world/2013/dec/10/google-cultural-institute-france-minister-snub>
24. ↑ Bowers, Simon & Syal, Rajeev. "MP on Google tax avoidance scheme: 'I think that you do evil'". The Guardian. May 16, 2013. <http://www.theguardian.com/technology/2013/may/16/google-told-by-mp-you-do-do-evil>
25. ↑ Court of Justice of the European Union. Press-release No 70/14 (Luxembourg, 2014) <http://curia.europa.eu/jcms/upload/docs/application/pdf/2014-05/cp140070en.pdf>
26. ↑ Barbican. "Digital Revolution." Accessed December 15, 2015 <https://www.barbican.org.uk/bie/upcoming-digital-revolution>
27. ↑ Google. "Dev Art". Accessed December 15, 2015 <https://devart.withgoogle.com/>
28. ↑ Tekniska Museet. "Digital Revolution." Accessed December 15, 2015 <http://www.tekniskamuseet.se/1/5554.html>
29. ↑ Google Cultural Institute. Accessed December 15, 2015. <https://www.google.com/culturalinstitute/thelab/>
30. ↑ Echikson, William. Partnering in Belgium to create a capital of culture (blog) March 20, 2014. Accessed Dec 22, 2015 <http://googlepolicyeurope.blogspot.se/2014/03/partnering-in-belgium-to-create-capital.html>
31. ↑ European Commission. Antitrust: Commission sends Statement of Objections to Google on comparison shopping service; opens separate formal investigation on Android. (Brussels 2015) [http://europa.eu/rapid/press-release\\_IP-15-4780\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4780_en.htm)
32. ↑ Yun Chee, Foo. "Google rejects 'unfounded' EU antitrust charges of market abuse" Reuters. (August 27, 2015) <http://www.reuters.com/article/us-google-eu-antitrust-idUSKCN0QW20F20150827>
33. ↑ European Commission. Antitrust: Commission sends Statement
34. ↑ Transparency International. Lobby meetings with EU policy-makers dominated by corporate interests (blog) June 24, 2015. Accessed December 22, 2015. [http://www.transparency.org/news/pressrelease/lobby\\_meetings\\_with\\_eu\\_policy\\_makers\\_dominated\\_by\\_corporate\\_interests](http://www.transparency.org/news/pressrelease/lobby_meetings_with_eu_policy_makers_dominated_by_corporate_interests)
35. ↑ Wikipedia, The Free Encyclopedia. s.v. "Alphabet Inc.," (accessed Jan 25, 2016, [https://en.wikipedia.org/wiki/Alphabet\\_Inc](https://en.wikipedia.org/wiki/Alphabet_Inc)).
36. ↑ Google. Mundaneum co-founder Paul Otlet's 147th Birthday (blog) August 23, 2015. Accessed Dec 22, 2015 <http://www.google.com/doodles/mundaneum-co-founder-paul-otlets-147th-birthday>
37. ↑ Google. Mundaneum co-founder Paul Otlet's 147th Birthday
38. ↑ The British Museum. The British Museum's unparalleled world collection at your fingertips. (blog) November 12, 2015. Accessed December 22, 2015. [https://www.britishmuseum.org/about\\_us/news\\_and\\_press/press\\_releases/2015/with\\_google.aspx](https://www.britishmuseum.org/about_us/news_and_press/press_releases/2015/with_google.aspx)
39. ↑ Sood, Amit. Step on stage with the Google Cultural Institute (blog) December 1, 2015. Accessed December 22, 2015. <https://googleblog.blogspot.se/2015/12/step-on-stage-with-google-cultural.html>

## THIS IS A DRAFT

Alexia de Visscher

## Une lecture-écriture du livre sur le livre.

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 de 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.

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### THIS IS A DRAFT

[Alexia de Visscher](#)

## Une lecture-écriture du livre sur le livre.

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 de 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 intellectuelles.

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.

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- Paul Otlet, *Cité mondiale. Geneva: World civic center: Mundaneum*. Bruxelles: Union des Associations Internationales, 1929.
- Otlet, Paul, *Traité de documentation*, Bruxelles, Mundaneum, Palais Mondial, 1934.
- Paul Otlet, *Monde: essai d'universalisme - Connaissance du Monde, Sentiment du Monde, Action organisée et Plan du Monde*, Bruxelles: Editions Mundaneum 1935. See also: [http://www.laetusinpraesens.org/uia/docs/otlet\\_contents.php](http://www.laetusinpraesens.org/uia/docs/otlet_contents.php)
- Paul Otlet, *Plan belge; essai d'un plan général, économique, social, culturel. Plan d'urbanisation nationale. Liaison avec le plan mondial. Conditions. Problèmes. Solutions. Réformes*, Bruxelles: Editions Mundaneum, 1935.

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- Levie, Françoise, *L'homme qui voulait classer le monde. Paul Otlet et le Mundaneum*, Bruxelles, Les Impressions Nouvelles, 2006.
- Rayward, Warden Boyd, *The Universe of Information: the Work of Paul Otlet for Documentation and International Organization*, FID Publication 520, Moscow, International Federation for Documentation by the All-Union Institute for Scientific and Technical Information (Viniti), 1975.
- Rayward, Warden Boyd, *Universum informastii Zhizn' i deiat' nost' Polia Otle*, Trans. R.S. Giliarevsky, Moscow, VINITI, 1976.
- Rayward, Warden Boyd (ed.), *International Organization and Dissemination of Knowledge: Selected Essays of Paul Otlet*, Amsterdam, Elsevier, 1990.
- Rayward, Warden Boyd, *El Universo de la Documentacion: la obra de Paul Otlet sobre documentacion y organizacion internacional*, Trans. Pilar Arnau Rived, Madrid, Mundaneum, 2005.
- Rayward, Warden Boyd, "Visions of Xanadu: Paul Otlet (1868-1944) and Hypertext." *Journal of the American Society for Information Science* (1986-1998) 45, no. 4 (05, 1994): 235-251.
- Rayward, Warden Boyd (who translated and adapted), *Mundaneum: Archives of Knowledge*, Urbana-Champaign, 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.
- 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," in *Perspectives on Science*, Vol.19, nr.1, 2011, p. 32-80.
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- Nancy Cartwright, Jordi Cat, Lola Fleck, Thomas E. Uebel *Otto Neurath: Philosophy Between Science and Politics* Cambridge University Press
- John Brown, Paul Duguid *The Social Life of Information* Harvard Business Press
- Nathan Ensmenger *The Computer Boys Take Over: Computers, Programmers, and the Politics of Technical Expertise* MIT Press
- Siva Vaidhyanathan *The Anarchist in the Library: How the Clash Between Freedom and Control Is Hacking the Real World and Crashing the System* Basic Books



- Ronald E. Day, *The Modern Invention of Information: Discourse, History, and Power*, Southern Illinois University Press, 2001.
- Markus Krajewski, Peter Krapp Paper Machines: About Cards & Catalogs, 1548-1929 The MIT Press
- Eric de Groller A Study of general categories applicable to classification and coding in documentation; Documentation and terminology of science; 1962
- Paul Otlet, *L'afrique aux noirs*, Bruxelles: Ferdinand Larcier, 1888.
- Marlene Manoff, "*Theories of the archive from across the disciplines*," in portal: Libraries and the Academy, Vol. 4, No. 1 (2004), pp. 9-25.
- Charles van den Heuvel, W. Boyd Rayward, Facing Interfaces: Paul Otlet's Visualizations of Data Integration. Journal of the American society for information science and technology (2011)

## Don't be evil

### Standing on the hands of Internet giants

- Rene Koenig, Miriam Rasch Society of the Query (Reader)
- William Miller Living With Google Routledge
- Matthew Fuller, Andrew Goffey Evil Media MIT
- Ray Kurzweil The Age of Spiritual Machines: When Computers Exceed Human Intelligence Penguin
- Lawrence Page, Sergey Brin The Anatomy of a Search Engine
- Steve Levy In The Plex Simon & Schuster
- Dan Schiller, Shinjoung Yeo Powered By Google: Widening Access and Tightening Corporate Control
- Shinjoung Yeo Geopolitics of search: Google vs. China?
- Invisible Committee Fuck Off Coogole
- Dave Eggers The Circle Knopf
- Ippolita Epistemology, ontology and others logoi in digital times
- Matteo Pasquinelli Google's PageRank Algorithm: A Diagram of the Cognitive Capitalism and the Rentier of the Common Intellect
- Ken Auletta Googled: The end of the world as we know it
- Joris van Hoboken Search Engine Freedom: On the Implications of the Right to Freedom of Expression for the Legal Governance of Web Search Engines Kluwer Law International
- Siva Vaidhyanathan The Googlization of Everything (And Why We Should Worry) University of California Press
- Wendy Hui Kyong Chun Control and Freedom: Power and Paranoia in the Age of Fiber Optics The MIT Press

## Embedded hierarchies

- Otlet, Paul, *Traité de documentation*, Bruxelles, Mundaneum, Palais Mondial, 1934. (for alphabet hierarchy, see page 71)
- Paul Otlet, *L'afrique aux noirs*, Bruxelles: Ferdinand Larcier, 1888.
- Judy Wajcman, *Feminism Confronts Technology*, University Park, Pa: Pennsylvania State University Press, 1991.

## Mons 2015

- Delphine Masset, Manon Letouche Mons 2015, une culture locale et participative ?

## Architectural visions

### Writings on how Otlet's knowledge site was successively imagined and visualized on grand architectural scales.

- Catherine Courtiau, "La cité internationale 1927-1931," in *Transnational Associations*, 5/1987: 255-266.
- Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. Venezia: Marsilio, 1982.
- Isabelle Rieusset-Lemarie, "P. Otlet's Mundaneum and the International Perspective in the History of Documentation and Information science," in *Journal of the American Society for Information Science* (1986-1998)48.4 (Apr 1997): 301-309.
- *Transnational Associations*, "*Otlet et Le Corbusier*" 1927-31. INGO Development Projects: Quantity or Quality, Issue No: 5, 1987.
- Wouter Van Acker. "*Hubris or utopia? Megalomania and imagination in the work of Paul Otlet*," in *Cahiers de la documentation - Bladen voor documentatie* - 2012/2, 58-66.
- Wouter Van Acker. "Architectural Metaphors of Knowledge: The Mundaneum Designs of Maurice Heymans, Paul Otlet, and Le Corbusier." *Library Trends* 61, no. 2 (2012): 371-396.
- Van Acker, Wouter, Somsen, Geert, "A Tale of Two World Capitals - the Internationalisms of Pieter Eijkman and Paul Otlet", in

*Revue Belge de Philologie et d'Histoire/Belgisch Tijdschrift voor Filologie en Geschiedenis*, Vol. 90, nr.4, 2012.

- Wouter Van Acker, "*Opening the Shrine of the Mundaneum The Positivist Spirit in the Architecture of Le Corbusier and his Belgian "Idolators"*", in *Proceedings of the Society of Architectural Historians, Australia and New Zealand: 30, Open*, edited by Alexandra Brown and Andrew Leach (Gold Coast, Qld: SAHANZ, 2013), vol. 2, 791-805.
- Anthony Vidler, "The Space of History: Modern Museums from Patrick Geddes to Le Corbusier," in *The Architecture of the Museum: Symbolic Structures, Urban Contexts*, ed. Michaela Giebelhausen (Manchester; New York: Manchester University Press, 2003).
- Volker Welter. *Biopolis Patrick Geddes and the City of Life*. Cambridge, Mass: MIT, 2003.
- Alfred Willis, "The Exoteric and Esoteric Functions of Le Corbusier's Mundaneum," *Modulus/University of Virginia School of Architecture Review* 12, no. 21 (1980).

## Zeitgeist

**It includes both century-old sources and more recent ones on the parallel or entangled movements around the Mundaneum time.**

- Hendrik Christian Andersen and Ernest M. Hébrard. *Création d'un Centre mondial de communication*. Paris, 1913.
- Julie Carlier, "Moving beyond Boundaries: An Entangled History of Feminism in Belgium, 1890-1914," Ph.D. dissertation, Universiteit Gent, 2010. (esp. 439-458.)
- Bambi Ceuppens, Congo made in Flanders?: koloniale Vlaamse visies op "blank" en "zwart" in Belgisch Congo. [Gent]: Academia Press, 2004.
- Conseil International des Femmes (International Council of Women), *Office Central de Documentation pour les Questions Concernant la Femme. Rapport*. Bruxelles : Office Central de Documentation Féminine, 1909.
- Sandi E. Cooper, Patriotic pacifism waging war on war in Europe, 1815-1914. New York: Oxford University Press, 1991.
- Sylvie Fayet-Scribe, "Women Professionals in Documentation in France during the 1930s," Libraries & the Cultural Record Vol. 44, No. 2, Women Pioneers in the Information Sciences Part I, 1900-1950 (2009), pp. 201-219. (translated by Michael Buckland)
- François Garas, Mes temples. Paris: Michalon, 1907.
- Madeleine Herren, Hintertüren zur Macht: Internationalismus und modernisierungsorientierte Aussenpolitik in Belgien, der Schweiz und den USA 1865-1914. München: Oldenbourg, 2000.
- Robert Hoozee and Mary Anne Stevens, Impressionism to Symbolism: The Belgian Avant-Garde 1880-1900, London: Royal Academy of Arts, 1994.
- Markus Krajewski, *Die Brücke: A German contemporary of the Institut International de Bibliographie*. In: Cahiers de la documentation / Bladen voor documentatie 66.2 (Juin, Numéro Spécial 2012), 25-31.
- Daniel Laqua, "*Transnational intellectual cooperation, the League of Nations, and the problem of order*," in Journal of Global History (2011) 6, pp. 223-247.
- Paul Otlet, *L'Afrique aux noirs*, Bruxelles: Ferdinand Larcier, 1888.
- Lewis Pyenson and Christophe Verbruggen, "*Ego and the International: The Modernist Circle of George Sarton*," Isis, Vol. 100, No. 1 (March 2009), pp. 60-78.
- Elisée Reclus, Nouvelle géographie universelle; la terre et les hommes, Paris, Hachette et cie., 1876-94.
- Edouard Schuré, *Les grands initiés: esquisse de l'histoire secrète des religions*, 1889.
- Rayward, Warden Boyd (ed.), *European Modernism and the Information Society: Informing the Present, Understanding the Past*. Aldershot, Hants, England: Ashgate, 2008.
- 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*", in *Perspectives on Science*, Vol.19, nr.1, 2011, p. 32-80.
- Nader Vossoughian, "*The Language of the World Museum: Otto Neurath, Paul Otlet, Le Corbusier*", Transnational Associations 1-2 (January-June 2003), Brussels, pp 82-93.
- Alfred Willis, "The Exoteric and Esoteric Functions of Le Corbusier's Mundaneum," *Modulus/ University of Virginia School of Architecture Review* 12, no. 21 (1980).

## Unsorted

- Theater Adhoc, *The humor and tragedy of completeness*, 2005
- Françoise Levie Filmer Paul Otlet
- Stéphanie Manfroid Les réalités d'une aventure documentaire
- Jacques Helleman Paul Otlet (1868-1944), fondateur du mouvement bibliographique international
- Bernd Frohmann Discourse and Documentation: Some Implications for Pedagogy and Research
- Richard P. Saller Patriarchy, Property and Death in the Roman Family Cambridge University Press
- Tim Berners-Lee, Mark Fischetti Weaving the Web: The Original Design and Ultimate Destiny of the World Wide Web Paw Prints
- Brett M. Frischmann Infrastructure: The Social Value of Shared Resources Oxford University Press
- Ippolita The dark side of Google

- Ian Wilson, Jean-Noel Jeanneney, Teresa Lavender Fagan Google and the Myth of Universal Knowledge: A View From Europe ReadHowYouWant.com
- Wouter Van Acker The Analogous Spaces of Paul Otlet (1868-1944)
- Judge, Anthony, "[Union of International Associations – Virtual Organization – Paul Otlet's 100-year Hypertext Conundrum?](#)", 2001.
- Sánchez, Zurita, Manuel, Juan, [El paradigma otletiano como base de un modelo para la organización y difusión del conocimiento científico](#), México, El Autor, Tesina, Colegio de Bibliotecología, Facultad de Filosofía y Letras, UNAM, 2001.
- Wright, Alex, "[Forgotten Forefather](#)", in *Boxes & Arrows*, 10 November 2003.
- Ducheyne, Steffen, "Paul Otlet's Theory of Knowledge and Linguistic Objectivism", in *Knowledge Organization*, no 32, 2005, pp. 110-116.
- Wright, Alex, [Glut: Mastering Information Through the Ages](#), Washington D.C., Joseph Henry Press, 2007.
- Heuvel, Charles van den, "Building Society, Constructing Knowledge, Weaving the Web". in *European Modernism and the Information Society – Informing the Present, Understanding the Past*, Aldershot, 2008, pp. 127-153.
- Wright, Alex, [The Web Time Forgot](#), The New York Times, 17 June 2008.
- Popova, Maria, "[The Birth of the Information Age: How Paul Otlet's Vision for Cataloging and Connecting Humanity Shaped Our World](#)", *Brain Pickings*, 2014.
- W. Boyd Rayward Paul Otlet, an encounter

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- Rayward, Warden Boyd, "Visions of Xanadu: Paul Otlet (1868-1944) and Hypertext." *Journal of the American Society for Information Science* (1986-1998) 45, no. 4 (05, 1994): 235-251.
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- Eric de Groller A Study of general categories applicable to classification and coding in documentation; Documentation and terminology of science; 1962
- Paul Otlet, *L'afrique aux noirs*, Bruxelles: Ferdinand Larcier, 1888.
- Marlene Manoff, "*Theories of the archive from across the disciplines*," in portal: Libraries and the Academy, Vol. 4, No. 1 (2004), pp. 9-25.
- Charles van den Heuvel, W. Boyd Rayward, Facing Interfaces: Paul Otlet's Visualizations of Data Integration. Journal of the American society for information science and technology (2011)

## Don't be evil

### Standing on the hands of Internet giants

- Rene Koenig, Miriam Rasch Society of the Query (Reader)
- William Miller Living With Google Routledge
- Matthew Fuller, Andrew Goffey Evil Media MIT
- Ray Kurzweil The Age of Spiritual Machines: When Computers Exceed Human Intelligence Penguin
- Lawrence Page, Sergey Brin The Anatomy of a Search Engine
- Steve Levy In The Plex Simon & Schuster
- Dan Schiller, ShinJoung Yeo Powered By Google: Widening Access and Tightening Corporate Control
- ShinJoung Yeo Geopolitics of search: Google vs. China?
- Invisible Committee Fuck Off Coogole
- Dave Eggers The Circle Knopf
- Ippolita Epistemology, ontology and others logoi in digital times
- Matteo Pasquinelli Google's PageRank Algorithm: A Diagram of the Cognitive Capitalism and the Rentier of the Common Intellect
- Ken Auletta Googled: The end of the world as we know it
- Joris van Hoboken Search Engine Freedom: On the Implications of the Right to Freedom of Expression for the Legal Governance of Web Search Engines Kluwer Law International
- Siva Vaidhyanathan The Googlization of Everything (And Why We Should Worry) University of California Press
- Wendy Hui Kyong Chun Control and Freedom: Power and Paranoia in the Age of Fiber Optics The MIT Press

## Embedded hierarchies

- Otlet, Paul, *Traité de documentation*, Bruxelles, Mundaneum, Palais Mondial, 1934. (for alphabet hierarchy, see page 71)
- Paul Otlet, *L'afrique aux noirs*, Bruxelles: Ferdinand Larcier, 1888.
- Judy Wajcman, *Feminism Confronts Technology*, University Park, Pa: Pennsylvania State University Press, 1991.

## Mons 2015

- Delphine Masset, Manon Letouche Mons 2015, une culture locale et participative ?

## Architectural visions

### Writings on how Otlet's knowledge site was successively imagined and visualized on grand architectural scales.

- Catherine Courtiau, "La cité internationale 1927-1931," in *Transnational Associations*, 5/1987: 255-266.
- Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. Venezia: Marsilio, 1982.
- Isabelle Rieusset-Lemarie, "P. Otlet's Mundaneum and the International Perspective in the History of Documentation and Information science," in *Journal of the American Society for Information Science* (1986-1998)48.4 (Apr 1997): 301-309.
- *Transnational Associations*, "*Otlet et Le Corbusier*" 1927-31, INGO Development Projects: Quantity or Quality, Issue No: 5, 1987.
- Wouter Van Acker. "*Hubris or utopia? Megalomania and imagination in the work of Paul Otlet,*" in *Cahiers de la documentation – Bladen voor documentatie – 2012/2*, 58-66.
- Wouter Van Acker. "Architectural Metaphors of Knowledge: The Mundaneum Designs of Maurice Heymans, Paul Otlet, and Le Corbusier." *Library Trends* 61, no. 2 (2012): 371-396.
- Van Acker, Wouter, Somsen, Geert, "A Tale of Two World Capitals – the Internationalisms of Pieter Eijkman and Paul Otlet", in *Revue Belge de Philologie et d'Histoire/Belgisch Tijdschrift voor Filologie en Geschiedenis*, Vol. 90, nr.4, 2012.
- Wouter Van Acker, "*Opening the Shrine of the Mundaneum The Positivist Spirit in the Architecture of Le Corbusier and his Belgian "Idolators"*", in *Proceedings of the Society of Architectural Historians, Australia and New Zealand: 30, Open*, edited by Alexandra Brown and Andrew Leach (Gold Coast,Qld: SAHANZ, 2013), vol. 2, 791-805.
- Anthony Vidler, "The Space of History: Modern Museums from Patrick Geddes to Le Corbusier," in *The Architecture of the Museum: Symbolic Structures, Urban Contexts*, ed. Michaela Giebelhausen (Manchester; New York: Manchester University Press, 2003).
- Volker Welter. *Biopolis Patrick Geddes and the City of Life*. Cambridge, Mass: MIT, 2003.
- Alfred Willis, "The Exoteric and Esoteric Functions of Le Corbusier's Mundaneum," *Modulus/University of Virginia School of Architecture Review* 12, no. 21 (1980).

## Zeitgeist

**It includes both century-old sources and more recent ones on the parallel or entangled movements around the Mundaneum time.**

- [Hendrik Christian Andersen](#) and [Ernest M. Hébrard](#). *Création d'un Centre mondial de communication*. Paris, 1913.
- Julie Carlier, "Moving beyond Boundaries: An Entangled History of Feminism in Belgium, 1890-1914," Ph.D. dissertation, Universiteit Gent, 2010. (esp. 439-458.)
- [Bambi Ceuppens](#), Congo made in Flanders?: koloniale Vlaamse visies op "blank" en "zwart" in Belgisch Congo. [Gent]: Academia Press, 2004.
- Conseil International des Femmes (International Council of Women), *Office Central de Documentation pour les Questions Concernant la Femme. Rapport*. Bruxelles : Office Central de Documentation Féminine, 1909.
- Sandi E. Cooper, Patriotic pacifism waging war on war in Europe, 1815-1914. New York: Oxford University Press, 1991.
- Sylvie Fayet-Scribe, "Women Professionals in Documentation in France during the 1930s," *Libraries & the Cultural Record* Vol. 44, No. 2, Women Pioneers in the Information Sciences Part I, 1900-1950 (2009), pp. 201-219. (translated by Michael Buckland)
- François Garas, *Mes temples*. Paris: Michalon, 1907.
- Madeleine Herren, *Hintertüren zur Macht: Internationalismus und modernisierungsorientierte Aussenpolitik in Belgien, der Schweiz und den USA 1865-1914*. München: Oldenbourg, 2000.
- Robert Hoozee and Mary Anne Stevens, *Impressionism to Symbolism: The Belgian Avant-Garde 1880-1900*, London: Royal Academy of Arts, 1994.
- Markus Krajewski, *Die Brücke: A German contemporary of the Institut International de Bibliographie*. In: *Cahiers de la documentation / Bladen voor documentatie* 66.2 (Juin, Numéro Spécial 2012), 25-31.
- Daniel Laqua, "*Transnational intellectual cooperation, the League of Nations, and the problem of order*," in *Journal of Global History* (2011) 6, pp. 223-247.
- Paul Otlet, *L'Afrique aux noirs*, Bruxelles: Ferdinand Larcier, 1888.
- Lewis Pyenson and Christophe Verbruggen, "*Ego and the International: The Modernist Circle of George Sarton*," *Isis*, Vol. 100, No. 1 (March 2009), pp. 60-78.
- [Elisée Reclus](#), *Nouvelle géographie universelle; la terre et les hommes*, Paris, Hachette et cie., 1876-94.
- [Edouard Schuré](#), *Les grands initiés: esquisse de l'histoire secrète des religions*, 1889.
- [Rayward](#), [Warden Boyd](#) (ed.), *European Modernism and the Information Society: Informing the Present, Understanding the Past*. Aldershot, Hants, England: Ashgate, 2008.
- [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*", in *Perspectives on Science*, Vol.19, nr.1, 2011, p. 32-80.
- [Nader Vossoughian](#), "*The Language of the World Museum: Otto Neurath, Paul Otlet, Le Corbusier*", *Transnational Associations* 1-2 (January-June 2003), Brussels, pp 82-93.
- [Alfred Willis](#), "The Exoteric and Esoteric Functions of Le Corbusier's Mundaneum," *Modulus/ University of Virginia School of Architecture Review* 12, no. 21 (1980).

## Unsorted

- Theater Adhoc, *The humor and tragedy of completeness*, 2005
- Françoise Levie Filmer Paul Otlet
- Stéphanie Manfroid Les réalités d'une aventure documentaire
- Jacques Helleman Paul Otlet (1868-1944), fondateur du mouvement bibliographique international
- Bernd Frohmann *Discourse and Documentation: Some Implications for Pedagogy and Research*
- Richard P. Saller *Patriarchy, Property and Death in the Roman Family* Cambridge University Press
- Tim Berners-Lee, Mark Fischetti *Weaving the Web: The Original Design and Ultimate Destiny of the World Wide Web* Paw Prints
- Brett M. Frischmann *Infrastructure: The Social Value of Shared Resources* Oxford University Press
- Ippolita *The dark side of Google*

- Ian Wilson, Jean-Noel Jeanneney, Teresa Lavender Fagan Google and the Myth of Universal Knowledge: A View From Europe ReadHowYouWant.com
- Wouter Van Acker The Analogous Spaces of Paul Otlet (1868-1944)
- Judge, Anthony, “[Union of International Associations – Virtual Organization – Paul Otlet's 100-year Hypertext Conundrum?](#)”, 2001.
- Sánchez, Zurita, Manuel, Juan, [El paradigma otletiano como base de un modelo para la organización y difusión del conocimiento científico](#), México, El Autor, Tesina, Colegio de Bibliotecología, Facultad de Filosofía y Letras, UNAM, 2001.
- Wright, Alex, “[Forgotten Forefather](#)”, in *Boxes & Arrows*, 10 November 2003.
- Ducheyne, Steffen, “Paul Otlet's Theory of Knowledge and Linguistic Objectivism”, in *Knowledge Organization*, no 32, 2005, pp. 110-116.
- Wright, Alex, [Glut: Mastering Information Through the Ages](#), Washington D.C., Joseph Henry Press, 2007.
- Heuvel, Charles van den, “Building Society, Constructing Knowledge, Weaving the Web”. in *European Modernism and the Information Society – Informing the Present, Understanding the Past*, Aldershot, 2008, pp. 127-153.
- Wright, Alex, [The Web Time Forgot](#), The New York Times, 17 June 2008.
- Popova, Maria, “[The Birth of the Information Age: How Paul Otlet's Vision for Cataloging and Connecting Humanity Shaped Our World](#)”, *Brain Pickings*, 2014.
- W. Boyd Rayward Paul Otlet, an encounter

## THIS IS A DRAFT

### Natacha Rousset

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 a broader context, and in relation to both local and international events. By connecting several geographic locations at different scales, it is hopefully provoking *cqrrrelations* in time and space that could help us formulate questions about the ways local events repeatedly mirror and recompose global situations. Hopefully, it also can help to see which elements in the context of existence of the Mundaneum are different from the current situation of our information economy.

The ambitious project of the Mundaneum is imagined by Paul Otlet with support of Henri Lafontaine at the end of the 19th century, a time when colonialism is at its heights, bringing large commercial incomes to occidental countries, and giving a sense of security that made everything seem possible; it felt the intellectual and material benefits of rational thinking could universally become the source of all goods. The first tensions between colonial/commercial powers are only starting to manifest themselves through crisis between international powers during Fashoda and Boer; but this great sense of strength is quickly tempered by the coming war knocking at the doors of modern European society.

In this context it is important to emphasize that Henri Lafontaine 's thinking, while constantly energized by Paul Otlet's encompassing view of classification systems and standards, strongly associates the Mundaneum project to the ideal of world peace. Although included in the international and "politico-economical" context of its time, the Mundaneum is also linked by many aspects to the larger movement towards a structured networked society, which is also fed by the wealth of the times. Firstly the Mundaneum archives are constituted with an intention, a major effort is done to include documents referring to often neglected topics, that could be considered as alternative, such as the well known archives of the feminist movement in Belgium, but also information on anarchism and pacifism. Furthermore, in line with the general sense of strength due to growing wealth in Europe at the turn of the century, the Mundaneum project seems to be always in extension. Otlet's view of archives and organization extends to all domains and becomes overwhelming, and Lafontaine asserts that general peace could be achieved through social development by the means of education, and access to knowledge. Their common view is nurtured by an acute perception of their epoch, they observe the major evolution in the organization of civil society; they also affirm their objective to structure their project via a defined organisation and an international network. The Mundaneum project is very much in tune with the socio politics of its time; Henri Lafontaine's intervention helps to root the process of archive collection in a larger network of associations and meta-structures. This is a conscious process of thought, that takes place in a larger theoretical framework representing this universal archive of all knowledge as a resource for the promotion of education towards development of better social relations.

However internationalisation is not only a fact of industrial society, it is also a dynamic motivation to structure social and political networks, among other things via political negotiations and civil society organisations. Quite a few broad structures develop simultaneously to the world wide spreading of an industrial economy, they aim to formulate a world view that would be based on international agreements rather than left to individual and commercial initiatives. Otlet and Lafontaine spent a large part of their lives on attempts to formulate a *mondial* society. While Lafontaine clearly roots his thinking in a strong civil society organization, according to Benoit Friedman, Otlet is the first person to use the term Mondialisation in French being far ahead in what will become an important movement claiming for a world wide government after World War 2 « 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”. » [1]. Those two approaches might already bear certain differences as none emphasises an organisation based on local structure that implies direct participation to civil society organisations, while the other focuses more on management and global organisation.

The ever ambitious process of the Mundaneum archive takes place in the context of the general internationalization of society, already becoming crucial at the end of the 19th century, while at the same time the social gap increases due to the booming industrial society. This issue was addressed in Brussels by the brand new discipline of sociology [2] that tried to formulate something that would be a legal engineer to address social inequalities.

The communication systems associated with the Mundaneum were conceived in between the two World Wars. Some of them such as the Mondotheque 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. Otlet and Lafontaine's project took place in an era of international agreements over communication networks. It appears that associative structures (which ones?), acted as networks of information-sharing organizing modalities of exchange to the general benefit of civil society. It was also the epoch of international agreements between countries, structuring international life from diplomacy to normalisation; some of these structures still form the basis of our actual globalized organization, but they are all challenged by private capitalist structures. How is the development of the Mundaneum project related to the development of the actual knowledge economy?

| DATE               | EVENT  | TYPE        | SCALE        |
|--------------------|--|-------------|--------------|
| 1934               | The <u>Mundaneum</u> is closed after a governmental decision. A part of the archives are moved <u>Rue Fédis 44, Brussels</u> to the house of <u>Paul Otlet</u>   | MOVE        | HOUSE        |
| 1992               | Creation of <u>the Internet Society</u> , an American association with international vocation.   | STANDARD    | <u>WORLD</u> |
| 1960's             | <u>Les Amis du Palais Mondial</u> organize different events to celebrate the memory of <u>Paul Otlet</u> .   | EVENT       | HOUSE        |
| 1914               | The <u>Palais Mondial</u> sets up at <u>Parc du Cinquantenaire 11</u> . The opening is delayed due to the upcoming <u>WORLD</u> War I.   | MOVE        | CITY         |
| 1916               | <u>Paul Otlet</u> coins the term "Mondialisation" in <u>Les Problèmes internationaux et la Guerre, les conditions et les facteurs de la vie internationale</u> , Genève/Paris, Kundig/Rousseau, p. 76  | PUBLICATION | CITY         |
| 1920               | Foundation of the <u>League of Nations</u> at the <u>Paris peace conference</u> .  | EVENT       | <u>WORLD</u> |
| 1920               | Opening of the <u>Palais Mondial</u> in <u>Parc du Cinquantenaire</u> .  | EVENT       | CITY         |
| 1924               | <u>Foire du caoutchouc</u> (Rubber fair) in the <u>Palais Mondial</u> . Some collections will be moved to make space for the event.  | MOVE        | CITY         |
| 1941               | Some files from the Mundaneum collections concerning international associations, are transferred to Germany. They are assumed to have propaganda value.  | MOVE        | <u>WORLD</u> |
| 1934               | Publication of Otlet's book <u>Traité de documentation</u> .   | PUBLICATION | <u>WORLD</u> |
| 1891               | <u>Henri Lafontaine</u> publishes an essay <u>Pour une bibliographie de la paix</u> .  | PUBLICATION | NATION       |
| 1895 2-4 September | First <u>Conférence de Bibliographie</u> at which it is decided to create <u>l'Institut International de Bibliographie</u> (IIB).  | ASSOCIATION | CITY         |
| 1893               | <u>Otlet</u> and <u>Lafontaine</u> start together <u>l'Office International de Bibliologie Sociologique</u> (OIBS).  | ASSOCIATION | CITY         |
| 1910 May           | Official Creation of the <u>International union of associations</u> (IUA). In 1914, it federates 230 organizations, a little more than half the existing ones. The IUA promotes internationalist aspirations and desire for peace that will lead in 1920 to the creation of the <u>Société des Nations</u> . | ASSOCIATION | <u>WORLD</u> |
| 1907 June          | <u>Otlet</u> and <u>Lafontaine</u> organize a <u>Central Office for International Associations</u> that will become the <u>International Union of Associations</u> (IUA) at the first <u>Congrès mondial des associations internationales</u> in Brussels in May 1910.                                       | ASSOCIATION | CITY         |
| 1903               | Creation of the international <u>Women's suffrage alliance</u> (IWSA) that will later become the <u>International Alliance of Women</u> .  | ASSOCIATION | <u>WORLD</u> |
| 1910 25-27 August  | <u>Le Congrès International de Bibliographie et de Documentation</u> deals both with issues of international cooperation between non-governmental organizations and 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 <u>UDC</u> .   | ASSOCIATION | <u>WORLD</u> |
| 1914               | Germany declares war to France and invades Belgium.  | EVENT       | <u>WORLD</u> |
| 1919 June 28       | The <u>Traité de Versailles</u> marks the end of World War I.  | EVENT       | <u>WORLD</u> |

|                   |  |             |              |
|-------------------|--|-------------|--------------|
| 1924              | Creation (within the IIB), of the <i>Central Classification Commission</i> focusing on the development of the <i>Universal Decimal Classification</i> (UDC). | ASSOCIATION | NATION       |
| 1931              | The IIB becomes the <i>International Institute of documentation</i> (IID) and in 1938 is named <i>International Fédération of documentation</i> (IDF).       | ASSOCIATION | <u>WORLD</u> |
| 1939<br>September | Invasion of Poland by Germany, start of World War II.  | EVENT       | <u>WORLD</u> |
| 1908 July         | <i>Congrès bibliographique international</i> in Brussels.  | EVENT       | CITY         |
| 1900              | <i>Congrès bibliographique international</i> in Paris.   | EVENT       | <u>WORLD</u> |
| 1913              | <u>Henri Lafontaine</u> is awarded the Nobel Prize for Peace.  | EVENT       | <u>WORLD</u> |
| 1916              | <u>Lafontaine</u> publishes <i>The great solution: magnissima charta</i> while in exile in the United States.  | PUBLICATION | <u>WORLD</u> |
| 1882              | <i>Triple Alliance</i> , renewed in 1902.  | EVENT       | <u>WORLD</u> |
| 1904              | <i>Entente cordiale</i> between France and England over the colonies (what was agreed upon?).  | EVENT       | <u>WORLD</u> |
| 1890's            | First colonial wars (Fachoda, Boers ...).  | EVENT       | <u>WORLD</u> |
| 1889              | <u>Henri Lafontaine</u> creates <i>La Société Belge de l'arbitrage et de la paix</i> .   | EVENT       | NATION       |
| 1944              | Death of <u>Paul Otlet</u> . He is buried in <u>Etterbeek cemetery</u> .   | EVENT       | CITY         |
| 1993              | <u>Elio Di Rupo</u> organises the transport of the Mundaneum archives from Brussels to <u>76 rue de Nimy</u> in Mons.  | MOVE        | NATION       |
| 1890              | <u>Henri Lafontaine</u> meets <u>Paul Otlet</u> .  | PERSON      | CITY         |
| 1894              | <u>Henri Lafontaine</u> is elected senator of the province of Hainaut, and later senator of the province of Liège-Brabant.                                   | EVENT       | NATION       |
| 1907              | <u>Henri Lafontaine</u> is elected president of the <i>Bureau international de la paix</i> that he previously initiated.                                     | PERSON      | NATION       |
| 1891              | <i>Franco-Russian entente</i> , preliminary to the <i>Triple entente</i> that will be signed in 1907.  | EVENT       | <u>WORLD</u> |
| 1870              | Franco-Prussian war.   | EVENT       | <u>WORLD</u> |
| 1905              | First Moroccan crisis.   | EVENT       | <u>WORLD</u> |
| 1874              | ONU creates the <i>General Postal Union</i> <sup>[3]</sup> and aims to federate international postal distribution.   | STANDARD    | <u>WORLD</u> |
| 1875              | <i>General Conference on Weights and Measures</i> in Sèvres, France.   | STANDARD    | <u>WORLD</u> |
| 1865              | The <i>International Union of telegraph</i> , the future <i>International Telecommunication Union</i> (UTI) sets up.   | STANDARD    | <u>WORLD</u> |
| 1947              | The <i>International Telecommunication Union</i> (UTI) is attached to the UN.  | STANDARD    | GLOBE        |
| 1963              | <i>American Standard Code for Information Interchange</i> (ASCII) developed.   | STANDARD    | GLOBE        |
| 1966              | The ARPANET project is initiated.  | ASSOCIATION | NATION       |
| 1974              | <i>Telenet</i> , the first public version of the Internet founded.   | STANDARD    | <u>WORLD</u> |
| 2012              | Failure of the <i>World Conference on International Telecommunications</i> (WCIT) to reach an international agreement on Internet regulation.                | STANDARD    | GLOBE        |

### Additional timelines

- <https://www.timetoast.com/timelines/la-premiere-guerre-mondiale>
- <http://www.telephonetribute.com/timeline.html>
- <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>
- <http://archives.mundaneum.org/fr/historique>

### References

1. ↑ Paul Otlet, 1916, *Les Problèmes internationaux et la Guerre, les conditions et les facteurs de la vie internationale*, Genève/Paris, Kündig/Rousseau, p. 76.
2. ↑ [http://www.philodroit.be/IMG/pdf/bf\\_-\\_le\\_droit\\_global\\_selon\\_ecole\\_de\\_bruelles\\_-2014-3.pdf?lang=fr](http://www.philodroit.be/IMG/pdf/bf_-_le_droit_global_selon_ecole_de_bruelles_-2014-3.pdf?lang=fr)
3. ↑ [https://en.wikipedia.org/wiki/Universal\\_Postal\\_Union](https://en.wikipedia.org/wiki/Universal_Postal_Union)

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| DATE | EVENT | TYPE | SCALE |
|------|-------|------|-------|
|------|-------|------|-------|

|                    |  |             |              |
|--------------------|--|-------------|--------------|
| 1934               | The <u>Mundaneum</u> is closed after a governmental decision. A part of the archives are moved <u>Rue Fétis 44, Brussels</u> to the house of <u>Paul Otlet</u>   | MOVE        | HOUSE        |
| 1992               | Creation of <u>the Internet Society</u> , an American association with international vocation.   | STANDARD    | <u>WORLD</u> |
| 1960's             | <u>Les Amis du Palais Mondial</u> organize different events to celebrate the memory of <u>Paul Otlet</u> .   | EVENT       | HOUSE        |
| 1914               | The <u>Palais Mondial</u> sets up at <u>Parc du Cinquantenaire 11</u> . The opening is delayed due to the upcoming <u>WORLD</u> War I.   | MOVE        | CITY         |
| 1916               | <u>Paul Otlet</u> coins the term " <u>Mondialisation</u> " in <u>Les Problèmes internationaux et la Guerre, les conditions et les facteurs de la vie internationale</u> , Genève/Paris, Kundig/Rousseau, p. 76   | PUBLICATION | CITY         |
| 1920               | Foundation of the <u>League of Nations</u> at the <u>Paris peace conference</u> .  | EVENT       | <u>WORLD</u> |
| 1920               | Opening of the <u>Palais Mondial</u> in <u>Parc du Cinquantenaire</u> .  | EVENT       | CITY         |
| 1924               | <u>Foire du caoutchouc</u> (Rubber fair) in the <u>Palais Mondial</u> . Some collections will be moved to make space for the event.  | MOVE        | CITY         |
| 1941               | Some files from the Mundaneum collections concerning international associations, are transferred to Germany. They are assumed to have propaganda value.  | MOVE        | <u>WORLD</u> |
| 1934               | Publication of Otlet's book <u>Traité de documentation</u> .   | PUBLICATION | <u>WORLD</u> |
| 1891               | <u>Henri Lafontaine</u> publishes an essay <u>Pour une bibliographie de la paix</u> .  | PUBLICATION | NATION       |
| 1895 2-4 September | First <u>Conférence de Bibliographie</u> at which it is decided to create <u>l'Institut International de Bibliographie</u> (IIB).  | ASSOCIATION | CITY         |
| 1893               | <u>Otlet</u> and <u>Lafontaine</u> start together <u>l'Office International de Bibliologie Sociologique</u> (OIBS).  | ASSOCIATION | CITY         |
| 1910 May           | Official Creation of the <u>International union of associations</u> (IUA). In 1914, it federates 230 organizations, a little more than half the existing ones. The IUA promotes internationalist aspirations and desire for peace that will lead in 1920 to the creation of the <u>Société des Nations</u> . | ASSOCIATION | <u>WORLD</u> |
| 1907 June          | <u>Otlet</u> and <u>Lafontaine</u> organize a <u>Central Office for International Associations</u> that will become the <u>International Union of Associations</u> (IUA) at the first <u>Congrès mondial des associations internationales</u> in Brussels in May 1910.                                       | ASSOCIATION | CITY         |
| 1903               | Creation of the international <u>Women's suffrage alliance</u> (IWSA) that will later become the <u>International Alliance of Women</u> .  | ASSOCIATION | <u>WORLD</u> |
| 1910 25-27 August  | <u>Le Congrès International de Bibliographie et de Documentation</u> deals both with issues of international cooperation between non-governmental organizations and 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 <u>UDC</u> .   | ASSOCIATION | <u>WORLD</u> |
| 1914               | Germany declares war to France and invades Belgium.  | EVENT       | <u>WORLD</u> |
| 1919 June 28       | The <u>Traité de Versailles</u> marks the end of World War I.  | EVENT       | <u>WORLD</u> |
| 1924               | Creation (within the IIB), of the <u>Central Classification Commission</u> focusing on the development of the <u>Universal Decimal Classification</u> ( <u>UDC</u> ).  | ASSOCIATION | NATION       |
| 1931               | The IIB becomes the <u>International Institute of documentation</u> (IID) and in 1938 is named <u>International Fédération of documentation</u> (IDF).   | ASSOCIATION | <u>WORLD</u> |
| 1939 September     | Invasion of Poland by Germany, start of World War II.  | EVENT       | <u>WORLD</u> |
| 1908 July          | <u>Congrès bibliographique international</u> in Brussels.  | EVENT       | CITY         |
| 1900               | <u>Congrès bibliographique international</u> in Paris.   | EVENT       | <u>WORLD</u> |
| 1913               | <u>Henri Lafontaine</u> is awarded the Nobel Price for Peace.  | EVENT       | <u>WORLD</u> |
| 1916               | <u>Lafontaine</u> publishes <u>The great solution: magnissima charta</u> while in exile in the United States.  | PUBLICATION | <u>WORLD</u> |
| 1882               | <u>Triple Alliance</u> , renewed in 1902.  | EVENT       | <u>WORLD</u> |
| 1904               | <u>Entente cordiale</u> between France and England over the colonies (what was agreed upon?).  | EVENT       | <u>WORLD</u> |
| 1890's             | First colonial wars (Fachoda, Boers ...).  | EVENT       | <u>WORLD</u> |
| 1889               | <u>Henri Lafontaine</u> creates <u>La Société Belge de l'arbitrage et de la paix</u> .   | EVENT       | NATION       |

|      |   |             |              |
|------|---|-------------|--------------|
| 1944 | Death of <u>Paul Otlet</u> . He is buried in <u>Etterbeek cemetery</u> .  | EVENT       | CITY         |
| 1993 | <u>Elio Di Rupo</u> organises the transport of the Mundaneum archives from Brussels to <u>76 rue de Nimy</u> in Mons.                         | MOVE        | NATION       |
| 1890 | <u>Henri Lafontaine</u> meets <u>Paul Otlet</u> .   | PERSON      | CITY         |
| 1894 | <u>Henri Lafontaine</u> is elected senator of the province of Hainaut, and later senator of the province of Liège-Brabant.                    | EVENT       | NATION       |
| 1907 | <u>Henri Lafontaine</u> is elected president of the <i>Bureau international de la paix</i> that he previously initiated.                      | PERSON      | NATION       |
| 1891 | <i>Franco-Russian entente</i> , preliminary to the <i>Triple entente</i> that will be signed in 1907.   | EVENT       | <u>WORLD</u> |
| 1870 | Franco-Prussian war.  | EVENT       | <u>WORLD</u> |
| 1905 | First Moroccan crisis.  | EVENT       | <u>WORLD</u> |
| 1874 | ONU creates the <i>General Postal Union</i> <sup>[3]</sup> and aims to federate international postal distribution.                            | STANDARD    | <u>WORLD</u> |
| 1875 | <i>General Conference on Weights and Measures</i> in Sèvres, France.  | STANDARD    | <u>WORLD</u> |
| 1865 | The <i>International Union of telegraph</i> , the future <i>International Telecommunication Union</i> (UTI) sets up.                          | STANDARD    | <u>WORLD</u> |
| 1947 | The <i>International Telecommunication Union</i> (UTI) is attached to the UN.   | STANDARD    | GLOBE        |
| 1963 | <i>American Standard Code for Information Interchange</i> (ASCII) developed.  | STANDARD    | GLOBE        |
| 1966 | The ARPANET project is initiated.   | ASSOCIATION | NATION       |
| 1974 | <i>Telenet</i> , the first public version of the Internet founded.  | STANDARD    | <u>WORLD</u> |
| 2012 | Failure of the <i>World Conference on International Telecommunications</i> (WCIT) to reach an international agreement on Internet regulation. | STANDARD    | GLOBE        |

### Additional timelines

- <https://www.timetoast.com/timelines/la-premiere-guerre-mondiale>
- <http://www.telephonetribute.com/timeline.html>
- <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>
- <http://archives.mundaneum.org/fr/historique>

### References

1. ↑ Paul Otlet, 1916, *Les Problèmes internationaux et la Guerre, les conditions et les facteurs de la vie internationale*, Genève/Paris, Kundig/Rousseau, p. 76.
2. ↑ [http://www.philodroit.be/IMG/pdf/bf\\_-\\_le\\_droit\\_global\\_selon\\_ecole\\_de\\_bruelles\\_-2014-3.pdf?lang=fr](http://www.philodroit.be/IMG/pdf/bf_-_le_droit_global_selon_ecole_de_bruelles_-2014-3.pdf?lang=fr)
3. ↑ [https://en.wikipedia.org/wiki/Universal\\_Postal\\_Union](https://en.wikipedia.org/wiki/Universal_Postal_Union)

### 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 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)

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"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>

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

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Inscription: "Il ne fut rien sinon Mundanéen"

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

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Tomb at the grave of Paul Otlet

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Design for the Mundaneum, Section and facades by Le Corbusier

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*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 basic geometrical shapes of cube, cylinder, prism and pyramid, the main axis of which is symmetry with emphasis on horizontality.*

- 

Plan of the Mundaneum by M.C. Heymans

- 

Perspective of the Mundaneum by M.C. Heymans

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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.*

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

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*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.*

- 

CDU schema Otlet



- *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.*

- 

Classify-sketch

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World City by Le Corbusier & Jeanneret

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Mondotheque visits the Mundaneum archives, 11 September 2015

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*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.*

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Traité de documentation - La pyramide des bibliographies

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Inverted pyramid and floor plan by Stanislas Jasinski

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Architectural vision of the Mundaneum by M.C. Heymans

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Section by Stanislas Jasinski

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

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Le reseau Mundaneum. From Paul Otlet, Encyclopaedia Universalis Mundaneum

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Metro Place Rogier in 2008

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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\_2008\_0001\_MA

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Paul Otlet, Mundaneum. Documentatio Partes. MDN, EUM, doc nr. 8506, scan nr. Mundaneum\_A400176

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*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.*

- 

Plgor

- 

Place Rogier

-

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

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.")

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"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

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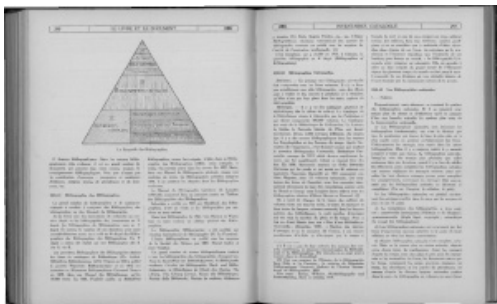
*"Une immense pyramide est à construire. Au sommet y travaillent Penseurs, Sociologues et grands Artistes. Le sommet doit rejoindre la base où s'agitent les masses, mais la base aussi doit être disposée de manière qu'elle puisse rejoindre le sommet."*<sup>[2]</sup>



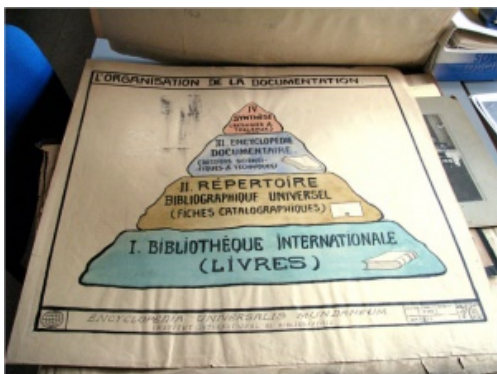
Paul Otlet, Species Mundaneum. Mundaneum, Mons.  
Personal papers of Paul Otlet (MDN). Fonds Encyclopaedia  
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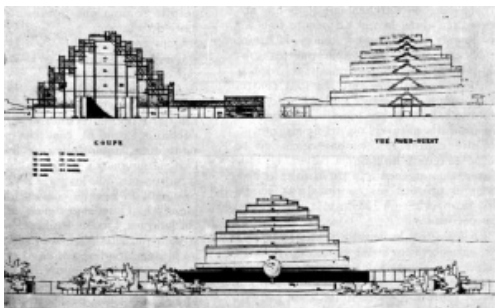
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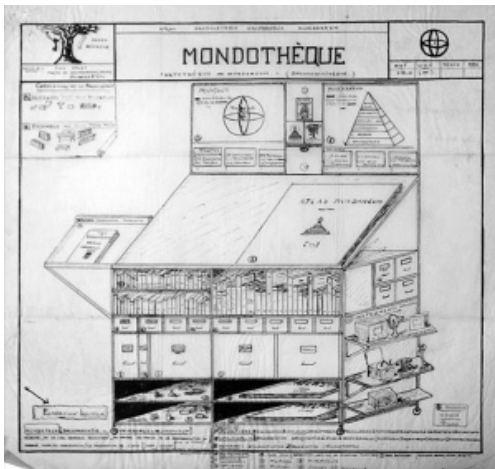
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Tomb at the grave of Paul Otlet



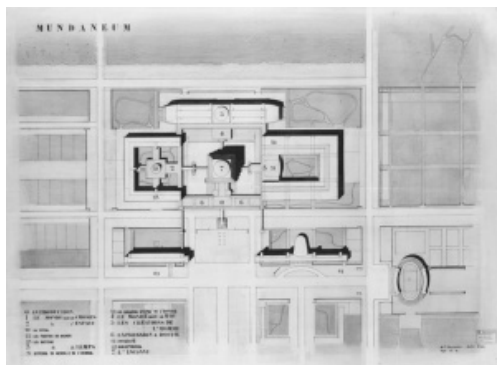
Design for the Mundaneum, Section and facades by Le Corbusier



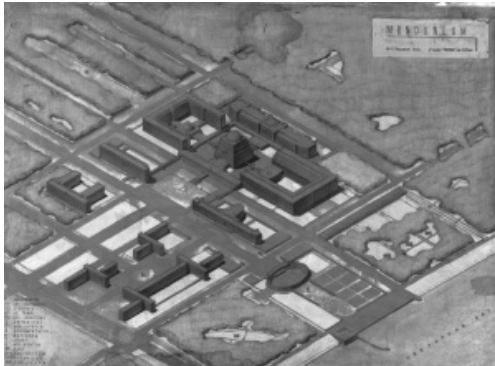
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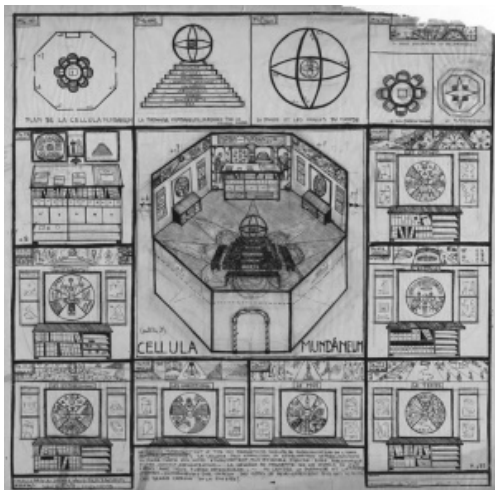
*An axonometric view of the Mundaneum gives the effect of an aerial photograph of an archeological site — Egyptian, Babylonian, Assyrian, ancient American (Mayan and Aztec) or Peruvian. These historical reminiscences are striking. Remember the important building works of the Mayas, who were the zenith 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 basic geometrical shapes of cube, cylinder, prism and pyramid, the main axis of which is symmetry with emphasis on horizontality.*



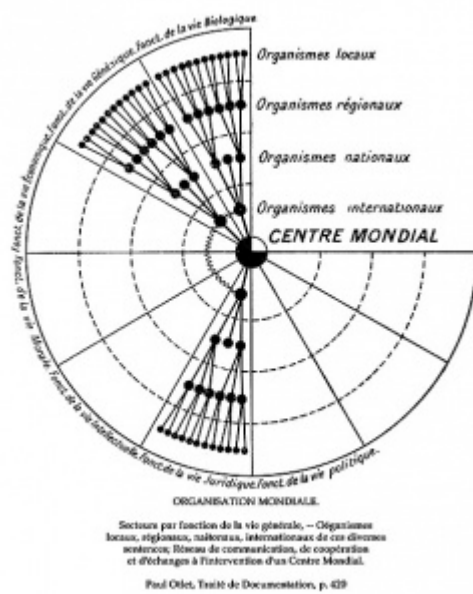
Plan of the Mundaneum by M.C. Heymans



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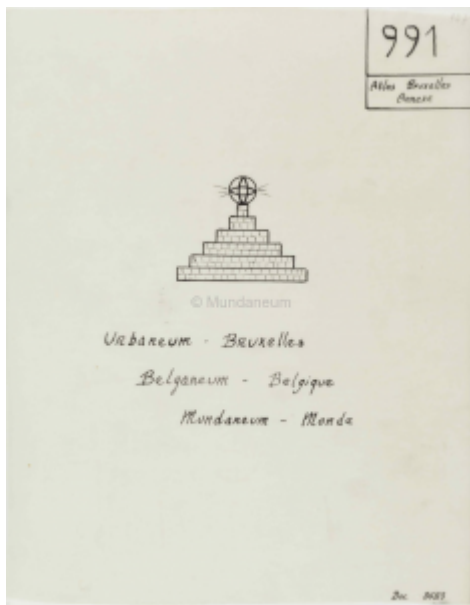
Paul Otlet, Cellula Mundaneum (1936). Mundaneum, Mons. Personal papers of Paul Otlet (MDN). Fonds Affiches (AFF).



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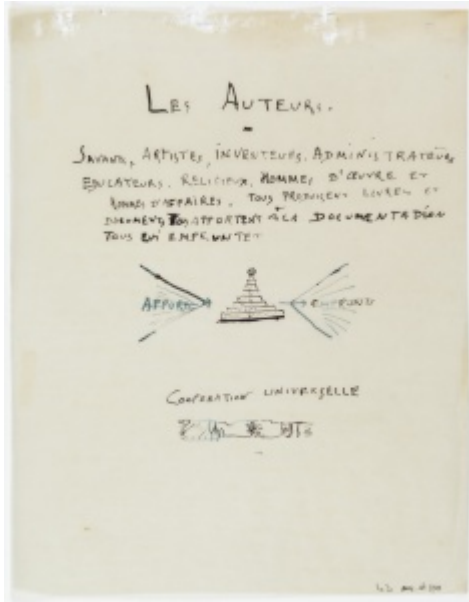


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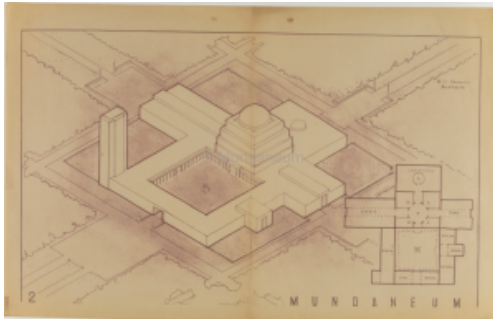


Atlas Bruxelles - Urbaneum - Belganeum - Mundaneum.  
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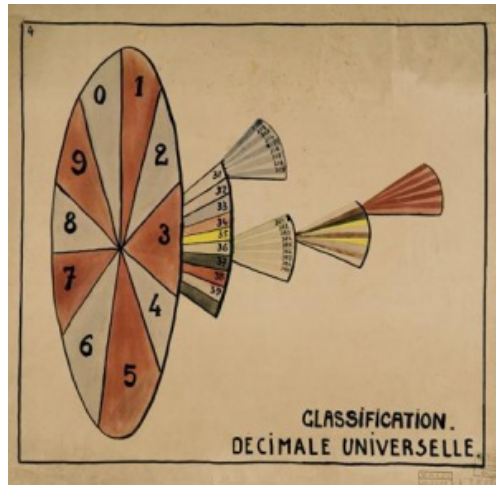
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CDU schema Otlet

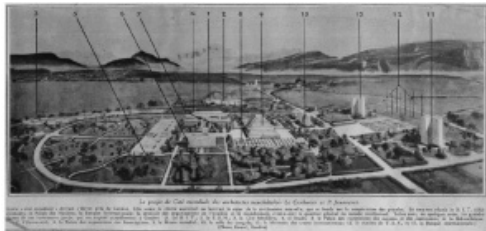


Invitation Issued to the 1,000th Lecture Sponsored by the Mundaneum

*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.*



### Classify-sketch



Illus. 16. Project of a World City by the architects from Neuchâtel Le Corbusier and P. Jeanneret.

"This 'World City' should be built near Geneva. It will be the universal center in which the heart of the new civilization will beat on the basis of cooperation between the peoples. It will bring together the already existing International Labor Office, the Palace of Nations, the International Bank, the offices of the Health organization and the Mundaneum, that is to say it will be a headquarters center for the intellectual world. Such are, in a few words, the major outlines of this interesting project which is being exhibited at the moment in Geneva."

1. The I.L.O.; 2. The League of Nations; 3. The hotel area; 4. The Stadium; 5. The National and Continental Exhibition Center; 6. The Library; 7. The University; 8. The exhibition center for the associations; 9. The world museum; 10. The conference building; 11. The building for international trusts; 12. Wireless telegraph facility; 13. International Bank (from *L'Esprit*, Lausanne, 12 Septembre 1929)

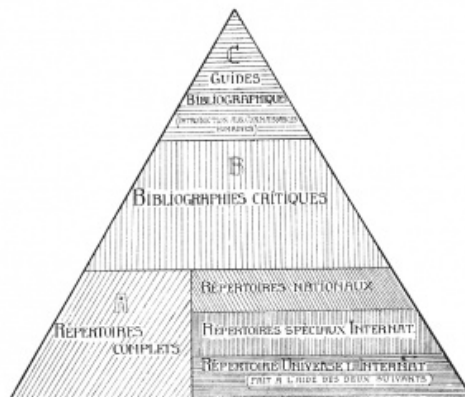
### World City by Le Corbusier & Jeanneret



Mondotheque visits the Mundaneum archives, 11 September 2015

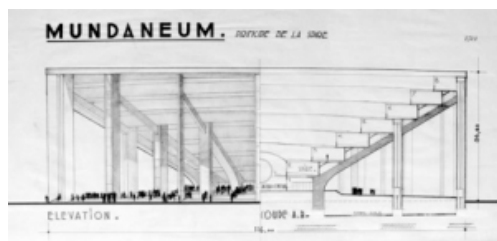


*The face of the earth would be much altered if brick architecture were ousted everywhere by glass architecture. It would be as if the earth were adorned with sparkling jewels and enamels. Such glory is unimaginable. We should then have a paradise on earth, and no need to watch in longing expectation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

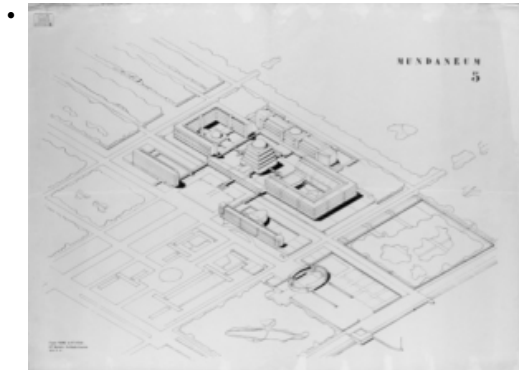


La Pyramide des Bibliographies.

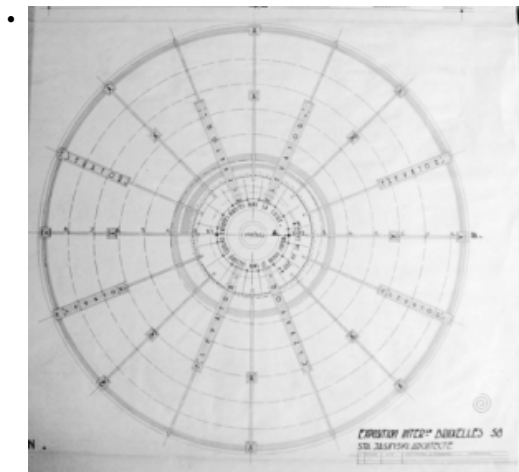
Traité de documentation - La pyramide des bibliographies



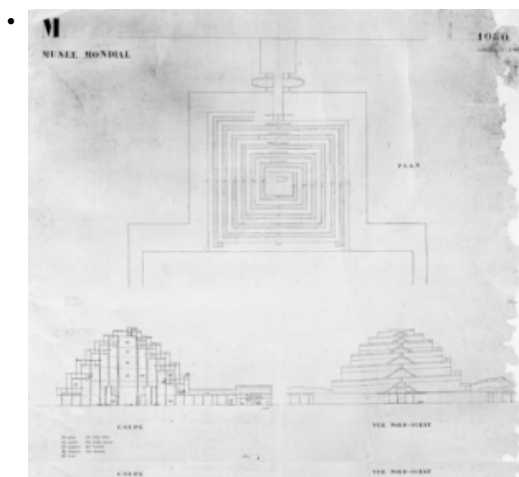
Inverted pyramid and floor plan by Stanislas Jasinski



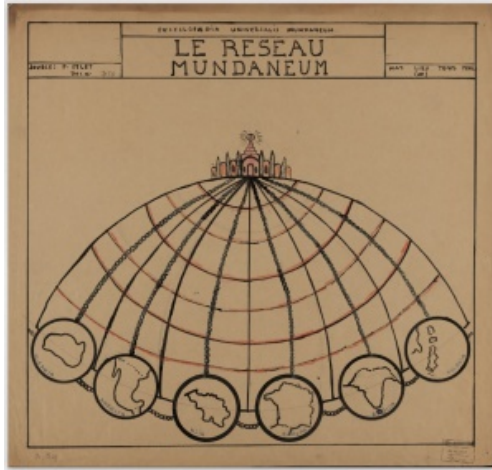
Architectural vision of the Mundaneum by M.C. Heymans



Section by Stanislas Jasinski



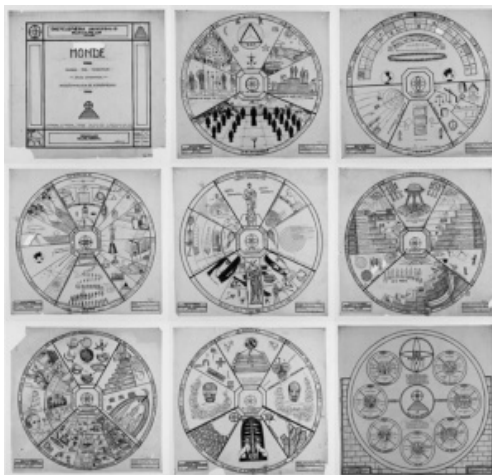
Le Corbusier, Musée Mondial (1929), FLC, doc nr. 24510



Le reseau Mundaneum. From Paul Otlet, Encyclopaedia Universalis Mundaneum



Metro Place Rogier in 2008

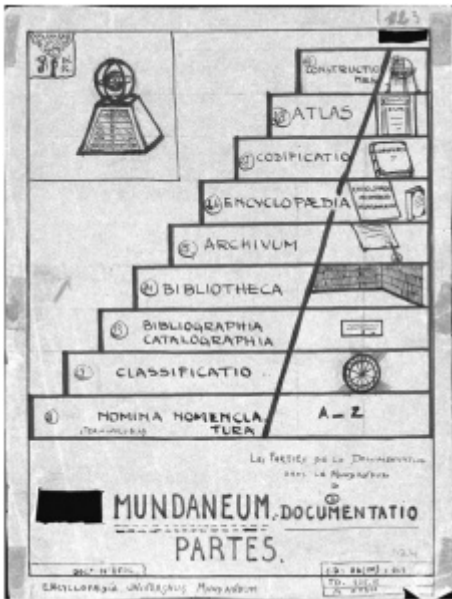


Paul Otlet, Atlas Monde (1936). MDN, AFF, scan nr. Mundaneum\_032; Mundaneum\_034; Mundaneum\_036; Mundaneum\_038; Mundaneum\_040; Mundaneum\_042; Mundaneum\_044; Mundaneum\_046; Mundaneum\_049 (sic!)





Paul Otlet, Le Monde en son ensemble (1936). Mundaneum, Mons. MDN, AFF, scan nr. MUND-00009061\_2008\_0001\_MA



Paul Otlet, Mundaneum. Documentatio Partes. MDN, EUM, doc nr. 8506, scan nr. Mundaneum\_A400176





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.



Dessin par: Igor Platoueff.

**LE MUNDANEUM :**  
 Sur la montagne des Livres — expression de la pensée totale  
 toujours cherchée, toujours produite par l'humanité, depuis des  
 millions d'années et en tous lieux — s'élève en degrés les Institutes  
 des cinq types qui le constituent : Musée, Bibliothèque, Universi-  
 té, Association, Laboratoire. Du Monde il veut donner une im-  
 pression et durable représentation, et, pour cette fin, il ap-  
 pelle à coopérer les Associations Internationales, en qui les na-  
 tions et les écoles sont fédérées.  
 Faisant les vœux du Mundaneum aider à amplifier et à éle-  
 ver la Vie, la Science et la Civilisation Universelle.  
 1938.12. Paul OTLET.

Plgor



Place Rogier



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

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.")

This walk through [Brussels](#) takes you along the many temporary locations of the [Mundaneum](#) archives in the capital. Following the increasingly dispersed and dwindling collection chronologically through the city, you won't find many explicit traces of its passage. You might discover unknown corners of Brussels though.

Loading map...



## 1914: Musée international

- 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  
Cinquantenaire

- 

Autoworld 001

- 

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

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Hqdefault

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IMG 9280

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

- 

Middleages

- 

Mondial1

- 

Mondial4

- 

Mundaneumteam

- 

Quinzaine internationale  
(durant laquelle est  
organisée l'Université  
internationale)

-

Pan African Congress,  
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•

Shoemodells

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

In 1914, delayed by World War I, Paul Otlet finally opened the *Musée international*, occupying the left wing of the magnificent buildings erected in the Parc Cinquantenaire for EVENT.

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

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'*Encyclopaedia Universalis Mundaneum*, encyclopédie illustrée composée de tableaux sur planches mobiles.<sup>[1]</sup>

Outre le *Répertoire bibliographique universel* et un *Musée de la presse* qui comptera jusqu'à 200000 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>[2]</sup>

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## 1934: Mundaneum moved to home of Paul Otlet

•

Paul Otlet à son bureau,  
avec Georges Lorphèvre et  
théière

•

Ruefétis

In 1934, the Belgium government closed the Mundaneum to make place for the extension of the Royal Museum of Art and History. An outraged Otlet moved part of the archives to his house at Rue Fétis 44.

QUOTE FROM TRAITE.<sup>[4]</sup>

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, currently Brulabo.

## 1941: Mundaneum in Parc Leopold

- 

1941-munda-parc leopold

- 

1972-maalbeck 01

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800px-Parc Leopold-  
Bruxelles03

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Levie1

- 

Levie2

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Tumblr  
mabayc8d0l1qhe01n

In 1941, the Germans, wanting to use the space occupied by the collections of the Mundaneum in the Palais du Cinquantenaire, demanded their removal. Everything except a vast quantity of files on the international associations, which were transferred to Germany and later found back in STANFORD because they were assumed to have propaganda value for the German war effort, and some tons of periodicals, which were simply destroyed, was transferred to the Parc Léopold.

**Parc Leopold - Avenue du Maelbeek 3, Brussels** Brulabo, L'ancien bâtiment de l'Institut d'Anatomie Raoul Warocqué. Pendant la deuxième guerre mondiale, les Allemands occupent le Palais du Cinquantenaire. Les collections du Mundaneum sont alors déménagées au Parc Léopold, dans l'ancien bâtiment de l'Institut d'Anatomie Raoul Warocqué.

In 1941, the Germans, seeking to occupy the space in the Palais du Cinquantenaire, in which the collections had remained for so long immured, demanded their removal. Everything except a vast quantity of files on the international associations, which were transferred to Germany because they were assumed to have propaganda value for the German war effort, and some tons of periodicals, which were simply destroyed, was transferred to the Parc Léopold.<sup>[5]</sup>

Part of an old anatomy building, situated on the edge of the Parc Leopold, that belonged to the Free University of Brussels. This re-location occurred just as the Germans, having ignited the Second World War, overwhelmed Brussels. Restored to some but incomplete order during and after the War, 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>

En 1934, le gouvernement ferme les portes des locaux du Mundaneum en invoquant la raison de l'extension des Musées royaux d'Art et d'Histoire. Ceux-ci resteront inaccessibles jusqu'en 1941, date à laquelle les Allemands les réquisitionnent et les collections sont alors acheminées vers un ancien local de la Faculté de médecine (rue de Maelbeek au parc

Leopold), mis à disposition par la ville de Bruxelles. Otlet et La Fontaine participent encore à ce transfert, déçus mais résignés ; elles y resteront jusqu'en 1972.<sup>[7]</sup>

## 1944: Grave of Paul Otlet

**Cimetiere Ixelles, Brussels** Paul Otlet dies in 1944. His grave can be found at the graveyard of Ixelles.

## unsorted

### 1960's

Les Amis du Palais Mondial meet in a ceremony of remembrance

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, discorded collections of the Mundaneum, themselves gradually overtaken by age, their numbers dwindling.

## Office Central de Documentation pour les Questions Concernant la Femme

Rue du Musee 1, Brussels

## 1967

Warden Boyd Rayword 'discovers' the archive

Georges Lorphèvre and André Colet were still trying to continue to carry on the work of the Mundaneum with the help of a few now very elderly Amis du Palais Mondial. Every nook and cranny of this building, including the glass-roofed dissecting theatre at the top, were crowded with documents of various kinds, not least piles of copies of the many publication of the Institut International de Bibliographie (IIB, then IID then FID) and the Union des Associations Internationales, but also with the seemingly never ending "notes" in typescript and manuscript that Otlet wrote on the multifarious subjects that interested him.

## 1972: Les Amis du Mundaneum

### Chaussée de Louvain 969, Brussels

Parking garage?

After a long period of indifference and the dislocations of another move in the 1970s, this remainder of the life work of Otlet and La Fontaine, now only of historical interest ...

Les collections sont déménagées du Parc Léopold à un bâtiment situé chaussée de Louvain.  
<sup>[8]</sup>

Les Amis du Mundaneum Chausse de Louvain

'A building rented by the ministry of Finances' ?

## 1981: Storage at Avenue Rogier 67

•  
Storage place of the  
Mundaneum at Avenue  
Rogier

### Avenue Rogier 67, Brussels

En 1981, elle devait une fois de plus plier bagage et émigrer au 67, de l'avenue Rogier. 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>[9]</sup>

Quantities of documents were lost, destroyed, or stolen in each move. 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>[10]</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>[11]</sup>

## 1985: Musee virtuel

•

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  
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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

•

Place Rogier, Brussels with  
sign "Pyramides"

•

Archives of the Mundaneum  
below Place Rogier, 1990's

### Metro Place Rogier, Brussels

Les Amis du Palais Mondial transferred the collection to la Communauté française de Belgique.<sup>[12]</sup> At the souterrain level at Metro Rogier, at that time adorned by a pyramid that vaguely reminded of it's Parisian variation, Le Centre de lecture publique de la Communauté française was planning to host the collection of The Mundaneum. They took a lease on the place for 30 years but the museum never materialised.

En 1985, l'asbl était dissoute, à la demande de la Communauté qui récupérait les collections. C'est le Centre de lecture publique liégeois qui reprit la gestion de la collection. 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>[13]</sup>

On peut donc croire sauvées les collections du "Mundaneum" et a bon droit espérer la fin de leur interminable errance. Au moment où nous écrivons ces lignes, des travaux d'aménagement d'un "Espace Mundaneum" sont en voie d'achèvement au cour de Bruxelles.<sup>[14]</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!<sup>[15]</sup>

Pour créer ce musée, l'ASBL «Mundaneum» fut dissoute en 1985 et ses prestigieuses collections furent confiées au Centre de lecture publique de la Communauté française, une ASBL liégeoise, chargée de favoriser l'accès à la lecture et de faire l'inventaire de la collection. 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.<sup>[16]</sup>

Philippe Monfils avait péché par excès d'optimisme. Les collections n'ont jamais été transférées (elles sont toujours stockées Rue Saint-Josse)<sup>[17]</sup>

Under the sympathetic guidance of André Canonne was taken over in 1985 by the Centre de Lecture publique de la Communauté française de Belgique (CLPCF), a government instrumentality centred in Liège. Canonne's objective was to create a research centre around the archives and other papers that remained, an Espace Mundaneum. Unfortunately, the much hoped-for government support for this has not yet materialised.<sup>[18]</sup>

"The sudden, untimely death of Canonne in 1990 has disrupted what had been the slow realisation of his more general plans for the rehabilitation of the Mundaneum. The fate of the materials which comprise it, especially the wide range of extremely valuable archives that could contribute to a variety of historical studies relating to Belgium, aspects of international intellectual life and the international movement itself, is once more in doubt. History, in some ironic sense, has repeated itself and once again Otlet is its victim."<sup>[19]</sup>

"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! Le loyer de 800.000 F à la commune de Saint-Josse semble bien amorti: en 90, l'une des sociétés a payé en locations diverses près de 5 millions de francs!<sup>[20]</sup>

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.<sup>[21]</sup>

## 2009: Google Belgium

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3biographers

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6850843018 c0999bf201 z

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Jean-Paul Deplus, Elio di Rupo and Sylvia Van Peteghem sign the collaboration agreement between Google and Mundaneum, 2012

### **Chaussée d'Etterbeek 180, Brussels**

Google Belgium opens it's offices

## **Outside Brussels**

Loading map...



## **1944: USA**

Germans move part of the archive; ends up in USA

## **1993: Mundaneum resurrected**

### **76 rue de Nimy, Mons**

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.

Sur l'initiative d'Elio Di Rupo, à l'époque Ministre de l'Éducation de la Communauté française, les collections sont transférées dans un bâtiment de la rue de Nimy, au cœur de la ville de Mons, connu par les Montois comme un ancien grand magasin (« L'Indépendance »). L'asbl « Mundaneum » est alors créée pour gérer et valoriser ce patrimoine.<sup>[22]</sup>

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 Célès, 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 Célès a obtenu du ministère de la Culture que cinquante millions lui soient versés en contrepartie du droit de propriété.<sup>[23]</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>[24]</sup>

## Crystal computing

- 

Crystal computing aka  
Google in Saint Ghislain,  
Belgium

- 

Crystal computing by night

- 

GBL 010

- 

Mondo DSCN1051

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Mondo DSCN1075

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Mondo IMG 1022

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Mondo IMG 1024

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Mondo IMG 1028

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Screenshot from  
2015-01-31 17-28-24

Google Data Center II


## Sources

1. ↑ [Paul Otlet \(1868-1944\) Fondateur du mouvement bibliogique international](#) Par [Jacques Hellemans](#) (Bibliothèque de l'Université libre de Bruxelles, Premier Attaché)
2. ↑ [Paul Otlet \(1868-1944\) Fondateur du mouvement bibliogique international](#) Par Jacques Hellemans (Bibliothèque de l'Université libre de Bruxelles, Premier Attaché)
3. ↑ [Mundaneum Mons Timeline](#)
4. ↑ [Traité](#)
5. ↑ [Warden Boyd Rayward, Mundaneum: Archives of Knowledge \(2010\)](#)
6. ↑ [Warden Boyd Rayward, Mundaneum: Archives of Knowledge \(2010\)](#)
7. ↑ [Paul Otlet \(1868-1944\) Fondateur du mouvement bibliogique international](#) Par [Jacques Hellemans](#) (Bibliothèque de l'Université libre de Bruxelles, Premier Attaché)
8. ↑ [12](#)
9. ↑ [13](#)
10. ↑ [14](#)
11. ↑ [15](#)
12. ↑ [20](#)
13. ↑ [16](#)
14. ↑ [André Canonne in the introduction to the 1989 facsimile edition of Le Traité de documentation](#)  
[File:TDD ed1989 preface.pdf](#)
15. ↑ ["Cession des collections à la Communauté française de Belgique" 17](#)
16. ↑ [18](#)
17. ↑ [19](#)
18. ↑ [21](#)
19. ↑ [22](#)
20. ↑ [23](#)
21. ↑ [24](#)
22. ↑ [25](#)
23. ↑ [26](#)
24. ↑ [27](#)

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The Second Pan-African Congress in Brussels (1922)



800px-Autoworld Cinquantaire



Autoworld 001



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



Hqdefault



IMG 9280



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



Middleages



Mondial1



Mondial4



Mundaneumteam



Quinzaine internationale  
(durant laquelle est  
organisée l'Université  
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Pan African Congress,  
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## 1934: Mundaneum moved to home of Paul Otlet



Paul Otlet à son bureau,  
avec Georges Lorphèvre et  
théière



Ruefetis



In 1934, the Belgium government closed the Mundaneum to make place for the extension of the Royal Museum of Art and History. An outraged Otlet moved part of the archives to his house at Rue Fétis 44.

QUOTE FROM TRAITE.<sup>[4]</sup>

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, currently Brulabo.

## 1941: Mundaneum in Parc Leopold



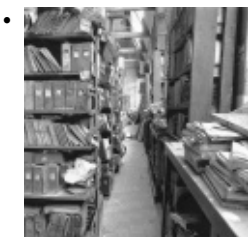
1941-munda-parc leopold



1972-maalbeck 01



800px-Parc Leopold-  
Bruxelles03



Levie1



Levie2



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mabayc8d0l1qhe01n

In 1941, the Germans, wanting to use the space occupied by the collections of the Mundaneum in the Palais du Cinquantenaire, demanded their removal. Everything except a vast quantity of files on the international associations, which were transferred to Germany and later found back in STANFORD because they were assumed to have propaganda value for the German war effort, and some tons of periodicals, which were simply destroyed, was transferred to the Parc Léopold.

**Parc Leopold - Avenue du Maelbeek 3, Brussels** Brulabo, L'ancien bâtiment de l'Institut d'Anatomie Raoul Warocqué. Pendant la deuxième guerre mondiale, les Allemands occupent le Palais du Cinquantenaire. Les collections du Mundaneum sont alors déménagées au Parc Léopold, dans l'ancien bâtiment de l'Institut d'Anatomie Raoul Warocqué.

In 1941, the Germans, seeking to occupy the space in the Palais du Cinquantenaire, in which the collections had remained for so long immured, demanded their removal. Everything except a vast quantity of files on the international associations, which were transferred to Germany because they were assumed to have propaganda value for the German war effort, and some tons of periodicals, which were simply destroyed, was transferred to the Parc Léopold.<sup>[5]</sup>

Part of an old anatomy building, situated on the edge of the Parc Leopold, that belonged to the Free University of Brussels. This re-location occurred just as the Germans, having ignited the Second World War, overwhelmed Brussels. Restored to some but incomplete order during and after the War, 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>

En 1934, le gouvernement ferme les portes des locaux du Mundaneum en invoquant la raison de l'extension des Musées royaux d'Art et d'Histoire. Ceux-ci resteront inaccessibles jusqu'en 1941, date à laquelle les Allemands les réquisitionnent et les collections sont alors acheminées vers un ancien local de la Faculté de médecine (rue de Maelbeek au parc Leopold), mis à disposition par la ville de Bruxelles. Otlet et La Fontaine participent encore à ce transfert, déçus mais résignés ; elles y resteront jusqu'en 1972.<sup>[7]</sup>

## 1944: Grave of Paul Otlet

**Cimetiere Ixelles, Brussels** Paul Otlet dies in 1944. His grave can be found at the graveyard of Ixelles.

## unsorted

### 1960's

Les Amis du Palais Mondial meet in a ceremony of remembrance

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.

### Office Central de Documentation pour les Questions Concernant la Femme

Rue du Musee 1, Brussels

## 1967

Warden Boyd Rayword 'discovers' the archive

Georges Lorphèvre and André Colet were still trying to continue to carry on the work of the Mundaneum with the help of a few now very elderly Amis du Palais Mondial. Every nook and cranny of this building, including the glass-roofed dissecting theatre at the top, were crowded with documents of various kinds, not least piles of copies of the many publication of the Institut International de Bibliographie (IIB, then IID then FID) and the Union des Associations Internationales, but also with the seemingly never ending "notes" in typescript and manuscript that Otlet wrote on the multifarious subjects that interested him.

## 1972: Les Amis du Mundaneum

### Chaussée de Louvain 969, Brussels

Parking garage?

After a long period of indifference and the dislocations of another move in the 1970s, this remainder of the life work of Otlet and La Fontaine, now only of historical interest ...

Les collections sont déménagées du Parc Léopold à un bâtiment situé chaussée de Louvain.  
[8]

Les Amis du Mundaneum Chausse de Louvain

'A building rented by the ministry of Finances' ?

## 1981: Storage at Avenue Rogier 67



Storage place of the  
Mundaneum at Avenue  
Rogier

### Avenue Rogier 67, Brussels

En 1981, elle devait une fois de plus plier bagage et émigrer au 67, de l'avenue Rogier. 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>[9]</sup>

Quantities of documents were lost, destroyed, or stolen in each move. 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>[10]</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>[11]</sup>

## 1985: Musee virtuel



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 unimagmable. 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



Place Rogier, Brussels with  
sign "Pyramides"



Archives of the Mundaneum  
below Place Rogier, 1990's

### **Metro Place Rogier, Brussels**

Les Amis du Palais Mondial transferred the collection to la Communauté française de Belgique.<sup>[12]</sup> At the souterrain level at Metro Rogier, at that time adorned by a pyramid that vaguely reminded of its Parisian variation, Le Centre de lecture publique de la Communauté française was planning to host the collection of The Mundaneum. They took a lease on the place for 30 years but the museum never materialised.

En 1985, l'asbl était dissoute, à la demande de la Communauté qui récupérait les collections. C'est le Centre de lecture publique liégeois qui reprit la gestion de la collection. 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>[13]</sup>

On peut donc croire sauvées les collections du "Mundaneum" et a bon droit espérer la fin de leur interminable errance. Au moment où nous écrivons ces lignes, des travaux d'aménagement d'un "Espace Mundaneum" sont en voie d'achèvement au cour de Bruxelles.<sup>[14]</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!<sup>[15]</sup>

Pour créer ce musée, l'ASBL «Mundaneum» fut dissoute en 1985 et ses prestigieuses collections furent confiées au Centre de lecture publique de la Communauté française, une ASBL liégeoise, chargée de favoriser l'accès à la lecture et de faire l'inventaire de la collection. 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.<sup>[16]</sup>

Philippe Monfils avait péché par excès d'optimisme. Les collections n'ont jamais été transférées (elles sont toujours stockées Rue Saint-Josse)<sup>[17]</sup>

Under the sympathetic guidance of André Canonne was taken over in 1985 by the Centre de Lecture publique de la Communauté française de Belgique (CLPCF), a government instrumentality centred in Liège. Canonne's objective was to create a research centre around the archives and other papers that remained, an Espace Mundaneum. Unfortunately, the much hoped-for government support for this has not yet materialised.<sup>[18]</sup>

"The sudden, untimely death of Canonne in 1990 has disrupted what had been the slow realisation of his more general plans for the rehabilitation of the Mundaneum. The fate of the materials which comprise it, especially the wide range of extremely valuable archives that could contribute to a variety of historical studies relating to Belgium, aspects of international intellectual life and the international movement itself, is once more in doubt. History, in some ironic sense, has repeated itself and once again Otlet is its victim."<sup>[19]</sup>

"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! Le loyer de 800.000 F à la commune de Saint-Josse semble bien amorti: en 90, l'une des sociétés a payé en locations diverses près de 5 millions de francs!<sup>[20]</sup>

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. <sup>[21]</sup>

## 2009: Google Belgium



3biographers



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Jean-Paul Deplus, Elio di  
Rupo and Sylvia Van  
Peteghem sign the  
collaboration agreement  
between Google and  
Mundaneum, 2012

**Chaussée d'Etterbeek 180, Brussels**

Google Belgium opens it's offices

## Outside Brussels

Loading map...



### 1944: USA

Germans move part of the archive; ends up in USA

### 1993: Mundaneum resurrected

#### 76 rue de Nimy, Mons

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.

Sur l'initiative d'Elio Di Rupo, à l'époque Ministre de l'Education de la Communauté française, les collections sont transférées dans un bâtiment de la rue de Nimy, au cœur de la ville de Mons, connu par les Montois comme un ancien grand magasin (« L'Indépendance »). L'asbl « Mundaneum » est alors créée pour gérer et valoriser ce patrimoine.<sup>[22]</sup>

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 Célès, 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 Célès a obtenu du ministère de la Culture que cinquante millions lui soient versés en contrepartie du droit de propriété.<sup>[23]</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>[24]</sup>

## Crystal computing



Crystal computing aka  
Google in Saint Ghislain,  
Belgium



Crystal computing by night



GBL 010



Mondo DSCN1051



Mondo DSCN1075





Mondo IMG 1022



Mondo IMG 1024



Mondo IMG 1028



Screenshot from  
2015-01-31 17-28-24

Google Data Center II

## Sources

1. ↑ Paul Otlet (1868-1944) Fondateur du mouvement bibliologique international Par [Jacques Hellemans](#) (Bibliothèque de l'Université libre de Bruxelles, Premier Attaché)
2. ↑ Paul Otlet (1868-1944) Fondateur du mouvement bibliologique international Par Jacques Hellemans (Bibliothèque de l'Université libre de Bruxelles, Premier Attaché)
3. ↑ Mundaneum Mons Timeline
4. ↑ Traité
5. ↑ Warden Boyd Rayward, Mundaneum: Archives of Knowledge (2010)
6. ↑ Warden Boyd Rayward, Mundaneum: Archives of Knowledge (2010)
7. ↑ Paul Otlet (1868-1944) Fondateur du mouvement bibliologique international Par [Jacques Hellemans](#) (Bibliothèque de l'Université libre de Bruxelles, Premier Attaché)
8. ↑ 12
9. ↑ 13
10. ↑ 14
11. ↑ 15
12. ↑ 20
13. ↑ 16
14. ↑ André Canonne in the introduction to the 1989 facsimile edition of Le Traité de documentation [File:TDD ed1989 preface.pdf](#)
15. ↑ "Cession des collections à la Communauté française de Belgique" 17

16. ↑ 18
17. ↑ 19
18. ↑ 21
19. ↑ 22
20. ↑ 23
21. ↑ 24
22. ↑ 25
23. ↑ 26
24. ↑ 27

Femke Snelting

## **Madame C.01**

02.Screenshot from 2015-10-03 07-42-03.png

In the autumn of 1932, I was still very young. I arrived in Brussels as au-pair but instead of helping in the house, I ended up assisting the professor finishing his book. At the time I arrived, the work itself was completed but his handwriting was hardly decipherable and the printer had a difficult time working with the manuscript. It was my job to correct the typeset proofs. Often there were words that neither the printer, nor I could decipher, so we had to ask. But often the professor did not have time. So I did my best to make the text as legible as possible.

On the last proof that the printer delivered, 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.”

## **Madame C.02**

04.ActeDonation AmisPalaisMondial2CLPCF 22Mars1985 04.png

She serves us coffee from a ceramic coffee pot and also 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 Archives at Chaussee 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 4 april 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.

The cats are nowhere to be found.

## **Madame C.03**

Archives MundaneumDSC04639.jpg

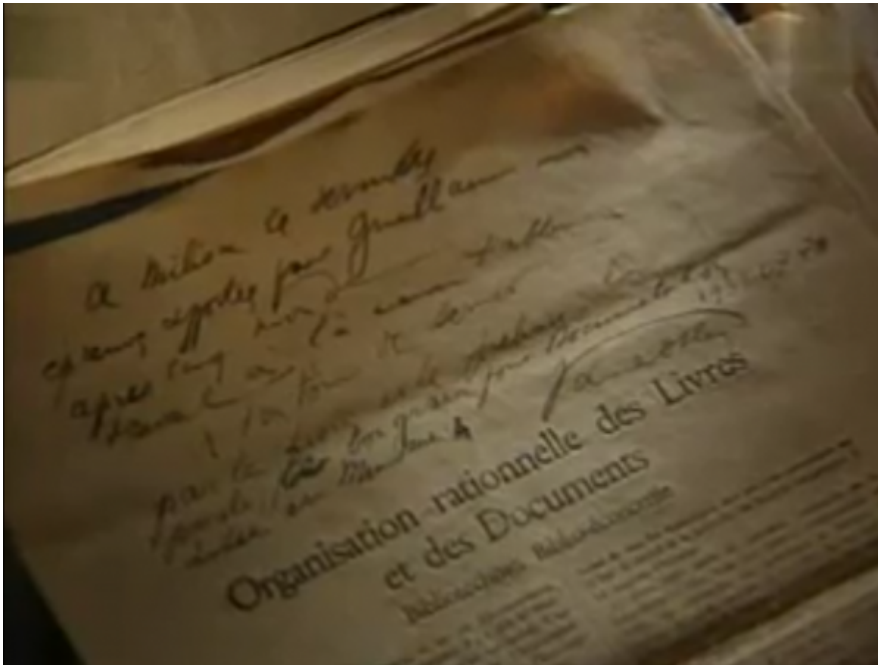
In a margarine box, between thousands of notes, tickets, postcards, letters, all folded to the size of an index card we find this:

*Paul, leave me the key to the house, I forgot mine. Put it on your desk, in the small index card box. C.*

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Femke Snelting

## **Madame C.01**

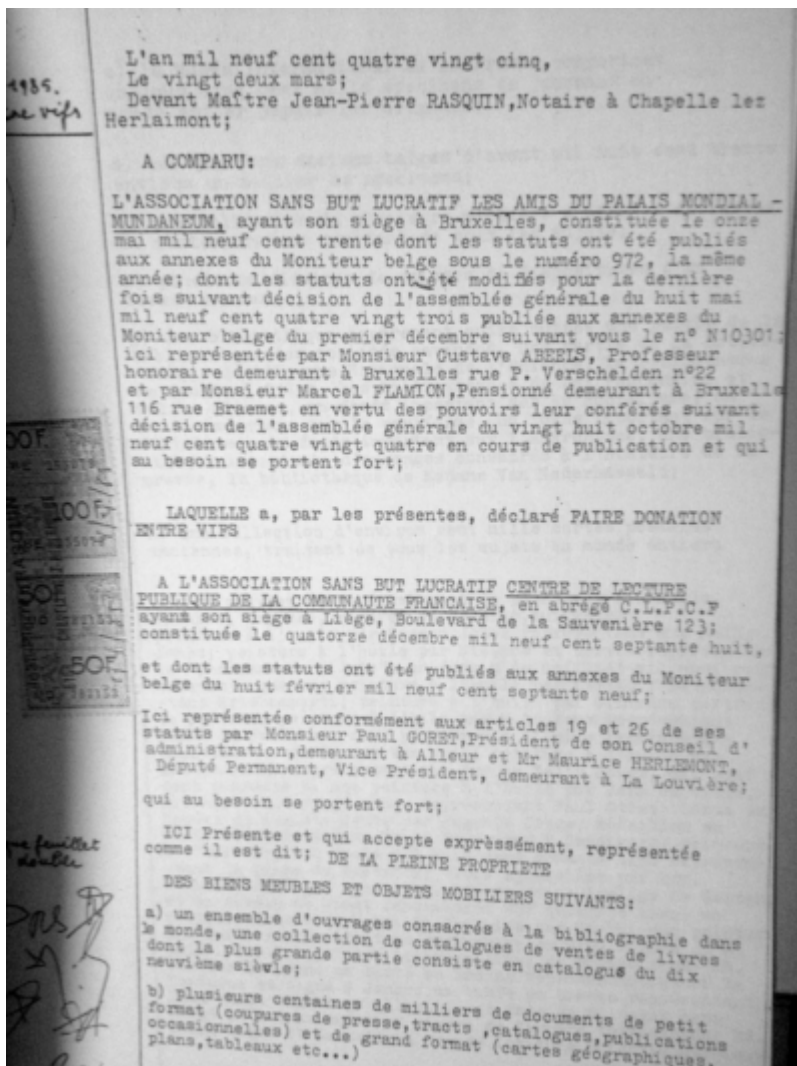


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## Madame C.02



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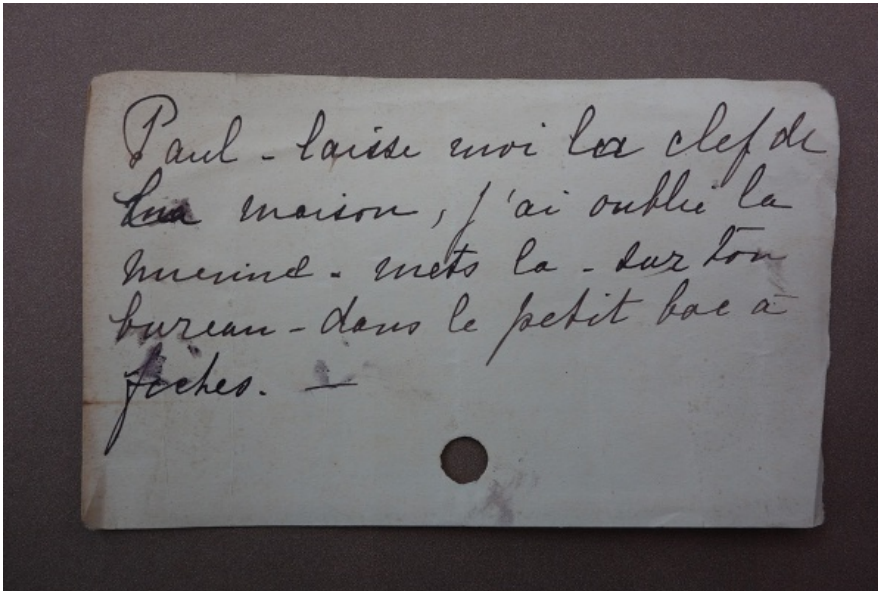
she says.

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

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Elio Di Rupo

•

Paul Otlet

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Paul Otlet

•

Elio Di Rupo

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Unidentified Woman

•

Nicolas Sarkozy

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Unidentified Woman

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Elio Di Rupo

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Unknown man

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Unknown man

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Paul Otlet

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Paul Otlet

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Paul Panda

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Vint Cerf

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Elio Di Rupo

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Elio Di Rupo

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Elio Di Rupo

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Elio Di Rupo

•

Nicolas Malevé

•

Andrew Carnegie

•

Gaston Fagel

•

André Canonne

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Unidentified Woman

- Unidentified Woman

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Cato van Nederhasselt

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Unidentified Woman

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Unidentified Woman

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Thea Coops

- 

Paul Otlet

- 

Wilhelmina Coops

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Unidentified Woman

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Stéphanie Manfroid

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Stéphanie Manfroid

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Stéphanie Manfroid

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Delphine Jenart

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Unidentified Woman

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Elio Di Rupo

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Showing 25 pages using this property.

(previous 25) ([next 25](#))

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[Elio Di Rupo](#) ±, [Unknown man](#) ±, [Roi Albert II](#) ±, ...

[Paul Otlet](#) ±

[Paul Otlet](#) ±

[Elio Di Rupo](#) ±, [Guy Quaden](#) ±, [Yves Vasseur](#) ±

[Unidentified Woman](#) ±, [Paul Otlet](#) ±



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[Paul Panda](#) ±, [Unidentified Woman](#) ±, [Henri La Fontaine](#) ±, ...

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[Elio Di Rupo](#) ±  
[Elio Di Rupo](#) ±, [Thierry Geerts](#) ±  
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[Elio Di Rupo](#) ±, [Sylvia Van Peteghem](#) ±  
[Nicolas Malevé](#) ±, [Michael Murtaugh](#) ±, [Alexia de Visscher](#) ±, ...

## 8

[800px-Andrew Carnegie, three-quarter length portrait, seated, facing slightly left, 1913.jpg](#) ±

[Andrew Carnegie](#) ±

## A

[ADPM CA 1984.jpg](#) ±

[About](#) ±

[Andre canonne.jpg](#) ±

[Andrew-norman-wilson-scanops-wealth-of-nations-4.jpeg](#) ±

[Gaston Fagel](#) ±, [Leon Jedid](#) ±, [Marcel Flamion](#) ±, ...  
[Nicolas Malevé](#) ±, [Alexia de Visscher](#) ±, [Femke Snelting](#) ±, ...  
[André Canonne](#) ±  
[Unidentified Woman](#) ±

## B

[Books.jpeg](#) ±  
(previous 25) (next 25)

[Unidentified Woman](#) ±

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



Elio Di Rupo



Paul Otlet



Paul Otlet



Elio Di Rupo



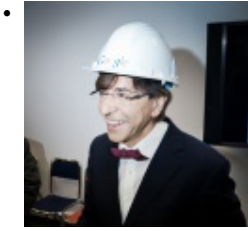
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Nicolas Sarkozy



Unidentified Woman



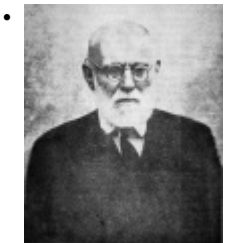
Elio Di Rupo



Unknown man



Unknown man



Paul Otlet



Paul Otlet



Paul Panda



Vint Cerf



Elio Di Rupo



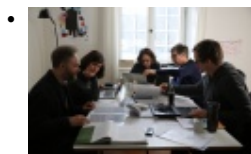
Elio Di Rupo



Elio Di Rupo



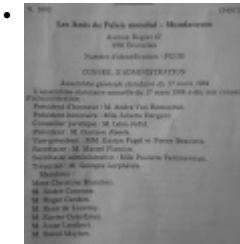
Elio Di Rupo



Nicolas Malevé



Andrew Carnegie



Gaston Fagel



André Canonne



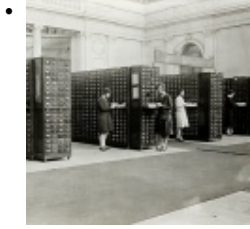
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Unidentified Woman



Cato van Nederhasselt



Unidentified Woman



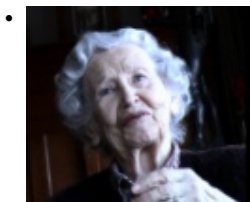
Unidentified Woman



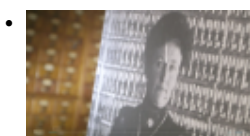
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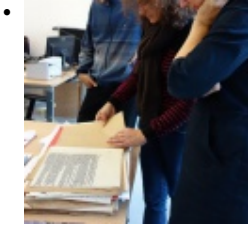
Paul Otlet



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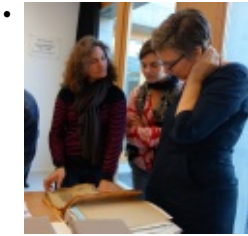
Unidentified Woman



Stéphanie Manfroid



Stéphanie Manfroid



Stéphanie Manfroid



Delphine Jenart



Unidentified Woman



Elio Di Rupo



Le Corbusier



Delphine Jenart



Sylvia Van Peteghem



Henri La Fontaine

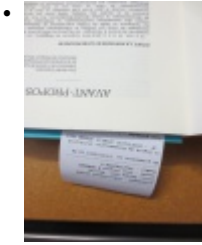


Mathilde Lhoest





## Harm Post



## Yves Bernard



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[Unidentified Woman](#) ±

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](#)

- [223.6 Orthographe](#)

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.

- **The Indexalist**  
**The Indexalist**

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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 my 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 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.

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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 - remplace une ancienne ville.png

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## Formulating the Mundaneum

"We're on the verge of a historic moment for cities" <sup>[2]</sup>

"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."<sup>[3]</sup>

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. “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 it's 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.

[Anormale-normale.jpg](#)

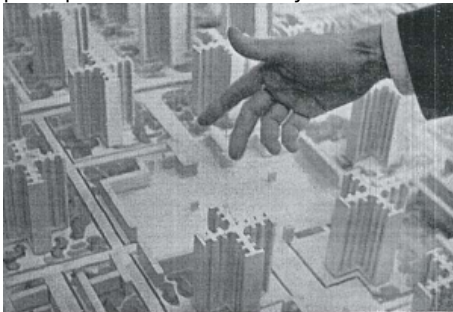
1. ↑ Paul Otlet, *Monde: essai d'universalisme - Connaissance du Monde, Sentiment du Monde, Action organisée et Plan du Monde*, (Bruxelles: Editions Mundeum 1935): 448.
2. ↑ Steve Lohr, *Sidewalk Labs, a Start-Up Created by Google, Has Bold Aims to Improve City Living* New, in York Times 11.06.15, [http://www.nytimes.com/2015/06/11/technology/sidewalk-labs-a-start-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
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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.
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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. ↑  
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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  
 REMPLACE  
 UNE ANCIENNE VILLE

## Contents

- [1 Formulating the Mundaneum](#)
- [2 Thinking the Mundaneum](#)
- [3 Building the Mundaneum](#)
- [4 Governing the Mundaneum](#)

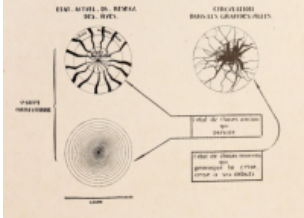
## Formulating the Mundaneum

“We’re on the verge of a historic moment for cities” <sup>[2]</sup>

“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.”<sup>[3]</sup>



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>

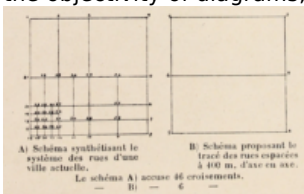


Van der Swaelmen - Tervuren, 1916

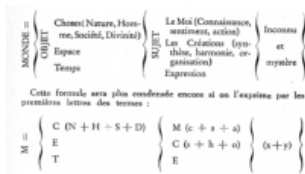
For Otlet it was the first time two notions from different practices came together, namely an environment ordered and structured according to principles of rationalization and taylorization. On the one hand, rationalization as an epistemic practice that reduces all relationships to those of definable 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. “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 it's 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.

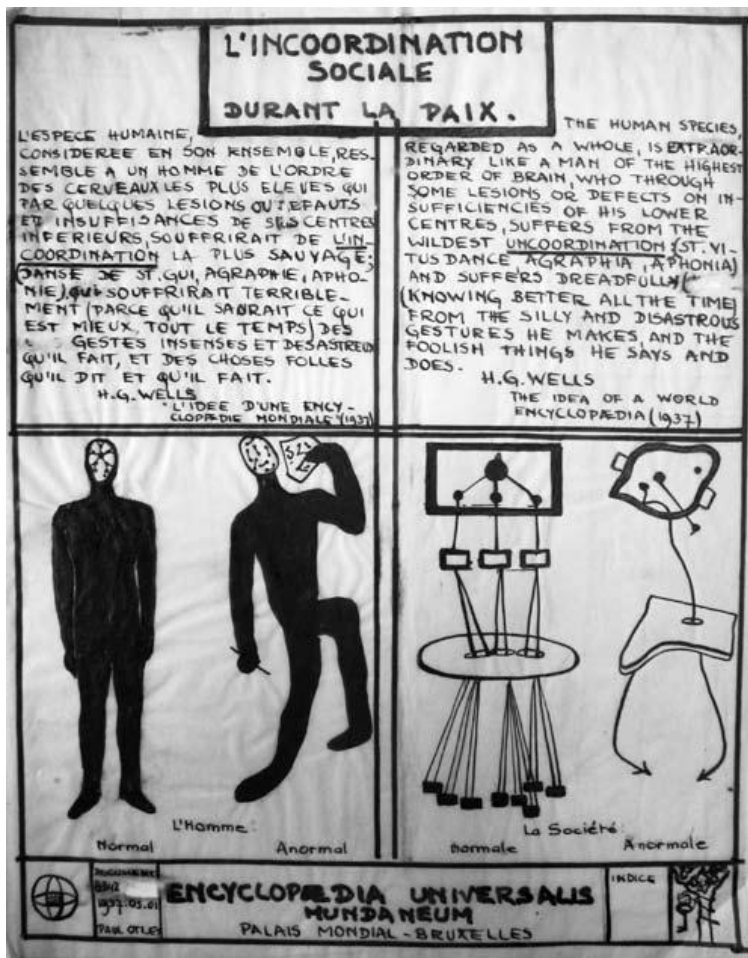
“making transportation more efficient and lowering the cost of living, reducing energy usage and helping government operate more efficiently”<sup>[21]</sup>

## 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.



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- [2 a. Do androids dream of mechanical turks?](#)
- [3 b. centralization - distribution - infrastructure](#)
- [4 c. 025.45UDC; 161.225.22; 004.659GOO:004.021PAG.](#)

## 0. Innovation of the same

The PR imagery produced by and around the Mundaneum (disambiguation: the institution in Mons) is often hinting, by a series of 'samenesses', at a fundamental continuity between Otlet's endeavor and Internet/Google's products. A good example is the image below, where the drawers of Mundaneum (disambiguation: Otlet's Utopia) morph into the servers of one of Google's datacenters.

[Dick Reckard](#)

Last revision: 18:17, 6 February 2016 (CET)

[From industrial heartland to the Internet age \(screen-capture\). Video published by The Mundaneum, 2014](#)

This stance is not limited to images: a recurring discourse that shapes some of the exhibitions taking place in Mundaneum maintains that the dream of the Belgian utopian has been kept alive in the development of internet-networked communications, and currently finds its spiritual successor in the products and services of Google. Even though there are many connections and similarities between the two endeavors, one cannot ignore as a negligible detail the fact that Otlet was an internationalist, a socialist, a utopian, that his projects were not profit-oriented, and most importantly, that he was living in the temporal and cultural context of modernism in the beginning of the century. The constructed identities and continuities are detaching Otlet and the Mundaneum from a specific historical frame, ignoring the different scientific, social and political milieus involved. This means that such narratives exclude discarding or disturbing elements that are inevitable when one would consider such a complex figure in its entirety.

This is not surprising, seen the parties involved in the discourse: this type of instrumental identities and differences fit quite well in the rhetorical tone of the Silicon Valley. For example, it is common for newly launched IT products to be described as groundbreaking, innovative and *different from anything seen before*. In other situations, instead, there is the complementary habit to stress that a product is *exactly*

the same as something else that already existed<sup>[1]</sup>. While novelty and difference has the function to surprise and wonder, sameness is there instead to reassure and comfort. For example Google Glass was marketed as revolutionary and innovative, but when it was attacked for its blatant privacy issues, some defended it as just a camera and a phone joined together. The sameness-difference couple fulfills a clear function: on one hand, it suggests that technological advancements might alter dramatically the way we live, and we have to be ready to give up our old fashioned ideas about life and culture when innovation comes. On the other hand, it suggests we should not be worried about these changes, and that society has always evolved through such disruptions, undoubtedly for the better. For each groundbreaking new invention that is questioned, there is a previous invention that was aiming for the same ideal, potentially with just as many detractors... Great minds think alike, after all. This sort of a-historical attitude pervades the techno-capitalist milieu, drawing 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, national governments. This instrumental reading of the past is consistent with much of the theoretical ground on which the *Californian Ideology*<sup>[2]</sup> stands. In this ground, 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 such kind of historical simplification, and the samenesses that this tale is made of are not without fundament. Many concepts and ideals of documentation theories have reappeared in cybernetics and information theory, and therefore are present as well in the narrative of many IT corporations, as in Mountain View's case. With the intention to re-establish an historical dimension to the matter, it might be more interesting to play *exactly the same* game ourselves, rather than trying 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.

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. First is a look at the conditions of workers in information infrastructures, fundamental for these systems to work but often forgotten or displaced. Then 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 centers, and the resulting interaction of these with other types of infrastructures. Finally there is a brief analysis of the two approaches to the 'organization of world's knowledge', examining 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 logistic modes of organization of labour developed for industrial production. Looking at this and other written and drawn sketches one can wonder: who was making up the workforce of such factories?

In his *Traité de Documentation*, Otlet describes extensively the thinking machines and the tasks of intellectual work which the *Fordist chain* of documentation is broken down into. In the subsection dedicated to the personnel that would work at these systems, though, the only role described in length is the one of the *Bibliothécaire*. Through the lengthy chapter that describes what formation such person should follow, what characteristics are necessary for the role, and so on, a brief mention is made about the existence of "Bibliothécaire-adjoints, rédacteurs, copistes, gens de service"<sup>[4]</sup>. There seem to be no further description nor depiction of the personnel that would write, distribute and search for the millions of index cards to keep the archive running, an impossible task for the Bibliothécaire alone.

A good answer to this question comes instead from a photograph from around 1930, taken in the *Palais Mondial*, where we can see Paul Otlet together with the rest of the equipe. In this beautiful group picture, we see that the workforce that kept the archival machine running was made up by women, of whom we have barely any information. In the same way as for telephone switching or early software development<sup>[5]</sup>, gender stereotypes and discrimination appointed female workers for repetitive tasks that required specific knowledge and precision.

In the ideal image described in the *Traité*, all the tasks of collection, translation, distribution would be completely technical; seemingly without the necessity of any human intervention. In the meantime though, the Mundaneum hired tenths of women to do those tasks. The existing human-run version of the system was not considered a reference, as if it was some temporary in-between step that would be overcome as soon as possible, something that was staining the project with its vulgarity.

Notwithstanding the incredible advancement of information technologies and the automation of innumerable tasks in the collection, processing and distribution of information, this same pattern is very present nowadays as well. All automatic repetitive tasks that *technology* can do for us are still based on human labour in one way or another. And, differently from the industrial worker who obtained its

recognition with political movements and struggles, the role of many cognitive workers is still hidden or under-represented. Computational linguistics, neural networks, optical character recognition, all the most amazing machinic performances are still based on humans performing huge amounts of repetitive intellectual tasks that the software can *learn from*, or that the software can't do with the same efficiency. Automation didn't really free us from labour, it just shifted where, when and whose labour has to happen, a process that has been named "heteromation"<sup>[6]</sup>. Mechanical turks, content verifiers, annotators of all kinds... There is a multitude of tasks that has to happen for the software we use, that is invisible to us but is accomplished by humans. Who are they? When possible, work is outsourced to foreign english speaking countries with lower wages, like India. In the western world instead it follows the usual pattern: female, lower income, ethnic minorities. An interesting case of heteromated labour are the so-called Scanops<sup>[7]</sup>, a set of Google workers with a different type of badge, isolated in one section of Mountain View complex and secluded from the rest of the workers, by their strict access permissions and fixed time schedules. The task of these workers consists of scanning the pages of printed books to be added to the Google Books database, a work that is still more convenient to do by hand in some cases (rare or fragile books, for example). In prevalence female, in prevalence ethnic minorities, there is no mention of these workers in Google Books or elsewhere; in fact the whole process of scanning is kept completely secretive. Even though the secrecy around this kind of labour is usually justified by the need to protect trade secrets, it anyway continues the attitude of hiding the human part in the machine work. This is even more obvious for the contrast with the celebration of other types of human workers, in the positions deemed creative and ingenious, as designers and programmers. Even though there is a tendency to hide the human labour that is necessary for certain automation to take place, some evidence of the workforce's existence remains in the result of its labour. In the case of Google Books employees, for example, it is possible to encounter the photos of their hands that mistakenly ended up in the digital version of the scanned book online<sup>[8]</sup>. Whether the tendency to hide the human role is due to the unfulfilled wish for total automation, to avoid the bad publicity of low wages and precarious work, or to keep an aura of mystery around machines, is still unclear for Google Books as it was for the *Palais Mondial*. It is reassuring though to know that the products still keep in some ways the traces of the work, that even with the progressive removal of human signs in automated processes, the workers' presence never disappears completely. This presence remains the proof of the materiality of information production, and becomes a sign of the economies and paradigms of efficiency and profitability that are involved.

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## **b. centralization - distribution - infrastructure**

In 2013, while prime minister Di Rupo was celebrating the beginning of the second phase of construction of the Saint Ghislain data-center, a few hundred kilometers away a very similar situation was starting to unroll. In the municipality of Eemsmond, in the dutch province of Groningen, the local Groningen Sea Ports and NOM development were in secret deals with another temporary named firm, *Saturn*, to deploy another data-center in the small port of Eemshaven, now an infrastructural wonder. When some months later, the party was revealed to be Google, Harm Post, director of Groningen Sea Ports, commented: "Just ten years ago Eemshaven was the standing joke of the ports, a case to look down upon of industrial development in the Netherlands, the planning failure of the last century. And now Google is building a very large data center here, which is 'pure advertisement' for Eemshaven and the data port."<sup>[9]</sup> Again, further details on the tax-cuts in the deal were not disclosed and, once finished, the data-center will provide 150 jobs in the region.

Another territory had the luck to be chosen by Google, just like Mons, but what are the criteria behind such selection? For one, data-centers necessarily need to interact with existing infrastructures and flows of various type. Technically speaking, there are three prerequisites: being near a substantial source of electrical power (the finished installation will consume twice as much as the whole city of Groningen); being near a source of clean water, for the massive cooling demands; being near Internet infrastructure that can assure adequate connectivity. There is then a whole other set of non-technical elements, that we can sum up as the social, economical and political *climate*, that proved favorable both in Mons and Eemshaven.

The push behind the construction of new sites in new locations, rather than the enlargement of the ones that already exist, is partly due to the rapid growth of importance of *Software as a service*, so-called cloud computing, which means the rental of computational power from a central provider. With the rise of the SaaS paradigm the geographical and topological placement of the data-center becomes of strategic importance to achieve lower latencies and more stable service. For this reason, Google has been in the last 10 years pursuing a policy of end-to-end connection between its facilities and the user interfaces.

That included buying leftover fiber networks<sup>[10]</sup>, entering the business of underwater sea cables<sup>[11]</sup> and building new data-centers, including the ones in Mons and Eemshaven.

The spread of data-centers around the world, along the main network cables crossing the 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.<sup>[12]</sup> During the rapid development of the Internet and the Web, the new tenets of immediacy, unlimited storage and exponential growth brought 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 for example the electrical grid, is not an exclusive feature of contemporary



data storage and networking models. Again, suggestions of something quite similar emerge from the history of the Mundaneum, and illustrate 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>[13]</sup>. This already generated space problems 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, with Mundaneum starting to lose support from the Belgian government, Otlet tried to find a new site for it as part of a proposed *Cite Mondiale*, which he tried in different locations with different approaches.

Between the 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 of the left side of the river, at the time completely unbuilt. Otlet lobbied for the insertion of a Mundaneum in the projects, stressing how it would create hundreds of jobs for the region. He also flattered the Flemish pride by stressing how Antwerp inhabitants, often more hard working than the Brussels', would finally obtain their deserved recognition, heightening their city to a *World City* status.<sup>[14]</sup> He partly succeeded in his propaganda, seen the fact that apart 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 for new development, Otlet's archival infrastructure was shown in interaction with the existing flows already running through the city, like industrial docks, factories, the railway and the newly constructed stockmarket.<sup>[15]</sup> The modernist utopia of the planned living environment already implied the organization of culture and knowledge by methods similar to the ones used for coal or electricity.

In the *Traité de Documentation*, published in 1934, there is a long speculation on a *Universal Network of Documentation*, which would be responsible for the transfer of knowledge between different documentation centres as libraries or the Mundaneum<sup>[16]</sup>. In fact the existing Mundaneum would just be the first node of a wide network bound to expand to the rest of the world, the *Reseau Mundaneum*. The nodes of this network are explicitly described in relation to "post, railways and the press, those three essential organs of modern life which function unremittingly in order to unite men, cities and nations."<sup>[17]</sup> In the same period, in letter exchanges with Patrick Geddes and Otto von Neurath, commenting on the potential of heliographies as a way to distribute knowledge, the three imagine the *White Link*, a network to distribute copies throughout a network of Mundaneums<sup>[18]</sup>. Thanks to this, the same piece of information would be serially produced and logistically distributed, described as a sort of *moving Mundaneum* idea, facilitated by the railway system<sup>[19]</sup>. No wonder then, it was a main characteristic for the future Mundaneums to be built next to a train station.

Through Otlet's plans for a *Reseau Mundaneum* we can already see some of the key transformations that reappear with nowadays evolving datacenter scenario. A drive for centralization in the first place, with the accumulation of materials that brought to the monumental plans of World Cities. Parallely to this, the push for international exchange, which brought a vision of a distribution network. Thirdly, the resulting placement of the hypothetic nodes of such network along strategical intersections of industrial and logistic infrastructure.

While the plan for Antwerp was in the end rejected in favour of more traditional housing development, 80 years later the legacy of the relation between existing infrastructural flows and the logistics of documentation storage is highlighted by the data-ports plan in Eemshaven. Since private companies are the privileged actors in these type 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-centers is a symptom of a new dimension of power that information infrastructure plays a role into. The celebrations and tax cuts that politicians lavish for these projects cannot be explained with 150 jobs or the 'economic incentives' for a depressed region alone. They also indicate how party politics live in awe of being peripheric to other forms of power and want to benefit from strategic positioning, as well.

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

The Universal Decimal Classification<sup>[20]</sup> system, developed by Paul Otlet and Henri Lafontaine on the basis of the Dewey Decimal Classification system, is still considered one of the most important realizations of the two men, as well as a corner stone in Otlet's overall vision. Its adoption, revision and use until present day demonstrates a thoughtful and successful approach to the challenge of the classification of knowledge.

The UDC, differently from Dewey and other bibliographic systems, had 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>[21]</sup>. The fundamental idea, described in french by the word *depouillement*, was that books and documentation could be broken

in 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. One has to set this idea into its time, shaped by positivism and the belief in the unhindered potential of science to obtain objective universal knowledge. Especially taking into account the arbitrariness of the decimal structure, this today sounds doubtful, if not preposterous.

This linguistico-numeric element of UDC, enabling to express fundamental meanings by numbers, plays a key role, though, in the oeuvre of Paul Otlet. What one is brought to think by taking into account his overall path, is that numerical knowledge would be the first step towards a science of combination of these basic sentences to produce new meaning in a systematic way. When one looks at *Monde*, Otlet's second publication from 1935, the continuous reference to multiple algebraic formulas that describe how the world is composed, suggest that one could at some point "solve" such equations, and modify the world accordingly.<sup>[22]</sup> As a complementary part to the *Traité de Documentation*, which was describing the systematic classification of knowledge, *Monde* was setting the basis to the transformation of this knowledge into new meaning.

Otlet wasn't the first to envision an idea of an *algebra of thought*. It has been a recurring topos of modern philosophy, under the influence of scientific positivism and in concurrence with the development of mathematics and physics. Even though one could trace it to Ramon Llull and even earlier forms of combinatorics, the first to consistently undertake this same scientific and philosophical challenge was Gottfried Leibniz. The German philosopher and mathematician, a precursor of the field of symbolic logic, developed later in the 20th century, was researching a method by which statements could be reduced to minimum terms of meaning. He has been famously researching 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>[23]</sup> His inquiry was divided in two phases, too. 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 the meanings, of which there is even less evidence. The idea of calculus was clearly related to the infinitesimal calculus, fundamental development that Leibniz conceived in the field of mathematics, and Newton concurrently developed and popularized. Even though not much remains of Leibniz's work on this *algebra of thought* this task was later on taken on by mathematicians and logicians in the 20th century. Most famously, and curiously enough in the same years as Otlet was publishing *Traite* and *Monde*, logician Kurt Godel used the same idea of a translation to prime numbers to demonstrate his incompleteness theorem.<sup>[24]</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 such 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 the organizational and linguistic aspects of knowledge is also one of the open issues that are at the core of the field of web search, at first sight less interested in objective truths. At the beginning of the Web, around 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 in 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 became of key importance. Quality in the sense both 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 with the approach of translating the relevance of a webpage into a numeric quantity according to a formula, the infamous PageRank algorithm. This value is calculated on the relational importance of the webpage where the word is placed, based on how much other websites links 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 number form, capturing the human opinions represented by hyperlinks, both about which word links to which webpage, and which webpage is in general 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, makes so that an economic value is intertwined with the PageRank position. The influence and profit deriving from how high is a search result placed, mean that the relevance of a word-website relation in Google search results translates to an actual relevance in reality.

We could posit that even though both Otlet and Google say they are the task of *organizing knowledge*, the approaches that are the foundation of the respective projects are at the opposite corners from an epistemological point of view. UDC is an example of an analytic approach, which acquires new knowledge by breaking down existing knowledge in 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 instead is a purely synthetic one, which starts from the sole form of the network, devoid in principle of intrinsic meaning or truth, and makes a model of the network's

relational truths. Its propositions could be exemplified with “Wikipedia is of 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 that is created by the Pagerank algorithm (and all the other algorithms that were added during the years<sup>[25]</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 we can instead see this model as a growing and improving construction that aims in the end to coincide with reality, a view we can call *utopian*. It's not a coincidence that these two views fit neatly the two stereotypical faces of Google, the idealistic Silicon Valley visionary one, and the cynical corporate capitalist one.

For 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 now 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 controlled solely by a corporation, which, beyond mottoes and utopias, has by definition the sole duty of making profits and obeying its stakeholders.

1. ↑ A good account of such phenomenon is described by David Golumbia. <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%9Ccomputergirls%E2%80%9D>
6. ↑ 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://www.rtvnoord.nl/nieuws/139016/Keerpunt-in-de-geschiedenis-van-de-Eemshaven> .
10. ↑ <http://www.cnet.com/news/google-wants-dark-fiber/> .
11. ↑ <http://spectrum.ieee.org/tech-talk/telecom/internet/google-new-brazil-us-internet-cable> .
12. ↑ 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) .
13. ↑ 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.
14. ↑ Ibid: 94-95.
15. ↑ Ibid: 113-117.
16. ↑ Otlet, Paul. *Traité de documentation: le livre sur le livre, théorie et pratique*. Editions Mundaneum, 1934.
17. ↑ Otlet, Paul. *Les Communications MUNDANEUM, Documentatio Universalis*, doc nr. 8438
18. ↑ 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.
19. ↑ Ibid: 66.
20. ↑ 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”.
21. ↑ “The UDC and FID: A Historical Perspective.” *The Library Quarterly* 37, no. 3 (July 1, 1967): 268-270.
22. ↑ Otlet, Paul. *Monde, essai d'universalisme: connaissance du monde, sentiment du monde, action organisée et plan du monde*. Editions Mundaneum, 1935: XXI-XXII.
23. ↑ Leibniz, Gottfried Wilhelm, *The Art of Discovery 1685*, Wiener: 51.
24. ↑ [https://en.wikipedia.org/wiki/G%C3%B6del\\_numbering](https://en.wikipedia.org/wiki/G%C3%B6del_numbering)
25. ↑ A fascinating list of all the algorithmic components of Google search is at <https://moz.com/google-algorithm-change> .

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## Contents

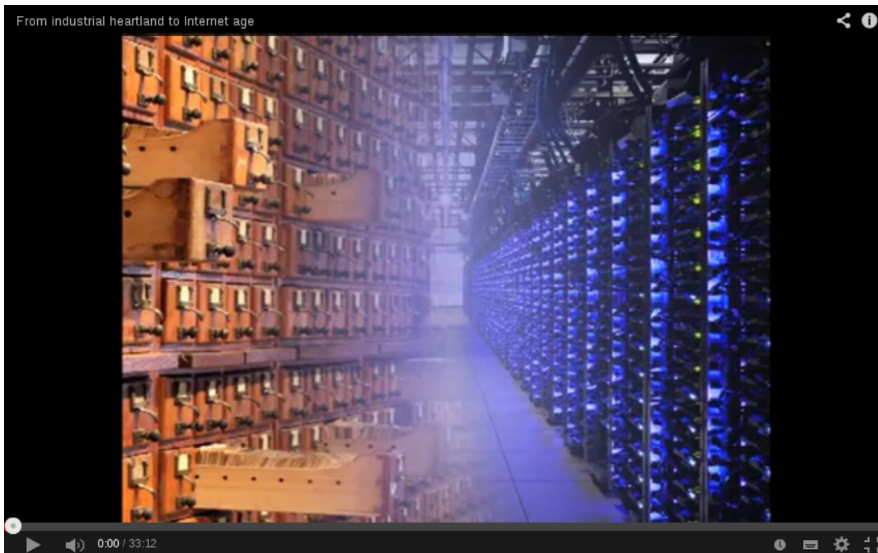
- [1 0. Innovation of the same](#)
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## 0. Innovation of the same

The PR imagery produced by and around the Mundaneum (disambiguation: the institution in Mons) is often hinting, by a series of 'samenesses', at a fundamental continuity between Otlet's endeavor and Internet/Google's products. A good example is the image below, where the drawers of Mundaneum (disambiguation: Otlet's Utopia) morph into the servers of one of Google's datacenters.

Dick Reckard

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This stance is not limited to images: a recurring discourse that shapes some of the exhibitions taking place in Mundaneum maintains that the dream of the Belgian utopian has been kept alive in the development of internetworked communications, and currently finds its spiritual successor in the products and services of Google. Even though there are many connections and similarities between the two endeavors, one cannot ignore as a negligible detail the fact that Otlet was an internationalist, a socialist, an utopian, that his projects were not profit oriented, and most importantly, that he was living in the temporal and cultural context of modernism in the beginning of the century. The constructed identities and continuities are detaching Otlet and the Mundaneum from a specific historical frame, ignoring the different scientific, social and political milieus involved. This means that such narratives exclude discarding or disturbing elements that are inevitable when one would consider such a complex figure in its entirety.

This is not surprising, seen the parties involved in the discourse: this type of instrumental identities and differences fit quite well in the rhetorical tone of the Silicon Valley. For example, it is common for newly launched IT products to be described as groundbreaking, innovative and *different from anything seen before*. In other situations, instead, there is the complementary habit to stress that a product is *exactly the same* as something else that already existed<sup>[1]</sup>. While novelty and difference has the function to surprise and wonder, sameness is there instead to reassure and comfort. For example Google Glass was marketed as revolutionary and innovative, but when it was attacked for its blatant privacy issues, some defended it as just a camera and a phone joined together. The sameness-difference couple fulfills a clear function: on one hand, it suggests that technological advancements might alter dramatically the way we live, and we have to be ready to give up our old fashioned ideas about life and culture when innovation comes. On the other hand, it suggests we should not be worried about these changes, and that society has always evolved through such disruptions, undoubtedly for the better. For each groundbreaking new invention that is questioned, there is a previous invention that was aiming for the same ideal, potentially with just as many detractors... Great minds think alike, after all. This sort of a-historical attitude pervades the techno-capitalist milieu, drawing 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, national governments. This instrumental reading of the past is consistent with much of the theoretical ground on which the *Californian Ideology*<sup>[2]</sup> stands. In this ground, 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 such kind of historical simplification, and the samenesses that this tale is made of are not without fundament. Many concepts and ideals of documentation theories have reappeared in cybernetics and information theory, and therefore are present as well in the narrative of many IT corporations, as in Mountain View's case. With the intention to re-

establish an historical dimension to the matter, it might be more interesting to play *exactly the same* game ourselves, rather than trying 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.

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. First is a look at the conditions of workers in information infrastructures, fundamental for these systems to work but often forgotten or displaced. Then 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 centers, and the resulting interaction of these with other types of infrastructures. Finally there is a brief analysis of the two approaches to the 'organization of world's knowledge', examining 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 logistic modes of organization of labour developed for industrial production. Looking at this and other written and drawn sketches one can wonder: who was making up the workforce of such factories?

In his *Traité de Documentation*, Otlet describes extensively the thinking machines and the tasks of intellectual work which the *Fordist chain* of documentation is broken down into. In the subsection dedicated to the personnel that would work at these systems, though, the only role described in length is the one of the *Bibliothécaire*. Through the lengthy chapter that describes what formation such person should follow, what characteristics are necessary for the role, and so on, a brief mention is made about the existence of "Bibliothécaire-adjoints, rédacteurs, copistes, gens de service"<sup>[4]</sup>. There seem to be no further description nor depiction of the personnel that would write, distribute and search for the millions of index cards to keep the archive running, an impossible task for the Bibliothécaire alone.

A good answer to this question comes instead from a photograph from around 1930, taken in the *Palais Mondial*, where we can see Paul Otlet together with the rest of the equipe. In this beautiful group picture, we see that the workforce that kept the archival machine running was made up by women, of whom we have barely any information. In the same way as for telephone switching or early software development<sup>[5]</sup>, gender stereotypes and discrimination appointed female workers for repetitive tasks that required specific knowledge and precision.

In the ideal image described in the *Traité*, all the tasks of collection, translation, distribution would be completely technical; seemingly without the necessity of any human intervention. In the meantime though, the Mundaneum hired tenths of women to do those tasks. The existing human-run version of the system was not considered a reference, as if it was some temporary in-between step that would be overcome as soon as possible, something that was staining the project with its vulgarity.

Notwithstanding the incredible advancement of information technologies and the automation of innumerable tasks in the collection, processing and distribution of information, this same pattern is very present nowadays as well. All automatic repetitive tasks that *technology* can do for us are still based on human labour in one way or another. And, differently from the industrial worker who obtained its recognition with political movements and struggles, the role of many cognitive workers is still hidden or under-represented. Computational linguistics, neural networks, optical character recognition, all the most amazing machinic performances are still based on humans performing huge amounts of repetitive intellectual tasks that the software can *learn from*, or that the software can't do with the same efficiency. Automation didn't really free us from labour, it just shifted where, when and whose labour has to happen, a process that has been named "heteromation"<sup>[6]</sup>. Mechanical turks, content verifiers, annotators of all kinds... There is a multitude of tasks that has to happen for the software we use, that is invisible to us but is accomplished by humans. Who are they? When possible, work is outsourced to foreign english speaking countries with lower wages, like India. In the western world instead it follows the usual pattern: female, lower income, ethnic minorities. An interesting case of heteromated labour are the so-called Scanops<sup>[7]</sup>, a set of Google workers with a different type of badge, isolated in one section of Mountain View complex and secluded from the rest of the workers, by their strict access permissions and fixed time schedules. The task of these workers consists of scanning the pages of printed books to be added to the Google Books database, a work that is still more convenient to do by hand in some cases (rare or fragile books, for example). In prevalence female, in prevalence ethnic minorities, there is no mention of these workers in Google Books or elsewhere; in fact the whole process of scanning is kept completely secretive. Even though the secrecy around this kind of labour is usually justified by the need to protect trade secrets, it anyway continues the attitude of hiding the human part in the machine work. This is even more obvious for the contrast with the celebration of other types of human workers, in the positions deemed creative and ingenious, as designers and programmers. Even though there is a tendency to hide the human labour that is necessary for certain automation to take place, some evidence of the workforce's existence remains in the result of its labour. In the case of Google Books employees, for example, it is possible to encounter the photos of their hands that mistakenly ended up in the digital version of the scanned book

online<sup>[8]</sup>. Whether the tendency to hide the human role is due to the unfulfilled wish for total automation, to avoid the bad publicity of low wages and precarious work, or to keep an aura of mystery around machines, is still unclear for Google Books as it was for the *Palais Mondial*. It is reassuring though to know that the products still keep in some ways the traces of the work, that even with the progressive removal of human signs in automated processes, the workers' presence never disappears completely. This presence remains the proof of the materiality of information production, and becomes a sign of the economies and paradigms of efficiency and profitability that are involved.

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## b. centralization - distribution - infrastructure

In 2013, while prime minister Di Rupo was celebrating the beginning of the second phase of construction of the Saint Ghislain data-center, a few hundred kilometers away a very similar situation was starting to unroll. In the municipality of Eemsmond, in the dutch province of Groningen, the local Groningen Sea Ports and NOM development were in secret deals with another temporary named firm, *Saturn*, to deploy another data-center in the small port of Eemshaven, now an infrastructural wonder. When some months later, the party was revealed to be Google, Harm Post, director of Groningen Sea Ports, commented: "Just ten years ago Eemshaven was the standing joke of the ports, a case to look down upon of industrial development in the Netherlands, the planning failure of the last century. And now Google is building a very large data center here, which is 'pure advertisement' for Eemshaven and the data port."<sup>[9]</sup> Again, further details on the tax-cuts in the deal were not disclosed and, once finished, the data-center will provide 150 jobs in the region.

Another territory had the luck to be chosen by Google, just like Mons, but what are the criteria behind such selection? For one, data-centers necessarily need to interact with existing infrastructures and flows of various type. Technically speaking, there are three prerequisites: being near a substantial source of electrical power (the finished installation will consume twice as much as the whole city of Groningen); being near a source of clean water, for the massive cooling demands; being near Internet infrastructure that can assure adequate connectivity. There is then a whole other set of non-technical elements, that we can sum up as the social, economical and political *climate*, that proved favorable both in Mons and Eemshaven.

The push behind the construction of new sites in new locations, rather than the enlargement of the ones that already exist, is partly due to the rapid growth of importance of *Software as a service*, so-called cloud computing, which means the rental of computational power from a central provider. With the rise of the SaaS paradigm the geographical and topological placement of the data-center becomes of strategic importance to achieve lower latencies and more stable service. For this reason, Google has been in the last 10 years pursuing a policy of end-to-end connection between its facilities and the user interfaces.

That included buying leftover fiber networks<sup>[10]</sup>, entering the business of underwater sea cables<sup>[11]</sup> and building new data-centers, including the ones in Mons and Eemshaven.

The spread of data-centers around the world, along the main network cables crossing the 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.<sup>[12]</sup> During the rapid development of the Internet and the Web, the new tenets of immediacy, unlimited storage and exponential growth brought 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 for example the electrical grid, is not an exclusive feature of contemporary data storage and networking models. Again, suggestions of something quite similar emerge from the history of the Mundaneum, and illustrate 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>[13]</sup>. This already generated space problems 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, with Mundaneum starting to lose support from the Belgian government, Otlet tried to find a new site for it as part of a proposed *Cite Mondiale*, which he tried in different locations with different approaches.

Between the 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 of the left side of the river, at the time completely unbuilt. Otlet lobbied for the insertion of a Mundaneum in the projects, stressing how it would create hundreds of jobs for the region. He also flattered the flemish pride by stressing how Antwerp inhabitants, often more hard working than the Brussels', would finally obtain their deserved recognition, hightening their city to a *World City* status.<sup>[14]</sup> He partly succeeded in his propaganda, seen the fact that apart 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 for new development, Otlet's archival infrastructure was shown in interaction with the existing flows already running through the city, like industrial docks, factories, the

railway and the newly constructed stockmarket.<sup>[15]</sup> The modernist utopia of the planned living environment already implied the organization of culture and knowledge by methods similar to the ones used for coal or electricity.

In the *Traité de Documentation*, published in 1934, there is a long speculation on a *Universal Network of Documentation*, which would be responsible for the transfer of knowledge between different documentation centres as libraries or the Mundaneum<sup>[16]</sup>. In fact the existing Mundaneum would just be the first node of a wide network bound to expand to the rest of the world, the *Reseau Mundaneum*. The nodes of this network are explicitly described in relation to "post, railways and the press, those three essential organs of modern life which function unremittingly in order to unite men, cities and nations."<sup>[17]</sup> In the same period, in letter exchanges with Patrick Geddes and Otto von Neurath, commenting on the potential of heliographies as a way to distribute knowledge, the three imagine the *White Link*, a network to distribute copies throughout a network of Mundaneums<sup>[18]</sup>. Thanks to this, the same piece of information would be serially produced and logistically distributed, described as a sort of *moving Mundaneum* idea, facilitated by the railway system<sup>[19]</sup>. No wonder then, it was a main characteristic for the future Mundaneums to be built next to a train station.

Through Otlet's plans for a *Reseau Mundaneum* we can already see some of the key transformations that reappear with nowadays evolving datacenter scenario. A drive for centralization in the first place, with the accumulation of materials that brought to the monumental plans of World Cities. Parallely to this, the push for international exchange, which brought a vision of a distribution network. Thirdly, the resulting placement of the hypothetical nodes of such network along strategical intersections of industrial and logistic infrastructure.

While the plan for Antwerp was in the end rejected in favour of more traditional housing development, 80 years later the legacy of the relation between existing infrastructural flows and the logistics of documentation storage is highlighted by the data-ports plan in Eemshaven. Since private companies are the privileged actors in these type 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-centers is a symptom of a new dimension of power that information infrastructure plays a role into. The celebrations and tax cuts that politicians lavish for these projects cannot be explained with 150 jobs or the 'economic incentives' for a depressed region alone. They also indicate how party politics live in awe of being peripheric to other forms of power and want to benefit from strategic positioning, as well.

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

The Universal Decimal Classification<sup>[20]</sup> system, developed by Paul Otlet and Henri Lafontaine on the basis of the Dewey Decimal Classification system, is still considered one of the most important realizations of the two men, as well as a corner stone in Otlet's overall vision. Its adoption, revision and use until present day demonstrates a thoughtful and successful approach to the challenge of the classification of knowledge.

The UDC, differently from Dewey and other bibliographic systems, had 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>[21]</sup>. The fundamental idea, described in french by the word *depouillement*, was that books and documentation could be broken in 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. One has to set this idea into its time, shaped by positivism and the belief in the unhindered potential of science to obtain objective universal knowledge. Especially taking into account the arbitrariness of the decimal structure, this today sounds doubtful, if not preposterous.

This linguistico-numeric element of UDC, enabling to express fundamental meanings by numbers, plays a key role, though, in the oeuvre of Paul Otlet. What one is brought to think by taking into account his overall path, is that numerical knowledge would be the first step towards a science of combination of these basic sentences to produce new meaning in a systematic way. When one looks at *Monde*, Otlet's second publication from 1935, the continous reference to multiple algebraic formulas that describe how the world is composed, suggest that one could at some point "solve" such equations, and modify the world accordingly.<sup>[22]</sup> As a complementary part to the *Traité de Documentation*, which was describing the systematic classification of knowledge, *Monde* was setting the basis to the transformation of this knowledge into new meaning.

Otlet wasn't the first to envision an idea of an *algebra of thought*. It has been a recurring topos of modern philosophy, under the influence of scientific positivism and in concurrence with the development of mathematics and physics. Even though one could trace it to Ramon Llull and even earlier forms of combinatorics, the first to consistently undertake this same scientific and philosophical challenge was Gottfried Leibniz. The German philosopher and mathematician, a precursor of the field of symbolic logic,

developed later in the 20th century, was researching a method by which statements could be reduced to minimum terms of meaning. He has been famously researching 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>[23]</sup> His inquiry was divided in two phases, too. 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 the meanings, of which there is even less evidence. The idea of calculus was clearly related to the infinitesimal calculus, fundamental development that Leibniz conceived in the field of mathematics, and Newton concurrently developed and popularized. Even though not much remains of Leibniz's work on this *algebra of thought* this task was later on taken on by mathematicians and logicians in the 20th century. Most famously, and curiously enough in the same years as Otlet was publishing *Traite* and *Monde*, logician Kurt Godel used the same idea of a translation to prime numbers to demonstrate his incompleteness theorem.<sup>[24]</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 such 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 the organizational and linguistic aspects of knowledge is also one of the open issues that are at the core of the field of web search, at first sight less interested in objective truths. At the beginning of the Web, around 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 in 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 became of key importance. Quality in the sense both 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 with the approach of translating the relevance of a webpage into a numeric quantity according to a formula, the infamous PageRank algorithm. This value is calculated on the relational importance of the webpage where the word is placed, based on how much other websites links 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 number form, capturing the human opinions represented by hyperlinks, both about which word links to which webpage, and which webpage is in general 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, makes so that an economic value is intertwined with the PageRank position. The influence and profit deriving from how high is a search result placed, mean that the relevance of a word-website relation in Google search results translates to an actual relevance in reality.

We could posit that even though both Otlet and Google say they are the task of *organizing knowledge*, the approaches that are the foundation of the respective projects are at the opposite corners from an epistemological point of view. UDC is an example of an analytic approach, which acquires new knowledge by breaking down existing knowledge in 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 instead is a purely synthetic one, which starts from the sole form of the network, devoid in principle of intrinsic meaning or truth, and makes a model of the network's relational truths. Its propositions could be exemplified with "Wikipedia is of 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 that is created by the Pagerank algorithm (and all the other algorithms that were added during the years<sup>[25]</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 we can instead see this model as a growing and improving construction that aims in the end to coincide with reality, a view we can call *utopian*. It's not a coincidence that these two views fit neatly the two stereotypical faces of Google, the idealistic Silicon Valley visionary one, and the cynical corporate capitalist one.

For 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 now 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 controlled solely by a corporation, which, beyond mottoes and utopias, has by definition the sole duty of making profits and obeying its stakeholders.

1. ↑ A good account of such phenomenon is described by David Golumbia. <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%9Ccomputergirls%E2%80%9D>
6. ↑ 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://www.rtvnoord.nl/nieuws/139016/Keerpunt-in-de-geschiedenis-van-de-Eemshaven>.
10. ↑ <http://www.cnet.com/news/google-wants-dark-fiber/>.
11. ↑ <http://spectrum.ieee.org/tech-talk/telecom/internet/google-new-brazil-us-internet-cable>.
12. ↑ 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).
13. ↑ 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.
14. ↑ Ibid: 94-95.
15. ↑ Ibid: 113-117.
16. ↑ Otlet, Paul. *Traité de documentation: le livre sur le livre, théorie et pratique*. Editions Mundaneum, 1934.
17. ↑ Otlet, Paul. *Les Communications MUNDANEUM, Documentatio Universalis*, doc nr. 8438
18. ↑ 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.
19. ↑ Ibid: 66.
20. ↑ 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".
21. ↑ "The UDC and FID: A Historical Perspective." *The Library Quarterly* 37, no. 3 (July 1, 1967): 268-270.
22. ↑ Otlet, Paul. *Monde, essai d'universalisme: connaissance du monde, sentiment du monde, action organisée et plan du monde*. Editions Mundaneum, 1935: XXI-XXII.
23. ↑ Leibniz, Gottfried Wilhelm, *The Art of Discovery 1685*, Wiener: 51.
24. ↑ [https://en.wikipedia.org/wiki/G%C3%B6del\\_numbering](https://en.wikipedia.org/wiki/G%C3%B6del_numbering)
25. ↑ A fascinating list of all the algorithmic components of Google search is at <https://moz.com/google-algorithm-change>.