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The Mundaneum Imaginaries

A Media-Archaeological Study of the "Paper Google"

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Abstract
In this two year master’s thesis, using concepts borrowed from media archaeology, I examine the construction, content and function of the alternative historical narrative that is mediated through the partnership between Google and Belgian museum and archives centre the Mundaneum. This alternative narrative presents Belgian bibliographers Paul Otlet and Henri La Fontaine as having prefigured the Internet and as having created an analogue “paper Google.” Through a close-reading of publicly available material related to the Google/Mundaneum partnership, I examine a set of issues relating to the interplay of dominant and alternative narratives, to the narrative function of realized and imaginary media, and to the implicit messages that this particular narrative mediates.

In the study, I find that the examined alternative narrative is constructed both in opposition to and with support from the dominant narrative, and that recognition from international actors is used in order to confirm Europe’s place in Internet history. Furthermore, I note a tendency in the text to confuse and to conflate different media technologies. I argue that this confusion renders the narrative more flexible and dynamic, making it possible to connect the media created by Otlet and La Fontaine to any modern technology. Finally, I find that, by attaching different connotations or “media imaginaries” to the media depicted, the texts are able to present knowledge organization as a medium for peace, the Mundaneum as an important actor in information society, and Google as a company with its roots dug deep in European soil.

Abstract
I den här masteruppsatsen diskuterar jag, utifrån begrepp lånade från mediearkeologi, det alternativa historiska narrativ som målas fram genom partnerskapet mellan Google och det belgiska museet och arkivet Mundaneum. Narrativet framställer de belgiska bibliograferna Paul Otlet och Henri la Fontaine som föregångare till Internet och uppfinnare till ett ”the paper Google.” Genom en närläsning av öppet tillgängligt material med anknytning till Google/Mundaneum-partnerskapet undersöker jag frågor som rör samspelet mellan dominerande och alternativa narrativ, verkliga och imaginära mediers narrativa funktion, och de implicita budskap som just detta narrativ förmedlar.

I studien finner jag att det undersökta alternativa narrativet konstrueras både i motsats till och med stöd från det dominanta narrativet, och att erkännandet från internationella aktörer används för att bekräfta Europas plats i Internets historia. Jag noterar även en tendens i texten att blanda samman olika medieteknologier, och argumenterar för att denna förvirring i sig gör narrativet mer flexibelt och dynamiskt, och därmed gör det möjligt att sammankoppla medier skapade av Otlet och La Fontaine med vilken modern informationsteknologi som helst. Slutligen konstaterar jag att texterna, genom att fästa olika konnotationer eller “media imaginaries” vid de framställda medierna, framställer kunskapsorganisation som ett medium för fred, Mundaneum som en viktig aktör i informationssamhället och Google som ett företag med djupgående rötter i Europa.

Ämnesord
Google, berättande, marknadsföring, historiografi, informationsvetenskap, informationsteknik

Key words
Paul Otlet, Mundaneum, Google, Internet--History, Historiography, Storytelling

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Introduction

Today, the Mundaneum is a museum and archives centre located in the small Belgian town of Mons. The website of this Mundaneum invites its visitors to consult a historical timeline that traces the history of another Mundaneum, of a Brussels-based centre of documentation and international collaboration that was founded in the early 20th century by two Belgian pioneers of bibliography, Paul Otlet (1868-1944) and Henri La Fontaine (1854-1943). Clickable arrows allow the virtual visitor to navigate, on chronological and horizontal axes, through this history and to discover the different milestones – people, institutions and events – that have shaped and continue to shape the new as well as the old Mundaneum. The first entry on the timeline is the birth of Henri La Fontaine, in 1854; the last one, presumably representing the latest great milestone in the history of the Mundaneum, is dated to 2012 and dedicated to the moment where "Google and the Mundaneum announce their collaboration" and where Google, "recognising its origins in the work carried out by Paul Otlet, […] decides to support the Mundaneum to honour the memory of Paul Otlet and Henri La Fontaine, pioneers of the Internet in Europe."[1]

Through its appearance at the end of the Mundaneum timeline, Google affirms both the historical importance and the future relevance of Otlet and La Fontaine's work. The Mundaneum, meanwhile, becomes a symbolic link from Google to Europe. At the very centre of this alternative historical narrative, which traces the origins of the Internet to Belgium and places Google at the heart of Europe, lie ideas and manifestations of information and communications technology. Was the Universal Bibliographic Repertory (RBU) of Otlet and La Fontaine – as *Le Monde Magazine* phrases it – a "paper Google"?[2] Did Otlet, when he envisioned a high-technological universal network for the organization and dissemination of knowledge, invent the Internet? Was the "desk without books," described by Otlet in 1934, a blueprint for a computer? Discussed by scholars since the early 1990's and more recently picked up by the popular press, these question – and their affirmative answers – are the very glue of the Google/Mundaneum partnership and

[1] Mundaneum > Archives centre > History (retrieved 2014-01-10).
[2] Djian, J.-M. (2009), "Le Mundaneum, Google de papier." Unless otherwise stated, all translations from French to English in the present thesis are mine.

of the historical narrative that this partnership communicates. As the ideas and inventions of Otlet and La Fontaine are woven into the history of information and communications technology, and as information and communications technology takes Otlet and La Fontaine into the future, the two Belgian bibliographers find themselves at the centre of a 21st century web of technology, politics and marketing.

In the present thesis, and through a close-reading of a limited number of texts pertaining to the Google/Mundaneum partnership, I aim to examine the construction, content and connotations of this alternative narrative of the Belgian proto-Internet and "paper Google." More precisely, I will focus my investigation on the role that technologies, in their discursive form, play in the narrative. How are seemingly defunct, in some cases merely imagined, information technologies being brought back into present discourse in order to rewrite history? What happens to imagined technologies when they are retroactively realized – have they fulfilled their potential, or lost it? How are present technologies reimagined in a way that affirms both Europe's place in the Internet and Google's rightful place in Europe?

The above questions all belong at the intersection of technology and historiography, and concern both the writing of the history of technology and the writing of history through technology. Accordingly, a study that aims to discuss if not answer them requires a theoretical approach that takes all of these different elements into consideration. With this in mind, I will use concepts and ideas from the field of media archaeology to structure my analysis and interpret my primary source material. Through its complex perspective on technology, discourse, realized and imaginary communication media, historiography, and the social aspect of storytelling, media archaeology allows me to approach the technologies represented in the narrative of the "paper Google" – different media for the organization and communication of knowledge[3], from the RBU and the futuristic machines of Otlet to the Internet and Google – without simplifying them and with the opportunity of gaining further insight into their function as narrative connecting devices and mediators of meaning.

Below, I will begin by giving a short account of the history and current situation of the Mundaneum and Google, starting with the work of Otlet and La Fontaine and ending with the meeting of Google and the Mundaneum in Mons. After this, I will give a brief overview of previous scholarly treatment of the work and ideas of Otlet and La Fontaine, focusing in particular on research pertaining to the Belgian bibliographers' relation to modern information technology. Following

[3] In this, I adopt a position similar to that of Wouter van Acker who, in a research project description from 2007, suggests that "Otlet perceived his very different objects of study – as for example the book, the library, the society, the city, the building, the museum, the bank, etc. – in the same way, namely as media or as technological means for organizing the communication of information." Van Acker, W. (2007), "The Analogous Spaces of Paul Otlet (1868-1944)."

this, I will describe the method and the primary source material of the study. Finally, before moving on to the principal part of the thesis and the analysis of the primary source material, I will present the media archaeological approach, concentrating on the concepts of media, narrative, the realized vs the imaginary, and media imaginaries.

Background

Paul Otlet, Henri La Fontaine and the Mundaneum

Today, Belgian lawyer and bibliographer Paul Otlet, author of an encyclopaedic "book on the book," is frequently described as one of the founding fathers of information science, *documentation* in French.[4] During a period which spans the last decades of the 19th as well the first half of the 20th century, Otlet and fellow lawyer Henri La Fontaine created a number of institutions and tools for the organization and dissemination of knowledge, all aiming toward ideals of standardization, internationalization and universality. While at the turn of the century the increasing publication rate of scientific journals indeed highlighted the need for bibliography,[5] Otlet and La Fontaine's ideas on knowledge organization concerned more than the most urgent practical issues: both men were convinced pacifists and internationalists, and believed that universal access to information would ultimately serve to promote and enable world peace.[6]

At the heart of the two Belgians' work was the International Office of Bibliography (OIB) and the Universal Bibliographic Repertory (RBU). The repertory, added to the UNESCO's Memory of the World Register in 2013[7], was created in 1895 with the aim of collecting, organizing and disseminating bibliographic information on all published material. Two of the most essential building blocks of the repertory were the standardized index cards which were organized in tailor-made filing cabinets, and the Universal Decimal Classification (UDC), a partly faceted classification system based on the American Dewey Decimal Classification. The OIB was the organization tasked with developing, expanding and maintaining the repertory, while the International Institute of Bibliography (IIB) served to connect other actors interested in the work of the OIB.[8] Additionally, Otlet and

[4] See for instance Schafer, V. (2013), "Le Mundaneum, un patrimoine inclassable," p. 15; visitMons > Découvrir > Attractions et Musées > Mundaneum.
[5] Csiszar, A. (2010), "Seriality and the search for order: scientific print and its problems during the late 19th century."
[6] See for example Rayward, W. B. (2003), "Knowledge Organisation and a New World Polity: the Rise and Fall and Rise of the Ideas of Paul Otlet.
[7] Mundaneum (n.d.), *Le Mundaneum: Google de papier*.
[8] Rayward, W. B. (2010), "Paul Otlet. Encyclopédiste, internationaliste, Belge."

Fontaine founded the Central Office of International Associations and the Union of International Associations (UAI), the latter of which is still active today.[9]

Aside from the work that he did together with La Fontaine, Otlet also published the two books *Traité de documentation: Le livre sur le livre* (1934) and *Monde: essai d'universalisme* (1935). Whereas *Traité de documentation* constitutes a synthesis of Otlet's ideas on information science, *Monde* adopts an even broader perspective and discusses the organization of the world. One of the visions described in *Monde* is that of a World City which, part utopia and part material edifice, would constitute a centre for intellectual and documentary work. Never actually built, the City is nevertheless preserved through plans created by Otlet in collaboration with, among others, architect Le Corbusier.[10]

The Mundaneum or World Museum, which would have constituted the heart of the World City, was partly realized in the Mundaneum created by Otlet and La Fontaine in Brussels in 1910. This Mundaneum, also known as the World Palace, assembled the various institutes and bibliographic activities developed by Otlet and La Fontaine under one roof. Initially granted a wing in the Palais du Cinquantenaire by the Belgian government, the Mundaneum eventually fell on hard times and was closed down by the government in 1934.[11] In the late 1960's, Boyd Rayward rediscovered the archives of Otlet and la Fontaine in an office in Brussels, and set out on an "archaeological dig" that would bring the bibliographers to the attention of the world of library and information science.[12]

Google Inc.

Founded in 1998 by Larry Page and Sergey Brin, Google is an American multinational corporation which specialises in various web-related services, most notably web search and web advertising.[13] The company itself describes its mission as being to "organize the world's information and make it universally accessible and useful."[14] Google does this most famously through a self-titled search engine. Building from the assumption that the task of indexing the rapidly expanding Web by far exceeds the capacity of human editors,[15] the company has opted for a method that is automatic, efficient, and supposedly objective, using algorithms whose "true power" lies in their ability "to gain sophistication automatically as the set of data grows."[16]

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[9] Union of International Associations > About UIA > History
[10] Levie, F. (2006), *L'Homme qui voulait classer le monde: Paul Otlet et le Mundaneum*, p. 229ff.
[11] Rayward, W. Boyd, (2003), "Knowledge Organisation and a New World Polity: the Rise and Fall and Rise of the Ideas of Paul Otlet."
[12] Rayward, W. B. (1991), "The Case of Paul Otlet, Pioneer of Information Science, Internationalist, Visionary: Reflection On Biography."
[13] Stross, R. (2008), *Planet Google*, p. 5; Google. About Google Ads.
[14] Google > About
[15] Stross, R. (2008), *Planet Google*, p. 66.
[16] Stross, R. (2008), *Planet Google*, p. 79.

This "set of data" has, however, experienced considerable growing pains. A famously controversial case is that of Google Book Search. The project aims to digitize all books ever published, and is described by the company as "a tool that […] can help remove the barriers between people and information and benefit the publishing community at the same time."[17] Google's policy of "copying first" and negotiating later, irrespective of the books' copyright status, however led to several copyright infringement lawsuits.[18] Critics have also voiced concerns regarding the privatization of material held by public libraries,[19] and the American bias of the digitized collection. In some cases, the threat of an American, corporate Google Book Search has been met as a "challenge": the European Union-affiliated Europeana project is a notable example of a digitization initiative created partly in response to Google's activities.[20]

Also on the European continent, Google has been criticized and scrutinized by the European Commission as well as by several national institutions for its treatment of personal information and for its dominant position among search engines.[21] In the French-speaking part of Belgium, Goole's news service, Google Actualités, stirred controversy as it was sued for infringing on the copyright of newspapers by displaying articles through snippets and through the "cache" function. The lawsuit led to Google having to withdraw from its sites all articles from the concerned newspapers,[22] until an agreement was struck between the company and Belgian Francophone publishers in 2012.[23] Meanwhile, however, European libraries as well as American ones have formed digitization partnerships with Google. Not far from Mons, the Ghent University Library in Belgium has been working with Google since 2007 to digitize "hundreds and thousands" of out-of-copyright books.[24] In 2010, the material from Ghent University Library became the first scanned by Google to be made accessible through the Europeana portal.[25]

Where the Mundaneum meets Google

In the 1990's, an approximate two decades after their rediscovery by Rayward, the archives of Otlet and La Fontaine, along with the cabinets of the RBU, were moved from Brussels to Mons, a small town close to the French border of Bel-

[17] Google Books > About Google Books > Perspectives.
[18] See Garon, J. M. (2010), "Searching inside Google: cases, controversies and the future of the world's most provocative company."; Stanley, G. (2009), "J'accuse ! The battle over Google Books hits France."
[19] Kahle, B. (2009), "How Google Threatens Books."
[20] Jeanneney, J.-N. (2007), *Google and the myth of universal knowledge: a view from Europe*. The original French title of this essay is *Quand Google défie l'Europe* – "when Google challenges Europe."
[21] Pfanner, E. (2012), "Google Links With an Ancestor, A Belgian Trove of Paper Data."
[22] Laurent, P. (2011), "Copiepresse SCRL & alii v. Google Inc. – In its decision of 5 May 2011, the Brussels Court of Appeal confirms the prohibitory injunction order banning Google News and Google's 'in cache' function."
[23] Ternisien, X., (2012), "En conflit avec la presse belge, Google accepte de l'indemniser."
[24] Ghent University Library (2008), *Ghent Treasures Google*.
[25] Universiteitsbibliotheek Gent (27 September 2007), "UGent books now available in Europeana !."

gium. They became part of a combined archives and exhibition centre, run as a non-profit organization: the present Mundaneum.[26] Since its inauguration in 1998, the museum has hosted expositions on various subjects that reflect the themes present in the work of Otlet and La Fontaine. At the time of writing of the present thesis, the museum has been closed for renovation for nearly a year, waiting to reopen 2015, as the city of Mons makes its debut as European Cultural Capital of 2015 and enters a year dedicated to the theme "Where technology meets culture."[27]

Before becoming partners, the Mundaneum in Mons and Google had already been neighbours for years. In 2010, Google opened a newly-constructed data centre near the towns of Saint-Ghislain and Mons, in the region known as the Digital Innovation Valley – home to a cluster of technology companies.[28] In Google's own words, the location was chosen because it has "the right combination of energy infrastructure and developable land" and because of the regional authorities' "strong vision" for how the Internet industry can benefit the area.[29] To the region, which suffers from a decline in its mining industry,[30] Google's presence served as "a symbol of Wallonia's recovery and attractiveness […] to foreign investors."[31]

The partnership between the Mundaneum and Google was announced at the Google office in Brussels on March 13, 2012, in the presence of Belgian Prime Minister and mayor of Mons Elio di Rupo.[32] For the Mundaneum, the partnership offered an opportunity to spread knowledge of the work of Otlet and La Fontaine to Belgium and the world; to Google, it was a step in recognizing the importance of Europe in the history of information technology – and, as noted by a journalist, "a magnificent opportunity for storytelling" for a criticized company that, for reasons noted in the previous section, needed to legitimize its presence on European soil.[33] Concretely, the partnership meant that Google would sponsor a travelling exhibition – *Renaissance 2.0: Voyage to the origins of the Web* – and a series of lectures on Internet issues, while the Mundaneum would use Google Plus as a promotional tool. Since 2013, the partnership also includes a number of online exhibitions made available through the Google Cultural Institute.[34]

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[26] Mundaneum > Archives centre > Disclaimer.
[27] visitMons > Discover > Mons 2015.
[28] TechnocITé > Nos axes de développement > Digital Innovation Valley.
[29] Google. Data Centers > Inside look > Locations > St Ghislain, Belgium.
[30] Mee, S. (2012),"Mons puts itself on the map with Google deal."
[31] Pignal, S. (2011), "Digital Valley: Canals sway decision in Google search."
[32] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers," *Google Europe Blog*.
[33] Brébant, F. (2012), "Internet, une histoire belge; le Mundaneum devient le centre de la 'web culture,'": "une magnifique opportunité de storytelling."
[34] Google Cultural Institute > Explore > Mundaneum.

Previous research

The bibliographical work of Paul Otlet and Henri la Fontaine has attracted scholarly interest mainly from the field of library and information science, but also from the fields of architecture and science and technology studies. While English and, to some extent, French remain dominant, literature on the work of Otlet and La Fontaine has been published in a wide variety of languages, from Portuguese to Polish. This geographical spread is clearly seen in two research overviews published by, respectively, Rayward and Susana Romanos de Tiratal.[35]

At the time of writing, two biographies of Paul Otlet have been published: Boyd Rayward's *The Universe of Information: the Work of Paul Otlet for Documentation and international Organization* (1975) and Françoise Levie's biographical film and book *L'homme qui voulait classer le monde: Paul Otlet et le Mundaneum* (2002 and 2006). Both of these have been particularly significant in promoting scholarly and popular interest in the work and life of Paul Otlet.[36] It is worth noting that, while Otlet and La Fontaine did indeed work extensively together, Otlet is significantly more visible in scholarly literature.[37]

A number of published studies examine the part played by Otlet and La Fontaine in the creation of information science. Sylvie Fayet-Scribe, for instance, grants the work of the two Belgians a chapter in her book on the history of *documentation* in France.[38] The explicitly international aspect of Otlet and La Fontaine's bibliographic project, as it manifested itself in the RBU, the IIB, the UAI, and the participation in various world congresses and expositions, has been further studied by, among others, Rayward, Isabelle Rieusset-Lemarié and Sagredo Fernéndez.[39] A second topic, that has garnered attention from scholars of architecture as well as information science, are the various architectural plans made for the World City and the World Museum/Mundaneum.[40] Furthermore, several scholars have discussed the epistemological, ontological and ideological founda-

[35] Rayward, B. (2003), "Knowledge Organisation and a New World Polity: the Rise and Fall and Rise of the Ideas of Paul Otlet"; Romanos de Tiratel, S. (2008), "Paul Otlet, el antepasado olvidado: revisión bibliográfica I. Aspectos biográficos, históricos y teóricos"; Romanos de Tiratel, S. (2008), "Paul Otlet, el antepasado olvidado: revisión bibliográfica II. Aspectos tecnológicos e internacionales."

[36] A third biography of Paul Otlet, Alex Wright's *Cataloguing the World: Paul Otlet and the Birth of the Information Age*, is due to be published in 2014.

[37] Rayward, W. B. (2003), "Knowledge Organisation and a New World Polity: the Rise and Fall and Rise of the Ideas of Paul Otlet."

[38] Fayet-Scribe, S. (2000), *Histoire de la documentation en France : culture, science et technologie de l'information : 1895-1937*.

[39] See for example Rayward, W. B. (1983), "The International Exposition and the World Documentation Congress, Paris, 1937"; Rieusset-Lemarié, I. (1997), "P. Otlet's Mundaneum and the international perspective in the history of documentation and information science"; Sagredo Fernéndez, F. (2004), "La Documentación y el nacimiento de las Naciones Unidas."

[40] See for example Gresleri, G. & Matteoni, D. (1982), *La città mondial. Andersen, Hébrard, Otlet, Le Corbusier*; Van Acker, W. (2013), "Opening the Shrine of the Mundaneum: The Positivist Spirit in the Architecture of Le Corbusier and his Belgian 'Idolators'"; Vossoughian, N. (2003), "The language of the World Museum: Otto Neurath, Paul Otlet, Le Corbusier."

tions of Otlet's ideas. Sander, for instance, emphasizes the influence of Comtean positivism on Otlet's thinking[41]. Both Steffen Ducheyne and Ronald Day question this view of Otlet as essentially positivist: Ducheyne by drawing attention to Otlet's linguistic objectivism, and Day by pointing to an almost metaphysical conception of the "Book" as fragmentary and infinitely expandable.[42] Van den Heuvel & Smiraglia, meanwhile, reconcile these different positions by pointing out that "Otlet is not a rigid philosophical thinker" but "rather eclectic in combining ideas."[43]

Paul Otlet and information technology

In the past twenty years, a body of literature has emerged which examines the possible links and likenesses between the ideas of Paul Otlet and 20th and 21st century information technology. For instance, Rieusset-Lemarié, in an article published in 1997, discusses Otlet's visions for a global universal network in relation to the complex relationship between democratisation and centralism. A 1992 article by Michael Buckland discusses the role of European "documentalists" in the development of electronic information retrieval technology, suggesting that "Otlet, the bibliographer, and [Walter] Schürmeyer, the librarian, were more forward-looking in their ideas about information retrieval technology than was [Vannevar] Bush, the professor of electrical engineering, a decade later."[44]

In an article published in LIS trade journal *Documentaliste*, Alexandre Serres expands on this idea, and makes room for Paul Otlet in the history of hypertext by suggesting a "multiple paternity" of the concept.[45] This theme is further explored by Rayward, who notes similarities between Otlet's ideas and later technologies both in the hypertext-like system of index cards linked together by the classes of the UDC, and in the futuristic "substitutes for the book" and the "Universal Network For Information and Documentation" described by Otlet in *Traité de documentation* and *Monde*. However, Rayward also points out the danger of comparing the ideas of the positivist Otlet, "a conservative relic of the 19th century," to those reflected in the user-cantered technology of today and in "deconstructionist" hypertext.[46] As Rayward goes on to note, this contradiction may however serve to highlight positivist traces in modern theories of hypertext. [47] Similarly, van den

[41] Sander, S. (2002). "La sociedad del conocimiento en Paul Otlet. Un proyecto comteano."
[42] Ducheyne, S. (2005), "Paul Otlet's theory of knowledge and linguistic objectivism"; Day, R. (1997), "Paul Otlet's book and the writing of social space."
[43] Heuvel, C. van den, & Smiraglia, R. P. (2010), "Concepts as Particles: Metaphors for the Universe of Knowledge," p. 2.
[44] Buckland, M. (1992), "Goldberg, Emanuel, Electronic Document-Retrieval, and Vannevar Bush's Memex."
[45] Serres, A. (1995), "Hypertexte : une hsitorie à révisiter,"p. 13: "une patérnité multiple." The article is based on a master thesis presented by Serres in 1993.
[46] Rayward, W. B. (1994), "Visions of Xanadu: Paul Otlet (1868-1944) and Hypertext," p. 246.
[47] Rayward, W. B. (1994), "Visions of Xanadu: Paul Otlet (1868-1944) and Hypertext," p. 248.

Heuvel suggests that the explicitly hierarchical and centralized character of Otlet's "analog information infrastructure" can be used as a point of reference for critical readings of the supposedly "non-hierarchical, distributed characteristic" of the Web 2.0 and the Semantic Web.[48]

Otlet's relationship to hypertext was recently explored in a master thesis on the contradictory depictions, in existing scholarly literature, of Paul Otlet as either positivist or proto-postmodern.[49] The author, Richard Espley, finds that Otlet's positivistic and hierarchical model of knowledge organization can only be reconciled with hypertext if hypertext is understood not as a system for the anarchic connection of elements in infinite combinations, but for "authorized cross referencing." [50] Representations of Otlet as a proto-postmodernist hypertext visionary may then be seen partly as attempts to "legitimize" not only Otlet, but also the underlying positivism of current library and information science. [51]

Espley's thesis offers an examination of the construction and use of the narrative that posits Paul Otlet as a forefather of information technology. By doing so, it becomes an interesting background to and precedent of the present study. While Espley makes several interesting points regarding the inconsistencies of previous readings of Otlet, it leaves other areas unexplored: the development of this narrative after the Mundaneum/Google partnership was announced in February 2012 and the construction of similar narratives around other information technologies. Furthermore, in focusing solely on how library and information science uses this narrative to justify itself, Espley's study does not take into account interests and actors external to library and information science.

In the present thesis, I will try to fill some of these gaps. By using the partnership between the Mundaneum and Google as a point of departure and by focusing on the period following February 2012, I will introduce the Mundaneum and Google as two primary actors in the creation and use of the narrative of Paul Otlet as a forefather of the Internet. At the time of writing, the still fairly young partnership between Google and the Mundaneum appears in scholarly articles only through passing mentions;[52] it has yet to make up the subject of a full study. Of course, it is only logical that Otlet scholarship should focus on the life and work of Paul Otlet, rather than on a modern institution which – like its scholarly and journalistic colleagues – mediates Paul Otlet to our present age. I nevertheless

[48] Heuvel, C. van den (2009), "Web 2.0 and the Semantic Web in Research from a Historical Perspective: The Designs of Paul Otlet (1868-1944) for Telecommunication and Machine Readable Communication to Organize Research and Society," p. 223ff.
[49] Espley, R. (2011), *'The Times Are Wrong': Paul Otlet, modernist anachronism or prophetic knowledge architect of the postmodern?*, p. 35.
[50] Espley, R. (2011), *'The Times Are Wrong': Paul Otlet, modernist anachronism or prophetic knowledge architect of the postmodern?*, p. 33.
[51] Espley, R. (2011), *'The Times Are Wrong': Paul Otlet, modernist anachronism or prophetic knowledge architect of the postmodern?*, p. 18.
[52] See for example Schafer, V. (2013), "Le Mundaneum, un patrimoine inclassable," p. 155-159.

believe that studies focusing on the Mundaneum in Mons and on its partnership with Google may contribute to existing Otlet scholarship, especially in providing a broader understanding of how, and by whom, Paul Otlet is being (re)created for the 21st century.

Method and material

Texts, of various kinds, constitute the primary source material of this study. While most of these texts are written documents, like newspaper articles and online blog entries, some of them are videos containing both speech and image. In order to be able to approach all these different documents in the same way, I will rely on a broad understanding texts as "communicative event[s]"[53] that may manifest themselves in speech as well as in writing or other visual forms. In the present thesis, I will however focus uniquely on content expressed through formal language – that is, writing and speech, but not, for instance, visual design or nonverbal forms of communication. Further, in order to differentiate between the texts as objects and the "chain[s] of statements" contained within them, I will refer to the latter using the word discourse.[54] This distinction between the texts as objects and their discursive content is particularly useful in that it allows me to take into account the polyphony of texts which contain statements from several different actors.

Throughout the analysis, my focus will be on the semantic content – the denotations and connotations – rather than the structural elements of the individual texts. The distinction is not, however, clear-cut, and one of the principal aims of the analysis is to explore the ways in which this very content serves as structural elements in the collective and highly intertextual construction of the overarching narrative that I have chosen to refer to as the *narrative of the "paper Google."* In examining this narrative, I will employ an "eclectic" approach that takes into account both form and content, focusing both on the "what" – that is, "the story worlds, protagonists, events" – and the "how" – "the forms in which such content is organized by narrators" – of the narrative.[55] Recognizing the social and political aspects and uses of narrative and storytelling, I will also look beyond the texts at some of the wider implications and functions of the narrative of the "paper Google."[56]

[53] Titscher, S. & al. (2000), *Methods of text and discourse analysis*, p. 21.
[54] Titscher, S. & al. (2000), *Methods of text and discourse analysis*, p. 25.
[55] Fina, A. de & Georgakopoulou, A. (2012), *Analyzing narrative*, p. 25.
[56] Fina, A. de & Georgakopoulou, A. (2012), *Analyzing narrative*, p. 125.

Primary source material

The material studied in this thesis can be divided into two principal categories: textual and audio-visual material published by the Mundaneum and Google, material by other authors that has appeared in contexts associated with the Mundaneum or Google. Most of these documents treat directly of the partnership between Google and the Mundaneum. Three of them, articles authored by journalists Alex Wright, Meike Laaff and Jean-Michel Djian, were published prior to the announcement of the partnership but remain particularly frequently and prominently quoted by the Mundaneum.[57]

The material that comes from the Mundaneum consists of the press kit for the *Renaissance 2.0: A Journey Through the Origins of the Web*,[58] two information brochures[59], and two videos made available on YouTube by the Mundaneum, *Les data centers de Google : lumière sur le cerveau d'Internet* and *Google à Mons - Capitale européenne de la culture en 2015*.[60] The first of these video was filmed during a Mundaneum-hosted information meeting on the Google data centres, and will be considered mainly for the opening addresses held by Jean-Paul Deplus, president of the Mundaneum, and Freddy Bonhomme, hardware operation manager at the Saint-Ghislain data centres. The second video, *Google à Mons - Capitale européenne de la culture en 2015*, is a PR production that includes interview snippets with representatives from the Mundaneum, Google and the local government of Mons.

In addition to this, I will also look at three articles written by and an interview with Delphine Jenart, deputy director of the Mundaneum.[61] The three articles, it should be noted, bear striking similarities both to one another and to certain parts of the *Renaissance 2.0* press kit. A press release issued by the Mundaneum and Google together, and made accessible through the Mundaneum website, will also be taken into consideration.[62]

The material published by Google comprises four blog entries from the *Google Europe Blog* that mention the Mundaneum. The entries are all published between 2012 and 2013, and authored by William Echikson, senior communica-

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[57] Wright, A. (2008), "The Web Time Forgot"; Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google"; Djian, J.-M. (2009), "Le Mundaneum, Google de papier." Quotations from these three articles appear on the front page of the Mundaneum website. Additionally, digital versions of the three articles make up the content of a promotional flash drive from the Mundaneum.

[58] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*.

[59] Mundaneum (2009), *Le Mundaneum: "Google de papier*," Mundaneum (n.d.), *Le Mundaneum: Google de papier*.

[60] Mundaneum (2013-06-12), *Les data centers de Google : lumière sur le cerveau d'Internet*; Mundaneum (2013-04-29), *Google à Mons - Capitale européenne de la culture en 2015*.

[61] Jenart, D. (2012), "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?"; Jenart, D. (2013a), "'The Internet: A Belgian Story?' The Mundaneum"; Jenart, D. (2013b), "Internet, une histoire belge ? Le Mundaneum à Mons."

[62] Google & Mundaneum (2013), *Google et le Mundaneum renforcent leur partenariat*.

tions manager at Google.[63] Additionally, a video filmed at the press conference announcing the partnership, which was held at the Google offices in Brussels, has been included.[64] This video includes speeches by Google Belgium director Thierry Geerts, by Mundaneum's Jean-Paul Deplus and by the prime minister of Belgium, Elio Di Rupo.

Theoretical framework

Explicitly media-archaeological investigations into the work of Paul Otlet remain remarkably scarce. The most notable exception is the screening of no less than two documentaries on Paul Otlet – Levie's *L'homme qui voulait classer le monde* and Ijsbrand van Veelen's *Alle Kennis Van de Wereld: Het papieren internet* – at the festival *An Archaeology of Imaginary Media* in 2004. In addition, artist Molly Springfield's exhibition *The Proto-History of the Internet*, a textual and visual exploration of the life and work of Paul Otlet,[65] could possibly be interpreted as media-archaeological even if not explicitly stated as such. All the same, there seems to be an air of media archaeology to much of the work – of scholarly, journalistic or artistic nature – produced on the subject of Paul Otlet. Not only in Boyd Rayward's description of his first foray into the Otlet archives as an "archeological dig," but also and primarily in the unearthing of an alternative history of the Internet. Additionally, it could be argued that it would no less than natural for a theoretical approach with a steam punk sensibility[66] to take an interest in the work of the man who is said to have invented a "Steampunk version of hypertext."[67]

I would argue that, in consideration of the recent "marriage" of the Mundaneum in Mons with Google, it is more important than ever for Otlet scholarship converge to "think the old and the new in parallel lines."[68] As a diverse set of actors convene to construct a Paul Otlet who is relevant to the present and the future, an approach explicitly inspired by media archaeology appears particularly called-for. Ideally, such an approach would be broad as well as specific enough to address issues relating to the construction of historical narratives, to the particular

[63] Echikson, William (2012-03-13), "Honoring and supporting Belgian Internet pioneers"; Echikson, W. (2013-02-21), "A flower of computer history blooms in Belgium"; Echikson, W. (2013-10-28), "An unusual meeting of minds in Belgium"; Echikson, W. (2013-12-17), "Joining Belgium and Finland around data centres."

[64] computingheritage [Lynette Webb] (2012-03-13), *Prime Minister Elio Di Rupo Visits Google Belgium*.

[65] Photos from the exhibition can be viewed on the artist's website (Molly Springfield > Projects > The Proto-History of the Internet). See also Springfield's article "Inside the Mudnaneum," published in 2010 in web magazine *Triple Canopy*.

[66] Parikka, J. (2012), *What is media archaeology?*, p. 1–2. Significantly, the first two pages of this book on media archaeology are given to a description of steam punk.

[67] Wright, A. (2008), "The Web Time Forgot."

[68] Parikka, J. (2012), *What is media archaeology?*, p. 1–2.

properties of media in historiography and to the ideological, political and economic uses of media histories by various actors.

In the following three subchapters, I will give an overview of the "field" of media archaeology, focusing on elements that are of particular relevance to the present study. Firstly, I will explore different media archaeological approaches to historical narrative; secondly, I will introduce the concept of imaginary media, and thirdly, I will discuss two ways of investigating myths and recurring motifs in the context of media. Finally, I will summarize the main concepts and briefly describe how they will be utilized in the following analysis.

What is media archaeology?

Media, Siegfried Zielinski tells us, are "spaces of action for constructed attempts to connect what is separated."[69] In all of their various guises, they serve as means for creating connections and carrying information across space and time. In a more concrete sense, a medium may be any technological means for communication: for interpersonal communication, mass communication, or – considering the spatial, geographical dimension of carrying information from one place to another – communication in the sense of transportation.[70]

Media archaeology denotes a set of scholarly and artistic approaches that all revolve around the discursive and technological constitution, history, use and meaning of media technologies.[71] The word *archaeology* itself indicates the multiple backgrounds of these approaches, with connotations pointing both to "the study of the human past through its material remains"[72] and to Michel Foucault's archaeology of knowledge. Neither of these concepts, while both highly relevant, does however on its own sum up media archaeology. Rather, the "archaeology" of media archaeology is the result of many influences and precursors, such as film studies, techno-oriented German media theory, Foucault's genealogy, and Walter Benjamin's holistic approach to describing society in a particular place, at a particular moment in time.[73] From this rich set of influences, different media archaeologists have constructed their own distinctive theories. Before going further into the particularities of different media archaeologies, I will take a look at some of the interests that tie them together.

First of all, the mere fact of studying the history of media can be seen as a statement in itself. By suggesting that even "new" media – such as the digital

[69] Zielinski, S. (2006a), *Deep time of the media: toward an archaeology of hearing and seeing by technical means*, p. 7.
[70] As Joost van Loon points out, communication and transportation remained inextricably linked until the arrival of the telegraph. See Loon J. van (2008), *Media technology: critical perspectives*, p. 34.
[71] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 2.
[72] Halsall, G. (1997), "Archaeology and Historiography," in *Companion to Historiography*, p. 805.
[73] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 6–8.

technologies of the late 20th century[74] – have a history, media archaeology challenges the "disregard for the past" that has dominated much of the discussion of new media.[75] Secondly, and while they may differ significantly on a theoretical or methodological level, different media archaeological approaches are connected through the "common driving force" of a shared "[d]iscontent with 'canonized' narratives of media culture."[76] Traditional media historiography has been characterized by the "simplistic construction of a narrative of progress" that favours "realized and successful media forms and apparatuses" while purposely excluding forgotten, failed and imaginary media.[77] In response to this, media archaeology aims to re-examine and rewrite media history, making room in it for alternative narratives of "forgotten, […] quirky, [and] non-obvious apparatuses, practices and inventions" that do not "point teleologically to the present media-cultural condition as their 'perfection'."[78]

While this "discontent" with existing narratives may indeed constitute a "common driving force," different media archaeologists act on it in different ways. In some cases, the goal appears to be the substitution of an "incorrect" dominant narrative with a legitimate one. For instance, Huhtamo and Parikka write that "widely endorsed accounts of contemporary media culture and media histories alike often tell only part of the story, and not necessarily the correct and relevant parts."[79] In acceding that some "parts" are correct and relevant while other are not, Huhtamo and Parikka appear not to be criticizing the concept itself of "canonized" or dominant narratives, but rather the selection criteria for such. Zielinski, meanwhile, suggests an *an*archaeology of media; an approach that does not promote one narrative over others, but which would "counter current tendencies toward standardisation and universalization" by showing instead the richness of media past, and ultimately lead to a "variantology" of media.[80]

The main line of difference in current media archaeology can be drawn between what Huhtamo and Parikka have identified as one German and one Anglo-American tradition. While these two traditions share the same interest in media technologies, they differ on an epistemological and methodological level. In the German "techno-hardware" tradition, researchers stress the importance of taking "the particular material nature" of technological artefacts into consideration.[81] This perspective has been explored by, among others, German media archaeologist

[74] Parikka, J. (2012), *What is media archaeology?*, p. 13.
[75] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 1.
[76] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 3.
[77] Kluitenberg, E. (2011), "The Archaeology of Imaginary Media," p. 51.
[78] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 3.
[79] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 3.
[80] Zielinski, S. (2006b), "Modelling Media for Ignatius Loyolla: A Case Study of Athansius Kircher's World of Apparatus Between the Imaginary and the Real," p. 54, n. 1.
[81] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 8.

Wolfgang Ernst. Ernst holds forth that the singularity of media machines cannot be represented through historical narrative and that, in consequence, media archaeology needs to approach its object of study – "techno-archaeological artifacts" – through techno-mathematical analysis performed by machines.[82]

The Anglo-American, "discursive" tradition, meanwhile, postulates that technology "gets its meaning from pre-existing discursive contexts within which it is introduced."[83] According to this mode of thinking, media technologies are not best understood though the particularities of their material nature, but rather through their "discursive manifestations."[84] Methodologically, this means that researchers working within the Anglo-American tradition to a greater degree will study media by examining representations of media, often in the form of written text or images. For this reason, the discursive approach is particularly well-suited to the study of imaginary media – that is, of media which "exist only as discourse."[85]

Imaginary media

While media archaeology often deals in "failed" or "dead" media, some approaches also study media technologies that, in a sense, never lived: imaginary media. As explored at the festival and subsequent anthology *An Archaeology of Imaginary Media*, as well as in the works of scholars and artists such as Eric Kluitenberg, Friedrich Zielinski, Peter Blegvad, Richard Barbrook and Erkki Huhtamo, the archaeology of imaginary media has two principal objects of study: on the one hand, unrealized media technologies, and, on the other, media imaginaries. By pointing out the permeable nature of the borders that separate realized media from the merely imagined, and by emphasizing the real-world effects of the imaginary, their research shows that imaginary media are, in fact, very much alive.

Kluitenberg's archaeology of imaginary media makes two principal claims about imaginary media. Firstly, it postulates that the imaginary has consequences and functions in the "real" world. Inspiration for this comes from Benedict Anderson's *Imagined Communities*, which considers nations as imaginary communities. In this study, Anderson points to the effect that collective imaginaries have on the real, actual world, and proposes that these imagined communities be "distinguished, not by their falsity/genuineness, but by the style in which they are imagined."[86] Like these communities, media are always part imagined, and part real.[87]

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[82] Ernst, W. (2011), "Media Archaeography: Method and Machine versus History and Narrative of Media," p. 242.
[83] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 8.
[84] Huhtamo, E & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 9.
[85] Huhtamo, E. (1997), "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," p. 223.
[86] Anderson, B. T. (1991), *Imagined Communities: Reflections on the Origins and Spread of Nationalism*, p. 6.

Secondly, Kluitenberg's archaeology emphasises the connection between imaginary media and the impossible. Imaginary media are understood as "compensatory machines," meant to make up for the "inherent flaws and deficiencies of interpersonal communication." Unable to resolve these problems, they become "impossible machines" that "can never attain what they are proclaimed to achieve";[88] mediators of "impossible desires," they are pre-programmed for failure.[89] Yet, paradoxically, Kluitenberg also notes that "media that were once imagined may at some point become true."[90] This is a paradox that I wish to examine further in the present thesis, through the case of the "paper Google."

One of the most important contributions of an approach that takes imaginary media as its focus is the realization that that all imaginary media are not alike. Kluitenberg names two approaches to differentiating imaginary media both from actual media and from each other. The first was developed by Peter Blegvad, a musician and illustrator who directed a play for the *Archaeology of Imaginary Media* festival. In his text "Imagined, Observed, Remembered," Blegvad explains how he, as an illustrator, approached depicting objects that he either did or did not have before him: the ones he could observe directly, the ones he could draw from memory, and those, unfamiliar, which he had to imagine[91]. Applied to the objects of media archaeology, this division can be translated into the following three categories:

1. *Media observed* are media objects that exist in the present, actual archaeological artefacts, material and tangible.
2. *Media remembered* are media objects that have once been observed but are now accessible only through recollection.
3. *Media imagined* are media objects that have never been observed and so cannot be remembered.

As noted by Kluitenberg, this classification "distinguishes imaginary media from existent ones" by showing that the former have "no fixed location in time," that they belong neither to the past nor the present.[92] All the same, Blegvad's classification, when applied to media, highlights several important instances of ambiguity, where real and imagined cannot be clearly distinguished. For instance, Blegvad does not determine the status of objects that are not observed, remembered or imagined first-hand, but observed through representations, through discourse: illus-

[87] Kluitenberg, E. (2006), "Second Introduction to an Archaeology of Imaginary Media," p. 8.
[88] Kluitenberg, E. (2011), "On the Archaeology of Imaginary Media," p. 66.
[89] Kluitenberg, E. (2006), "Second Introduction to an Archaeology of Imaginary Media," p. 8–9.
[90] Kluitenberg, E. (2006), "Second Introduction to an Archaeology of Imaginary Media," p. 9.
[91] Blegvad, P. (n.d.), "Imagined, Observed, Remembered," *Amateur*. One object can belong to all three categories, if not at the same time and only in the following order: imagined – observed – remembered.
[92] Kluitenberg, E. (2011), "The Archaeology of Imaginary Media," p. 55.

trations, textual descriptions, photographs. These representations could be considered remembrances of objects, encompassing both "observed" and "imagined" and obscuring difference between the two. Furthermore, as we attempt to apply these categories to technological media, it is important to remember that "observable" does not necessarily equal "realized": as Ernst notes, technological artefacts disclose their "essence" only when operating.[93] While an object that resembles a catalogue card will likely always have the potential of functioning as a catalogue card, an object that looks like a computer may be an empty, non-functional prototype.

The second model for the classification of imaginary media mentioned by Kluitenberg is that of Siegfried Zielinski. Recognizing that the relationship between "fantasy" and "reality" is fluid, especially in the world of technological media, Zielinski proposes a "provisional classification" of three types of phenomena that can be found within the category of imaginary media.

> *Untimely media/apparatus/machines*. Media devised and designed either much too late or much too early, realized in technical and media practice either centuries before or centuries after being invented.
>
> *Conceptual media/apparatus/machines*. Artefacts that were only ever sketched as models or drafted as concrete ideas on paper, but never actually built.
>
> *Impossible media/apparatus/machines*. Imaginary media in the true sense, by which I mean hermetic and hermeneutic machines that is machines that signify something, but where the initial design or sketch makes clear that they cannot actually be built, and whose implied meanings nonetheless have an impact on the factual world of media.[94]

According to Zielinski, the role of this provisional classification is to "act as prosthesis, to help us get our bearings."[95] Yet, this is a model that seems to raise as many questions as it answers. When is a *conceptual* medium so fantastic that it counts as *impossible*? If a *conceptual* or *impossible* medium is realized, does it retroactively become an *untimely* one? Furthermore, one might ask whether an *untimely* medium should really be thought of as imaginary – its distinctive trait is, after all, constituted by its past or future realization. It is partly because it raises these questions that Zielinski's model is truly useful. By doing so, it functions as a visual grid that, as it presents a set of distinguishable classes, highlights the possible ruptures and overlaps that may occur between – or within – these classes.

As shown by the models of Blegvad and Zielinski, the categories of imaginary and realized media are neither definite nor mutually exclusive. To a large extent, they are manifestations of the same imaginaries, expressions of the same (impos-

[93] Ernst, W. (2011), "Media Archaeography: Method and Machine versus History and Narrative of Media," p. 241.
[94] Zielinski, S. (2006b), "Modelling Media for Ignatius Loyola: A Case Study of Athansius Kircher's World of Apparatus Between the Imaginary and the Real," p. 30.
[95] Zielinski, S. (2006b), "Modelling Media for Ignatius Loyola: A Case Study of Athansius Kircher's World of Apparatus Between the Imaginary and the Real," p. 30.

sible) desires and dreams. Imaginary media will often prefigure or inspire future realized ones, even if "imagination and realization rarely coincide" as the realized either exceeds or falls short of the imagined.[96] By investigating the complex interplay of impossible desire, failure and hope that constitutes imaginary media, the archaeology of imaginary media strives, in the words of Kluitenberg, to retain "a certain utopian potential of communications media," without losing sight neither of the challenges nor of the possibilities.[97]

Topoi and imaginaries

Transcending individual media technologies, both imagined and realized, are the concepts of media topoi and the media imaginaries. Here, I have chosen to present them side by side to highlight both the striking similarities and the significant differences of the two concepts.

Media topoi are recurrent cultural motifs and elements, and, as such, important "building blocks' of cultural traditions."[98] They challenge the idea of technical progress by emphasising "cyclical development rather than chronological" and pointing to the old and familiar in the new.[99] While essentially discursive constructs, they can be expressed both through imaginary and realized media machines. For instance, the dream of being able to see across great distances – of *tele-vision* – can be considered a topos, recognizable in the 19th century telectroscope, a mythical invention described in popular scientific journals but never demonstrated, as well as in the television of today.[100] Huhtamo further emphasises that these topoi are always "cultural, and thus ideological constructs," and that they can be "consciously activated and ideologically and commercially exploited." [101] Effectively, "they are constantly evoked by cultural agents […] who use them for various kinds of purposes, from sales pitches and ideological persuasion to aesthetic reflections on media culture and history."[102] The method for studying media topoi comprises two principal steps. The first is the identification of topoi, which consists in recognizing the commonplaces and recurring motifs of media culture. The second is the study of the ways in which these topoi have been "'imprinted' on specific media machines and systems in different historical contexts,"

[96] Kluitenberg, E. (2011), "The Archaeology of Imaginary Media," p. 67.
[97] Kluitenberg, E. (2006), "Second Introduction to an Archaeology of Imaginary Media," p. 9.
[98] Huhtamo, E. (1997), "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," p. 222.
[99] Huhtamo, E, (1997), "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," p. 222. The concept *topos*, while traceable to Ancient rhetoric, is most recently borrowed from literary studies.
[100] Huhtamo, E. (1997), "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," p. 223.
[101] Huhtamo, E. (1997), "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," p. 222.
[102] Huhtamo, E. & Parikka, J. (2011), "Introduction: An Archaeology of Media Archaeology," p. 14.

and the ways in which the topoi have helped shape the "identity" of these machines "in terms of socially and ideologically specific webs of signification."[103]

In the work of Kluitenberg, media imaginaries are presented as a form of mythologies in the sense suggested by semiotician Roland Barthes; that is, as superimposed significations that obscure the "original" meaning of signs. When the acts and interests behind their creation have faded into obscurity, myths start to appear as truth – are naturalized; they "mask historical intention as natural law."[104] As such, myths are crucial elements of history-making and, in marketing terms, of storytelling. Myths of imaginary media may be attached to technologies for ideological, political or economic purposes.[105] For instance, as shown by Richard Barbrook, imaginaries of artificial intelligence were used to construct attractive narratives of technology and nation at 19th and 20th century world exhibitions. Those actors who understood that "defining the symbolism of machinery meant owning the imaginary future," took great care in choosing and establishing those symbols.[106] It could be a choice between "disguising innovations as antiquities" or presenting them as a taste of the future to come, and it could be a question of obscuring less attractive origins or uses: for example, technologies of artificial intelligence, which were principally employed for military purposes, were re-inscribed with unthreatening images of servant robots in modern suburban homes.[107]

The topoi approach offers important insights regarding the role of the familiar in history-making. Its clear focus on motifs that recur, cyclically, over a long period of time does, however, make it difficult to apply in its entirety to the present study. The concept of media imaginaries, somewhat vaguer in its definition, allows for an angle more directly concerned with specific cases, with the intentional construction of narratives and with the roles of individual actors.

In the present thesis, media archaeology will not be used as a strict and fixed methodology or theory. Rather, a combination of concepts borrowed from media archaeology will be used as focal points of the investigation, to frame and to highlight important elements of the primary source material. These concepts can be divided into three categories: those that concern the very writing or making of history; those that consider the specific historiographical properties of media; and those which analyse the use of the former two by different actors and interests.

Firstly, I will approach questions regarding the *histor(icit)y of new media* and the existence of *dominant and alternative narratives*. In the primary source mate-

[103] Huhtamo, E. (1997), "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," p. 222.
[104] Hanappi-Egger, E. (2011), *The Triple M of Organizations: Man, Management and Myth*.
[105] Kluitenberg, E. (2006), "Second Introduction to an Archaeology of Imaginary Media," p. 12.
[106] Barbrook, R. (2006), "New York Prophecies," p. 262.
[107] Barbrook, R. (2006), "New York Prophecies," p. 263.

rial, which narratives are presented as dominant? What reasons are given for the introduction of alternative narratives?

Secondly, I will try to identify the different *classes of media* represented in the narrative. Are they *realized* or *unrealized/imaginary*? If *realized*, are they *remembered* or *forgotten*? If *unrealized/imaginary*, are they *untimely or impossible*? Do these classes appear as static and exclusive, or as fluid and permeable?

Thirdly, I will examine the ways in which these *media* and these *narratives* can be said to be part of and constitute *media imaginaries*, and look at how these *media imaginaries* are mobilized by different actors to serve various political, ideological or economic interests.

Mediations of the "paper Google"

In the following three chapters, I will attempt to trace the contours of the narrative of the "paper Google." In the first chapter, I will look at how this narrative is constructed as an alternative to dominant Internet historiography and positioned in relation to other histories. In the second chapter, I will examine the representation and use of realized and imaginary media technologies, from the Internet to the index card, in the construction of this alternative narrative. Finally, in the third chapter, I will discuss the media imaginaries that the narrative of the "paper Google" mediates. Throughout the analysis, I wish to point to the different ways in which the narrative of the "paper Google" and the media it contains are at once mediated by, and mediators of, the Mundaneum in Mons and Google.

Narratives: revisiting the history of the Internet

In examining the construction of this narrative of the "paper Google," I will focus on three principal themes. First of all, I will take a closer look at how the texts represent the forgetting and subsequent "revival" of Paul Otlet. Secondly, I will examine the role played by international actors in the construction of an alternative, European history of the Internet. Finally, I will look at those instances in the texts where the recognition of this alternative narrative is presented as an inevitable historical development, and discuss the implications of this.

The forgotten forefathers

Much like an archaeological dig, the story of Paul Otlet's "paper Google" tends to begin at the ruins: those of the Mundaneum, of the RBU, of the imagined World City and of Wallonia's industrial regions. In the opening paragraph of his oft-cited *New York Times* article, Wright sets the stage with a particularly evocative description of the present grey surroundings of the "Web Time Forgot":

> "MONS, Belgium – On a fog-drizzled Monday afternoon, this medieval city feels like a forgotten place. Apart from the obligatory Gothic cathedral, there is not much to see here except for a tiny storefront museum called the Mundaneum, tucked down a narrow street in the

> northeast corner of town. It feels like a fittingly secluded home for the legacy of one of technology's lost pioneers: Paul Otlet."[108]

Hidden away in an unremarkable museum in a city long past its prime, the legacy of Paul Otlet is as lost from view as it is from memory. It seems that even the foggy weather is conspiring to obscure the presence of the "lost pioneer." Laaff's *Spiegel* article paints an equally vivid image of the amnesia supposedly surrounding Otlet and his work. Demonstrating a weakness for words reminiscent of destruction and decay, the article tells the reader that "the remains of the Mundaneum collection spent decades rotting in dilapidated attics."[109] Statements like these effectively illustrate how crucial the motifs of the forgotten and the obscure are to the story of the Mundaneum – they remind us that disappearance is always a necessary condition for renaissance. Thus, in this spirit of archaeology, I would like to start my examination of the narrative of the "paper Google" not with the media created by Otlet and La Fontaine or the marriage of the Mundaneum to Google but at the very ruins, with the obscurity that sets the stage for a potentially triumphant return.

Failure and forgetting

"Although Otlet enjoyed considerable fame during his lifetime," Wright notes, "his legacy fell victim a series of historical misfortunes."[110] Out of these "misfortunes," three are frequently evoked as contributing to the Mundaneum's fall into oblivion: the loss of support for the project from the Belgian government, the taking over of the Cinquantenaire by German forces in 1941, and the deaths of Otlet and La Fontaine in the early 1940's.

Wright, Laaff and Djian all touch upon these three factors in their articles. As Djian points out, difficulties started in 1924, a decade before the definitive closing of the Mundaneum, when the Belgian government decided that the rooms occupied by the museum of Otlet and La Fontaine would be used to host an exhibition on natural rubber. The collections were left without a fixed home, going from place to place and being reduced in the process, for half a decade.[111] Wright's retelling of the events is even more dramatic: "tragically," the author notes, "just as Otlet's vision began to crystallize, the Mundaneum fell on hard times." The government "lost interest in the project after losing its bid on the League of Nations headquarters," and the Germans "destroy[ed] thousands of boxes filled with index cards" to make room for their exhibit on Third Reich art; Paul Otlet himself "died in 1944, a broken and soon-to-be-forgotten man."[112] In a similar vein, Laaff de-

[108] Wright, A. (2008), "The Web Time Forgot."
[109] Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google."
[110] Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google."
[111] Djian, J.-M. (2009), "Le Mundaneum, Google de papier," p. 49.
[112] Wright, A. (2008), "The Web Time Forgot."

scribes how, in spite of Otlet's "visionary ideas," his "financial backers in the government lost interest in the project" of the Mundaneum. The German forces then took over the building and "removed the collections from the 'Palais Mondial' and exhibited Nazi artwork there instead." Somewhat echoing Wright's choice of words, Laaff concludes the story by stating that, after his "vision of peace through knowledge had failed," Paul Otlet "died in 1944, impoverished and bitter."[113]

In the texts authored by Google and the Mundaneum, significantly fewer words are spent on explaining the decline of the Mundaneum in the early 20th century. In an article in Belgian online newspaper *Régional-IT*, Jenart offers two possible explanations for the "remarkable collective amnesia" that led to the forgetting of Otlet and La Fontaine: firstly, Otlet's own obsession with realising his at the time technologically impossible projects, which made him lose credibility with the contemporary scientific community; secondly, the way in which the original Mundaneum fell victim to "the horrors of World War II, as its prestigious venue was requisitioned by the Germans."[114] Notably, there is no mention of the Belgian government's attempts to evict Otlet and La Fontaine from the Cinquantenaire.

In the blog entry "Honoring and supporting Belgian Internet pioneers," Echikson is similarly vague but goes further in that he erases all traces of individual actors. In relation to the fate of the RBU and the Mundaneum, he simply and succinctly states that "World War II and the deaths of Otlet and La Fontaine slowed the project."[115] A year later, an almost identical phrasing, only with "Otlet and La Fontaine" replaced by "both founders," is used on the opening card of the Google Cultural Institute exhibition *The Origins of the Internet in Europe*.[116] The statement itself is, of course, both correct and justified: those specific events did indeed prove fatal to the RBU and the Mundaneum, and one would hardly expect to find a more detailed historical account in a short blog entry. However, what really makes this sweeping description worth noting is the way in which it represents the Mundaneum as a victim of force majeure rather than of declining support. In naming only war and death, Echikson's depiction of events momentarily exonerates any individual parties – the government, the Germans, Otlet himself – involved in the "failure" of the Mundaneum.

This displacement of blame onto abstract concepts is particularly interesting in relation to the role played by the Belgian government in the history of the old and the new Mundaneum. Entirely absent from the accounts found in Jenart's

[113] Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google."
[114] Jenart, D. (2012), "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?," : "étonnante amnésie collective"; "les affres de la seconde guerre mondiale puisque son prestigieux lieu d'accueil sera réquisitionné par les Allemands."
[115] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."
[116] Google Cultural Institute > Explore > Mundaneum.

articles and in the press kit and visitor's guide for *Renaissance 2.0*, the former appears twice in Echikson's text: at first when it lets the Mundaneum take up residence in the Palais du Cinquantenaire, and then when it salvages the Mundaneum archives by providing them with a new home in Mons. First, in 1909, the Belgian government "granted [Otlet and La Fontaine] space in a government building," and then, almost a century later, in the 1990's, the French community government of Belgium "revived the Mundaneum's memory."[117] When the middle part of the story – which covers the greater part of the 20th century – is allowed to remain thus uncommented, the result is a narrative where the government only ever figures as a source of support for the Belgian forefathers of Google.

All accounts of the rise and decline of the Mundaneum are not as dramatic or as bleak as those of Wright, Laaff and Djian. The *Google Europe Blog* tells a decidedly less tragic story, with no mention of Otlet dying "bitter" or "broken." Otlet and La Fontaine's projects are not said to have failed but simply to have "slowed." The *Renaissance 2.0* press kit attains a similar result by situating these projects firmly within a historical context. When considered as part of a longer timeline of knowledge organization the work and visions of Otlet and la Fontaine seem not so much to have failed but as to have evolved into something else. In Jenart's "The Internet: A Belgian Story?," the combination of two rather unremarkable statements creates a conceptual confusion that, in its turn, makes it possible for a seamless continuity to form between the old and the new Mundaneum:

> […] The Mundaneum project, deeply rooted in utopian ideals, was quickly confronted with the magnitude of the technical development of its era.
>
> Now located in the French speaking part of Belgium in the city of Mons, just a few miles from Brussels, the Mundaneum has become an Archive Centre of the Wallonia-Brussels Federation (Belgian State) and a temporary exhibition space.[118]

Thus, we see that the "collective amnesia" surrounding the Mundaneum may in fact serve two purposes: when pointed out, it legitimizes the promotion of an alternative narrative, and when downplayed, it may be extended to the point where it almost entirely obscures its own existence. What the passage quoted above, the *Renaissance 2.0* press kit, and the *Google Europe Blog* ultimately invite us to forget is the very impression that Otlet was ever forgotten.

An American story

If the studied texts give different accounts of the fate of Otlet's ideas during the 20th century, they all agree that these ideas have a place in discussions of the history of the Internet. As Wright points out in his 2008 *New York Times* article, this history has generally been considered almost exclusively Anglo-American story:

[117] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."
[118] Jenart, D. (2013b), "'The Internet: A Belgian Story?' The Mundaneum," p. 83.

"[h]istorians typically trace the origins of the World Wide Web through a lineage of Anglo-American inventors like Vannevar Bush, Doug Engelbart and Ted Nelson."[119] Citing the same three names, Laaff writes that "Americans Vannevar Bush, Ted Nelson and Doug Engelbert are considered the minds behind hypertext and the Internet." [120] I would argue that this narrative of a predominantly Anglo-American lineage of the Internet could be considered the principal dominant narrative in relation to which the narrative of the "paper Google" positions itself, and to which it proposes an alternative. Below, I will explore the ways in which this alternative narrative is constructed not only in opposition to, but with support from, the dominant one.

The press conference announcing the partnership between Google and the Mundaneum provides a good starting point for such an exploration: in the presence of representatives from the Mundaneum, Google, and the Belgian government, the Google offices in Brussels provide a temporary backdrop for the return of Paul Otlet. The first to speak at the event is Google Belgium director Thierry Geerts. After welcoming the guests, Geerts explains that, to Google, this new partnership is part of a greater project undertaken by Google: to revive the memory of and to highlight Europe's part in the history of information technology. While "Europe played a pioneering role in the development of the computer as well as the Internet," "we [Europeans] have forgotten our inventors."[121]

Similar explanations for Google's interest in European computer history appear several times on the *Google Europe Blog*. In an entry posted on the day of the press conference, Echikson writes that the "partnership with Mundaneum is part of a larger project to revive the memory of Europe's computing pioneers," and continues to point out that "Europe played a crucial role in the invention of computers and the Internet, yet all too often has forgotten its innovators."[122] One year later, the same point is made in the entry titled "A flower of computer history blooms in Belgium." Here, Echikson writes that "[a]ll too often, Europeans tend to think of the invention of the modern Internet as an American monopoly. In fact, Europeans played a key role." To illustrate his argument, he cites the names of five European pioneers: Otlet and La Fontaine who created the Internet's "intellectual roots," British Alan Turing who "imagined much of its early hardware," and, finally, British Tim Berners-Lee and Belgian Robert Caillau who "built the World Wide Web."[123]

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[119] Wright, A. (2008), "The Web Time Forgot."
[120] Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google."
[121] computingheritage [Lynette Webb] (2012-03-13), *Prime Minister Elio Di Rupo Visits Google Belgium* [video file]; "rôle de pionner tant pour le développement de l'ordinateur que pour le développement de l'Internet," "on a oublié nos inventeurs."
[122] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."
[123] Echikson, W. (2013-02-21), "A flower of computer history blooms in Belgium."

Against this backdrop of a Europe which, be it from amnesia, ignorance or simple modesty, "all too often" will not or cannot recognize its pioneers, Google itself materialize as a fair and charitable benefactor. And Europe, in its state of technological amnesia, appears dependent on Google – and by implication, the United States – to remind it of its past and potential future accomplishments. Google Belgium director Geerts, in his opening speech at the Google/Mundaneum press conference, however complicates this image of a benefactor from overseas. By referring to Europe and Europeans in the first person, he depicts a reality where Google is already a part of Europe, and where the rediscovery of Europe's Internet pioneers, although mediated by Google, thus comes from Europe itself.

Nevertheless, the *Renaissance 2.0* press kit puts considerable emphasis on the role of international actors in the rehabilitation of Paul Otlet. The first short chapter of the press kit, titled "The Internet: a Belgian story?," opens with an overview of present discussions that connect the Mundaneum to the Internet:

> "**The paper Google" (Le Monde), "The Web Time Forgot" (The New York Times), "Google's ingenious ancestor" (Der Spiegel), ... Following the international press, in 2012 Google itself recognised its historical roots in the Mundaneum: the ancestor of the Web and of the search engine!**
>
> At a time when we are celebrating the 20th anniversary of the Web (1989-2009) and the 30th anniversary of the Internet (1983-2013), while a heated debate is raging in the United States about the real origins of the Internet, the subject is highly topical.
>
> Paul Otlet (1868-1944), the founder of the Mundaneum, became himself the subject of an international media campaign in the early summer of 2012, following the acknowledgement of his work at the latest World Science Festival in New York in the presence of Vinton Cerf himself: "*The idea of the Internet was born in Belgium !*"[124]

These three short paragraphs trace a concise timeline of the belated and ongoing recognition of Otlet's part in the history of the Internet. The timeline divides the process of recognition into three principal stages, each representing a different group of actors or producers of discourse: the international press, represented by French *Le Monde*, German *Der Spiegel* and American *The New York Times*; "Google itself"; and, last but not least, the "heated debate […] raging in America" and the "international media campaign" initiated by "the acknowledgement of Otlet's work" at the World Science Festival, in the presence of Internet inventor "Vinton Cerf himself."[125] Worth noting here is the way in which the does not attribute the "acknowledgement of [Otlet's] work" to any named actors, emphasizing instead the vague *presence* of Vinton Cerf.

The passage quoted above makes it clear that the words "Belgian story" found in the chapter title do not refer to or reflect the identity of the narrator(s) of the story. In its depiction of how Otlet's work is finally gaining its due recognition, the text appears to emphasize not Belgian but international and American actors:

[124] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 1. Original emphasis.
[125] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 1. Original emphasis.

the international press, American multinational corporation Google, Vinton Cerf, the American debate or international media campaign. In this way, this "Belgian story" might as well be called a multinational, or even American, story. It is as if Otlet, still not a "prophet in his own country"[126], can only be rediscovered through the mediation of an international – and particularly American – community.

This impression is repeated and further explored in one of Jenart's articles, in a section significatively titled "The discovery by America." Commenting on the "buzz" created around Otlet at the World Science Festival, Jenart writes that "[t]he wave is indeed coming from the United States to gain Europe and the whole world."[127] Indeed, the article explicitly states that, with Otlet's native Belgium afflicted by "collective amnesia," it was "in the United States that [the oeuvre of Otlet and La Fontaine] was rediscovered."[128] The idea of a "discovery by America," the emphasis given to the World Science Festival in New York, and the polyphony of voices encountered in the cited passage from the *Renaissance 2.0* press kit: these factors all seem to imply that, in this case, the alternative narrative can only claim its rightful place in history if the dominant one is called upon to support and to lend authority to it.

There are, of course, other aspects to this. Knowledge of Otlet and la Fontaine is not only being disseminated "from the United States to gain Europe and the whole world,"[129] but also from a small town in the French-speaking region of Belgium to both national and international audiences. As the Mundaneum states on its website, "[t]he launching of the partnership between Google and the Mundaneum went around the world […] from United States to Indonesia, China and Vietnam."[130] Such a statement seems particularly significant when read in light of Wright's article, published three years before the announcement of the Google/Mundaneum partnership. In the article, Wright warns that the museum "struggles to attract visitors" and quotes Mundaneum archivist Stéphanie Manifold as saying that "[t]he problem is that no one knows the story of the Mundaneum" and that "[p]eople are not necessarily excited to go see an archive."[131]

Commenting on this, Wright points out one specific factor that may indeed help the Mundaneum avoid "its predecessor's fate": Google. In a moment of foresight worthy of Paul Otlet, Wright prophesizes that "the town [of Mons] may yet find its way onto the technological history map," as, later in the year, "a new cor-

[126] Jenart quotes this specific saying – "Nul n'est prophète en son pays" – in relation to Otlet. (Jenart, D. [2012], "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?.")
[127] Jenart, D. (2012), "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?": "La découverte par l'Amérique," "La vague part donc bel et bien des Etats-Unis pour gagner l'Europe et le monde entier."
[128] Jenart, D. (2012), "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?": "Et c'est aux États-Unis que cette oeuvre a été redécouverte."
[129] Jenart, D. (2012), "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?": "des Etats-Unis pour gagner l'Europe et le monde entier."
[130] Mundaneum > Exhibition Space > Press > World Science Festival/Internet idea is Belgian!
[131] Wright, A. (2008), "The Web Time Forgot."

porate citizen plans to open a data center on the edge of town: Google."[132] American actors may be depicted as the true historians of the European Internet, but the Mundaneum is profiting from the presence of Google to spread the word of Otlet and La Fontaine outside Europe.

An inevitable alternative

In the previous section, I discussed the significance that the studied texts accord to international actors. Below, I will examine the opposite tendency – the downplaying of human agency through the introduction of a notion of fate. Otlet and La Fontaine's work and ideas may have remained excluded from the history of the Internet for a long time; but when the paths of Otlet and the Internet – as well as those of the Mundaneum and Google – finally cross, they appear to do so because they were destined to.

In the following quotation, taken from the video filmed at the 2012 press conference, the Mundaneum's Deplus describes the meeting of the two organizations

> I would like to tell you that […] the Mundaneum has rendezvous with its history [*histoire*], because I am certain, as are all of you, that had Otlet and La Fontaine continued to develop their project until today, they would inevitably have encountered Google.
>
> Here, it is Google which inevitably encounters the Mundaneum; and I think that this is a very beautiful story [histoire], which finally lets the Mundaneum be recognized for what it is justly worth. [133]

Also present at the press conference is prime minister and mayor of Mons Elio Di Rupo, who speaks with emotion of the "marriage" between Google and the Mudnaneum. Not merely a prestigious guest, Di Rupo also represents a link between the new Mundaneum and Google that precedes the partnership by nearly two decades: as he points out in his speech, he was not only present at the inauguration of the Google data centre in Saint-Ghislain, but also involved in the relocation of the Mundaneum archives to Mons.

The impression that the Mundaneum and Google were destined to meet at some point is further supported by the very location of Google's offices in Brussels. As Deplus points out at the press conference, these offices overlook the building in the Parc Léopold where the Mundaneum ended up after being evicted

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[132] Wright, A. (2008), "The Web Time Forgot." It is perhaps worth noting that, in 2007, Wright gave a talk at Google, titled *The Web That Wasn't*, that clearly situated Otlet within the history of the Web (see GoogleTechTalks [2007-10-27]).

[133] computingheritage [Lynette Webb] (2012-03-13), *Prime Minister Elio Di Rupo Visits Google Belgium*: "[…] je voudrais vous dire qu'elle a rendez-vous avec son histoire puisque je suis certain, vous l'êtes tous au moins autant que moi, que si Otlet et La Fontaine avaient développé encore jusqu'aujourd'hui leur projet, ils auraient immanquablement rencontré Google.

Ici, c'est Google qui immanquablement a rencontré le Mundaneum, et je pense que, il y a là vraiment une très belle histoire qui, qui permet enfin au Mundaneum d'être reconnu à sa juste valeur."

from the Cinquantenaire.[134] Similarly, at the public information meeting about the Saint-Ghislain data centre that the Mundaneum hosted in 2012, Deplus suggests that fate might also have had a hand in Google's decision to install one of its three European data centres so close to the home of the present Mundaneum. Such a stroke of luck cannot, he states, be quite "innocent."[135]

All these references to the inevitability of the meeting and subsequent "marriage" of Google and the Mundaneum serve to naturalize the narrative of the "paper Google," and to present it not as the "artificial" narrative collectively constructed by a diverse group of actors in late 20th and early 21th centuries, but as a natural and unavoidable turn of events. Thus, while this alternative narrative indeed challenges the dominance of the narrative of the American Internet, it does not question the dominance of chronological and progress-oriented historical narratives. On the contrary, it presents a deterministic view of historiography as well as history, where an accurate account of events will always, inevitably, make itself known in the end.

In spite of this, the constructed character of the narrative does not remain entirely hidden. While the passage concerning the inevitability of the meeting between the Mundaneum and Google indeed expresses a sense of predestination and of inevitable progress, the ability of the French language to denote either of the concepts "history" or "story" using the word *histoire* (see brackets in quotation) reminds us that this history is also a story. So does Deplus when, opening the information meeting on the Google data centres, he tells the audience that the Universal Decimal Classification is the ancestor of modern search engines, and then adds: "or at least that is how we present it to the public."[136]

The exhibition *Renaissance 2.0* constitutes a particularly comprehensive and coherent version of this alternative narrative as it is presented by the Mundaneum and Google. The exhibition is even more interesting in that it not only makes place for Otlet and La Fontaine in an already existent historical narrative, but rather uses the two Belgian bibliographers as a point of departure and as key focal points in the construction of an entire alternative history of humanity's endeavours to organize the world. According to the press kit, the aim of the exhibition "is to **tell [the] story**" of Otlet and La Fontaine's "retro-futuristic version" of information society "**in the history of the organisation of knowledge and technologies** by placing it in its historical context and surveying" how people in different eras have attempted "to classify the world."[137]

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[134] computingheritage [Lynette Webb] (2012-03-13), *Prime Minister Elio Di Rupo Visits Google Belgium*.
[135] Mundaneum (2013-06-12), *Les data centers de Google : lumière sur le cerveau d'Internet*: "innocente."
[136] Mundaneum (2013-06-12), *Les data centers de Google : lumière sur le cerveau d'Internet*: "en tout cas c'est comme ça que nous la présentons."
[137] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 4. Original emphasis. Throughout the press kit, bold type is used to highlight important themes and concepts.

The mise en scène of *Renaissance 2.0* represents a "journey in six stages," [138] and is made up of six numbered museographical modules, chronologically and thematically organized. In the press kit and the visitor's guide alike, each stage is accompanied and explained by a short text of one or two paragraphs. Throughout these texts, Otlet remains a ubiquitous presence.

The first module, "**Collectors of the world**," proposes a "return to the origins" which examines the gathering and organization of knowledge from "the first Sumerian tablets […] to the Enlightenment Encyclopaedia." It further suggests that the "quest for knowledge" undertaken by the "collectors of the world" also "inspired the dematerialization of knowledge initiated by the founders of the Mundaneum."[139] The second module is called "**Visionary endeavours**," and invites the audience to "[m]eet the visionaries who helped to mark key milestones in the history of the circulation of knowledge."

The third module, titled "**The Mundaneum, a story within history**," is particularly interesting in that it focuses completely on the story of Otlet and the Mundaneum. This module proposes a "re-reading of the history of the Mundaneum (1895-1944) in the light of the technological revolution."[140] A significant if not very original element of this re-reading is the explicit emphasis on Otlet: as the accompanying text states, "the visionary spirit" – as expressed in ideas for "participative encyclopaedias, web-conferencing, search engines, internet, cross-media" – "emerges most strongly in the figure of Paul Otlet."[141] Indeed, this statement signals the complete disappearance of the personage of La Fontaine from the written account of the "journey in six stages." From now on, the work realized by Otlet and La Fontaine takes a step back, as the main point of reference becomes the "dream" of Otlet.

The word "dream" is used in the accompanying texts of the fourth and sixth modules. The fourth module is called "**The rise of the machines**" and focuses on the development of information technology in the post-war period. In the accompanying text, it is suggested that the invention and popularization of the World Wide Web in the 1990's "meant that the immensity of human knowledge was just a mouse-click away" and that "Paul Otlet's dream was finally able to take shape."[142] The text that accompanies the fifth stage, "**The information society**," does not explicitly talk about this "dream" but nonetheless mentions Otlet: "From Paul Otlet to Tim Berners Lee, how far we have come in the process of indexing human knowledge !"[143] Finally, the sixth and last stage, "**New territo-**

[138] It is worth noting that the French version of the press kit refers to these "stages" as "étapes," using a word which lacks the theatrical connotations of *stages.*
[139] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 7.
[140] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 8.
[141] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 8.
[142] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 9. Original emphasis.
[143] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 9. Original emphasis.

ries of the Web," again suggests that the "dream" of Otlet has "taken shape" in today's technology: "[t]oday, Paul Otlet's dream of a World City and universal access to knowledge have taken shape in the dematerialised information flow of the Internet."[144]

Throughout the narrative presented by *Renaissance 2.0*, the dematerialization of knowledge remains the principal theme, tying the different stages together – from the first stage, where it is said to have been initiated by Otlet and La Fontaine, to the last, where it is represented by the "dematerialised information flow of the Internet." In reality, this "re-reading of the history of the Mundaneum […]" legitimates itself by suggesting that, having "initiated" the dematerialisation of knowledge which has now evolved into our present information society, Otlet and La Fontaine initiated the very technological development – or even revolution – that now forces us to rediscover and remember them. The first chapter of the story not only prefigures, but predetermines, the last.

Media: connecting devices

As seen in the quotations discussed in the previous chapter, there exists a certain confusion or inconsistency concerning which modern devices or phenomena can actually be traced to the work and ideas of Otlet and La Fontaine. These variations and inconsistencies will be further examined, mapped and discussed in the present chapter. In the first part of the chapter, I will discuss the representation and function in the studied texts of the Internet, the World Wide Web, search engines and Google. In the second part, I will take a closer look at how different media created and imagined by Otlet and La Fontaine are evoked in narrative of the "paper Google." Finally, in the third part of the chapter, I will attempt to identify the imaginary media present in the narrative, examining them in relation to the categories of the untimely, the impossible and the retroactively realized.

Technologies prefigured by Otlet and La Fontaine

Hypertext, the Semantic Web, Wikipedia, the iPad, Kindle, the mobile phone, cloud-computing and artificial intelligence; all of these are technologies or concepts that, in the studied material, are said to have been prefigured by Otlet. In the present subchapter, I will limit my focus to the four technologies that are the most frequently mentioned in the studied material: the internet, the World Wide Web, the search engine and Google.

[144] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 9. Original emphasis.

An Internet made of wood and paper

Some of the studied texts are fairly careful in the way that they link the Internet to the work and ideas of Otlet and La Fontaine. They use the Internet as a kind of temporal marker, a measure of how ahead of their time the two bibliographers were. Laaff does this by pointing out that the "paper Google" of Otlet and La Fontaine was developed decades before the Internet and without the benefit of computers. Echikson suggests something similar when he writes that, while the "dream [of Otlet and La Fontaine] was discarded, the Internet brought it back to reality."[145] Here, the Internet is not itself a realization of Otlet and La Fontaine's dream, but a technological precondition for the realization of a dream envisioned a century too early. Wright is particularly cautious in comparing the Internet to the ideas of Otlet, quoting Levie who suggests that "Otlet would have felt lost with the Internet," the sheer volume of which would have overwhelmed Otlet's systems for controlled and intellectual organization of knowledge.[146]

Nevertheless, the claim that Otlet prefigured the Internet is frequently made in the studied texts. In *Monde Magazine*, Djian describes the historical Mundaneum as "a universal centre of documentation" which "prefigured the Internet."[147] Later in the article, the Mundaneum's Deplus presents a similar image when he tells Djian that Otlet and La Fontaine's "*imagination was so fruitful that we found the sketches and drawings of what prefigures the Internet by a hundred years later*."[148] The word "prefigure" is used again to describe Otlet and La Fontaine's relation to the Internet in the 2013 Mundaneum and Google press release. This text describes how, in 1895, "[t]wo men dreamt of 'classifying the world'," unaware that they were "on the verge of prefiguring what would, a century later, become the Internet and the search engine."[149] In a similar vein, the same press release also refers to Otlet's "unique concept" of a "paper Internet" as one of the greater strengths of the present Mundaneum[150].

While the word *prefigure* undeniably suggests a strong link between the ideas of Belgian bibliographers and the realized Internet, it also serves to preserve some

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[145] Echikson, W. (2013-02-21), "A flower of computer history blooms in Belgium."

[146] Wright, A. (2008), "The Web Time Forgot." The volume and expansion of the Web did indeed overwhelm several 20th century projects to let human editors catalogue the Web, making place instead for the automatized approach of Google (Stross, R. [2009], *Planet Google*, p. 66.)

[147] Djian, J.-M. (2009), "Le Mundaneum, Google de papier," p. 46: "*un centre de documentation à caractère universel, préfigurait Internet*." Original emphasis.

[148] Djian, J.-M. (2009), "Le Mundaneum, Google de papier," p. 50: "*leur imagination était si féconde que l'on a retrouvé les dessins et croquis de ce qui préfigure Internet un siècle plus tard*." Original emphasis.

[149] Google & Mundaneum (2013), *Google et le Mundaneum renforcent leur partenariat*: "Deux homes rêvent de 'classer le monde,'" "sur le point de préfigurer ce qui deviendra, un siècle plus tard, Internet et les moteurs de recherche."

[150] Google & Mundaneum (2013), *Google et le Mundaneum renforcent leur partenariat*: "concept unique," "Internet de papier." Whether the "paper Internet" can be considered a unique concept or not, Otlet and La Fontaine were not the only inventors of an Internet avant l'heure. See for instance Tom Standage's 1998 book *The Victorian Internet: The Remarkable Story of the Telegraph and the Nineteenth Century's On-Line Pioneers*.

sense of distance and discontinuity between the two: a prefiguration of the Internet is not, by definition, the Internet itself. This final frontier between the technological visions of Otlet and modern technology is, however, erased when Otlet is said to have invented the Internet. We find examples of this in the collage-like opening chapter of the *Renaissance 2.0* press kit, where quotations from press articles present the Internet as a "Belgian story" and a century-old invention. The title of this opening chapter, just like the title of all three of Jenart's articles, explicitly poses the following question: "The Internet: a Belgian story?"[151] Individual press quotations then provide slightly different but affirmative answers to the question:

> Paul Otlet […] became himself the subject of an international media campaign in the early summer of 2012, following the acknowledgement of his work at the latest World Science Festival in New York in the presence of Vinton Cerf himself: "*The idea of the Internet was born in Belgium !*"
>
> […]
>
> "*Forget Al Gore. The Internet — at least as a concept — was invented nearly a century ago by a Belgian information expert named Paul Otlet imagining where telephones and television might someday go*," reported American media outlets Fox News and Huffington Post in June 2012 […] while the Belgians bluntly reported: "*The Internet is definitely a Belgian idea*" (Le Soir) or "*The Internet, a Belgian story*" (Trends Tendances).[152]

While these quotations present a fairly consistent image of the Belgian origins of the Internet, others express a certain confusion as to whether it was the Internet or the Web that Otlet invented. One example of this – found in one of Jenart's articles – is a passage from Yahoo! News which claims that "*[t]he history of the Internet has been traced back even further into the past. The concept of the 'web' in fact dates back to 1934...*"[153] A similar confusion is found in the somewhat wordy title of a *Mail Online* article which is partly reproduced in the *Renaissance 2.0* press kit: "Was the internet invented in 1934? The scientist whose 'televised book' foretold the world wide web decades ago."[154] Paradoxically, the title answers its own question regarding the invention of the Internet with a statement about the foretelling the Web.

The most interesting thing about these quotations is not the question of which technology Otlet may have invented, but the way in which the concepts of the Internet and the Web are conflated into one, be it out of carelessness or genuine confusion. This confusion is most remarkable when expressed by the director of

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[151] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*; Jenart, D. (2012), "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?" ; Jenart, D. (2013a), "'The Internet: A Belgian Story?' The Mundaneum"; Jenart, D. (2013b), "Internet, une histoire belge ? Le Mundaneum à Mons."

[152] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 1. Original emphasis.

[153] Jenart, D. (2013a), "'The Internet: A Belgian Story?' The Mundaneum," p. 79. Original emphasis.

[154] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 2. Worth noting is the way in which this *Daily Mail* article consistently refers to Otlet as "a scientist" rather than a bibliographer, lawyer, or information scientist. This unusual choice of words could perhaps be understood as a way of adding weight to the claim that Otlet invented something so technolgically advanced as the Internet.

Google Belgium. In a quotation from *Trends/Tendances* which is reproduced in the *Renaissance 2.0* press kit, Geerts is quoted as saying that, "[j]ust as Leonardo da Vinci designed the helicopter before it could be built, Paul Otlet imagined the Internet before it could be achieved technically," and that, consequently, Otlet is "the Da Vinci of the Web !"[155] Here, it is indeed tempting to ask why Otlet, having imagined the Internet, is not the "Da Vinci of the Internet." As it seems unlikely that a Google director would confuse the concepts of the Internet and the Web, it is probably better understood as an example of how a certain conceptual vagueness can in fact serve a practical purpose: it allows Geerts to connect Otlet not only to one but to two technologies with a single broad stroke.

The elusive "paper Google"

Ever since *Le Monde Magazine* published its article about the Mundaneum, the phrase "the Mundaneum: a 'paper Google'" has been an integral part of the way in which Mundaneum in Mons presents itself. The Mundaneum has not only put the quotation in big letters on the welcoming page of its web site, but also published several brochures bearing the title *Google de papier* ("a paper Google").[156] Despite the frequency with which it is quoted, the expression however remains very vaguely defined. Below I will approach the complex concept of the "paper Google," as it is represented and constructed in the studied texts, with the following three questions in mind: To which of Otlet and La Fontaine's creations does the name "paper Google" refer? Which specific technologies, tools or concepts appear as constitutive elements of a "paper Google"? Does the name Google represent a company, a search engine or search engines in general?

The relevance of the first of these questions becomes apparent in relation to a trilingual brochure about the RBU. The title, *Le Mundaneum: Google de papier*, seems to imply that the Mundaneum is the "paper Google." This impression is indeed confirmed in the English version of the text, which states that "the Mundaneum is referred to as the 'Web Time Forgot' (New-York Times) or 'The paper Google' (Le Monde)." Surprisingly, however, the French and Flemish versions of the same text claim tells us that "the [Universal Bibliographic] Repertory is today called 'The Web Time Forgot' (New-York Times) or 'the paper Google' (Le Monde)."[157] So easily lost in translation, the distinction between the RBU and the Mundaneum as potential "paper Googles" seems unstable and even dispensable.

When Laaff uses the expression "paper Google" in *Der Spiegel*, he is clearly referring to the RBU. He does so, however, suggesting that the RBU is not so

[155] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 1.
[156] Mundaneum (2009), *Le Mundaneum: "Google de papier"*; Mundaneum (n.d.), *Le Mundaneum: Google de papier*.
[157] Mundaneum (n.d.), *Le Mundaneum: Google de papier*: "le Répertoire est aujourd'hui appelé," "Dit Repertorium […] wort door de New-York Times omschreven als […]"

much a direct ancestor as a previous version of the Google search engine. He describes the Repertory as "something like a paper Google, but developed decades before the Internet and without the benefit of computers."[158] Furthermore, Otlet's "complex system for indexing information could be considered an analogue version of Google." This suggests that the task of indexation is the principal common denominator of RBU and Google, and that the main difference lies in the technological availability of computers and the Internet. The understanding of Google as a search engine rather than a multi-service company is further established in the following, strikingly material description: "The world's first search engine is made of wood and paper. Specifically, it consists of rows of dark brown cabinets about as tall as a person, filled with boxes of index cards."[159]

The similarities between the RBU and Google are further explained in an interview with the Jenart that appeared in a local magazine in 2012. Jenart is asked to explain "why [the RBU is] referred to as the paper Google," and answers by describing the services that would have been offered at the historical Mundaneum: the bibliographic information on the index card, the "fiches" she tells the journalist, refers not to a document that is physically present but to a bibliographic reference "somewhere in the world." The Mundaneum could then be contacted by people who wished to know "where they could find material on a particular subject." In this way, Jenart comments, "you virtualize access to knowledge."[160] In fact, these few sentences constitute the most specific and thorough explanation of the "paper Google" found in the studied material.

Some of the confusion found in the *Google de papier* information brochure can also be found in Djian's "Le Mundaneum: Google de papier." In spite of its title, the article does not actually seem to propose that, out of the inventions and institutions of Otlet and La Fontaine, the Mundaneum is the one that most resembles Google. Instead, this honour seems to go to the RBU. The repertory is not explicitly named, but indirectly referenced when Djian writes that the Mundaneum, a universal centre for documentation that prefigured the Internet, was built *around* "a minutely elaborated indexation system […], an ancestor of the search engines of today."[161] The RBU also comes to mind when, toward the end of the article, the Mundaneum's Deplus is quoted saying that Otlet and La Fontaine "in-

[158] Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google."
[159] Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google."
[160] Schiavetto, F. (2012), "Le Mundaneum entre dans une nouvelle ère," p. 9: "Pourquoi compare-t-on cela au Google de papier ?"; "virtualise l'accès à la connaissance" ; "savoir où l'on pouvait trouver de la matière sur un sujet en particulier."
[161] Djian, J.-M. (2009), "Le Mundaneum, Google de papier," p. 46: "un système d'indexation minutieusement élaboré […], ancêtre des moteurs de recherche actuels."

vented Google before the name was coined," using the technologies available to them: ink and paper.[162]

Interestingly, however, the "ink and paper" referenced by Deplus in *Le Monde Magazine* may be something even more specific than the Universal Bibliographic Repertory: the Universal Decimal Classification. Both in the speech held at the information session on the Google data centre and in the PR video *Google à Mons – Capitale Européenne de la culture en 2015*, Deplus highlights the parallels between Google and the decimal classification scheme devised by Otlet and La Fontaine. In the video, Deplus says about the UDC that "[y]ou can see it as a search engine of paper. Later it will become [*donnera*] the digital search engine."[163] At the data centre information session, he tells the audience that "Paul Otlet, as you all probably know, as you are here, invented a search engine […], or what we would call a search engine but which wasn't a search engine at the time […] but a classification […]; and this Universal Decimal Classification is the ancestor – at least that is how we present it to the public – is the ancestor of computerized search engines."[164]

Deplus's speech is also a good example of the ambiguity contained within the name Google. Deplus may be comparing the RBU to the modern search engine, but he is also addressing Google the company – both as a topic and as an interlocutor. This becomes particularly striking in a phrase like the following, where Deplus talks about the "great adventure that is the story of the Universal Decimal Classification and the classification imagined by Google." Or in the *Renaissance 2.0* press kit: "[f]ollowing the international press, in 2012 Google itself recognized its historical roots in the Mundaneum: the ancestor of the Web and of the search engine!" Google is at once a medium realized, and an entity that imagines media.

As we have seen, there is no general agreement concerning the exact relationship between the technologies and ideas of Otlet and La Fontaine and modern information technologies. Paradoxically, however, this conceptual inconsistency, which makes the narrative of the "paper Google" such a confusing one, also creates ideal conditions for the expansion of the narrative. It would seem that the important thing is not where the link between Belgian bibliographers and the In-

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[162] Djian, J.-M. (2009), "Le Mundaneum, Google de papier," p. 50: *"Ce lieu est une illustration saisissante de ce que des utopistes visionnaires ont apporté à la civilicsation. Ils ont inventé Google avant la lettre.*" Original emphasis.

[163] Mundaneum (2013-04-29), *Google à Mons - Capitale européenne de la culture en 2015*. English translation from official video subtitles.

[164] Mundaneum (2013-06-12), *Les data centers de Google : lumière sur le cerveau d'Internet*: "Paul Otlet, comme vous le savez tous, probablement, puisque vous êtes ici, a inventé un moteur de recherche qui était un moteur de recherche ou c'est ce qu'on appelle un moteur de recherche, nous, ce qui n'était pas un moteur de recherche à l'époque, qui est une classification, […] et cette Classification Décimale Universelle est l'ancêtre – en tout cas c'est comme ça que nous la présentons vers le public, et l'ancêtre de… des moteurs de recherche informatiques."

ternet or Google lies, or if it holds up to scrutiny, but that the connection is made at all. As narrative connecting devices with ambiguous affinities, media like the RBU, the Mundaneum and the desk without books have the potential of connecting Otlet and La Fontaine to anything or anyone, without ever tying them down.

Remains of early information technology

> Otlet, I remind you, who was the scientist of the two founders of the Mundaneum, […] invented a classification system called the Universal Decimal Classification, of which you have a small part now within your company and which is still used in libraries; well, it is a – that they consider, that we consider – that you consider, in any case, as a part of your archaeology.[165]

In the above passage, Deplus somewhat circuitously describes the UDC as a part of the "archaeology" of Google; as, one could say, part of the "material remains"[166] of Google's past. However, as was shown in the previous subchapter, these remains are difficult to separate from the remains of the Internet, the Web, and other information technologies. Below, I will take a closer look at the ways in which the ideas and inventions of Otlet and La Fontaine – those "remains of the Mundaneum collection" that, in Laaff's words, "spent decades rotting in dilapidated attics"[167] – are recovered and used to connect Otlet to modern information technology. Which are the most important characteristics of the RBU, the UDC and the Mundaneum? In what ways do these characteristics facilitate the linking of Otlet and La Fontaine to modern technology?

In the studied material, the Mundaneum, the RBU and the UDC are the technologies most frequently compared to the Internet and related technologies. Both the RBU and the UDC are to a great extent made up of index cards and filing cabinets, media that are also frequently mentioned on their own in the studied texts. For example, on the *Google Europe Blog*, Echikson describes how "two visionary Belgians envisioned the World Wide Web's architecture of hyperlinks and indexation of information, not on computers, but on paper cards"[168], and how "Otlet collected 3-by-5 inch index cards to build a vast paper database which eventually

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[165] computingheritage [Lynette Webb] (2012-03-13), *Prime Minister Elio Di Rupo Visits Google Belgium*; "Otlet, je vous rappelle, qui était le chercheur des deux fondateurs du Mudnaneum, Otlet qui a inventé un système de classement qui s'appelle la Classification Décimale Universelle, dont vous avez une petite partie maintenant au sein de vote entreprise et qui est toujours d'actualité dans les bibliothèques, par exemple; c'est une, ils considèrent, et qu'on considère – que vous considérez en tout cas comme étant de votre, une partie de votre archéologie."

[166] Halsall, G. (1997), "Archaeology and Historiography," p. 805.

[167] Laaff, M. (2011), "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google."

[168] Echikson, W. (2013-10-28), "An unusual meeting of minds in Belgium."

contained some 16 million entries, covering everything from the history of hunting dogs to finance."[169]

The similarity between paper cards, the hardware of the RBU, and computers is even more emphasized in another blog entry, where Echikson states that "the modern data center has replaced paper cards; it provides the electric and electronic backbone for the modern Internet."[170] This idea is further explored by Freddy Bonhomme of Google's Saint-Ghislain data centre. Indicating a slide showing the RBU, Bonhomme describes this "typical data centre of the era" to the audience:

> Look at these filing cabinets – that's what we, here, call racks, ok? You have folders where you put the index cards; the folders, for us, are the machines, the servers; and the data – well, that's the index cards that you put into them.[171]

Here cards, cabinets, and computers are understood as different supports for information; information which, throughout changes in technology, remains a constant factor. This takes us to another one of Otlet's visionary "inventions," highlighted in the *Renaissance 2.0* press kit and in the articles by Jenart: the dematerialization of knowledge.

> Paul Otlet would be the first to think the dematerialization of knowledge. Considering knowledge to be independent of its support and thus ubiquitous, he would, between 1900 and 1935, schematize so many possibilities for the transmission of knowledge that technology would come to concretize a decade later: the videoconference, the conference call, the cellphone, artificial intelligence!"[172]

As this quotation shows, the "dematerialization of knowledge" does not render media irrelevant. Rather, the idea that knowledge is immaterial and "independent of its support" appears to increase the innovative potential of media technologies. In Otlet's own writing, this becomes clear most notably in the section of *Traité de documentation* where Otlet gives an extensive account of different existent and possible "substitutes for the book," ranging from film and architecture to more futuristic visions of technological means for the transmission of knowledge across distance.[173] As Bonhomme puts it, the Mundaneum "had everything […] There

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[169] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers." In a subtle way, the anachronistic description of the RBU as a "database" naturalizes the comparison between the RBU and modern technology to a point where justification appears unnecessary.

[170] Echikson, W. (2013-02-21), "A flower of computer history blooms in Belgium."

[171] Mundaneum (2013-06-12), *Les data centers de Google : lumière sur le cerveau d'Internet*. "Voyez ici les cabinets à fichiers – c'est ce qu'on appelle chez nous des *racks*, ok ? Vous avez des classeurs dans lesquels on met des fiches ; le classeur, pour nous, sont les machines, sont les serveurs, et les données, ben, sont les fiches qu'il y a dedans."

[172] Jenart, D. (2013a), "Internet, une histoire belge ? Le Mundaneum à Mons,," p. 28; Paul Otlet sera le premier à penser le concept de dématérialisation de la connaissance. Considérant que la connaissance est indépendante de son support et donc partout, il schématisera de 1900 à 1935 autant de possibilités de transmission de celle-ci – que la technologie mènera à concrétiser un siècle plus tard : la visioconférence, le conference call, le téléphone portable, l'intelligence artificielle !"

[173] Otlet, P. (1934), *Traité de documentation : le livre sur le livre*, p. 216 : "substituts du livre."

was a search engine, distribution of data, audio-video content, microfilm, telephone, radio, everything was included."[174] Even more futuristic is Otlet's vision for a "mechanical, collective brain," referenced in passing by Laaff and Wright and perhaps also present when Jenart mentions artificial intelligence as one of the technologies prefigured by Otlet.[175]

One passage in particular, borrowed from *Traité de documentation*, is often quoted in its entirety to demonstrate the visionary mind of Otlet. In the *Renaissance 2.0* press kit, it appears with an accompanying comment:

> "*Here, the work desk is no longer loaded with books. Instead, there is a screen, and within easy reach, a telephone. All the books and all the information are somewhere else, far away, in a huge building. From there, the page that needs to be read is made to appear on the screen to find the answer to the question asked on the telephone.*"
>
> These few lines might seem unremarkable to the citizens of the digital age that we are... But when one realises that they were written in 1934 by a lawyer with a passion for Bibliographie, one glimpses a work of incredible foresight.[176]

Here, it is not only the "concept" of remote access to organized knowledge that strikes as visionary, but also the technological and visual expression of it – from the combination of telephone and screen to the appearance of "the page that needs to be read" on the screen. The passage is all the more effective today, as the technologies described manage to seem at once futuristic and familiar. In case the reader does not immediately recognize this paradox, the press kit highlights it by pointing out that this feat of "incredible foresight" does indeed seem "unremarkable to the citizens of the digital age."[177]

Encompassing all these individual media is the Mundaneum which, in itself, occupies a particularly ambiguous space in relation to the concepts of media, the realized and the imaginary. It comprises at once the institution that resided in the Palais du Cinquantenaire, a museum in Mons and a vision of universality. As was shown in the previous chapter, the distinction between the historical and the present Mundaneum is not always entirely preserved. The final sentence of the opening chapter of the *Renaissance 2.0* press kit presents a particularly ambiguous case: "So... the Internet, a Belgian story ? Today, the Mundaneum goes in search of its origins in a major multimedia and interactive exhibition: Renaissance 2.0 !" The Mundaneum referred to in this sentence could be either the present one, ex-

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[174] Mundaneum (2013-06-12), *Les data centers de Google : lumière sur le cerveau d'Internet*: "il y avait tout […] Il y avait un moteur de recherche, la distribution des données, contenu audio-vidéo, microfilm, téléphone, radio, tout était inclus, c'était vraiment assez impressionnant."

[175] Wright, A. (2008), "The Web Time Forgot"; Laaff, M. (2011) "Internet Visionary Paul Otlet: Networked Knowledge, Decades Before Google"; Jenart, D. (2013a), "Internet, une histoire belge ? Le Mundaneum à Mons," p. 28.

[176] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 1. The same passage also appears in Jenart (2012, 2013a, 2013b) and Djian (2011). The original quotation appears in Otlet, P. (1934), *Traité de documentation : le livre sur le livre*, p. 428.

[177] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 1.

ploring its origins in the historical Mundaneum of Otlet and La Fontaine, or the historical Mundaneum itself, tracing its origins to the Sumerian tablets.

The ambiguity caused by vague references to either the new or the historical Mundaneum is further complicated by the fact that the historical Mundaneum, in itself, was an extremely multifaceted concept. The *Renaissance 2.0* press kit describes it as "a democratic and universal tool for knowledge, the synthesis of a coherent project based on the application of the Universal Decimal Classification (still used in libraries worldwide) and the Universal Bibliographic Repertory (the 'paper Google')."[178] Indeed, when Otlet himself writes about the Mundaneum in *Le Monde*, he describes it as "an Idea, an Institution, a material Body of work and collections, an Edifice, a Network."[179] To Otlet, it represented not only an institution but also a set of abstract ideas, ideals and visions of the world. The Mundaneum that once resided in Brussels was merely a prototype, the first node of a world-spanning network of similar institutions.

On a side note, it may be relevant to ask in what ways the historical Mundaneum, which constitutes an institution at least and a utopia at most, may be thought of as a medium. The question is interesting in relation to the comparison between the Mudnaneum and the Internet – the latter another complex synthesis of concepts and technologies referred to by Parikka as a "network medi[um]."[180] I would argue that, while the Mundaneum is certainly irreducible to a single device or technological application, it does fit remarkably well into Zielinksi's definition of media as "spaces of action for constructed attempts to connect what is separated."[181] But whereas Kluitenberg describes media as expressions of "the desire to transcend distance, especially between loved ones,"[182] the Mundaneum is an example of how this "desire to transcend distance" may also manifest itself on an intellectual and even societal level. It was, precisely, by connecting what was separated through the Mundaneum that humanity would be able to evolve "from the anarchic and inferior present state, made of separation and opposition to a superior state of universal culture, harmony and civilisation."[183] When the concept of media makes room for the Mundaneum, its own scope is widened and its utopian dimension highlighted.

Before moving on to explore the representation of imaginary media in the studied material, I would like to return for a moment to the idea of the dematerial-

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[178] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 8.
[179] Otlet, P. (1935), *Monde: essai d'universalisme*, Brussels: Van keerberghen, p. 448; "une Idée, une Institution, une Méthode, un Corps matériel de travaux et de collections, un Édifice, un Réseau."
[180] Parikka, J. (2010), *Insect media: An archaeology of animals and technology*, p. xvii.
[181] Zielinski, S. (2006a), *Deep time of the media: toward an archaeology of hearing and seeing by technical means*, p. 7.
[182] Kluitenberg, E. (2011), "On the Archaeology of Imaginary Media," p. 62.
[183] Otlet, P. (1935), *Monde: essai d'universalisme*, p. 448; "du stade anarchique et inférieur actuel, fait de séparation et d'opposition, à un stade supérieur de culture, d'harmonie et de civilisation universelles."

ization of knowledge.[184] While not a medium in itself, this concept may help us to better understand the function of media in the narrative of the "paper Google." If knowledge is dematerialized and independent of its support, as exemplified above in quotations from Bonhomme and Jenart, and if the medium is not the message, then the book may very well be substituted with a television, and the bibliographic repertory with a World Wide Web or an Internet. The moment media are seen merely as supports of data, and empty vessels of ideas, the comparison between a bibliographic repertory made out of wood and paper and a rack of servers becomes plausible. The dematerialization of knowledge "initiated" by Otlet constitutes not only an object of comparison in relation to modern information technology, but a foundation for the very assumption which makes the comparison possible

Imaginary media in the time of historiography

As we have already seen, the remains of the Mundaneum and "the archaeology of Google" comprise imaginary as well as realized media. In the final part of this chapter, I will turn my attention to the more fantastic aspects of Otlet's ideas and inventions, and examine the fate that befalls imaginary media in this narrative of the "paper Google." If imaginary media exist outside of time, as suggested by Kluitenberg and Blegvad, what happens to them when they are inserted into a chronological, historical narrative?

First of all, it is necessary to ask which of the media evoked in the studied text may be considered imaginary. The answer to this question, of course, depends on our definition of "imaginary" media. Firstly, there are those unrealized and unprecedented media which exist only in discourse and which, at the time of their imagining, could neither be observed nor remembered. Among these, we find Otlet's more futuristic multimedia solutions, such as the "mechanical, collective brain," the desk without books, and the unrealized World City. Secondly, there are the media that were at least partly realized. To this group, we might count some of the more complex and ambitious projects initiated and carried out by Otlet and La Fontaine, like the Mundaneum, the RBU and the UDC. While realized, all these media also have imaginary qualities: the above-mentioned utopian aspect of the Mundaneum, the word "universal" in the names of the UDC and the RBU. In the end, Kluitenberg's observation that all media are part imagined, part real, seems to fit well with the media of Otlet and La Fontaine.

Let us now examine these media in relation to Zielinski's classification of imaginary media, differentiating between the impossible and the untimely. In light of today's information technology and the narrative of the "paper Google," to which of these two categories do the imaginary media of Otlet belong? Was Otlet a true

[184] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 7.

visionary of the unattainable or simply ahead of his time? If we are to believe Google and the present Mundaneum, the latter may effectively be the case. For instance, Djian suggests in his article that the more idealistic visions of Otlet may indeed be fulfilled in light of technological development: "To make all knowledge accessible to all of humanity: the promise of the Internet responds to the utopia of the Mundaneum."[185] Interestingly, if the utopia is realized, or about to be realized, by the Internet, it loses its utopian air and with it, one might argue, its most important imaginary element. The *Renaissance 2.0* press kit similarly states that "[t]oday, Paul Otlet's dream of a World City and universal knowledge have taken shape in the dematerialized information flow of the Internet."[186]

Kluitenberg indeed claims that "[m]edia that were once imagined may at some point become true."[187] But the question is: if they do, can they still retain their "utopian potential," their intrinsic unattainability? Looking at the case of the "paper Google," I would argue that they can. On the *Google Europe Blog*, Echikson writes that "[w]hile [Otlet and la Fontaine's] dream was discarded, the Internet brought it back to reality and it's little wonder that many now describe the Mundaneum as 'the paper Google.' Together, we are showing the way to marry our paper past with our digital future."[188] At a first glance, this too seems to suggest that the advent of the Internet has made it possible to realize the dream of Otlet and La Fontaine. Looking closer, however, we see that the "dream" has not, after all, been realized and *turned* into reality. Rather it has been "*brought back* to reality" (my italics), presumably retaining its "dream" status – and, perhaps more importantly, not only retaining its "utopian potential" but letting it reflect on the present digital incarnations of this dream. The Internet becomes at once a provisional concretization of a technological vision, and heir to an "impossible desire"[189] the realization of which is ever elusive, belonging ever to the future.

Imaginaries: mediated meanings

Media like the Internet, the Mundaneum, the index card or Google constitute the nodes of the narrative, tying past, present and future together; media imaginaries are the additional significations or "myths" that these media mediate. In this final chapter, I will take a closer look at three recurrent themes of the narrative of the "paper Google": the digital revolution, the pacifist network, and the local in the virtual. Having argued that these themes may effectively be considered as media

[185] Djian, J.-M. (2009), "Le Mundaneum, Google de papier," p. 48: "Rendre l'ensemble des savoirs accessible á l'ensemble de l'humanite: la promesse d'Internet répond à l'utopie du Mundaneum."
[186] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 10.
[187] Kluitenberg, E. (2006), "Second Introduction to an Archaeology of Imaginary Media," p. 9.
[188] Echikson, W. (2013-02-21), "A flower of computer history blooms in Belgium."
[189] See Kluitenberg, E. (2006), "Second Introduction to an Archaeology of Imaginary Media."

imaginaries, I will attempt to identify some of the different meanings and interests that they convey. Finally, I will discuss the role that these imaginaries play in relation to the ever ongoing construction of the stories of Paul Otlet, the Mundaneum and Google.

Peace through bibliography

One recurring motif in the narrative of the "paper Google" is the pacifist and internationalist mission of Otlet and La Fontaine, a motif that is mediated through the men themselves as well as through the media and institutions they created. As the studied texts show, the work of the two bibliographers consisted in connecting not only information and documents but institutions and people. In the words of Jenart, Otlet and La Fontaine, "[a]t the heart of their era, […] were truly passionate about the culture of the network" and "set up a global intellectual cooperation network rallying together multiple institutions, such as universities, libraries and associations from around the world, to ensure their project's success."[190] At the centre of this network, the *Renaissance 2.0* informs, the Mundaneum was conceived as a "democratic and universal tool for knowledge."[191]

The democratic element is further emphasized as the press kit explains that Otlet and La Fontaine, "together with numerous volunteers, […] devised collections in order to pass on knowledge to as many people as possible";[192] or, in the words of Djian, in order to "make all knowledge accessible to all of humanity."[193] It is in this vision of universal access to information, this "goal of preserving peace by assembling knowledge and making it accessible to the entire world," that Google claims to recognize its own mission.[194] In the press release issued by Google and the Mundaneum in 2013, Google is indeed described as a "global technological leader, whose goal it is to increase access to information for everyone."[195] Furthermore, in G*oogle à Mons – Capitale européenne de la culture en 2015*, Echikson explicitly states that "[t]he people who made the Mundaneum 100 years ago worked on the same issues as Google, making information accessible and assembling it so that everybody could access it."[196] If the founders of the Mundaneum undertook their ambitious projects in order to preserve "world peace," then, by implication, so must Google.

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[190] Jenart, D. (2013b), "'The Internet: A Belgian Story?' The Mundaneum," p. 82.
[191] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 8.
[192] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 4.
[193] Djian, J.-M. (2009), "Le Mundaneum, Google de papier," p. 48: "Rendre l'ensemble des savoirs accessible á l'ensemble de l'humanite."
[194] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."
[195] Google & Mundaneum (2013), *Google et le Mundaneum renforcent leur partenariat*: "un leader technologique mondial, dont l'objectif est d'améliorer l'accès de chacun à l'information."
[196] Mundaneum (2013-04-29), *Google à Mons - Capitale européenne de la culture en 2015*. English translation from official video subtitles.

Otlet and La Fontaine were not, however, pacifists merely in thought. Most notably, La Fontaine's contribution to pacifism was widely recognized when, in 1913, he was awarded the Nobel Peace Prize. While Otlet may be presented as the greater visionary with the more eccentric personality, La Fontaine makes an important mark on the narrative of the "paper Google" not least thanks to his status as Nobel Peace Prize laureate. This becomes particularly clear when, on the *Google Europe Blog*, Echikson chooses to emphasize some of the very practical implication that the prize had for the Mundaneum: "When La Fontaine won the Nobel Peace Prize in 1913 for his work as an activist in the international peace movement, he invested his winnings into the Mundaneum project, which was already underway."[197] The Mundaneum appears as a project born out of a vision for peace and paid for by the international recognition of La Fontaine's work in the peace movement; and inversely, war is presented as the deciding factor in the closing of the historical Mundaneum and the ultimate failure of Otlet's vision.

As a financially powerful partner of the Mundaneum – albeit of a new Mundaneum – Google situates itself in a proud, pacifist lineage. While the present Mundaneum is arguably quite different from the original one, Jenart assures that it is dedicated to keeping the ideas of its predecessor relevant to modern society. Notably, she opens with an expression already used in relation to the old Mundaneum and Otlet and La Fontaine who, "[a]t the heart of their era, […] were truly passionate about the culture of the network."[198] Whatever the era may be, the Mundaneum is always at the heart of it:

> "At the heart of our information society, the Mundaneum project keeps its purpose alive by constantly updating its message. Bringing the ideas, archives and collections bequeathed by its founders face to face with current and future social issues: this is the ambition of the Mundaneum […]"[199]

Understood as a media imaginary, in the sense used by Kluitenberg and Barbrook, the motif of knowledge organization as a tool for democracy and peace should be seen not a natural or intrinsic characteristic of the Mundaneum, the Internet or Google, but rather as construct in its own right which may be attached to any medium. Through discourse and iteration, it is tied to specific media, and subsequently presented as the defining characteristic of these media. In the case of the "paper Google," the imaginary of peace through bibliography is so easily depicted as an essential attribute of the information technologies created and imagined by Otlet and La Fontaine that, in consequence, it also appears as an attribute of the modern information technologies supposedly prefigured the Belgian bibliographers. Finally, "the Mundaneum project" becomes the pacifist project not only

[197] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."
[198] Jenart, D. (2013b), "'The Internet: A Belgian Story?' The Mundaneum*,"* p. 82.
[199] Jenart, D. (2013b), "'The Internet: A Belgian Story?' The Mundaneum," p. 83.

of Otlet and La Fontaine, but of the Mundaneum in Mons, of Google and of the very technology behind the Internet.

Knowledge revolutions

If the organization and dissemination of knowledge constitutes a method for achieving world peace, they appear all the more urgent in times where information is perceived as particularly abundant and chaotic. From the dramatic increase in scientific publication that inspired Otlet and La Fontaine to create a universal bibliography at the beginning of the 20th century, to the dynamic information landscape of the digital society, the motif of paradigmatic changes in the production and distribution of knowledge remains an integral argument for bibliographic action.

This motif plays an important part in the narrative of the "paper Google." The studied texts emphasize the parallels between the state of knowledge organization in the Belle Époque and in the early third millennium, and argue for the continued relevance of Otlet's ideas on bibliography. They provide a possible affirmative answer to a question posed by Wright in 2008: "Was the Mundaneum (mun-da-NAY-um) just a historical curiosity – a technological road not taken – or can his vision shed useful light on the Web as we know it?"[200]

On the *Google Europe Blog*, Echikson reports from the Brussels press conference that "[i]f information was important a century ago, it is even more important in the 21st century. In his remarks, the Prime Minister made the connection between the past and the future, and called on Belgium to embrace the digital economy."[201] Belgium faces a time where information is – once again – more important than ever, where the traditional economy is giving way to a digital one and where the connection between past and future is not a given – it has to be made. In such a place and time, the Mundaneum and Google appear as ideal partners, to Belgium as much as to each other. While the Mundaneum carries within it the legacy of men who devised systems to deal with a similar situation a hundred years ago, Google has both its feet already in the digital economy.

In *Renaissance 2.0*, the current knowledge revolution constitutes a particularly prominent motif, not least in the note from the exhibition's curator which, in its exorbitance, merits being quoted in some detail. The use of typographic emphasis stresses the important role held by digital technologies at the beginning of this "**new era, a 'Renaissance 2.0'**":

> In less than two decades, **digital technologies have radically altered our habits** with regard to work, consumption and leisure, and have entered into every area of our daily life with varying degrees of significance. […]

[200] Wright, A. (2008), "The Web Time Forgot."
[201] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."

> **The field of knowledge today is immeasurably vast, and extensively dematerialised**, distributed and deterritorialised. Present-day knowledge is global, accessible everywhere and at all times, and available in a huge variety of languages and conflicting systems. […]
>
> Since the 1970s, the individual has experienced an upheaval comparable to the spread of Greek culture in the West thanks to writing, or to the Renaissance following the invention of printing. This new model of society which lies at the heart of our hardware, technology, and networks has swept through our daily life and overturned the way we live and work in an unprecedented fashion.[202]

As important a role as history plays in the narrative of the "paper Google," this curator's note appears to identify the present and the future as the true objects of the exhibition: in more than one way, *Renaissance 2.0* is about making history. Consequently, Otlet and La Fontaine appear both as visionary precursors of a new age – they did, after all, according to the same exhibition, "initiate" the dematerialization of knowledge – and as an intellectual point of reference through which this new age can be better understood. Similarly, the Mundaneum appears not only as a historical archive and museum but as a highly relevant "space which provides the keys for each of us to examine the origins of a true cultural revolution."[203]

The bibliographic tools invented and imagined by Otlet and La Fontaine, from the index card and the desk without books to the digital technologies embodied by Google, the Web and the Internet are at once presented as integral components of the knowledge revolution and as urgent responses to the same. In this, they appear as both absolutely necessary and intrinsically linked to our time. As a media imaginary, the knowledge revolution guarantees the continued relevance and indispensability not only of these technologies in themselves, but of the actors that control and mediate them: of the Mundaneum, of Google and, perhaps most of all, of the Mundaneum and Google partnership.

The local in the virtual

The present Mundaneum appears to be negotiating two important positions, one at "[a]t the heart of information society"[204] and the other at "the heart of Europe."[205] Google, meanwhile, might be said to stand steady in the information society, while still struggling for a place at the heart of Europe. The historical narrative of the "paper Google" is similarly torn between the global, the immaterial, and the local: it insists both on the internationalist views and the Belgian citizenship of Otlet and la Fontaine – just as Otlet insisted that Brussels was the ideal centre for

[202] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, pp. 5–6. Original emphasis.
[203] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 13.
[204] Jenart, D. (2013b), "'The Internet: A Belgian Story?' The Mundaneum," p. 83.
[205] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."

his universal network of Mundaneums. For these reasons, the final imaginary that I want to examine is that of the local in the virtual.

As was seen in the previous section, the motifs of dematerialization and globalisation are prominent, most notably in *Renaissance 2.0*. One could, however, argue that this dematerialization has not yet reached the narrative of the "paper Google"; rather, the local and the regional play a remarkably big role. The ambivalence is directly addressed by Deplus when, at the Brussels conference, he anticipates and dismisses any criticism regarding the fact that the historical Mundaneum had no connection to Mons by saying that "we live in a dematerialized world – there is no reason why this should not take place in Mons."[206] In spite of this fairly convincing argument, the question of place is not at all irrelevant: no mistake can be made, after all, that the Mundaneum is located in Mons, that Otlet and La Fontaine were Belgian, that Google, the American corporation, is settling in Europe, and that the Internet "*is definitely a Belgian idea*."[207]

In a blog entry regarding Google's new European data centres in Belgium and Finland, Echikson states that both countries "have a willpower to work with us to help jump, as our partners put it, 'from the industrial Heartland to the Internet Age.'"[208] Similarly, in G*oogle à Mons – Capitale européenne de la culture en 2015*, Echikson notes that "it's also important for this area to see that the future of IT and Internet can help them in the transition from traditional industry towards the industry of the future."[209] By unearthing and honouring Belgium's historical contribution to information technology, Google and the Mundaneum also play a part in the construction of Belgium's future in the digital economy. As the *Renaissance 2.0* press kit states, "[i]n light of the digital revolution, the Mundaneum appears a site of **major symbolic importance for the spirit of creativity** in Belgium."[210]

Through its relationship and association with Google, the present Mundaneum also appears to become something that, in a way, resembles Otlet's vision of the Mundaneum as the intellectual centre of the universal network. By implication, Mons and Wallonia replace Brussels as the geographic site where this is realized. In a passage from the Google and Mundaneum-authored press release, Mons is ambiguously named the "city of origin" of the Mundaneum, while the Google data centre – which, to be correct, is not located in Mons, but in the neighbouring

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[206] computingheritage [Lynette Webb] (2012-03-13), *Prime Minister Elio Di Rupo Visits Google Belgium*: "nous vivons dans un monde dématérialisé, il n'y a pas de raison que ça ne se passe pas à Mons."
[207] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 1. Original emphasis.
[208] Echikson, W. (2013-12-17), "Joining Belgium and Finland around data centres," *Google Europe Blog.*
[209] Mundaneum (2013-04-29), *Google à Mons - Capitale européenne de la culture en 2015*. English translation from official video subtitles.
[210] Mundaneum (2012), *Renaissance 2.0: A Journey through the Origins of the Web*, p. 16. Original emphasis.

town of Saint-Ghislain – is presented as the central node of a network that reaches "users all over the world":

> The city of origin of the Mundaneum – Mons, at the heart of the French Communityof Belgium – is also home to a big Google data centre. A data centre is a big building filled with thousands of computers that allow Google to provide online services for its users all over the world.[211]

To Belgium, the partnership constitutes a possibility for putting the country on the map of information society; for Google, it is about taking root in Europe. Google may well, as the historical timeline on the Mundaneum website says, have recognized "its origins in the work carried out by Paul Otlet," but, as Jenart points out in an interview, the partnership between Google and the Mundaneum is also one smaller part of Google's greater relationship with Europe: "To them, it's a way of showing that Google supports culture in Europe."[212]

In those *Google Europe Blog* entries which mention the Mundaneum, Google's long-term interest in Europe is to a large extent expressed through the recurring metaphor of roots. The interesting ambiguity of this metaphor lies in the way that Google cannot quite seem to decide whether the roots were already there, or if they had to be planted. In the blog entry that reports from the press conference at the Brussels offices we find the following passage, a first reference to the "roots" of Google:

> Now we're moving to the heart of Europe. 'This is a beautiful story between Google and us, which allows us to recognize the memory of the Mundaneum,' says the Mundaneum's director Jean-Paul Deplus. For Google, it's just as exciting to rediscover our own roots.[213]

While the roots mentioned in the above passage are clearly already there to be discovered, the same is not the case when, a year later, Echikson writes about the data centres in Saint-Ghislain and Hamina (Finland): "We have dug deep roots in these two different but similar regions and plan to continue planting deep roots in computer science, environment and empowering cultural institution."[214] A similar image is painted in an entry from late 2013, where Echikson writes that, since the relationship between Google and the Mundaneum was struck, "the relationship has bloomed. A Google data centre is located near Mons and the Mundaneum has

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[211] Google & Mundaneum (2013), *Google et le Mundaneum renforcent leur partenariat*: "La ville d'origine du Mundaneum – Mons, au coeur de la Communauté française de Belgique – accueille également un grand centre de données de Google. Un data center ou « centre de données ," est un grand bâtiment rempli de milliers d'ordinateurs qui permettent à Google de fournir des services en ligne à ses utilisateurs du monde entier."

[212] Schiavetto, F. (2012), "Le Mundaneum entre dans une nouvelle ère," p. 79: "Pour eux, c'est une manière de montrer que Google supporte la culture en Europe."

[213] Echikson, W. (2012-03-13), "Honoring and supporting Belgian Internet pioneers."

[214] Echikson, W. (2013-12-17), "Joining Belgium and Finland around data centres."

become a key partner in working with us to dig deep roots in the region."[215] Again, the roots are not there waiting to be recovered, but first need be planted – even if, this time, the Mundaneum is there to lend a hand in digging.

A few weeks before the one year anniversary of the partnership between Google and the Mundaneum, the image of roots is replaced with one of seeds sown and a flower in bloom. The phrasing even makes the timing of the announcement of the partnership – in March – seem highly significant: "It's nice to watch a seed bloom into a radiant flower. Last spring, we announced a partnership with the Belgian institution called Mundaneum."[216] This image of one "radiant flower" takes us far away both from the dematerialized state of the information society and from the racks of the data centre in Saint-Ghislain.

The most significant message mediated by this blog entry may, however, be found in its very title: "A flower of computer history blooms in Belgium." While at a first glance this might look merely like a romantic description of the "fruit" of the Google/Mundaneum partnership, it could also – with some imagination – be read as a comment on the history and historiography of the "paper Google." The flower of history does not grow by itself – on the contrary, it only blooms once someone has planted the seeds and allowed it to take root.

[215] Echikson, W. (2013-10-28), "An unusual meeting of minds in Belgium."
[216] Echikson, W. (2013-02-21), "A flower of computer history blooms in Belgium."

Conclusion

> "What's old is new again. Steam punk style," peut-on lire sur Tweeter…[217]

This short phrase, borrowed from Delphine Jenart's article "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?," contains within it some of the most important themes that have been discussed in this thesis: the revival of the Mundaneum and Paul Otlet, the interplay of old and new, the conflation of the present Mundaneum with its historical predecessor, the polyphony of voices involved in the telling of the story, the steam punk spirit of media archaeology. Below, I will summarize my investigation into the narrative of the "paper Google," and briefly comment on the main conclusions that may be drawn from it. Finally, I will identify some of the stronger and weaker points of the study itself, before discussing possible future research directions.

Writing the inevitable return of the Mundaneum with Google

I began this investigation into the narrative of the "paper Google" by examining the ways in which the studied texts depict the fall into oblivion of the work and ideas of Otlet. I observed two principal tendencies. First of all, by highlighting this aspect of the story, the texts paint a tragic and romantic picture of a visionary forgotten by posterity. They speak directly to our fascination for the failed and forgotten, and suggest that, the more tragic the disappearance, the more striking the return. Thus, in emphasizing the tragedy of Otlet's disappearance, these texts serve both to create the preconditions for a renaissance and to make this return seem even the more triumphant. Secondly, I found that accounts of the closing down of the original Mundaneum differed significantly between the studied texts. Most notably, the texts from the Mundaneum and Google downplay the role played by the Belgian government's loss of interest in the project. This strikes as particularly interesting when considered in relation to the emphasis that the texts give to the Belgian nationality of Otlet, La Fontaine, and the Mundaneum. As Otlet is remembered, any conflict that may at some point have existed between the

[217] Jenart, D. (2012), "Paul Otlet. Et si l'Internet était, en fait, une histoire belge ?": "un data center typique de l'époque."

Mundaneum and the Belgian government is forgotten – making Otlet and the Mundaneum ideal and incontestable representatives of Belgium.

After this, I explored the ways in which the alternative narrative of the European "paper Google" is constructed both in opposition to and with support from the dominant narrative if the American Internet. This is done explicitly in the story told by the texts, where American actors are presented as just and expert benefactors who come to remind forgetful Europeans of their own history. Implicitly, the collage-like polyphony of quotations from various international actors suggests that the narrative of the "paper Google" is valid only with an international stamp of approval. The Google/Mundaneum partnership itself constitutes a particularly powerful symbol of such international recognition. Furthermore, the idea that Europeans need Google to remind them of their history serves to coat the perceived threat of American corporate imperialism in a less sinister layer of corporate responsibility and cultural philanthropy.

In the final section of the first chapter, I discussed the different ways in which the narrative of the "paper Google" is presented as something inevitable. I noted two principal strategies employed in the texts. One of them is the suggestion that Otlet and La Fontaine initiated the very knowledge revolution that in today's society makes them relevant and even unavoidable. The other one is the way in which the partnership of Google and La Fontaine is repeatedly described as the inevitable encounter between two kindred spirits destined to meet. This image of a meeting orchestrated by the hand of fate and of a subsequent "marriage" naturalizes the narrative, dramatically downplaying its constructed character and obscuring the political and financial interests involved in its construction. It also suggests that historiography as well as history is subject to predetermination and that, just as Google and the Mundaneum were destined to meet, the "true" history of the European origins of the Internet was inevitably going to make itself known one day.

Media devised for tying the story together

In the second chapter of the thesis, I examined the representation of media technologies, old and new, realized and imaginary, in the narrative of the "paper Google." I argued that these media function as connecting devices capable of tying disparate events and actors together into unexpected combinations, and that the vagueness and the contradictoriness that characterizes representations of media in the narrative of the "paper Google" serves to facilitate this function.

I started by taking a closer look at the supposed link between Otlet and La Fontaine, on the one hand, and four specific manifestations of modern information technology, on the other: the Internet, the Web, search engines and Google. Doing this, I was able to observe a striking confusion, visible within as well as between the different texts, between the concepts of the Internet and the Web. Unable to

agree on one technology, the texts present Otlet and La Fontaine as the inventors, forefathers or prophets of either the Internet or the Web – or sometimes, even within the same paragraph, as both. While these inconsistencies do not make the narrative more credible, they might effectively make it more impressive and more flexible. Since Otlet and La Fontaine are never definitely an exclusively tied to any one technology, they can plausibly be connected to whichever technology that the context demands.

Following this, I went on to examine how the texts represent those media that Otlet and La Fontaine actually invented or imagined. These range from the CDU, the RBU and the Mundaneum, which are all three of them referred to as the "paper Google," to a more or less computer-like "desk without books" described in Otlet's *Traité de documentation*. Most notable, however, is Otlet's frequently cited conception of information as independent of its medium – what the Mundaneum calls "the dematerialization of knowledge." I argued that this idea, when emphasized in the narrative, may actually serve to excuse and even legitimize the above-mentioned confusion of different specific media. If all media are merely supports of data, a repertory of index cards is not that different from a web-based search engine.

To conclude the chapter on media, I discussed the role of imaginary media in the narrative of the "paper Google." Some of the imaginary media mentioned in the texts are said to have been retroactively realized through modern information technology, and so, by consequence, would no longer qualify as imaginary. However, conceding that all media are made up of imaginary as well as realized elements, I found that the media of Otlet may not have lost their imaginary and utopian dimension after all. As one texts suggests, the Internet has perhaps not realizes Otlet's dream but rather brought it back into reality, unrealized – at once preserving and absorbing its utopian potential.

The media and the message

Having first looked at the narrative and then at the media, I used the third chapter to examine the additional meanings that the narrative mediates through the media. Using the analytical concept of media imaginaries, I attempted to show that, by associating individual media technologies with different ideas, the narrative of the "paper Google" manages to implicitly as well as explicitly represent information technology as a medium for peace, the Mundaneum as an important actor in information society, Belgium as the cradle of the future and Google as a company with deep roots in European local communities.

The first media imaginary discussed was that of "peace through bibliography." I found that by insisting on the pacifist goal of Otlet and La Fontaine's bibliographic work and the internationally recognized pacifist work of La Fontaine, the studied texts attach the idea of pacifism to media of knowledge organi-

zation, making the former an implicit but always implied connotation of the latter. Thus, the imaginary of peace through bibliography follows the media of knowledge organization from the Otletan "paper Google" to the American multinational corporation Google.

The second media imaginary, that of "knowledge revolutions," consists of the idea that the media created by Otlet as well as Google are reactions to and essential components of paradigmatic changes in our conception of knowledge. The media themselves, in their concrete or discursive manifestation, are thus imbued with a sense of urgency. By implication, then, the revival of Otlet's memory, Google's presence in Europe, and the collaboration between an institution dedicated to Otlet and one of the most famous actors of the digital industries, appear as absolutely necessary and unavoidable consequences of – and possibly even partial solutions to – our present, overwhelming knowledge condition.

The final media imaginary examined is that of "the local in the digital." By emphasizing the role of Belgium in their discussions of the work of Otlet and La Fontaine, the texts imbue the media of the Mundaneum with a strong connection to the European, the regional and the local. Additionally, in the entries from the *Google Europe Blog*, a gardening metaphor – of roots and flowers discovered or planted in different regions of Europe – serves further to the idea that the digital does not render the local or the tangible obsolete, and that Google, having settled in Wallonia and in Europe, is right where it belongs.

However, as the title of the blog entry "A flower of computer history blooms in Belgium" implies, history is not something that is simply there to be discovered or recovered.[218] Before it blooms, seeds need to be sown and roots allowed to settle in the ground. In this thesis, I have attempted to show how a new history of information technology, bringing with it a new future for Paul Otlet, is being shaped through the collectively constructed narrative of a visionary, pre-digital "paper Google." This narrative is made possible through the identification and construction of previously unnoticed affinities between different, seemingly unrelated media. I have argued that these media, in their discursive manifestation, may in fact be seen as narrative connecting devices, linking disparate elements into a coherent narrative. Further, these media are imbued with connotations of pacifism, technological urgency and regional rootedness that all serve the different interests of the Mundaneum in Mons and of Google, inviting Wallonia into the digital economy and Google into Europe.

The present thesis can be seen as a tentative first attempt at examining one particular aspect of a complex culturo-economic partnership only two years of age. As such, it might ideally serve as a source both of inspiration and of caution for fu-

[218] Echikson, W. (2013-02-21), "A flower of computer history blooms in Belgium."

ture studies. Likewise, my use of media archaeology might also be described as tentative, in the sense that it explores three different if inter-related media archaeological angles (narratives, media, and media imaginaries.) While I consider all these angles to be relevant to the subject, and while such an eclectic approach may indeed be necessary as a first step, I believe that these angles might also stand their own. Thus, in the future, a fruitful approach might be to narrow down the theoretical framework into focusing on one of these aspects while taking into account a more extensive primary source material. In the best case, such an approach may produce a study at once broader and more specific.

As I started to examine the texts included in this study, I found that their actual content was more limited than I had initially expected: not only are the texts in themselves generally quite short, but they also share a significant amount of content with each other. For instance, the articles of Jenart share entire paragraphs with the *Renaissance 2.0* press kit, and the different entries on the *Google Europe Blog* repeat certain passages adding only minor changes. This raises questions regarding my decision to only use material published by or explicitly endorsed by the Mundaneum and Google – considering that the partnership is still young, the lack of publicly available documents should not be surprising. One way of increasing the volume of the material, while still staying close to the original delimitation and thematic, would have been to take into account press articles that explicitly discuss the partnership.

Finally, to conclude, I want to argue that the partnership between Google and the Mundaneum constitutes an interesting object of study in particular because of its situation at the intersection of technology and culture, of corporate storytelling and European politics, of the analog past and the digital future. A closer look at this particular incarnation of the Mundaneum might reveal a network even more complex, and considerably less harmonious, than that imagined by Paul Otlet.

Summary

In this thesis, I have employed a theoretical framework inspired by media archaeology to discuss the construction, content and function of the alternative historical narrative of Internet history that the partnership between the Mundaneum, a Belgian museum and archives centre, and Google mediates to the public. This alternative narrative, referred to in the thesis as the *narrative of the "paper Google,"* presents bibliographers Paul Otlet and Henri La Fontaine as having prefigured the Internet and invented an analogue "paper Google" in the early 20th century. Through a close-reading of a diverse and polyphonic body of material, made up of press articles, blog entries, an exhibition press kit, and filmed speeches, I have examined issues relating to the interplay of dominant and alternative narratives, to the narrative function of realized and imaginary media, and to the implicit messages mediated by the media in the narrative.

In the first chapter of the investigation, I found that the alternative narrative is constructed both in opposition to and with the support of the dominant one. Europe is presented as having played an important role in the history of information technology but as needing confirmation and reminding of this from international, and most notably American, actors. Furthermore, by depicting the meeting of the Mundaneum and Google as inevitable, the texts obscure the constructed nature of the narrative.

In the second chapter of the study, I focused on the media devices described in the narrative of the "paper Google." I noted that the depiction of media in the narrative is characterized by inconsistency and contradictoriness, and that different technologies are frequently confused or conflated with each other. I suggested that this confusion might in fact serve to render the narrative more flexible, allowing any technologies to operate as connecting devices capable of tying disparate story elements together.

In the third and final chapter of the thesis, I examined the media imaginaries that the texts, through emphasis and iteration, attach to different media. I identified three imaginaries which, through their presence in the narrative of the "paper Google," establish knowledge organization as a medium for peace, the Mundaneum as an important actor in information society, and Google as a company with its roots dug deep in European soil.

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