A SPATIAL ENCYCLOPEDIA: THE ARCHITECTURE OF PAUL OTLET'S ARCHIVE

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

GONCA ZEYNEP TUNÇBİLEK

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
IN
ARCHITECTURE

JULY 2019

Approval of the thesis:

A SPATIAL ENCYCLOPEDIA: THE ARCHITECTURE OF PAUL OTLET'S ARCHIVE

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ABSTRACT

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Doctor of Philosophy, Architecture
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July 2019, 247 pages

This dissertation is a critical assessment of the museum as a knowledge space. Starting with Paul Otlet's 'World City' as a source of classification of knowledge in the urban framework, this thesis focuses on the hierarchical 'order' model on several scales: urban museum, museum, hall, room, cabinet, catalog drawers, and index cards, respectively. The classification of knowledge is the subject of study; Otlet's 'Mundaneum' is the tool of research, and the museum architecture as a classification form is the epistemological framework of this dissertation.

In order to comprehend the boundaries, dimensions and necessities of 'universality,' the Mundaneum is discussed, as a source of classification of knowledge, consisting of three primary architectural forms: the library, the university, and the museum. By concentrating mainly on museums, this thesis evaluates the dialectic relationship between knowledge classification and its architecture, since museum architecture has a powerful impact on the definition, production, dissemination and order of knowledge.

This thesis mainly discusses the differences and continuities between Otlet's universalist vision of the 20th century and the 21st century's universalist tendencies on architecture. Thus, this study suggests a specific understanding of the museum

classification by reconsidering it as a ‘system’ rooted in the urges and challenges of historically, theoretically, and conceptually defining the 21st century museum ideas. This dissertation aims to describe and clarify the characteristics of the ‘Encyclopedic Museum’ as a new museum category of the 21st century, since it has capacity to promote knowledge and its new classification that integrates its practical and theoretical dimensions.

Keywords: Museum Architecture, Encyclopedic Museum, Spatial Encyclopedia, Modern Architecture, Urban Planning.

ÖZ

ANSİKLOPEDİ MEKANI: PAUL OTLET'NİN ARŞİV MİMARİSİ

Tunçbilek, Gonca Zeynep
Doktora, Mimarlık
Tez Danışmanı: Prof. Dr. Ayşen Savaş

Temmuz 2019, 247 sayfa

Bu tez müzenin bir bilgi mekanı olarak ele alınmış eleştirel bir değerlendirmesidir. Paul Otlet'nin 'Dünya Kenti' kavramını kent bağlamında bir bilgi sınıflandırma kaynağı varsayarak başlayan bu çalışma, sırasıyla çeşitli ölçeklerde ortaya konan hiyerarşik 'düzen' modeline odaklanmaktadır: kentsel müze, müze, sergi salonu, sergi mekanı, dolap, katalog çekmeceleri ve dizin kartları. Bilginin sınıflandırılması bu tez çalışmanın konusudur; Otlet'nin 'Mundaneum'u araştırmanın aracı olarak ele alınmıştır ve bir sınıflandırma formu olarak müze mimarisi bu tezin epistemolojik çerçevesini oluşturmaktadır.

'Evrensellik' kavramının sınırlarını, boyutlarını ve gerekliliğini anlamak için Mundaneum, üç temel mimari bileşenden oluşan bir bilgi sınıflandırma kaynağı olarak ortaya konmuştur: kütüphane, üniversite ve müze. Öncelikli olarak müzelere odaklanan bu tezde, müze mimarisinin bilgi tanımı, üretimi, yayılması ve düzeni üzerinde güçlü bir etkisi olduğu varsayılarak, bilginin sınıflandırılması ve mimari arasındaki diyalektik ilişki değerlendirilir.

Bu tez özellikle Otlet'nin 20. yüzyıldaki evrenselci vizyonu ile 21. yüzyılın benzer eğilimlerinin mimarlık üzerindeki etkilerinin farklılıklarını ve sürekliliğini tartışmaktadır. Bu nedenle, bu çalışma 21. yüzyıl 'müze' anlayışını tarihsel, teorik ve kavramsal olarak tanımlamaya dayanan bir 'sistem' olarak ele alarak, müze

sınıflandırmasını özgün bir anlayışla ortaya koymaktadır. Çalışma ‘Ansiklopedik Müze’nin 21. yüzyıl bağlamında yeni bir müze kategorisi olarak özelliklerini tanımlamayı ve netleştirmeyi amaçlamaktadır çünkü ansiklopedik müze pratik ve teorik boyutları birleştirebilen yeni bir bilgi sınıflandırmasını destekleme kapasitesine sahiptir.

Anahtar Kelimeler: Müze Mimarisi, Ansiklopedik Müze, Mekansal Ansiklopedi, Modern Mimari, Kentsel Tasarım.

To Yasemin, Aydın and Can Tunçbilek

ACKNOWLEDGEMENTS

I owe my greatest debt to my advisor Prof. Dr. Ayşen Savaş, for inspiring me with her intellectual world and for shaping my thoughts with her knowledge and experience. As a mentor, she taught me how to think about architecture, and offered her academic advice during my research. This thesis would not have been completed without her.

I am grateful to my committee, Assoc. Prof. İnci Basa and Assoc. Prof. Bülent Batuman for their reviews and suggestions throughout the evolution of my thesis. I would also thank the members of the examining committee, Prof. Dr. Esin Boyacıoğlu and Prof. Dr. Elvan Altan for sharing their comments and motivating discussions. I am truly indebted and thankful to Prof. Dr. Güven Arif Sargın, who has believed in and encouraged me in my aspiration throughout my academic career.

My research depended on the research of many individuals. In particular, I owe much to Stéphanie Manfroid and Jacques Gillen, Mundaneum; Assoc. Prof. Wouter Van Acker, Université Libre de Bruxelles; Assoc. Prof. Gülten Alır, Prof. Dr. Veli Urhan and Prof. Dr. Erdal Cengiz. I also thank the employees of the Mundaneum for their assistance, help and responses to countless issues.

I was accompanied by several great people on the way to whom I am deeply thankful. I would like to thank my Metunian friends and colleagues: Ezgi Yavuz, who is like an academic mentor and sister, Meltem Çetiner, Hatice Çoban, Sema Demirci, Tuğba Dursun, Ceren Katipoğlu, Sümeyye Hoşgör and the R414 members. I would like to extend my heartfelt appreciation to Setenay Arslan and Günsu Yayıkoğlu.

Last but not least, without my family, this thesis would never have been accomplished. I would like to acknowledge the pure support of my parents Yasemin and Aydın Tunçbilek, who has also been my academic mentor throughout my career, and my brother, Can Tunçbilek, who has been my dear and best friend. I would like to thank those who supported me with their love and encouragement all throughout life.

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INTRODUCTION

Paul Otlet (1868-1944) was a Belgian pioneering utopian thinker who had a significant impact on information science as a father of the notion of 'documentation.' Otlet used this term to define the field that covered both research, practice and discipline that developed before so called the 'information science' around the bibliography. He was not only a bibliographer, encyclopedist and documentalist, but also a sociologist, internationalist as the founder of his concept of 'universalism and mondialism.' As a result of these interests he became the architect of the Mundaneum and the World City – Cité Mondiale.

The life and works of Paul Otlet have been investigated, researched and studied in a significant number of publications and journals. Since his ground-breaking position in the field of documentation and also bibliography, they were primarily linked to information sciences and history of the library. In addition, several types of researches concentrated on Otlet as an architect of the Mundaneum, World City, and their utopian architecture.

Otlet's life and works of have been researched as biographies: W. Boyd Rayward published 'The Universe of Information' in 1975, and Françoise Levie wrote 'L'homme qui voulait classer le monde' in 2006. In the context of Otlet's research, these publications were more linked to information science, its advances, and library history. In 1995, José Maria Izquierdo Arroyo published in 'La Organización Documental del Conocimiento' about the organization of the documents and documentation. W. Boyd Rayward edited the book 'European Modernism and the Information Society' to understand Otlet's position in the framework of information science in 2008. Jacques Gillen, Stéphanie Manfroid, and Raphaéle Cornille, all

working as staff in the Mundaneum, edited 'Architecte du Savoir, Artisan de Paix' in 2010. A special issue of the journal 'Transnational Associations' brought him a position in the documentation.

Besides, several journal articles, several chapters in books, and many dissertations. In 1982, Paul Schneiders presented a Ph.D. thesis on the bibliographic undertaking as 'De Bibliotheek en Documentatiebeweging 1880–1914: Bibliografische Ondernemingen rond 1900.' Irene S. Farkas-Conn submitted 'From Documentation to Information Science' on the role of Otlet in the IIB and its effects on the documentation in the United States in 1990. Eric van Binsbergen studied the philosophical origins of the UDC in 1994, Sylvie Fayet-Scribe worked on the contemporary methods of information retrieval and knowledge classification, particularly in France, in 2000. Several other authors, including K. Michael Buckland, Bernd Frohmann, Ronald E. Day and Suzanne Briet researched Otlet's idea of 'documentation.'

Giuliano Gresleri and Dario Matteoni released a comprehensive survey of World City's architectural drawings taken up by Andersen and Hébrard, Otlet and Le Corbusier.[1] Pieter Uyttenhove, Catherine Courtiau, Nader Vossoughian, and Pierre Chabard acknowledged the significance of Otlet's utopian proposals to the history and heritage of architecture and urban planning. In specific, Charles van den Heuvel researched Otlet's 'architecture of knowledge,' and W. Boyd Rawyard examined Otlet as an 'information science pioneer.' The 'Cité Mondiale' had been studied as a concept of utopia by Wouter Van Acker, and he had therefore interpreted Otlet as a 'utopian, visionary thinker.'[2]

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[1] Giuliano Gresleri and Dario Matteoni. *La Citta' Mondiale. Andersen, Hébrard, Otlet, Le Corbusier*. Venezia: Marsilio Editori, 1982.

[2] Wouter Van Acker. Universalism as Utopia a Historical Study of the Schemes of Paul Otlet (1868-1944), unpublished PhD thesis. Gent University, 2011.

In this dissertation, the classification of knowledge was evaluated by investigating the various scales of its related interpretations and meanings in different modes of representation. By doing so, this thesis focused primarily on his conceptual idea of the architecture of knowledge classification in numerous scales World City as an 'urban museum' in his terms, museum, halls, rooms, the furniture of these display spaces covering banks of drawers, catalog drawers, and index cards, respectively. By doing so, this thesis represented the understanding of his rational knowledge organization in the framework of the 20th century and its ongoing impacts on the classification of the 21st century context. His interpretation of classification encompassed various scopes as such: social, economic, cultural, political and architectural. Otlet defined knowledge space to highlight a global network of the classification of knowledge institutions concentrated around the World City that could be interpreted as the premature form of information society and culture that internationalized and universalized in the 20th century.

This study aims to formalize an epistemological framework to discuss and assess 'classification' of knowledge and its representation in architectural theory. Classification is approached as a representational tool within the scope of the conceptualization of museum architecture since museum as an institution has power to define, produce, and disseminate knowledge. The classification of knowledge is the object of study; Paul Otlet's 'Mundaneum' is the tool of research; and museum architecture as a classification form, conducts the epistemological framework of this study.

Otlet's works have a vital position linked to history of epistemology because of his leading role in the field of documentation. He not only has a significant influence on the classification of knowledge but also on the classification of architectural space of knowledge: museums. He was such a unique figure since his ambition was equally remarkable in attaining the paired goals of his project: on the one side, designing and building a 'World City' that included the establishment of the world's knowledge

network and human communities, and on the other side, its dissemination, representation and reproduction as an 'archive.'

Despite the diversity of research and recent discourse on museography, the critical interpretation of the 21st century classification praxis remains unaddressed. This study suggests a particular understanding of the museum classification by reconsidering it as a 'system' rooted in the urges and challenges to define the 21st century museums ideas historically, theoretically, and conceptually.

The purpose of this research is to identify and describe the characteristics of a re-new category of the museum called the 'encyclopedic museum' in the 21st century. The method will be to analyze and interpret Paul Otlet's global thinking and its concrete form as a 'universal/encyclopedic museum.' Throughout this research, the term 'universalism' and its coupling with knowledge will be investigated with their mirroring. In saying the Foucauldian terminology, to understand the boundaries of the 'archeology of knowledge' in Modern Architecture with the help of analyzing the 'Mundaneum' and its contents.

Throughout this research, the analyses needed a close examination of the publications of the Mundaneum as an archive including exhibition catalogs, inventories, periodicals, books and unpublished sources such as personal statements, letters, meeting records and diaries. In addition to analyzing written sources, a series of architectural drawings, sketches, published and unpublished photographs helped to locate and develop a better understanding of the problems faced during the establishment and functioning of the Mundaneum. Moreover, the research on the archive has to be done, in situ.

The primary objective of this research is to investigate the development of collecting practices and its methods in this specialized institution. In particular, the study will concentrate on the significant changes observed in the private collecting practices when it becomes an institutional/organizational activity and its relationship with

architecture. While focusing on the 'shift' from Otlet's private/personal collection into a public institution, I will explore the impacts of this endeavor in architectural thinking.

This thesis begins with Paul Otlet's biography to comprehend the context of his intellectual thinking. By doing so, it revealed the potential of 20th century 'intellectual' history and showed the basis of his thoughts in the light of his context. The main sources of this thesis are the remarkable collections of schemes, drawings, sketches and also architectural plans that were archived in Mundaneum mainly related to Otlet's conceptual ideas and thoughts on knowledge classification and related architectures. While these visual representations of his ideas based on the classification of knowledge have been re-searched and re-discussed, their architectural interpretation, particularly, the relationship between the knowledge space and its organizations has not until now been fully understood and exploited. Moreover, this thesis focuses on questioning the knowledge space classification in the 21st century by highlighting the organization of the institutional knowledge system within the World City of the 20th century.

In the following four chapters, I will examine these procedures which I identified as the primary functions of this public institution. I start with the assumption that the critical history of the archive should propose and share information by concentrating on the classification of knowledge that is reflected in archival genres, documentation culture, accessibility, and archival conventions. Moreover, all these activities, I argue, are useful in defining the archives as autonomous architectural entities.

The textual body of the study starts with a contextualization of Paul Otlet's 'Mundaneum' as a source of the classification of knowledge and its influence in the discipline of information science, and follows with the examination of the architecture of the 'Mundaneum' as an archive. To better understand the context of Otlet's

intellectual formation, the following chapter investigates the brief overview of his life, his carrier, and his relations with 'information.'

The second chapter is started with an understanding of the historical context of the 'World City' as an Enlightenment project. This city planning proposal could be considered as unique as it illustrated the analogy between architectural spaces and the knowledge organizations. The first part of the chapter focuses on the borders and definitions of this utopian planning idea and its implementations with the globalization, colonization, and internationalism of its time. In particular, this chapter investigates the components of the 'World City,' a dream of Otlet, collaborating with leading Belgian and European Modernist architects and urban planners. The 19th century and the beginning of the 20th century, it was the time when architects tended to design 'ideal cities' on an urban scale.

Paul Otlet collaborated with acclaimed architects on his 'World City' project: Octave van Rysselberghe, Ernest Hébrard, Louis Van der Swaelmen, Le Corbusier, Victor Bourgeois, Maurice Heymans, Raphael Delville, and Stanislas Jasinski. Thus, the analyses of these architectural project are interpreted with the help of Modern Architecture's mottos: flexibility, internationalism, rationality, zoning, architectural program, functionality, abstraction, and transparency. In the light of a discourse developed around these affirmations, the historical perspective of this study could be constructed.

Otlet's 'World City' is interpreted as an anachronistic project, since it has both an international and a taxonomical approach. Thus, he constitutes the concept of the 'Trans-Mondiale' that contains the most important cities and the main lines of communication and dissemination of knowledge. While Otlet's consideration of planning and his concept of 'World City' are crucial for both architecture and urban planning, he has not received much attention in Belgian architecture and urban planning historiography. This chapter analyzes the Otlet's concepts of 'universalism'

and ‘internationalism’ by exploring the planning models of architects and urban planners. The chapter concludes by suggesting the unification the civilized world as a whole in collective action with a perspective to attaining specific goals of ‘universal’ concern by disseminating knowledge all around the world in terms of these networked cities.

The third chapter constitutes the main body of the work and is devoted to the specific components of this unknown space, ‘Mundaneum’ which is analyzed in various scales: ‘Cité Mondiale,’ museum, halls, rooms, the furniture containing banks of drawers, catalog drawers and index cards, respectively. The research statement of this part focuses on the ‘archive’ of Paul Otlet as a spatial encyclopedia in the 20th century. Thus, this study reflects some ideas on the same questions about ‘archiving’ related to spatial organizations in various scales that we are still dealing with today.

From a different angle, Otlet’s own efforts of ‘archiving’ can be read within a ‘utopian internationalism,’ in which the filing system technology is a means of decentralizing and democratizing knowledge, providing a broad public access and a cross-referencing of information. By merging Otlet’s ‘object as documents’ theories and K. Michael Buckland’s ‘information-as-thing,’ this study focuses on the ‘museum as documents.’ Due to its significant potential within the information system, the museum as a document is particularly highlighted. The dialectical relationship between the systematization of universal knowledge, documentation/information, and the classification in a museum space will be investigated.

The fourth chapter concentrates on the classification of knowledge in Foucauldian terms, ‘the order of things’ in different media. This chapter presents the inquiries about the classification of knowledge by focusing on the paradigm shifts in theories and practices that develop into the formation of epistemological as well as methodological approaches in architectural design and in particular the architecture of ‘museum.’ In each paradigm shift, the understanding of the classification of knowledge and its

historical context alter. The main concentration has been related to the classification of knowledge during the inter-war period since that was the moment when Otlet's Mundaneum was constituted. His vision of universal knowledge institutions, centered around this unique and original design, is regarded as a spatial encyclopedia to be understood in his term 'architecture of knowledge.' He used this metaphor to design new ways of building cities and also to emphasize the organization, transformation, and globalization of knowledge. In '[t]he 2002 Declaration on the Importance and Value of Universal Museums', the 21st century museum is questioned as a 'renascent' type.

My research has developed a historical dialogue between the late nineteenth / early twentieth and the early 21st century in the light of the classification of knowledge arguments. It seeks to suggest a critical understanding of a unique classification system of the UDC, its methods, its organizations and its institutions, especially in the context of museums and its architectural impulses. By evaluating their organizational capacities, they give their collections a form and order as well. The objective of this dissertation emphasizes the significance of these institutions and in a continues transformation and transmission of the 21st century disciplinary tradition.

1.1. A Visionary Utopian: 'Architect of Knowledge,' Paul Otlet

In this study, the architecture of Paul Otlet's 'archive' is revisited as a spatial encyclopedia. The classification of knowledge, its representation, its organizational, and its spatial qualities according to various scales are studied. The main goal of this thesis is to understand the tools and the methods of the 'Mundaneum' which are planned to be reconstructed in Mons, Belgium. Since the approach of Paul Otlet spans a wide range of architectural scales, starting from an ideal city plan to the design of the inventory cards, this study explores the specific components of this archival space by analyzing the Mundaneum in various scales. Here, The Mundaneum as an archival space necessitates the study of its architectural type.

The Mundaneum included various original documents such as 'The Museum of Press' collection, the 'International Museum' collections, the 'Encyclopedic Repertoire of Dossier' and the 'International Bibliographical Repertoire.' More than the contents of these collections however, the 'classification system' is the primary interest of this study. Throughout the study, frequent visits were made to the Mundaneum archive, and therefore, the documents cited in this study have been given a name and a number.

This thesis focuses on 'the order of things,'[3] which can be traced back to the archival production of Paul Otlet. With this statement in mind, the 'Mundaneum' is designed concerning to Otletian thinking as an archive and its establishment process that includes the architectural entity and its contents as the main focus of this study. Following Otlet, the archive can be interpreted as an epistemological experiment and as a significant source of knowledge.

French historian Pierre Nora claimed that the archive 'relied entirely on the specificity of the trace, the materiality of the vestige, the concreteness of the recording, the visibility of the image.'[4] He questioned the relationships between the archive's postcolonial reevaluations and its robust responses. The resulting collections were not history in themselves and could have led to memory failures. The archive ratified a past using materials, containing the 'external props and tangible reminders' of the 'collective memory.' In the broader 'historical turn' of the past two decades, new approaches to the classification of knowledge to the archive Paul Otlet need to be developed.

Analyzing Otlet's archive is closely linked to the understanding of his knowledge organization. This process comprises of interpreting different mediums within the

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[3] Michel Foucault. 'Classifying,' in *The Order of Things. An Archaeology of the Human Sciences*, 1970, pp. 132-150. (Originally published in French as *Les mots et les choses,* Paris: Editions Gallimard, 1966.)

[4] Pierre Nora. (ed.) *Realms of Memory: The Construction of the French Past, vol. I: Conflicts and Divisions*. New York: Columbia University Press, 1996, p. 8.

scope of his archive. This inquire helps to comprehend both understanding and its manufacturing processes. Thus, it can be interpreted that a critical investigation into the archive not only proves as a measure for the retrieval of knowledge but also serves as the production of knowledge. This approach does not indicate that it is a rejection of the archive's sources from the past. Instead, it serves to a more sustained engagement with archives as cultural artifacts of factual production and taxonomies. What properties establish the archive, what form it takes and which classification systems are used at specific times is the very substance to the context.

> 'The transformation of archival activity is the point of departure and the condition of a new history.'[5]

Each archive is unique and needs to be re-analyzed according to its unpublished orders, its organizations, (dis)placement rules and references to its historical context. It has been upgraded to a new theoretical status and has been given sufficient status to ensure a separate and independent presence. The 'Archive Fever' by Jacques Derrida, clearly defines the move from archive-as-source to archive-as-subject gains its contemporary currency from a range of different analytical shifts and practical concerns.[6] In this thesis, the examination will focus on the turn of the 20th century. Thus, this examination helps to re-investigate the 'archive' conditions that are present in the 21st century. Michel Foucault stated:

> 'The archive does not have the weight of tradition; and it does not constitute the library of libraries, outside time and place – it reveals the rules of practice … its threshold of existence is established by

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[5] Andrew Ashforth. *The Politics of Official Discourse in Twentieth-Century South Africa*. Oxford: Clarendon Press, 1990, p. 5.

[6] Jacques Derrida. *Archive Fever: A Freudian Impression*. Chicago: Chicago University Press, 1995.

> the discontinuity that separate[s] us from what we can no longer say.'[7]

Foucault stated that an archive is neither the sum of all the texts preserved by culture nor the institutions that permit the preservation of the record. Instead, the archive is a 'system of statements' that depicts the 'rules of practice' that shape the specific regularities of what can and cannot be said.[8] Thus, the archive of Otlet helps to understand the classification of practice by shaping the particular regularities of what could and could not be said.[9] As previously mentioned, the archive of Otlet is used to understand the classification tool in various scales related to the architect's vision of historical and formal disciplinary knowledge. Therefore, to appreciate his understanding of architecture, space, and spatial order as well as his intellectual capacity, Paul Otlet's career needs to be examined with extreme caution.

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[7] Michel Foucault. 'The Statement and the Archive' in *The Archaeology of Knowledge*. New York: Pantheon Books, 1972, p. 130.

[8] Ibid., p. 134.

[9] Ibid.

1.1.1. A Brief Overview of Paul Outlet's Career

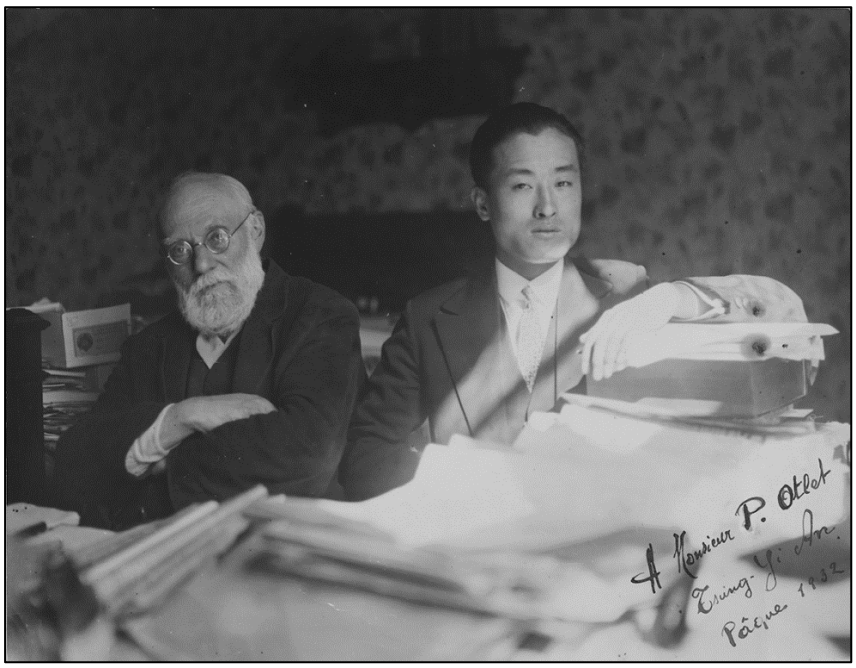

Figure 1.1 Paul Otlet and his assistant Tsung Yi An, 1932.[10]

Because of his economic and intellectual upbringing, Otlet developed an interest in documentation, bibliographies, archives, museology, architecture, and urbanism. He was a child of the new globalizing industrial bourgeoisie and a member of the European diplomacy in the mid-19th century. Paul Marie Ghislain Otlet was born on 23rd August, 1868, and died on 10th December, 1944 in Brussels, Belgium. He grew up in a prosperous family as the oldest son of Edouard Otlet (1842–1907). As the 'king of the tramway,' his father was a wealthy businessman who sold trams around the world and in the early 1900s became a senator in the Belgian Senate Catholic Party. Otlet's mother, Maria Van Mons, was also from a wealthy family and she died when he was only two years old; therefore, he was raised by his stepmother, Valérie Linden, who was the daughter of Jean Linden (1817–1898), a famous botanist and explorer.

[10] Mundaneum, October, 2017, Paul Otlet's unpublished photograph, personal archive in Mundaneum, Mons, Belgium.

Otlet went to school in Paris for the first time, when he was only eleven years old and stayed there for three years. He continued high school education by attending the prestigious Collège Saint - Michel in Brussels. Following high school, he studied at the Catholic University of Leuven and earned his law degree in 1890 from the Université Libre de Bruxelles. Upon graduation from law school, he married with his step-cousin Fernande Gloner, the daughter of a German bank owner, in the same year. Following his divorce in 1912, he remarried with a wealthy Dutch woman, Cato Van Nederhasselt. They lived in Etterbeek, near Brussels, until the end of his life. Otlet's wives were his main supporters owing to their economic position.

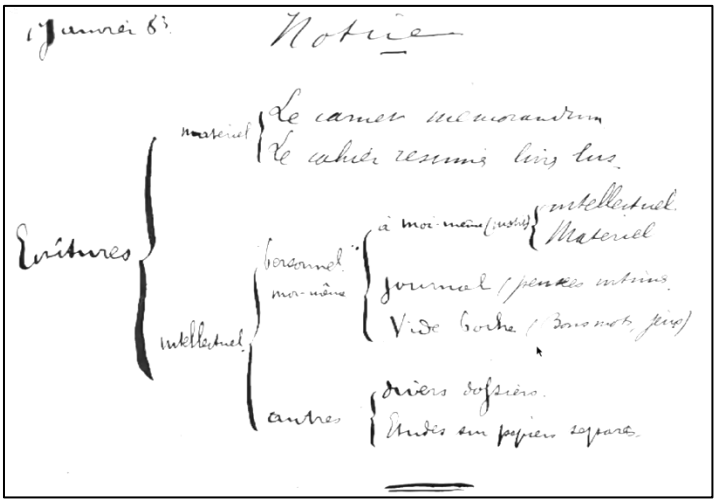

Figure 1.2 Otlet's personal classification system in his own collection.[11]

Throughout his life, he was obsessed with the 'organization' of objects, books, ideas, and any published materials, and he wrote about it in his diaries. He started to put his papers in an 'order' when he was only fifteen years old. (Re)Classification of his papers was his childhood hobby. Unfortunately, his first classification experiments had no drawings or schemes. Otlet's first recorded attempt was a simple arrangement of his notes that were broken down into two main categories, and several

[11] Mundaneum, October, 2017, Paul Otlet's diaries in Mundaneum, Mons, Belgium.

subcategories. The main categories of this classification were labeled as material and intellectual and the subcategories were listed as below:

- **Material** — memoranda, notebooks,
  — resumes of books read.
- **Intellectual** — personal (myself) — myself (intellectual material),
  — journal (intimate thoughts),
  — pocketbooks with witty sayings, amusing ideas,
  — others — different dossiers,
  — studies on separate shelves.

This categorization first classification was crucial since it could be interpreted the paradigm shift of the classification from empiricism to rationalism. In other words, the classification based on many characteristics outlined in theory-independent - Hegelian dialectical materialism- transformed into the classification that was logically consistent and relied on clear principles -traces of Modernist Rationalism. Otlet also systematized his inventory architecture through a physical organization, creating a scheme that included his collection of file folders, drawers, and boxes. His notes were stored in the following:

1. File to hold all that should be classified,
2. Papers with the same format, different things going into cartons,
3. Boxes for things (souvenirs),
4. Drawer for literature (others),
5. Drawer for me (personal).

This classification had changed by the end of 1883. The first section was ‘Literature’ and subtitled of diverse works; distinctive things thought; regarding school courses; literature; social studies; physical activities; college life events. The next section was

divided into: diaries and journeys; eternity (personal thoughts); intellectual activities under the next primary 'Personal' heading. A final section was introduced as 'Sciences:' natural history aspects; museums (education room, archives, my room's narration); and research (research schedule and my observations).

In 1888, he divided his papers into seven groups, with each being connected to a broad subject area. These were mentioned as philosophy in his diary (three stages – three syntheses of a kind and deeper current researches); social studies; texts; diary (personal records); law; science evidence; legislations and ethics. This classification could be understood more closely linked to his interests, his context and his improvement in rational thinking. Moreover, it had the traces of the future cross-referenced classification system.

He had a law degree to be able to defend the business of his father's company. Even he began his career as a lawyer, and he stayed attentive to his family's business engagements. He started the law career with a well-known lawyer, Edmond Picard, who was his father's friend. He was also a law professor, a novelist, a critic, and a senator for the Belgian Labor Party. Picard played a vital role in Otlet's intellectual development as they focused on contemporary art, letters, and the scientific world in their conversations. He believed that the 'real image' of historical society was a law that was owing to the Picard's influence.[12]

Later, he decided to change the direction to his legal career and took up an interest in the bibliography. The first outcome of this peculiar/unusual interest was an essay entitled 'Something about Bibliography' (*Un peu de bibliographie*) written in 1892. This essay could be interpreted as the intellectual blueprint for all the work that would follow. In his opinion, establishing a specific classification system was vital in order to accumulate all the published documents quickly. In other words, he thought there

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[12] W. B. Rayward. *Paul Otlet, Internationalist and Bibliographer,* Unpublished Ph.D. dissertation. The Faculty of the Graduate Library School, The University of Chicago, 1973, p. 15.

was so much information written in books, and he tried to develop a system that could penetrate book covers and unlock information and then re-combine it. Thus, this understanding was the basis of the rest of his work.

At this time, logical positivism was the dominant view and Otlet was conscious that positivism was evolving as a philosophical system and a world view. Here, the 'system' could be interpreted as a keyword. In this Everything had to be scientifically verified and linked in this systematic thinking, capable of logical evidence. This meant that there were no more moral considerations. By that time, Otlet was aware of Auguste Comte's book *Introduction to Positive Philosophy* and was still in his library in Mundaneum. Bernd Frohmann noted the common understanding of positivism between Comte's and Otlet's writing. He emphasized the influence of 'Auguste Comte (1798-1857), who aimed at establishing 'positive' knowledge of social phenomena.'[13] He also analyzed the earlier philosophers of the universalist philosophical systems of Herbert Spencer (1820-1903) and Alfred Fouillée (1838-1912).

Auguste Comte developed the essence of positivism in the mid-19th century; it comprised of three phases and science classification. In the light of positivist thought, he emphasized that the law had three stages and it must move through a phase of world theological interpretation, a metaphysical interpretation and the ultimate definitive phase including everything that was needed to explain the scientific truth. During these stages, it became apparent that there was a specific order of disciplines which became interdependent and therefore complicated.

Otlet was obsessed with creating a world order that was already conceived as to be irrelevant and outdated. His rationalizations for a large complex of institutions, which were more autonomous than the world, had led to his contemporary rejection and forgetful posterity. He had a concept of the knowledge synthesis that was derived from

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[13] Bernd Frohmann. *Deflating Information: from Science Studies to Documentation*. Toronto: University of Toronto Press, 2004, p. 36.

both materialism and positivism of the 19th century. His epistemological methodology for documenting knowledge was based on a positivist sense. Rayward claimed that Otletian knowledge must have part of a Kuhnian positivist science paradigm in the 19th century:

> 'Otlet's primary concern is not with the document or the text or with the author. It was also not with the user of the system and his or her needs or purposes. Otlet's concern was for the objective knowledge that was both contained in and hidden by documents. His view of knowledge was authoritarian, reductionist, positivist, simplistic, and optimistic!'[14]

He was obsessed with the organization of objects, books, thoughts, and any kind of published/unpublished materials during his entire career, and he wrote about it. These efforts were the key to his interest in classification. He continued to search and find a robust system for arranging notes and papers in an enormous collection of knowledge to generate a universal repository of all recorded knowledge of the world. The techniques used to create this collection, and its importance were exercised in his thoughts until he died at the age of 76.

[14] Rayward. op. cit., 1994, p. 247.

Figure 1.3 Henri La Fontaine.[15]

In 1891, Otlet met Henri La Fontaine (1854–1943), who at the time was working as a secretary to Edmond Picard and who had also worked on the 'Pandectes Belges' (Belgian Law Bibliography). At the time, they were assigned a project to catalog all Belgian law for Picard and tried to create a system for cataloging the Belgian legal code. Thus, the work done with Picard would lead them to be interested in the bibliography. They developed a life-long partnership. La Fontaine was a lawyer and a freemason that was active in the lodge of Les Amis philanthropes. In addition to this, he was known for his interests in woman's rights. In 1895, he became a Belgian senator for the Socialist Party and later became the secretary for the 'Société Belge pour l'Arbitrage et la Paix' (Belgian Arbitration and Peace Society).

Otlet was a dominant figure in this partnership, and this study was much more about him as he had dedicated his life to the 'order of things.' Even though he collaborated with La Fontaine, he worked the longest and hardest; therefore, was the more committed to the study than La Fontaine. Otlet directed, developed, wrote, took notes, rationalized, defended, and did the negotiation for the study. La Fontaine always

[15] Mundaneum, October, 2017, Henri La Fontaine's unpublished photograph, personal archive in Mundaneum, Mons, Belgium.

played a vital role, often by taking on an important task or responsibility when he was free from duties associated with his political career and other internationalist interests.

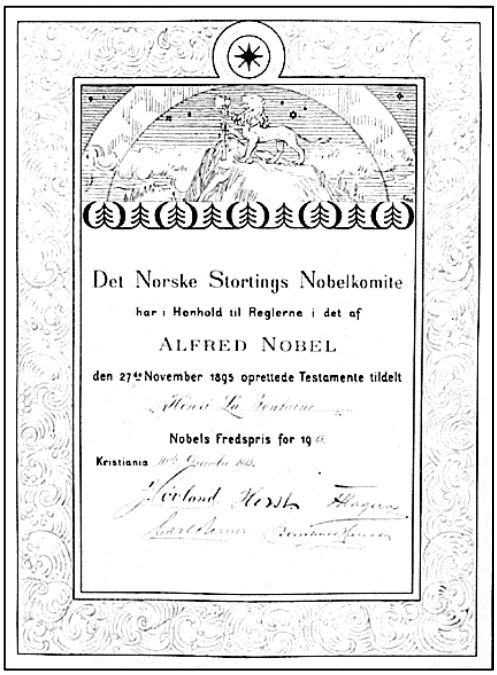

Figure 1.4 The Nobel Peace Prize of Henri La Fontaine, 1913.[16]

In 1913, La Fontaine was awarded by a Nobel Peace Prize for his achievements with the International Peace Bureau. He had been the chairman of the bureau since 1907 and was also a prominent member of the Interparliamentary Union along with other internationalist activities until his death. In this context, Otlet suggested coordinating, collecting, obtaining, and disseminating information among the twenty or more bodies setting up permanent headquarters called the Central Office of International Institutions in the Belgian capital.

Otlet and La Fontaine continued their partnership and thought about knowledge after Otlet decided he was done with the law. They were visionaries who tried to

[16] Mundaneum, October, 2017, Henri La Fontaine's unpublished documents, personal archive in Mundaneum, Mons, Belgium

dynamically transform knowledge and the facts into a universal web of knowledge in order to establish the relationships between information, people, and institutions. They had shared interests in a bibliography and proposed a 'Universal Catalog.' This catalog accommodated everything that had ever written and could also contain all that would ever be written. The Society of Social and Political Sciences located in Belgium commissioned them for three years to establish bibliographies for social sciences. The primary purpose of the early figures was to find new ways to disseminate knowledge in a new mass society.[17]

In 1895, they discovered the Dewey Decimal Classification (DDC) system as a classification system for libraries, which was previously invented in 1876.[18] They decided to expand the system and wrote a letter to Melvil Dewey asking for permission to modify his system in which he accepted to provide that their system would not be translated into English. Otlet wrote to Dewey in 1895 for the formal use and development of the DDC:

> 'Being very much occupied with all that can contribute to the progress of bibliography and classification of books, I have made the acquaintance of your work with the keenest interest. Your Decimal Classification is truly a masterpiece of ingenuity. I have studied it for several weeks with the intention of making it the basis for our bibliographic office, and on this occasion, I take the liberty of addressing to you the following questions:
>
> In your opinion would the Decimal Classification be applicable to a bibliographic arrangement, and what modifications should it undergo for this application?

---

[17] They were not the only ones to collect the world's knowledge: Denis Diderot, Jean Le Rond D'Alembert, and Ephraim Chambers.

[18] The copies of early letters to and from Dewey are missing from the files. Otlet to Dewey, 12 May 1919, Dossier no. 259, 'Dewey,' Mundaneum Archive, Mons, Belgium.

> I send you with this letter a notice on the Office of Sociologic Bibliography which we have founded in Brussels, and specimens of two bibliographical reviews that are published regularly. These reviews have adopted a classification entirely conformable to European ideas for law and sociology. According to your idea how would it be possible to apply your system to these subjects? Your work scarcely furnishes enough subdivisions in law and sociology. If our Office adopted your system ... which would result in acquainting Europe with your idea — could you put yourself to the task of introducing into your classification, with our collaboration, all the divisions and subdivisions for law and sociology which are now lacking?
>
> 3. Could we proceed to a French translation of your Decimal Classification, and on what terms?'[19]

The rights to DDC translating were granted to Otlet by Dewey. The fact that a table index could be implemented in any language, with the exception of the classification's logical and linguistic elements, ensured that anyone could use it anywhere. Since the decimal number provided flexibility, this classification scheme could be expanded continuously without misleading the number order or making it difficult for them to arrange the materials. Dewey's system also suggested a spatial system such as Otlet.

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[19] John Phillip Comeromi. *A History of the Dewey Decimal Classification: editions one through fifteen, 1876—1951,* Unpublished Ph. D. dissertation. Department of Library Science, The University of Michigan, 1969, pp. 228—229.

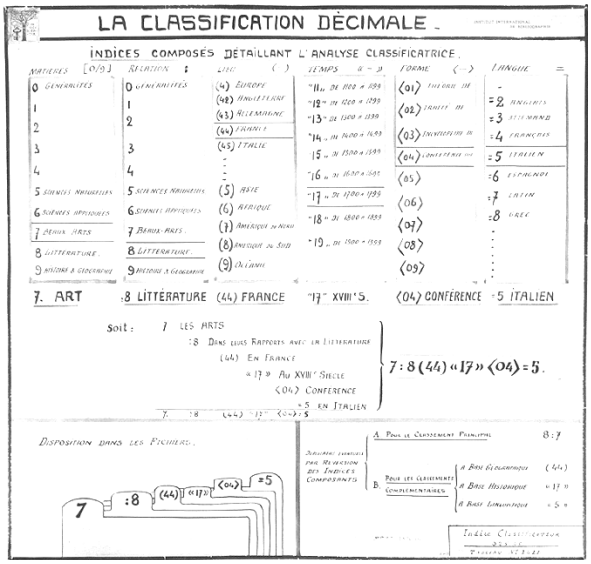

Figure 1.5 The schema of the DDC, by Paul Otlet.[20]

As a result of diligent work, the Universal Decimal Classification (UDC) system was established as a reinterpretation of the Melvil Dewey's Decimal Classification (DDC) system by Otlet and La Fontaine in 1894. In this UDC version, they expanded the main classification titles and added new auxiliaries by providing a comprehensive classification scheme for international use. The more detail that was added from the original became allowed more flexibility into the somewhat rigid structure of the original. In applying their methods for organizing the quantity of information, they created the Universal Decimal Classification. This classification system was based on a faceted classification that is still available in use in many countries. Otlet also established an International Institute of Bibliography, which has passed through several facial lifts; however, it continues to function today.

Because of their legal background, Otlet and La Fontaine had already started to overcome various kinds of specialized bibliographic repertories, databases in modern terminology, in certain limited areas of law and sociology. They might hope to

[20] Mundaneum, October, 2017, Paul Otlet's unpublished sketch, personal archive in Mundaneum, Mons, Belgium.

produce a universal repertory of bibliography covering all topics, whether they currently exist or yet to be found and also tried to institutionalized this repertory. Ana Vukadin and Aida Slavic examined the principles of the UDC and concluded that this scheme permitted the mixture of all topics between themselves or the expansions of all topics with *common auxiliary* facets (place, time, persons, materials). They analyzed the field of architecture in the UDC system to show its connections with the other subjects and concepts in a universe of knowledge. By doing so, the architecture field could borrow, share, and provide terminology for many other subject areas. They exemplified architecture as such:

> '• require facets of general and context-free concepts such as place, time, materials, persons, ethnic grouping, properties, processes etc. that are common to all fields of knowledge;
>
> • apply methods, techniques, tools from other fields of knowledge (e.g. computer science, mathematics, earth sciences, industry);
>
> • share facets of concepts with the arts, landscaping, urban planning, interior design, civil engineering, and the building industry;
>
> • provide basic terminology, such as types of buildings, that is required in many subject fields (e.g. public building, shops, schools, etc.);
>
> • be a subject of study in many areas of knowledge such as social sciences, humanities or technology.'[21]

As understood from the quotations above, a powerful interrelationship between distinct subjects/topics could be grasped. In particular, architecture was closely linked to other fields of knowledge and had a common concept with different areas.

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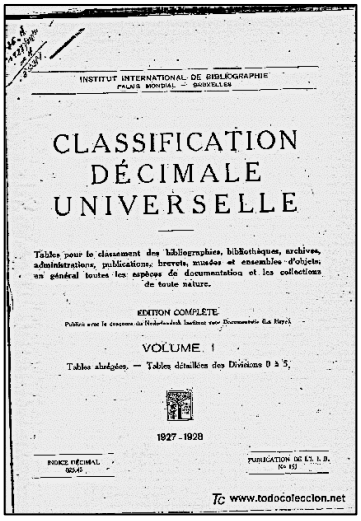
[21] Ana Vukadin and Aida Slavic. 'Challenges of Facet Analysis and Concept Placement in Universal Classifications: the example of Architecture in UDC' in *Knowledge organization in the 21st century*, Edited by W. Babik. Würzuburg: Ergon Verlag. Krakow, Poland, May 2014, p. 237.

Moreover, as it could be observed between Le Corbusier and Otlet, this system supplied a shared terminology as such: plan, analysis, classification, abstraction, synthesis and standardization.

Otlet and La Fontaine declared that a universal bibliographic repertory should be comprehensive, systematized by authors and subjects, and should be distributed in many copies throughout the world. It should be exact and accurate so that omissions and errors could be easily corrected at any time. It should fully include the existing work on bibliography and help to unify all catalogs for the included materials. They were persuaded entirely that the repertory was necessary; they explained in depth the way scholars, editors, librarians, authors, publishers, and the public could use it. They also indicated that the outstanding past of the bibliography was limited due to the absence of cooperation and agreement among the bibliographers. This collaboration could nevertheless encourage the efforts of the DDC system at an international level as a suitable organization. In the light of this statement, they attempted to compile complete information and establish an international classification organization to disseminate it. This attempt ended with the establishment of the Universal Bibliography in Brussels under the auspices of the International de Bibliography.

Otlet began to compile a bibliographic database of information about sources of information. His Universal Bibliographic Repertory was carefully transcribed onto individual cards that were numbered and included nearly 400.000 entries in 1895, this number increased to 3.000.000 in 1903 and finally reached 11.000.000 when World War I started. At the very beginning of the project, the primary objective was to provide lawyers and the social sciences area with a bibliographic source. This first edition had many changes in both management and editorial processes even though the UDC has been a widely used global classification system. According to the UDC system, the objects (books, manuscripts, maps, schemes, ideograms, diagrams, drawings and photographs) required an architectural space for establishing archive. But for the index cards, a specialized architectural space had to be designed and built.

Alan F. C. Pollard stated that 'from a scientific or technological point of view the museum (objects) itself is of greater value than a written description of it and should, therefore, be regarded therefore as a document from a bibliographical point of view.'[22] The displayed objects were regulated by the classification of information in the architectural space and vice versa. Physical objects can serve as an informative tool, as well as books, manuscripts, and microfilms. In addition to all these information sources, museum objects can be essential documents within the knowledge space.


INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE
PALAIS MONDIAL — BRUXELLES

CLASSIFICATION DÉCIMALE UNIVERSELLE

Tables pour le classement des bibliographies, bibliothèques, archives, administrations, publications, brevets, musées et ensembles d'objets, en général toutes les espèces de documentation et les collections de toute nature.

EDITION COMPLÈTE

VOLUME 1

Tables abrégées. — Tables détaillées des Divisions 0 à 3.

1927-1928

INDICE DECIMAL

PUBLICATION DE L'I. I. B.

www.todocoleccion.net

Figure 1.6 The First Edition of UDC, the International Institute of Bibliography.[23]

Otlet and La Fontaine saw that this classification could satisfy the RBU's requirements. Indeed, the bibliographic records of the Repertory by authors were listed in alphabetical order of the names of the authors, but for the Repertory by subject, they were classified according to the subject discussed in the book. It was essential to choose a term for each book that perfectly described the related topic. The selection of these words may vary based on who was evaluating the publication: a person would classify a book as 'architecture' while another would classify it as 'buildings.' These terms must also be translated into different languages, which accepted the universal

[22] A. F. C. Pollard. *British Society for International Bibliography Proceedings* 6: v. 54, 1944, p. 86.

[23] Mundaneum, October, 2017, Paul Otlet's library, in Mundaneum, Mons, Belgium.

character of the classification. The UDC responded to these constraints by using an international language: numbers. Each subject has a number classifier, and this number was identical regardless of the country where we were in, and the language is spoken. A book on the natural sciences would be indexed in both French, English and Turkish under the number 5.

Otlet intentionally used the term 'universality' as it connected to the information accessibility, which was also used to create his documentation scheme that would incorporate all branches of information. In order to achieve this, he first devised a comprehensive coverage and classification of gathered information and its transformation into the different types of universal scientific language that reflected his 'things' and 'beings' order. By doing so, all the things of the universe and all those of man would be recorded in terms of his classification scheme. Therefore, this universal knowledge generated a kind of science-based collective brain that was a memory of the whole world and was available to all mankind without exception.

In order to comprehend the classification laws, Otlet and La Fontaine began analyzing the DDC scheme and built their system called UDC. The DDC was regarded as the first universal classification system for libraries based on an enumerative classification scheme with a monolithic hierarchical structure. Therefore, it often occurred that a facet that was frozen to some extent after enumeration. The complicated structure of the DDC was often enumerated as it was not possible to combine numbers to represent compound subjects. This system could not meet the necessities of the 20th century's multidimensional knowledge. On the other hand, UDC also began with a monolithic structure where it had a large number of common auxiliary tables and the ability to combine numbers from different tables. The main class structure of the UDC system was based on the DDC's main class structure in which both had introduced a dash of analytical and synthetic elements. Both UDC and DDC systems were expressed using codes based on decimal numbers.

In the autumn of 1895, Otlet and La Fontaine organized the 1st International Bibliography Conference in order to discuss the proposal for a universal catalog of all that had ever been written. As a result of this conference, the International Institute of Bibliography (IIB) and the International Office of Bibliography (OIB) were founded as headquarters. The aims of the IIB were stated as:

- Improve and harmonize the bibliographical methods, especially classification,
- Organize cooperation in the elaboration or formation of works and collections, especially the Bibliographic Universal Repertory,
- Establish an international coordination center,
- Allow intellectual workers, in particular by providing copies and extracts, to use the collection,
- Globally multiply bibliography and documentary services.

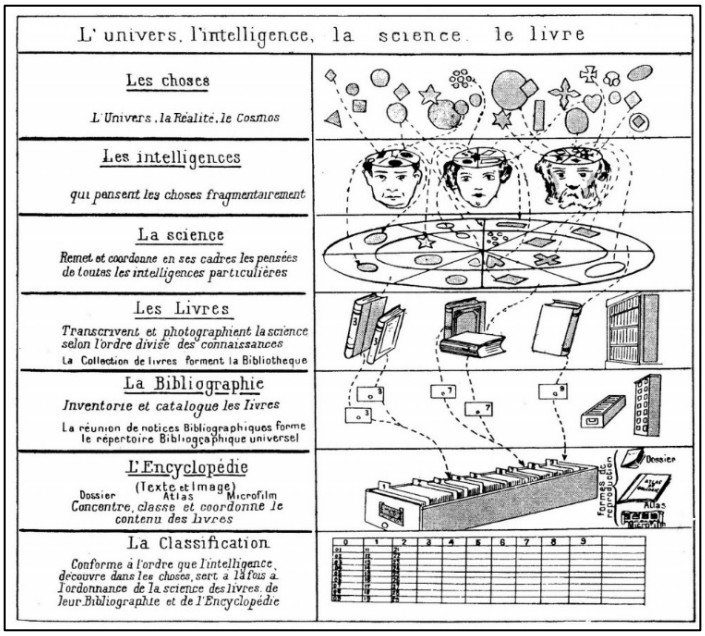


Figure 1.7 The Organizational Relationship among the Universe, the Intelligence, the Science and the Book.[24]

[24] Mundaneum, October, 2017, Paul Otlet's sketches, personal archive in Mundaneum, Mons, Belgium.

In the sketch above, Otlet showed his idea about the different levels of the organization of information in terms of the documentary method. It was starting with the representation of ideas and facts, irrespective of their physical medium that could be organized into a 'universal' system, which was easily searchable. He verified that the facts must exceed the book's physical constraints. In order to gain better access to information, the data was then included in an inventory of cards, using the DDC system. In other words, he would do this by extracting the substance of each document in the world and recording it by cutting and pasting it from the original document or copying it by hand on standardized 3x5 inch cards which cataloged and cross-referenced the relationship among all the published information in the world. Then, these cards would be placed in an extensive repertoire of the bibliographic cards and divided from general to specific subjects. It could be observed that these organizational relationships developed their own classification system in the very last step. By doing so, Otlet and La Fontaine created all information available to all humankind without any exception.

During this period, two friends were socially and professionally in an excellent position to use this new knowledge machinery. Ernest Solvay, a Belgian Intellectual and the eminent financier, was the chief financial contributor. Also, the Belgian government offered their patronage and Edouard Descamps, a well-known lawyer, and a politician was appointed as president of the conference. Therefore, the invites were endorsed by the Belgian government and the meeting was a semi-official that could be understood as an intentional, official and essential setting.

By 1910, the Belgian capital had become the most visited host for international events, hosting more events than Paris and twice as many as London, with Berlin accommodating only one-tenth of this number. Brussels hosted not only the 1910 Universal Exposition but also a World Congress of International Associations in which the participants discussed issues of legal status, the standardization of scientific terms, weight, and measures. One of the results from this Congress was the

establishment of a Union of International Associations, based in Brussels at Otlet's Central Office.

The intention behind the creation of a 'Universal Book' was to find all useful knowledge on its ever-revised pages. It is worth mentioning that Otlet was treated as the father of 'documentation' on a transparent platform to systematize the extraction of facts from amounts of information. Long before the Internet, he believed that providing those who needed it meant transforming traditional libraries into information hubs. His dream has now taken shape with the information flow of the Internet as universal access to information. Otlet described his understanding of the 'Universal Book' as:

> 'Information, from which has been removed all dross and all foreign elements, will be set out in a quite analytical way. It will be recorded on separate leaves or cards rather than being confined in volumes that are compact and in many copies. They are mixtures of what is repetitive, preliminary and for reference and contain all those superfluities in which, nowadays, an original thesis, a new proposition, a novel observation, an important result, are submerged and disappear. By gathering these leaves together, and classifying and organizing them according to the headings of a reliable, precise, and detailed classification, we will create the 'Universal Book' of knowledge, a book which will never be completed but which will grow unceasingly.'[25]

In the light of his interest, he began speculating about the 'Book' (he used as 'Le Livre with a capitalized letter). Over the years, he proposed new ideas on what constituted the book and how its functions could be fulfilled. In 1903, he suggested formulating a

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[25] Paul Otlet. 'Les Sciences bibliographiques et la documentation', in: *Revue scientifique. No*. 58, 1918, 236–241. trans. W. Boyd Rayward, *International Organisation and Dissemination of Knowledge. Selected Essays of Paul Otlet*. Amsterdam: Elsevier, 1990, p. 84.

new discipline related to the 'Book' and called 'The Science of Bibliography and Documentation.' In this book, he proposed his new discipline as the concept of 'documentation' and the document as the object of its study. Therefore, this helped him to think about the mobilization of knowledge in many new ways that were conceived as the content of documents. From this point of view, it could be interpreted that he began to focus not only on written materials but also on images and visual representations as fundamental to information management, communication, and space of collections.

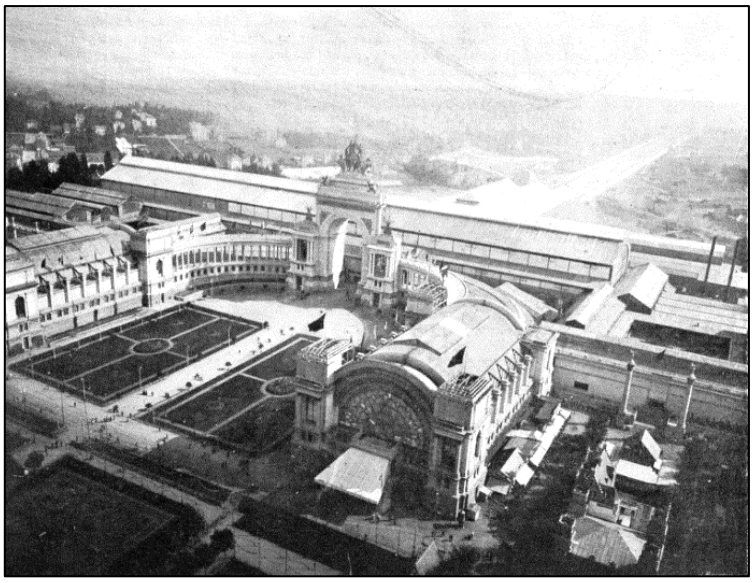

Figure 1.8 The Palais Mondial (World Palace), Brussels, Belgium.[26]

Consequently, Otlet's vision went much more profound than a bibliography. His main aim was to turn Belgium into a kind of global data center which would become the coordinator of a new form world organization. He paid attention to its architecture as he thought that its architecture had to be so significant that he worked with many architects and urban planners. He asserted that Brussels could be regarded as such a place, both because of the growing numbers of international associations and because of its central geographic location as Europe's intersection. In his article 'Brussels as a

[26] Mondotheque, January 8, 2019 < http://www.mondotheque.be >

Capital for the World' on the Occasion of the Hague Peace Conference of 1907, it could be interpreted that Otlet who first proposed it.

An agency would thus exploit the increasing interdependence of material and moral life. He dreamed of establishing a World Palace – a Mundaneum and its institutional components such as the library, the museum, the bibliography, the iconography and the international center. Here, Otlet displayed the massive filling card system he had forming since the 1890s, as well as scientific instruments/tools, optical devices, projectors, navigational devices, printing equipment, and airplane models, many of which were remains of the 1910 Brussels World's Fair.[27] Thus, it could be understood that at this world fair, the concept of the International Museum was born. The primary purpose behind this museum was to bring together global collections of objects to illustrate the world and its knowledge.

During the last decade of the 19th century, a Scottish urban sociologist and town planner Patrick Geddes dreamed of designing a universal 'index museum to the world.' In the dream of the World Palace, Geddes played a leading role at the 1900 Paris and 1910 Brussels World's Fair. He organized a summer school at the Paris Exposition, where he met Otlet. Like Otlet, he was an encyclopedist, explored the encyclopedic museums, and he was also interested in the future of the museums. Their projects did not aim at a 'literary' form, rather at a 'scenographic and museographic.'[28] For him, an index museum was a graphical encyclopedia that developed into a museum space.

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[27] Nader Vossoughian. *The language of the World Museum: Otto Neurath, Paul Otlet, Le Corbusier.* Rotterdam: Transnational Associations, 2003, p. 84.

[28] Pierre Chabard. 'Architects of Knowledge,' in *Aesthetics of Universal Knowledge* ed. Simon Schaffer, John Tresch, Pasquale Gagliardi. Switzerland: Palgrave Macmillan by Springer Nature, 2017, p. 55.

At the end of the 19th century, Geddes dreamed of establishing 'index museum to the world.'[29] Ayşen Savaş emphasized the process of indexing 'both in its literal context as to indicate the place of an artifact and in its metaphorical context as to give a value to an artifact' and proceeded '…while indexing artifacts, they also define the nature of their institutions.'[30] Like Otlet Geddes believed that museums were kind of forums where the complete unity of human knowledge could be displayed. To clarify his objection, he attempted to design a world microcosm that he could cultivate and nurture in a single enclosed space.

Both Otlet and Geddes shared an encyclopedia classification passion. Making a comparison between them was very interesting because they were contemporary and fully conscious of each other. Besides, their 'encyclopedic' projects aimed at a type of scenography and museography. Both were attempted to classify knowledge as well as spatialize and exhibit it and they designed it in a spatial and topological way. Instead, they searched for the spatial representation of knowledge, evaluating, and 'mobilizing canonical forms' that emerged from the encyclopaedical tradition.[31] Each of them tended towards a creation of graphics, scenography and architecture. Both Outlook Tower and the Mundaneum were two complicated programmatic assemblies of museums and displayed encyclopedic gatherings by Geddes or Otlet, respectively. Both were determined, defined, and organized relationships between themselves and their contents. These projects represented the principles of both spatial and knowledge-organization. By doing so, they believed that museums were forums that could demonstrate the unity of human knowledge. Ronald E. Day stated that we are

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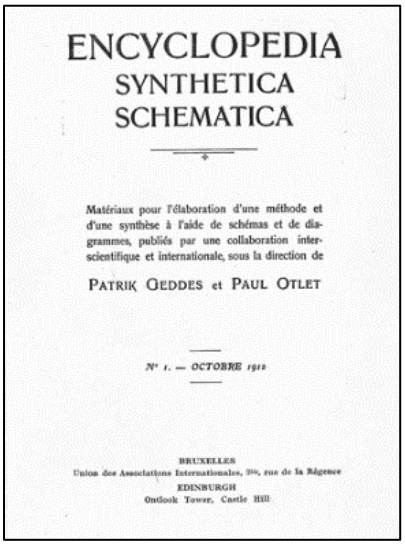
[29] Pieter van Wesemael. *Architecture of Instruction and Delight: A Socio- Historical Analysis of World Exhibitions as a Didactic Phenomenon*. Rotterdam: 010 Publishers, 2001 (first published in 1798), p. 433.

[30] Ayşen Savaş. *Between Document and Monument: Architectural Artifact in an Age of Specialized Institutions,* Unpublished PhD Dissertation in Architecture. Massachusetts: MIT, 1994, p. 17.

[31] Chabard. op. cit., p. 55.

all still living in Otlet's mental universe and explained the 'visionary' quality of his documentation, such as:

> '… a master science of sciences to collect, organize, and make accessible all useful human knowledge in the service of humanity and human progress—which remains, implicitly, the agenda of information science.'[32]


ENCYCLOPEDIA
SYNTHETICA
SCHEMATICA

Matériaux pour l'élaboration d'une méthode et d'une synthèse à l'aide de schémas et de diagrammes, publiés par une collaboration inter-scientifique et internationale, sous la direction de

PATRIK GEDDES et PAUL OTLET

N° 1. — OCTOBRE 1912

BRUXELLES
Union des Associations Internationales, 39bis, rue de la Régence
EDINBURGH
Outlook Tower, Castle Hill

Figure 1.9 The cover of the Encyclopedia of P. Geddes and P. Otlet, 1912.[33]

At every scale of understanding, this tower offered visitors access to all aspects of knowledge from local to the regional, to the national and the global: Edinburg and its region, Scotland, Europe and the world, respectively. It included various types of material representations: bas-reliefs, diagrams photographs, dioramas, globes, maps, models, paintings, and stained glass. At the top of the tower, there was a camera obscura that provided synoptic views of Edinburg and from the open gallery of the

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[32] Ronald E. Day. *The Modern Invention of Information Discourse, History, and Power*. Carbondale, IL: Southern Illinois University Press, 2001, p. 11.

[33] Mundaneum, October, 2017, Mundaneum, Mons, Belgium.

immediate hinterland. In order to maintain their original function, visitors can still see Edinburgh and its regions. The building consisted of five levels with an understanding of the rational order and classification on different scales which had the spatial, temporal, and spiritual dimensions. Each level was designed from top to bottom in a relationship between Edinburg, Scotland, Language, Europe, and the World, respectively. The successive rooms would show the increasing relationship between the town and the world as one came from floor to floor.

Geddes interpreted the index museum or universal museum as an encyclopedic space that combined visual schemes of different orders all in one unit and every level of the tower he represented them. On the fifth floor, there were the representations of Edinburgh's historical evolution, its present conditions, and its best prospects for the future. Below that, the next floor was dedicated to Scotland with a gigantic map painted on the floor, correctly oriented to the compass points, maps, diagrams, instruments, books, episcopes, globes, aquariums, herbariums, functional models of lunar volcanos, pictures on the wall dedicated to the nation's history and geography. The third floor was dedicated to the Empire (English-speaking countries), with a special alcove allocated to the United States. Below that, there was the Europe section, and the whole World was represented on the ground floor. This Outlook Tower could be interpreted as the prototype of the future museums by Geddes.

Figure 1.10 (left) The Elevation and (right) the Photograph of the Outlook Tower, Patrick Geddes, Edinburg, 1892.[34]

Geddes intended to invent, from the local, the regional, the national and then to the world community; a real modern museum would expose its citizens into the growing chain of cultural, social, and economic perspectives. The end product of this invention was the Outlook Tower in Edinburg, in 1892 and it is still there. In his various experiments, this tower became the symbolic and practical focal point of the regional and city surveys, urban education, and world unity. He thought that museums might be useful to educate people about the world. Not only were the museum places of the historical artifacts, but it could also play a role in teaching. He designed this prototype museum to inform about different topics and to represent their interrelations.

Geddes was influenced Otlet's rethinking of the encyclopedic museum. He tried to find a way to create a microcosm of the whole world in a single enclosed space to cultivate and nurture. Like Otlet, he also intended to design the shelves composed of published 'things.' He ordered a clipping archive on multiple subjects related to the city where each tower would be constructed. In addition to this, he arranged the

[34] Patrick Geddes. *Cities in Evolution*. London: Williams and Norgate, 1915, p. 38.

thematic folders for the use of the citizens. Part of his archives at Edinburgh University was composed of thousands of press cuttings complete of filing cabinets.

Otlet planned to build the World Palace as an International Library, a Museum, and a University. These were the organs of a World City, and the Mundaneum was the brain of this organism. Therefore, he noticed that his dreams were related to creating a universally accessible 'storehouses of knowledge.' After the World War I, numerous architects were invited to propose planning of this kind of city as a part of the stream of recommendations to justify and consolidate the role of Brussels, as cities dedicated to world peace, besides The Hague and Geneva.[35]

Although Otlet's consideration of planning and his concept of Urbaneum, Nationeum (Belganeum) and Mundaneum were crucial for both architecture and urban planning, he did not receive much attention in the historiography of Belgian architecture and urban planning. By investigating the planning models of architects and urban planners, this thesis analyzes the Otlet's ideas of universalism and internationalism. This study looks at two different aspects of Otlet's work: the design of the world city and its systematization of global knowledge through documentary and archive classification methods.

In conclusion, Paul Otlet's ambition was undoubtedly equally impressive in achieving the double purposes of his project: designing and constructing a world city on the one hand, that included an establishment of the world's knowledge network and social cultures and on the other hand, its dissemination and storage in terms of an 'archive.' Upon the completion, three components became apparent: first, a systematic classification of information and its translation into different types of a universal scientific language reflecting the process of the order 'things and beings.' The next referred to globalized human societies that were based on globalized knowledge in a

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[35] Carola Hein. *The Capital of Europe: Architecture and Urban Planning for the European Union*. London: Praeger, 2014, p. 20.

globalized world city. He focused on generating a 'collective brain' to the memory of the world by using the natural order of things.

With this in mind, this study is, on the one hand, the analyses of Otlet's Utopias as an urban planning project and his primary approaches to the 'archive' on various scales: Cité Mondiale as an urban museum in Otlet's term, museums, halls, rooms, the furniture containing banks of drawers (cardboards), catalog drawers (boxes/repertories), and index (information) cards, respectively.

A theoretical classification of science is also applicable as a whole to the classification of physical objects, as anyone who had tried to organize a museum (as Otlet had done in his youth) would have discovered. This understanding of the classification is the same attempt that was necessary for the organization of museums in order to link human knowledge with the objects, which characterizes bibliographic classification, and gives it a practical rather than a theoretical orientation.[36] Otlet described the classification system in detail, remarking on the 'flexibility' that it encompassed in order to refer to a piece of new knowledge through its infinite but organized extensibility. By 1914, both the National and Comparative Sections took the form of the rationalization underlying the Museum's structure. In 1914, Otlet defined the National Sections as:

> 'The National Sections are assembled according to educational and synthetic methods, all possible objects and documents showing the general aspects of the various countries or ethnical groups in order to facilitate comparative study: political and social organizations, natural and artistic wealth, economic development, civilization and culture, participation in the universal life through material and

[36] W. Boyd. Rayward. *International Organization and Dissemination of Knowledge: Selected Essays of Paul Otlet*. Elsevier, Amsterdam, 1990, p. 103.

> intellectual exchanges; participation in international agreements whether of an official or private initiative.'[37]

Each government would organize its National section with the assistance of the associations of the country and an executive committee. The ultimate aim of this section was to comprehend what was already temporarily accomplished at the great Universal Exhibitions and its continuous impacts on the International Center. The halls of the Nations Sections consisted entirely of the geographical and ethnographical museums, including the museum of the Earth and also Men.

The International Associations formed the Museum's Comparative Sections, and each section was organized in order to demonstrate didactically and intuitively, the progress achieved by the Union in the multiple fields of sciences and practical operations. Therefore, it could be interpreted as a Universal, Educational, Technical, Geographical, Economic and Social Museum. Otlet described the general aspects of the Comparative Sections as:

> 'The Comparative Sections will take up all that is general, universal and really human: man, his physical and psychical being, the place he occupies amongst his fellow men, on the planet, in the universe, the history of ideas, creeds and philosophical systems; the transformation and actual state of the organization of the sciences and their appliances, co-operation in research and in the diffusion of knowledge, the guiding principles for intellectual and material work; the chief facts of universal history and the various phases of civilization; the laws of the formation and development of human societies; the mechanism of production, circulation, and distribution of wealth throughout the globe; the success of the great inventions, the struggle against diseases and plagues; the great undertakings

[37] Rayward. 1990, op. cit., p. 116.

> that have transformed the human abode and given men power over nature; the means of transport and of communication; the immense development of railways; the progressive constitution of the great transcontinental railway lines, and by the junctions of these, the creation of what one might call the trans Mondial system; the present state of maritime transportation, interoceanic canals, maritime routes; the origin, history and diffusion of the universal postal service, telegraphs, submarine cables, telephones and wireless telegraphy.'[38]

This museum also had the characteristic of the Otletian thinking of the World Museum in a miniature form. Otlet described it as a cosmoscope enabling one to see and comprehend the interactions among the Man, the Society, and the Universe. By doing so, it would offer a future vision, created by the synthesis and combination of all the variables of both previous and present-day progress. He continued to describe the content of the International Museum.

> 'The Comparative Sections will become, in time, special International Museums, which each International Association will form for its own field. Different museums created separately by International Associations have already combined with the International Museum such as the International Administrative Museum and the International Museum of Roads.'[39]

The most important institution was the International Center. This center systematically identified the thoughts underlying the work of Otlet and La Fontaine on 'internationalism.' They completely defined the components that comprise of the International Center: the International Library, the International Museum, the

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[38] Rayward. 1990, op. cit., p. 116.

[39] Ibid.

International Bibliographic Repertory, the International Institute of Bibliography, the Documentary Encyclopedia, the Congresses and the Central Office of the International Associations and their Union, as well as the International University.[40]

This chapter leads us to conclude that within the fields of documentation and information studies flow among the economic, social, scientific, architectural and urban planning 'monde,' the reality of the classification of knowledge has been severely criticized. These critiques are helpful for the kind of historical analysis made in this dissertation, to the extent that they offer a framework within which to reconsider in critical ways of classifications throughout the 20th century and reveal the context of the 21st century.

This study mainly deals with the Otlet's classification of knowledge in terms of the 'Mundaneum' as an archive to understand its influence in the discipline of information science and its organizations, particularly in the classification of architectural knowledge. For various reasons and in various contexts, the meaning of the concept denoted by the classification of knowledge has changed over the course of history, and this dissertation aims to contribute to the historiography of this concept by exploring what it involved for Paul Otlet, as he dealt with the issue of classification in his work and across the span of his lifetime.

This was classification in all forms of knowledge without exception beyond regionalism, nationalism, and internationalism, though he was aware of the continuing importance of these earlier forms of organization. For Paul Otlet, it was a complex of ideas and aspirations for which he essentially seemed to need a new word 'documentation' and its classification process. It is to uncover these complexities, to

[40] For a detailed architectural organization of the 'Le Palais Mondial' see the Appendix A.

contextualize and interpret them, that I have spent about six years of research and writing.

CHAPTER 2

WORLD CITY

2.1. The Historical Context of the World City

The Enlightenment era could be associated with the rational humanism, civic republicanism, and the rejection of religion; and, on the other hand, with the developments in colonialism and capitalism that initiated the start of the industrial revolution. Besides, independent thought, scientific rigor, experimentation and observation along with the classification of information that was necessary in order to build a universal system of knowledge and its design ideas related to the city characterized this era.

In his book 'The City in History,' Lewis Mumford started with these questions: 'What is the city? How did it come into existence? What processes does it further: what functions does it perform: what purposes does it fulfill?' Mumford went on to say that there was no single definition and no single description that covered all its transformations throughout history apart from the social aspects to the more formal development and integration of its ages. Historically, there have always been cities in an environment with connections, both with material and information flow. They functioned as centers from which their hinterlands were served and connected to larger areas.

After the Enlightenment era, several critical and international designs in an urban scale developed from Owen's New Harmony City in Indiana to the French colonial powers of Etienne Cabet, who were established as egalitarian communities in many American states, to Hygeia, a health city developed by Benjamin Ward Richardson in England and all these were in Karl Marx's term as 'utopian intellectuals and socialists' in the 19th century. Otlet's World City merged these initiatives in multiple ways from the

communication to the transportation of utopia. Their typical character, whether cognitive, global, or communication-oriented, was the aim to accumulate individual information in a centralized system that would expose their creativity and freedom in human communities. As Kenneth Frampton claimed that after the Enlightenment, the development of Modern Architecture as the continuation of bourgeoise culture appeared to be originated from the entirely designed utopias. Furthermore, Anthony Vidler examined the history of the museums from Geddes to Le Corbusier in his article and explained the 'World City' as such:

'In the image of an entire city turned into a museum by a historical catastrophe, many critics of the nineteenth-century museum found a way to render a domain of once exclusive knowledge public and accessible to the masses. Here the entire urban and regional milieu, from the street to the countryside, became an object of the museological gaze and a potential agent of its own representation as a school of life.'

In the above quotation, as a questioning of the effects of the historical restoration on the development of the city as a whole, the specific critique of this museum of the 19th century was generalized. By the beginning of the 19th century, the importance of the museum to emerging national awareness led to the formation of the national museums around the world. In contrast to the national context of the 19th century, the world cities had transnational functions. These world museums existed in a world of flows, links, connections, and relationships. These cities of the world museums represented an alternative geographical condition interrelated with 'networks.' If we were to lay a new foundation for urban life, we first had to understand the historical nature of the European city and distinguish between its original functions, those that had emerged from it and those that could still be revoked. The attempt was to investigate the borders and the definitions of the 'World City' along with its implementations in globalization, colonization, internationalization, modern urban architecture, urbanization, and modern architecture. The idea of a 'total prediction' and 'world equation' contributed the utopia of Otlet, the idea of the world city that fulfilled the view of complete centralization of global knowledge and power in Foucauldian perspective.

Otlet attempted to integrate this with the premise that the correlations between distinct operations were regulated by human creativity and freedom. Despite these seemingly contradictory ideas, both approaches -social forecasting and constructing a world city- were significantly motivated by the several behaviors and factors that backed attempts to achieve world peace, status of science an increasing need for an architectural design in societies literally, especially in cities and the communication networks that served each place. After concentrating on the bibliographic repertoire, the UDC, the book, the image, the World Palace, he envisioned an architectural project. The objective did not alter, and it was always linked to bringing peace by collecting, disseminating, and sharing knowledge.

Otlet's ideas about the city in line with flexibility, internationalism, rationality, zoning, and abstraction as specific aspects of Modern urban architecture allowed architects, urban planners, landscape architects and sociologists to think about the principles of architecture and could be interpreted as the development of CIAM meetings. In practical worlds, Otlet's projects concentrated on designing more world cities, and he met Le Corbusier. In this respect, Otlet praised Le Corbusier's inventive genius, who exemplified in his mind the ideas of what was unexpected and unpredictable.

When presented from the historical and scientific context, Otlet's work could be interpreted as 'anachronistic' from both the international and taxonomic perspective. His projects had utopian merit that could be explained as a rational response to what he called a 'world city,' that was necessary in order to create a form of internationalism and to be represented in the international field regardless of their geographical location. In this interwar period, the tensions of the transitional phase could be observed in Otlet's projects to show the status of science.

In this context, the idealistic and contemporary version of a conventional philosophical liberalism took up the assertions of various thinkers such as Kant, Locke, Hume, and Rousseau who referred to the construction of a peaceful world after

the World War I. As an international society based on multilateral institutions that guaranteed solidarity, civil liberties, and democracy, this world could be realized.

Otlet believed that the objective of his initiatives was to unify the civilized world in collective action to achieve specific goals of universal interest. Thus, individual states could not even begin to achieve providing people with the instruments that they needed to collectively gain more 'knowledge power' in the Foucauldian term and to put human activities under ideal circumstances to start developing wholly. Establishing such international organizations was intended to be linked to human progress in accomplishments and civilization.

In particular, Otlet thought that the 'trans-Mondiale' contained the most important cities along with the main lines of communication and dissemination of knowledge. His ideas on urbanism should be referred to on all scales that were used, especially in Central Europe on the debate of regional planning during the interwar period. At this time, he contributed to the debate on regional and national planning in Belgium. His vision for regional planning was the integration of a network of planning institutions at different levels: the Urbaneum on the local level, the Nationeum on the national level, and finally the Mundaneum on the global level. He worked with leading Belgian and European modernist architects and urban planners to create the architectural form of his vision.

Progressive dynamics appeared as new avenues were opened by science and social progress prevailed in urban planning and architecture until 1960, in the first quarter of the 20th century. Therefore, it led to the CIAM meetings, a leading association of Modern Architects and urban planners who had come together in search of solutions to the problems of urban areas. Since CIAM's work has focused mainly on urbanization issues, the development of the 19th century urban planning theory and practice needs to be discussed. Eric Mumford explained the emergence of CIAM as such:

> ‘An extension of the philanthropic housing and Garden City town planning directions that extended back to the 1840s, CIAM was focused on the idea that the redesign and future development of industrial metropolises should be based on the biological, psychological, and social needs of the working masses.’[41]

Otlet collaborated with Le Corbusier for the World City. At that time, CIAM was initiated by Le Corbusier and Sigfried Giedion, as organizing the Modern Architectural Movement and its interrelationship with the Science of Technology in 1928. They anticipated that the world city would be an example of a paradoxical utopia. In a transitional period, it combined the social, political, and economic aspects with the critical reflections, reform projects, and revolutionary ideas. Victor Bourgeois was the only Belgian representative at the first CIAM meeting.

Figure 2.1 Héléne de Mandrot, Le Corbusier and Paul Otlet.[42]

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[41] Eric Mumford. *Designing the Modern City: Urbanism Since 1850*. New Haven and London: Yale University Press, 2018, p. 155.

[42] Mundaneum, October, 2017, Otlet’s unpublished photograph, personal archive in Mundaneum, Mons, Belgium.

Otlet was invited by Le Corbusier to be an honorary member of CIAM's first meeting. He thought that Otlet's World City could be an example of a paradoxical utopia for this congress. Otlet wrote a letter about the concrete organization of CIAM as an international organism to Le Corbusier.[43] The relationship between Otlet, Le Corbusier, and Bourgeois was fascinating as they all worked on the proposal of the World City. Besides, they all attended to the first CIAM as members in Switzerland where the CIAM program was defined.

In the light of CIAM, Otlet rethought the design of World City and redefined his Urbaneum as a mixture of an urban museum, a documentation center, and a town-planning laboratory. It was established to be used by public services, architects, urban planners, transport associations, economic groups, and the general public. Through the Urbaneum, Otlet put forward a universal and regional planning institute, mainly for the case of Brussels.

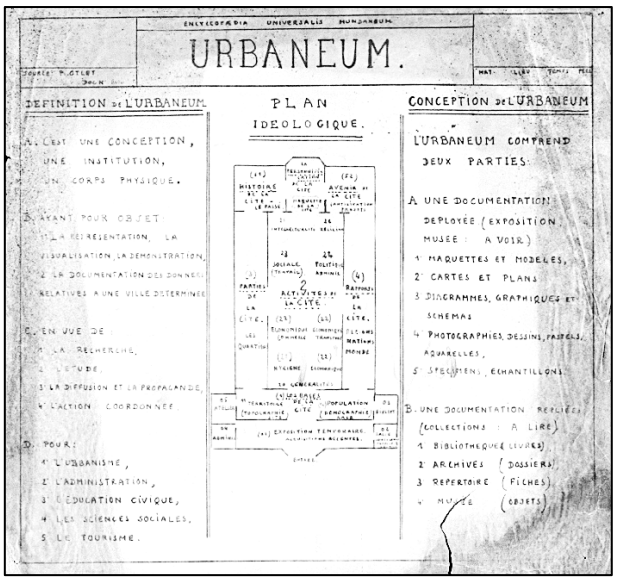

Figure 2.2 Schema of the Urbaneum, Paul Otlet, 1936.[44]

[43] Le Corbusier. *The Radiant City*. New York: Orion Press, 1933, pp. 25–27. See the Appendix B.

[44] Mundaneum, October, 2017, unpublished sketch of Otlet in Mundaneum, Mons, Belgium.

In the sketch above, Otlet drew a schematic plan based on a symmetrical axis. In the very center of the plan, there were places of the city activities (hygiene, economic, social, political, intellectual and religion). There were two main parts in this architectural schema. The front part consisted of the archival of all kind documents: library-books; archive-files, films, records; the repertory-index cards; and stocks-objects. On the left, there was a demonstration of neighborhoods as the city's components. On the right, space was dedicated to the city reports: regions, nations, and world scale. At the very back of the building, there was a large hall for the exhibition/museum for models, maps, plans, diagrams, graphics, schemas, photographs, drawings and paintings. Moreover, there was a model of the city and the representations of the city's past, present and future, respectively.

The heading of the sketch was the ideological plan of the Urban that could be 'a monument to contemporary man' in Karel Teige's terms.[45] It was the representation of either the contemporary highest institutions of intellectual and cultural life or the scientific institutions. The Urbaneum could be interpreted as a center of modern world culture that consisted of several functions. Otlet also defined the ideological plan as 'an illusion, a vain wish, a utopia; a music of the future.'[46] This total architectural organization was the expression of ideological and metaphysical imagination of Otlet.

He defined the 'Urbaneum' as a conception, an institution, and a physical body. The objective was related to, on the one hand, the representation, the visualization, and the demonstration; on the other hand, documentation of donations for a specific city. The Urbaneum was intended for research, study, propaganda, and coordinated action. It was designed for urban planning, administration, civic education, social sciences, and tourism. The Urbaneum had two sections: deployed documentation (exposition, museum – collections to see) and folded documentation (collections to read). The first

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[45] Karel Teige. 'Mundaneum,' *Oppositions,* No 4. October, 1974, p. 85. The article was originally published in *Stavba,* no. 2, 1927.

[46] Ibid., p. 90.

section included: models, maps, plans, diagrams, graphics, schemas, photographs, drawings, specimens, and samples. The second section was consisting of a library (books), archive (folders), repertory (files), museum (objects).

World City is a phenomenon of the 20th century that had transnational concerns that were due to the diversity of local responses, (inter)national policy making and legislation. In particular, European cities in a networked world throughout the 20th century. From the very earliest years of the 20th century, urban planning techniques and ideas were widely researched across the worldwide web of postal connections, lecture tours, study visits, and conferences. In this study, the focus, in particular, was on the transformation of the city networking throughout the 20th century and its reflections on the 21st century.

The global history of the city could be interpreted as a connection between 'distant cities.' This globalization allowed establishing a commercial, cultural, and also intellectual networks among the cities. With the growing awareness of global and world history, it took only common sense to emphasize the centrality of cities and their unique role in globalization. In the foreword to the 2003 English translation of the Henri Lefebvre's 'The Urban Revolution,' Neil Smith drew the attention to the phrase *La Ville Mondiale,* which he translated as 'world cities.'[47]

2.2. Cité Mondiale – The World City

During the interwar years and postwar period, many utopian visionaries and thinkers aimed to build a New World based on a collective and cultural conscience: Kenzo Tange's Metabolist movement, Ebenezer Howard's Garden City, Frank Lloyd Wright's Broadacre City, Le Corbusier's ideal 'towns.' Utopian concepts influenced modern architects and thinkers in the late 19th century. Thus, they collaborated to

[47] Neil Smith. Foreword, *The Urban Revolution*, by H. Lefebvre. University of Minnesota Press, Minneapolis, 2003.

design a better world. By doing so, they believed in providing the world's nations with a peaceful environment.

Paul Otlet focused on universalism and related universe sciences, therefore, because of its universal principles and norms. It was not a coincidence that he became interested in urbanism and attended the CIAM's meeting as an honorary member. The universal rationality allowed him to plan the spatial developments on a local, regional, national, international and also global level, respectively. In this context, Otlet dreamed the World City with a utopian vision bringing together, like in universal exhibitions, all the leading institutions of the world: museums, libraries, universities, and documentation centers, offices for the International Associations, embassies for the nations, an Olympic Center, a residential area and a park. He theoretically investigated these possibilities that could be characterized as systematic, rational, unidirectional, universal and positivistic approach.

Paul Otlet was one of the internationalist visionary thinkers who worked to find a spatial organization of the World Center. Otlet was the inventor of both the 'Mundaneum' and the 'Cité Mondiale.' The Mundaneum was also an architectural metaphor for global knowledge organization and dissemination, as well as a network, both a material and a virtual building. Alex Wright defined it as 'both an architectural plan and a metaphor for a new, enlightened form of civilization.'

The entire concept of the Mundaneum, beginning in the Palais Mondial in 1910, was to internationalize and incorporate the different institutions in the same urban or architecture. The Cité Mondiale was a project that constituted all the international institutions and pavilions of the nation-state. The Mundaneum was based on the typical form of the globe. This form was the supreme sign of Otlet's continuity/unity and collaboration among the various communities. He sketched the Cité Mondiale as such:

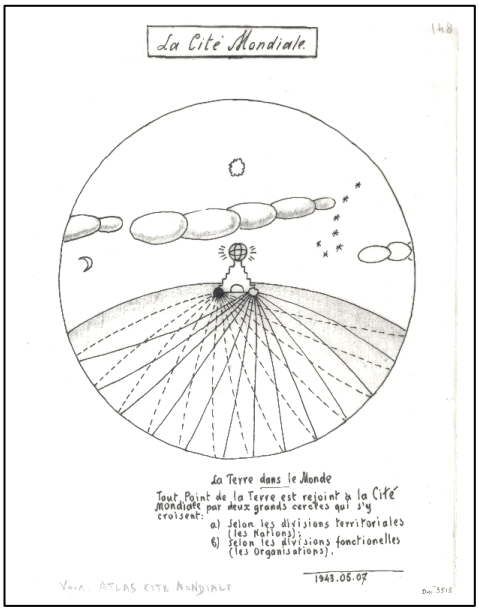

Figure 2.3 Schema of the Cité Mondiale, 1943.05.07.[48]

In the sketch above, Otlet illustrated his conception of the Cité Mondiale as a point in the world. He wrote as an explanation of the sketch 'every point of the earth is joined to the World City by two great circles which a) by territorial divisions (nations), b) by functional divisions (organizations).' This sketch was the representation of the building blocks that he used to symbolize his utopian vision. His production of visual material to disseminate information about the city also seemed to be entirely characteristic of him. The fact that there was still a notable quantity of sketches, drawings and prints allowed us to obtain an idea of the World City's contents, appearance and representation. It was very essential to note how this sketch drew parallel to with the CIAM presentation.

At the end of the 19th century and the beginning of the 20th century, architects tended to design 'ideal cities' on an urban scale. Paul Otlet worked on various occasions with numerous architects: Octave van Rysselberghe (1911), Hendrik Christian Andersen and Ernest Hébrard (1913) in Tervuren, Louis Van der Swaelmen (1919) and Le

[48] Mundaneum, October, 2017, personal archive in Mundaneum, Mons, Belgium.

Corbusier (1928-1929 and also 1933) in Geneva next to the palace of the League of Nations and also on the left bank in Antwerp, Victor Bourgeois (1932) and again in Tervuren next to the Congo Museum, Maurice Heymans (1938) in Chesapeake Bay near Washington D.C., and the final one, Raphael Delville and Stanislas Jasinski (1943) on the left bank in Antwerp.

These architects designed spatial representations of Otlet's program for the Cité Mondiale and produced scaled models, sketches, and architectural drawings. The project would be implemented in many cities, including Geneva, Brussels, and Antwerp. This chapter includes an analysis of all these architectural projects. All these proposals are revisited to locate the idea behind the collection and dissemination of knowledge and its placement in architectural space. Furthermore, these architects proposed an organizational system for architecture. This system inevitable reflected on the architectural formation of museums. The spatial organizations of museums can best illustrate the organizational structure of knowledge.

Paul Otlet designed Cité Mondiale as an international center of knowledge that was accessible to the public from all around the world. This project not only included utopian cities but also those cities that would be located next to the respective cities in the existing urban context. The city offered new services to international citizens and common spaces dedicated to art, science, sports and work activities. The primary purpose of the project was to create a 'peaceful environment' between the nations. There were several proposals for the design of the World City, and the program remained more or less fixed containing a World Museum, a World Library, a Documentation Center, an Olympic Center, a World University, offices for the international associations, offices, embassies for the nations, a residential area and a park. All the buildings of the World City had been characterized as a representative aspect of modern architecture particularly by their cubicle forms, flat roofs and zoning implementations.

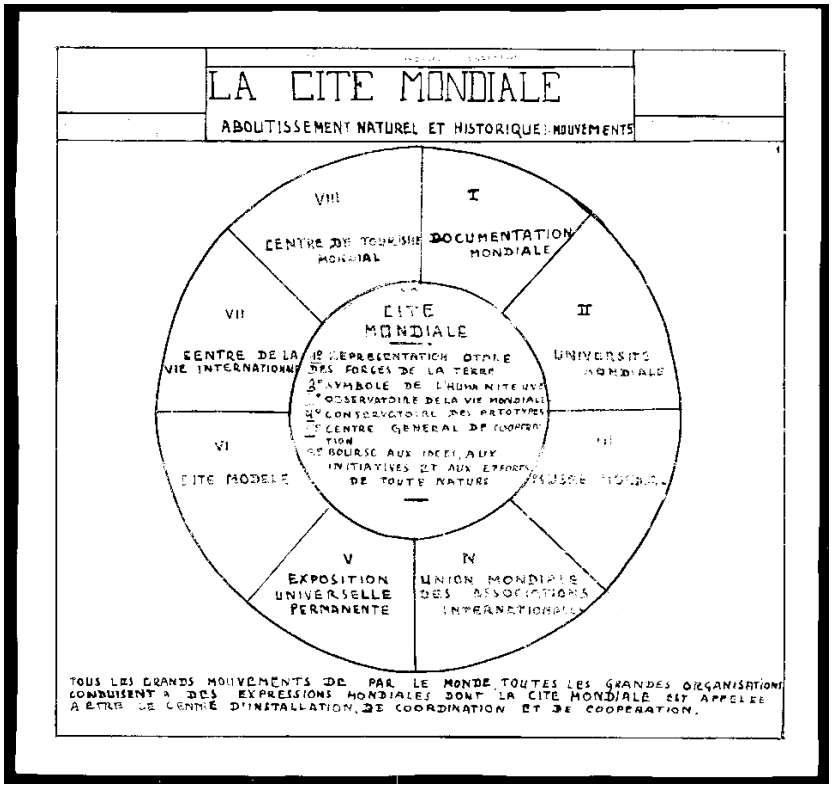

Figure 2.4 The Content of the World City, by Paul Otlet.[49]

Otlet always used these kinds of orienting charts (*table d'orientation*), representing the orientation and distance of whole components of the World City. The title of the chart was indicated as 'Natural Outcome and Historical Movements.' At the very center of the chart, the city was located and its characters were written as such: 1. total representation of the forces of the earth, 2. symbol of humanity unit, 3. observatory of world life, 4. conservatory of the prototypes, 5. General Cooperation Center, 6. Scholarship for ideas and initiatives of all kinds. The elements of the city components surrounding the city circle were indicated as I. World Documentation, II. World University, III. World Museum, IV. World Union of International Associations, V. Permanent Universal Exhibition, VI City Model, VII. Center of International Life, VIII. World Tourism Center. At the bottom of the sketch, he wrote '[a]ll major

[49] Mundaneum, October, 2017, Otlet's unpublished sketches, personal archive in Mundaneum, Mons, Belgium.

movements around the world, and all major organizations lead to global expressions including the World City is called upon to be the center of coordination, cooperation, and installation.' In the sketch above, it could be interpreted the main characteristics of the city which was related to the centralization of the institutions, information, and activities at the urban scale. He thought the centrality was a very efficient organizational principle. This centrality could be observed in both architectural and diagrammatic thinking of the 'organization.'

While the architectural program for the project could be interpreted as fixed, each architect or urbanist reanalyzed the design and the context from the aspect of the geographical location of the Cité Mondiale. Here, it could be added that the orientation was another architectonic modernist aspect. Moreover, the idea behind this city was the architectural representation of his wide-reaching knowledge-based project. This project came into existence by three leading institutions of intellectual production: the library, the museum, and the university. It remained a utopic project as it had never been realized. Its utopian character could be described as either communication-oriented, global or cognitive, and the primary objective was to accumulate complete information in a centralized scheme that exposed both creativity and liberty in human societies. As previously mentioned, Otlet dreamed of a schematic plan contained the general organizations for the whole city. This city was designed based on a strong symmetry with the organization of the administration, the institutions and the palace of nations that would define the border of the central axis.

1. The Institutions
2. The Associations
3. The Nations
4. The Habitations
5. Nature
6. Administration

Centralization and monumentalism designed the entire city in Otlet's idealist scheme. The center had to house the most monumental architecture in his scheme. He took the monumentality into consideration in terms of scale to show the evidence of absolute power. In Otlet's organizational scheme, the centrality and the monumentality were closely related and over-emphasized. Thus, he designed the center would have to have a monumental architectural design.

His ideas regarding monumentality to enforce spiritual authority over the people could be interpreted as being controversial. Yet he had a clear separation between what was 'public' and what was 'universal.' For him, the representation of knowledge in architecture required a monumentality. His monumental design might have a different role, but the critical point was to design a monumental architectural solution. The World City needed to store all the information in a great architectural design in order to become a genuinely focal point.

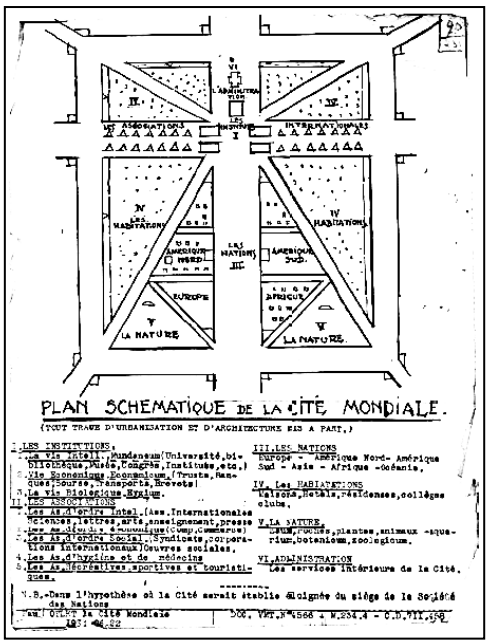

Figure 2.5 Schematic Plan of the Cité Mondiale, by Paul Otlet, 1932.[50]

[50] Mundaneum, October, 2017, personal archive in Mundaneum, Mons, Belgium.

As Otlet sketched above, the 'Cité Mondiale' plan as a model that rendered the portrait abstract and kept its prototype. Therefore, this scheme could be interpreted as representing the delocalized and reproducible characteristic of order. He designed the World City structure as the Cartesian application of the perpendicular junction between the two axes that was indicating nationality and internationality. According to him, it was necessary to establish a cross-plan interrelation between 'national' and 'international' in order to create a 'universal' urban planning. He grouped the 'pavilions of nations' and the 'halls of continents' along the vertical axis of his schema as a representation of universal exhibitions' zoning. Furthermore, this diagram could be regarded as the recollection of the World Expos of the19th century. The horizontal axis housed the headquarters of international organizations of economic, intellectual, medical, social and recreation activities. He designed the institutions of the world organizations on these matters at the crossing of these axes.

The primary objective of the Cité Mondiale was to integrate all the international organizations and bring them together with a single center. The project also focused on highlighting the position of a particular city within the international platform. Therefore, the Cité Mondiale was a utopian project that offered a model of new social order as a centralized organization. He mentioned that the centralized structures were the best rational organization transform worldwide interdependence into solidarity among the members of the social body. According to Otlet, the '*domain par excellence of hypothesis, of creation, of utopia*.'[51]

Otlet used this centralization of the city's international organizations in order to highlight the interrelationships between peace and progress. This kind of interrelationships helped to coordinate the expanding and growing number of organizations. This centralization mainly focused on saving time and energy consumption as the distance between different organizations was minimized.

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[51] Acker. op. cit., p. 709.

Furthermore, it allowed to store and disseminate the whole information from all over the world.

Otlet's utopian project was apolitical and secular since it was built on science, reason, and rationality. His main aim was to gather all intellectual workers in one social network. His utopian vision had to do with gathering humanity through international associations around the central institution, and he described it as a 'Vatican laïque.' In fact, in his book 'Cité Mondiale,' he often referred to the Vatican as one of his models. As a close friend, Patrick Geddes told him that '… all you are going to do is creating a revolt against the new Vatican. You are going to say that pontificating is not your intention at all. I know it – but unfortunately, this is the impression you are still giving.'[52] This new Vatican placed knowledge at the center. In *Utopia & Anti-Utopia in Modern Times,* Krishan Kumar stated:

> '… architecture has always been the most utopian of all the arts. It has a longstanding concern with the marriage of mathematical and human forms, the finding of a harmony and correspondence between the mathematical relations of the cosmos and the forms and functions of the human body.'[53]

In the light of his statement Otlet's project could be interpreted as one of the examples of this kind of utopia in terms of its principles of harmony, rationality and also unity. His utopia was linked to being a center of internationalism, yet different than what Thomas More desired for. The difference between More and Otlet was based on their sites, as More's design was located in an untraceable land, Otlet's Cité Mondiale was

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[52] W. Boyd Rayward. *The Universe of Information: The Work of Paul Otlet for Documentation and International Organization*. Viniti: Moscow, 1975, p. 265.

[53] Krishan Kumar. *Utopia & Anti-Utopia in Modern Times*. Oxford: Blackwell, 1987.p. 5.

located near Brussels where Otlet worked with acclaimed European architects and urban planners. However, both remained as unrealized utopian projects.

In this context, Otlet's Cité Mondiale was not a fictional world at all, and he pointed out that his proposal was always based on a real-world project next to particular cities in particular nations. However, it still had the utopian characteristic that was supposed to be a 'model city' in his terms 'Cité Modéle.' This model city was not only a residential proposal but also a political World City. Moreover, this plan was designed for particular cities: Brussels, Geneva, and Antwerp with a specific architectural design at a particular time. All the Cité Mondiale models were based on the same idea of the centrality. It had a self-mission to 'become the advanced point of memory and decision-making point.'[54] They were not exactly future utopian projects that were the collectors of the memory. In conclusion, the Cité Mondiale had a Universalist mission for the civilization of the world both scientifically and morally.

2.2.1. Christian Andersen and Ernest M. Hébrard – 1913

Figure 2.6 Bird's-eye view of the plan of the Cité Mondiale, 1913, by H. Andersen.[55]

[54] Acker. op. cit., p. 712.

[55] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

In 1913, Otlet assigned the sculptor[56] Hendrik Christian Andersen and Ernest M. Hébrard as an architect to design a World Center of Communications in Tervuren, a suburb of Brussels. This organization showed Andersen's vision of a metropolis which had one million inhabitants. The World Center of Communications consisted of the major international institutions of art, science, industry, and law. The project involved three areas: Olympic Center, Artistic Center, and Scientific Center. This example could be interpreted in Modern Architecture as a 'zoning' motto.

2.2.1.1. Création D'un Centre Mondial de Communication

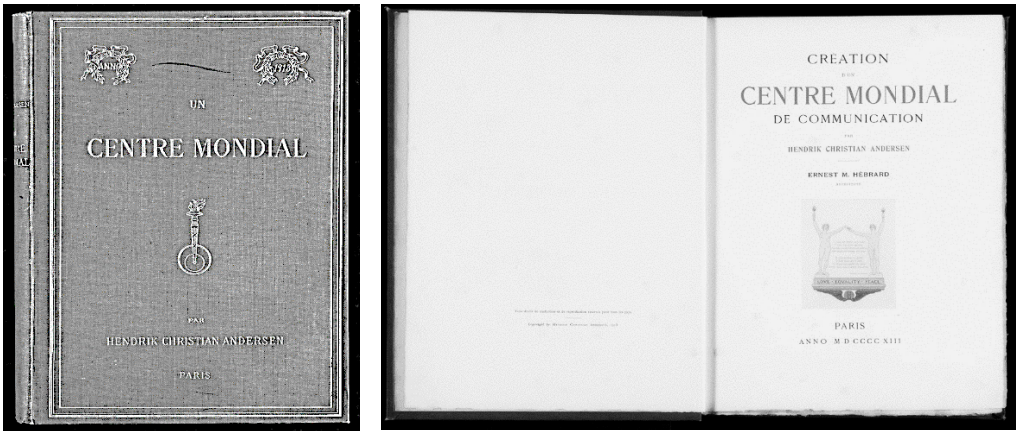

Figure 2.7 (left) The cover and (right) the first page of the 'Creation of a World Center of Communication,' 1913, by H.C. Andersen and E. Hébrard.[57]

Hendrik Christian Andersen wrote the book 'Creation of a World Center of Communication' in 1913. He was the only architect to publish all the details about the design of the 'Mundanuem.' The book consisted of three chapters: Legal Part, Economic Part, and Architectural Part. In the architectural part, Andersen co-authored with the architect of the French Government Ernest M. Hébrard and former professor of architecture at Cornell University Jean Hébrard as an assistant to his brother. This

[56] This was Otlet's first collaboration with both architect and sculptor.

[57] Mundaneum, October, 2017, Paul Otlet's personal book archive in Mundaneum, Mons, Belgium.

part of the book was the presentation of a grand architectural project for an international city, which gave the social communication in all its forms.

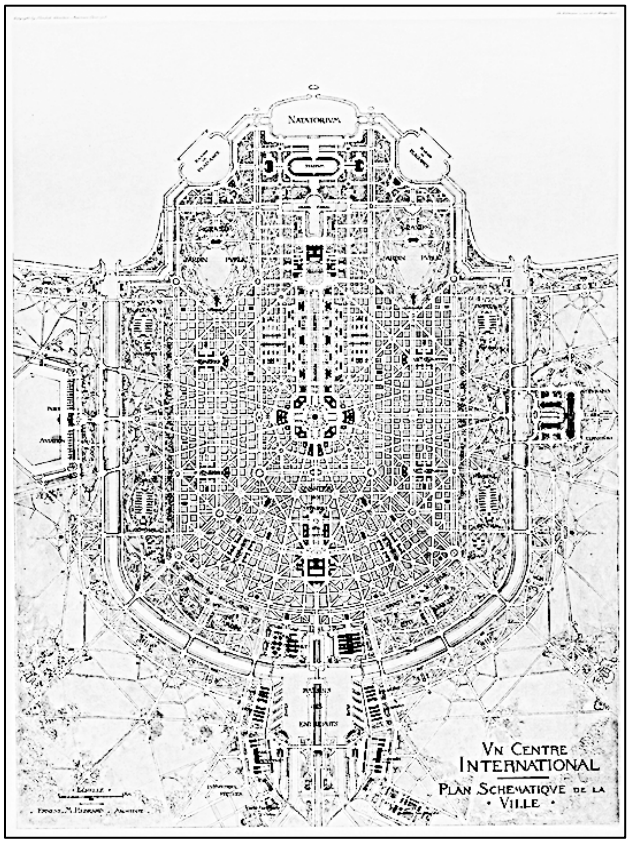

Figure 2.8 Schematic Plan of the International Center, 1913, by H.C. Andersen and E. Hébrard.[58]

In the 'Creation of a World Center of Communication,' Hébrard mentioned that the World Center could be related to the Mediaeval towns since they all had enclosed forms and were protected by massive walls and the narrow streets defined the dwelling organization. There were class divisions in the town that could also create a particular order for urban design. The city was divided into several zones, and the water belts separated each zone. The intersections of the belts constituted a wide and navigable canal that connected the sea with the central trading basins that provided the further extremity of the town.

[58] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

The plan consisted of monumental plazas and large boulevards. The grid and zoning principle and its relationships with open spaces could be interpreted as the precursors of the CIAM understanding. The spatial pattern was provided by the balance between the continuity of solids and voids. Green areas became the symbol of progress, and the buildings were grouped among them according to their function. Choay explained it as such: 'Devised for reasons of efficiency and productivity, this functional classification is the origin of zoning … housing is separated from recreation and work, the latter being further classified by type.'[59]

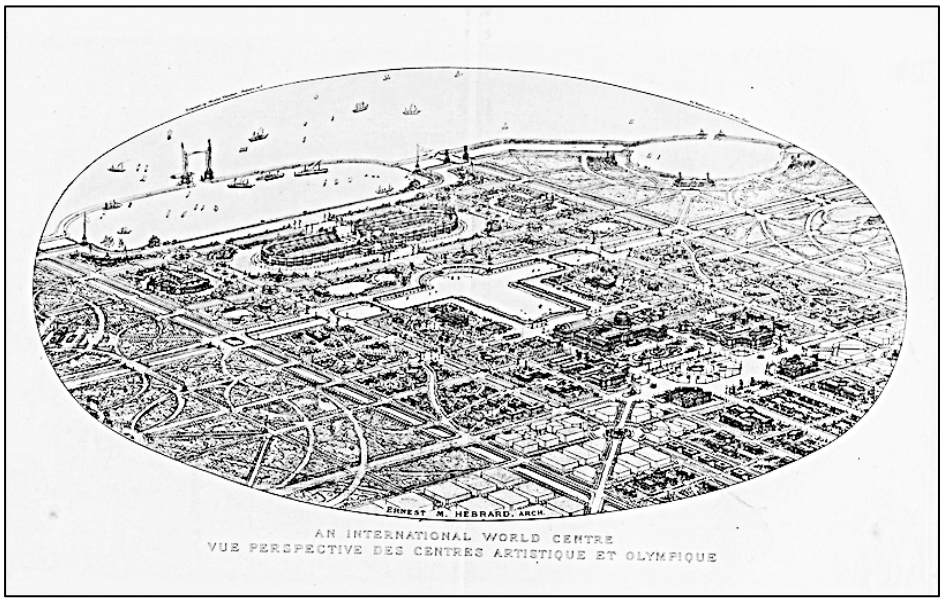

Figure 2.9 Artistic and Olympic Center, 1913, by H.C. Andersen and E. Hébrard.[60]

The World City was located by the sea and was defined by a perfect symmetry. All the public buildings were gathered in a geometrical pattern. The site plan of the city was designed on a central axis. At the northern end of the plan, there were Olympic and Artistic Centers, an Avenue des Nations,' and a Scientific Center located, respectively. The Olympic Center had a 'Grand Canal,' stadium, sports hall and

[59] Françoise Choay. *The Modern City: Planning in the 19th Century*. George Braziler: New York, 1969, p. 32.

[60] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

swimming pools. The building block was surrounded by a park with a zoological and botanical garden that served as both recreational and educational areas. The Artistic Center would have housed a museum for natural history, a conservatory of music and drama, a central Temple of Arts, galleries, libraries, schools, theatres, botanical gardens and two symmetrical cathedrals were located on both sides.

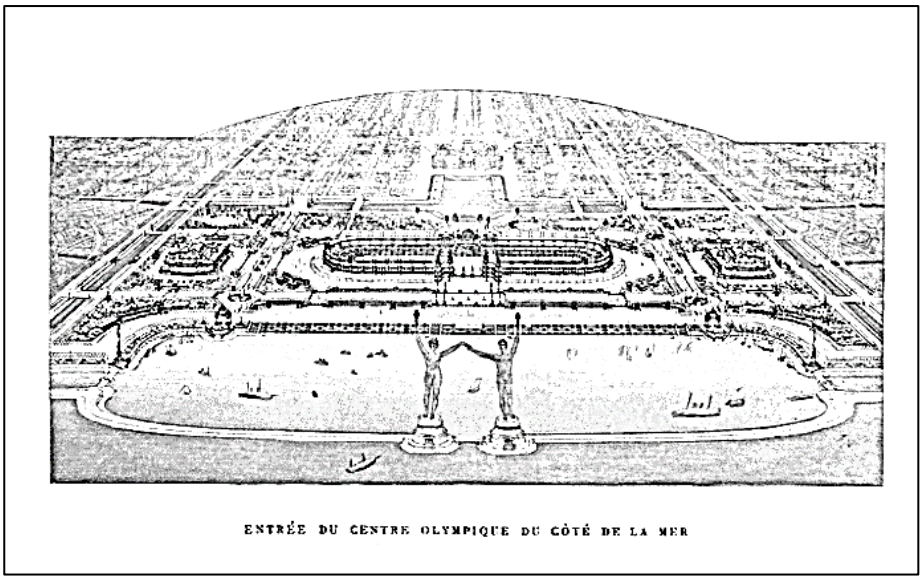

Figure 2.10 The entrance of the Olympic Center with a man and a woman statue, 1913.[61]

From the port, the entrance to the Olympic Center had opened the doors by two statues: a man and a woman caring a torch. The image of the statues was also drawn in Andersen and Hébrard's book, the'Creation of a World Center of Communication,' in 1913. In this drawing, the man and the woman were standing in front of the entrance and behind them was a perspective of the world city. In detail, industry, science, fine arts, religion, and commerce were the keywords of the city plan; they all corresponded to architectural forms as components of the city. The Artistic Center was connected to Olympic Center via the main axis. Using the zoning principle could set the ground for the values of the CIAM.

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[61] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

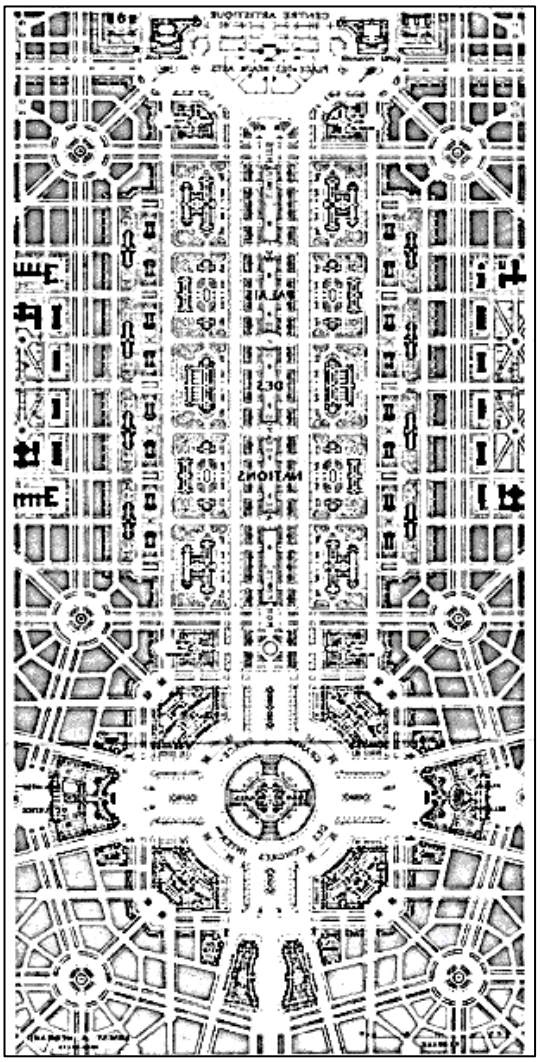

Figure 2.11 Plan of the Palace of Nations and Congress Place 1913, by H.C. Andersen and E. Hébrard.[62]

Andersen and Hébrard proposed two long rows at the Avenue of Nations that would be mainly used for the ambassadors between the Art Center and the Scientific Center. This axis led from the 'Temple of Arts' to the monumental 'Tower of Progress' and housed alongside itself the governmental and cultural buildings. The pavilions of the

[62] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

nations were located at the back of the building rows, buildings for receptions were positioned at the corners and a water garden was located at the center of the city.

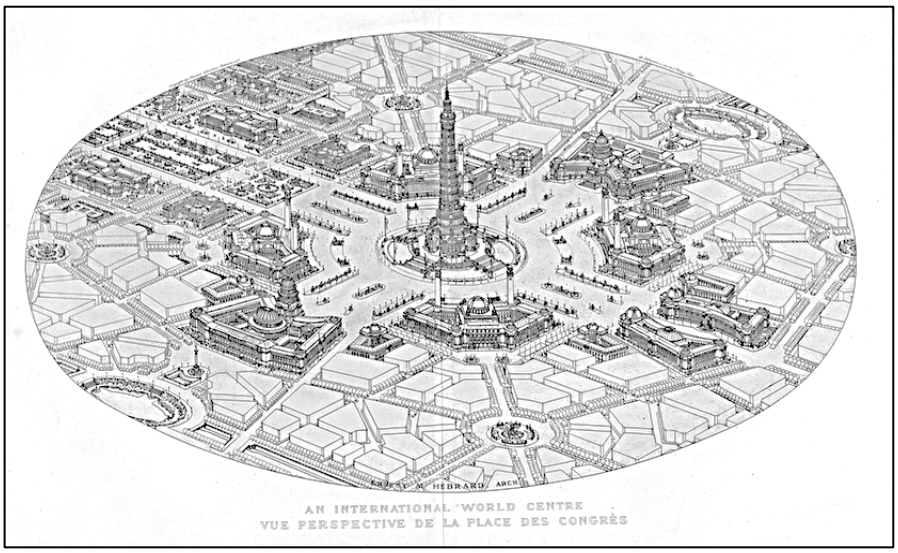

Figure 2.12 Bird's eye view of the Scientific Center, 1913, by H.C. Andersen and E. Hébrard.[63]

At the very center of this central axis plan was a 'Scientific Center' that assembled all the institutions towards fields of theoretical and applied science. This assemblage assisted scholars to meet and work with other scholars all over the world. This design provided the ability to speed up the flow of knowledge and to share current developments from all nations for the well-being of humanity. The scientific center would have housed the Scientific Congress Building, the Temple of Religion, the Tower of Progress and the Court of Justice.

He suggested an international business center, an industrial district, large central residential neighborhoods and housing complex set among landscape areas for the continuation of the axis. A green belt and a canal detached the center from an airport, the industrial region and the exposition area.

[63] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

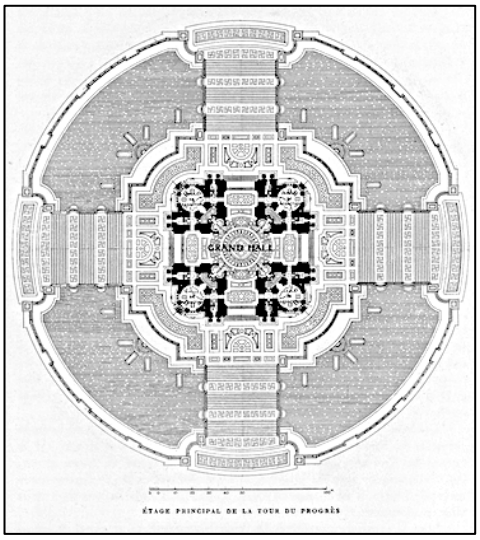

Figure 2.13 Plan of the Tower of Progress, 1913, by H.C. Andersen and E. Hébrard.[64]

These buildings were designed at four different palaces located in the corners and were intended to serve for the development and improvement of science. On the left corner, a Temple of Religion, on the right corner an International Court of Justice, at the bottom of the square an international bank, and an international reference library were located, respectively.

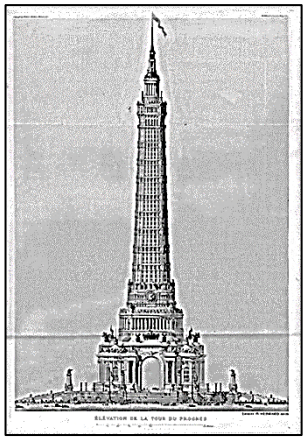

Figure 2.14 Elevation of the Tower of Progress, 1913, by H.C. Andersen and E. Hébrard.[65]

[64] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

[65] Ibid.

At the very center of the square, the Tower of Progress was located. It was 320 meters high and housed the Center of World Press that was able to transmit the signals of the scientific progress. The purpose of this tower was to receive all knowledge from all over the world and disseminate it through wireless telegraphy to the entire world without any limitations and borders. By its very way of use, it virtually erased itself as a building. Its effect as a tower was less significant than the function of its monumental nature. It reminded the Geddes' tower in Edinburgh by its nature and design idea.

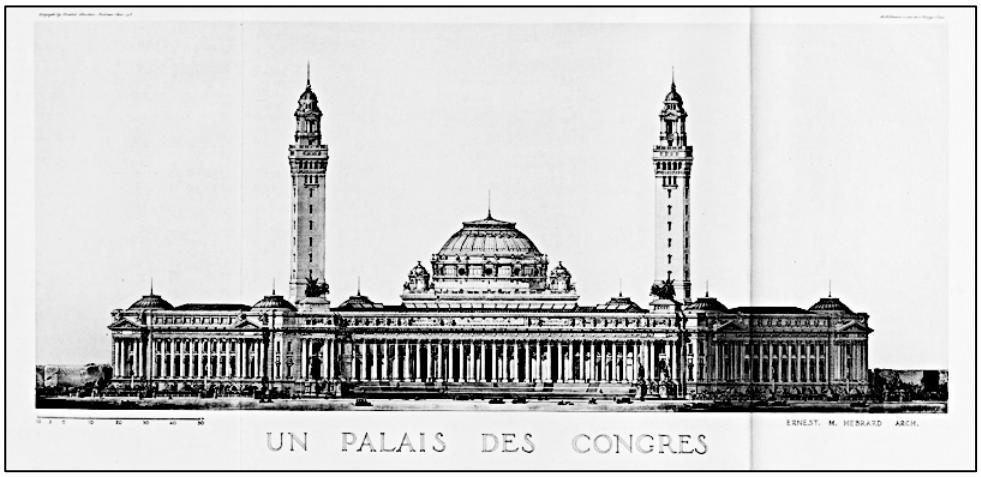

Figure 2.15 Congress Place, 1913, by H.C. Andersen and E. Hébrard.[66]

The design of the Hébrard and Andersen's Congress Palace reintroduced a taste of Neo-classical decoration with two towers. In detail, it had a temple-like appearance. There were university centers that were cut off from the central traffic axis. The hospitals, exhibition buildings, and stations were located in their appropriate places. A park belt surrounded the whole city.

Considering the architectural issues, the city was placed near the sea-coast because of the transportation opportunities. With this statement in mind, it could be interpreted

[66] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

that he always had links to the transportation possibilities and their network connections because of his family business. The main idea of establishing this type of city was for the creation of direct communication channels to all the existing cities in the world. Therefore, the city could become the center for the convenience of all nations.[67]

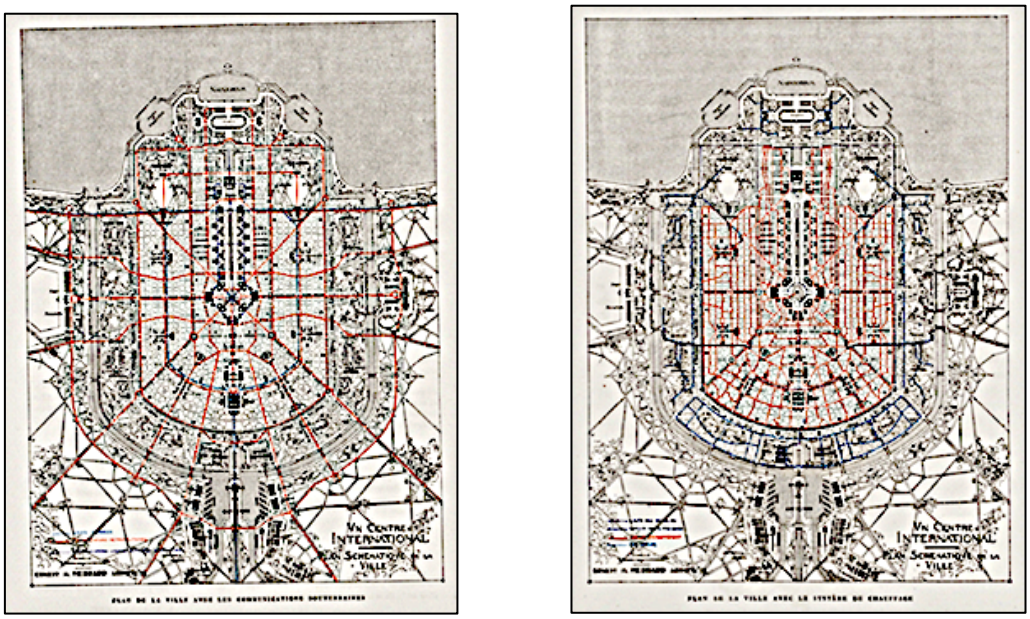

Figure 2.16 (left) Underground communication and (right) heating system plans, 1913, by H.C. Andersen and E. Hébrard.[68]

Hébrard and Andersen knew that the universal city must be integrated with the other major cities, and therefore, the connection systems must also be proposed. They designed the city's architectural infrastructure as well as the technical and mechanical infrastructure. The left image above was the sketch of the plans for the underground communication system that they proposed as early as 1913. The right one was the

[67] Hendrik Andersen and Olivia Cushing Andersen. *Creation of a World Center of Communication.* Architecture part III. Rome, 1918, p. 26.

[68] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

heating system plans for the whole city; these drawings could be interpreted as if they were designed to be constructed, they were ready to be built.

Andersen stated that the World Center was the ideal city of his century, which had its great architectural solutions for uniting people and also provided opportunities for the governments in 'economic, moral, and spiritual relations.'[69] He used 'great' in both the qualitative and quantitative sense of the word. During the 19th century, the World Center project was designed and modeled on both an architectural and urban scale. This project expressed the economic and political power of a nation and played a leading role in culture and intellectuality on an international level. The World Center was supposed to be a metropolis. The World Center of Communication was a way of representing the nations in the capitals and providing the space of universal exhibitions that could be limited to the image related to specific time, place, and history.

2.2.2. Charles-Édouard Jeanneret and Le Corbusier – 1928 - 1929 and 1933

Since 1924, Otlet had focused on the relocation of the Mundaneum to Geneva. His main focus was on how the existing international institutions in Geneva could be transformed into an International City. He described the World City in Geneva, which would include objects and collections, but which was mainly aimed at explicitly defining the ideas and cultures they were shaping. This project began with the collaboration with a very famous architect, Le Corbusier yet had never been built.[70] Although actual plans for the Mundaneum in Geneva were never realized, peace remained as the main utopia.

The idea of a Mundaneum, first posed in 1925, had developed until Le Corbusier met Otlet in Geneva in 1927; in August 1928 in his pamphlet '*Mundanuem*,' Otlet first

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[69] Hendrik Christian Andersen. *Letter to Paul Otlet*. 1932.11.10, MDN, CM 8, Correspondence Architects: H.C. Andersen.

[70] Vossoughian. op. cit., p. 87.

published the architectural project. Le Corbusier designed both World City and Mundaneum in Geneva that same year, and his first intention was to design the Mundaneum as a center for documentation, information, science, and education. He mentioned that the architecture of Mundaneum was related to the Otlet's dream of 'a manifestation of order.' Thus, Le Corbusier not only designed the World City but also proposed a system for organizing and managing its architecture.

Le Corbusier transformed the Otlet's 1927 schema of the Mundaneum into the architectural project that was put into practice for the international complex in Geneva. Otlet and Le Corbusier agreed on the same consideration that this project must be integrated into the existing institution at the League of Nations on an urban scale. The architectural competition for the Palace of the League of Nations made the collaboration available as Otlet was a member of the commission and Le Corbusier was one of the winners. There were 377 submissions to the competition.

In the evaluation process of the competition, the jury was aware that the stylistic debates had shifted. The jury members concentrated on the distinctions between traditionalists and modernists approach and failed to agree on a single project and each member chose a different favorite project. There was contradiction between the design approaches:

> 'There were drawings for temples or palaces with historicizing facades, ornate roof constructions, and colonnaded monumental entries; projects that were absent of sculptural and architectural ornamentation, but remained classical in proportion and plan; and undecorated functionalist projects with horizontal window bands and flat roofs.'[71]

[71] C. Hein. op. cit., p. 28.

The committee selected the Le Corbusier's architectural project as one of the nine first prize winners. Le Corbusier considered this competition to be the first step towards the formation of CIAM because he was led to organize this congress by the architectural debates of the congress.

At the end of the 1920s, Otlet extended the project and collaborated with Le Corbusier to design the project of the World City. In the light of this experimental world city project, Le Corbusier mentioned that '[e]xperimental evidence is available, everything is being tested in scientific experiments.'[72] Le Corbusier designed the initial project based on a purified form as his architectural and design vocabulary.

Otlet thought about the territoriality and questioned the term concerning the 'World City.' Otlet talked to Le Corbusier about this and said that a network of the regional institutions and the museums from all over the world, most of which would be consistent in implementing the guidelines, should be maintained. Furthermore, he emphasized that the architectural elements (roads, hedges, walls, and barriers) should define the city's border. The accessibility of the city could, therefore, be monitored.[73] These could be interpreted as the conception of CIAM's architecture and urban planning. William Curtis mentioned that CIAM had universal applicability which divided into two:

> (a) rigid functional zoning of city plans, with green belts between the areas reserved for different functions and (b) a single type of urban housing expressed in the words of the charter as 'high, widely spaced apartment blocks wherever the necessity of housing high density populations exists' at the time it had the power of a Mosaic

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[72] Francoise Choay. *The Invention of Historic Monument*. Cambridge: The Cambridge University Press, 2001, p. 24.

[73] Paul Otlet. *Letter to Le Corbusier*. MDN, CM 8, Correspondance Architectes, Folder Le Corbusier, 1929.02.16.

> commandment and effectively paralyzed research into other forms of housing.'[74]

It could be interpreted from this quotation that Le Corbusier designed every part of the city according to a particular use. By doing so, he separated the city into rigid concept of zones for different purposes: working, living and recreation. This notion could be evaluated as the CIAM classification of the city by means of differentiated generic functions and all these functions were interlinked with the transportation idea. Otlet also mentioned in a letter to Le Corbusier that there should be the organization of the space in the city as well.

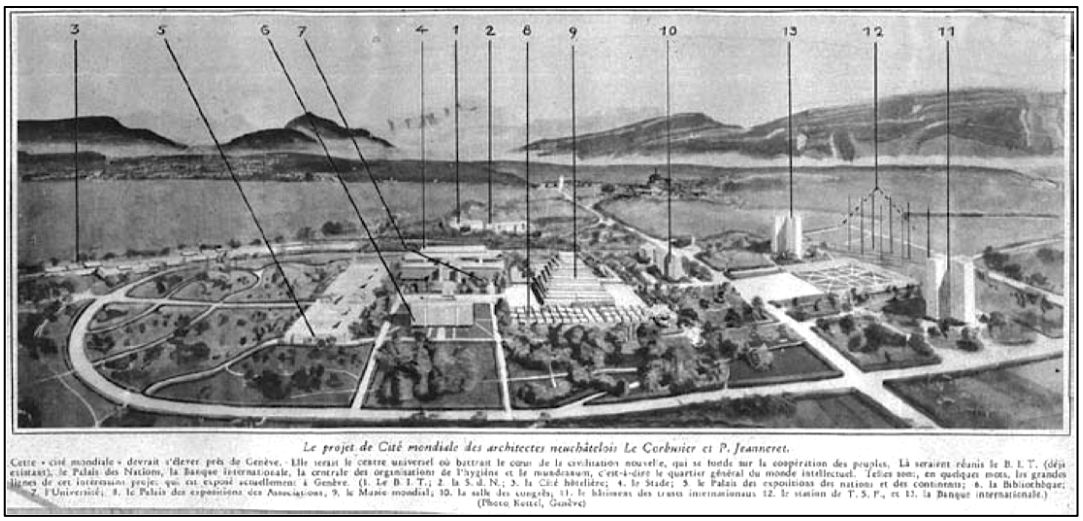

Figure 2.17 Diorama of the World City from Neuchâtel by Le Corbusier and P. Jeanneret.[75]

This project consisted of the Palace of Nations, the International Labor Office, the World Health Organization, the International Bank and the Mundaneum making it a center for the intellectual world. All these buildings were placed in the city, respectively: 1. The I.L.O., 2. The L(eague) of N(ations), 3. A hotel area, 4. A Stadium,

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[74] William J. R. Curtis. *Le Corbusier: Ideas and Forms*. London: Phaidon Press Limited, 2001, pp. 121-122.

[75] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

5. The National and Continental Exhibition Center, 6. A Library, 7. A University, 8. An Exhibition Center, 9. The World Museum, 10. A Conference Building, 11. A Building for international trusts, 12. A Wireless Telegraph Facility, 13. An International Bank.

In the sketch below, Le Corbusier outlined the relationship between the skyscrapers and the city. These architectural forms could be interpreted as the dominant characteristics of his city planning. These skyscrapers provided in the urban core for the possibility of free ground plan and also high density. Since they occupied less space in the urban, he could bring more greenery space into the city with elaborated parks and gardens.

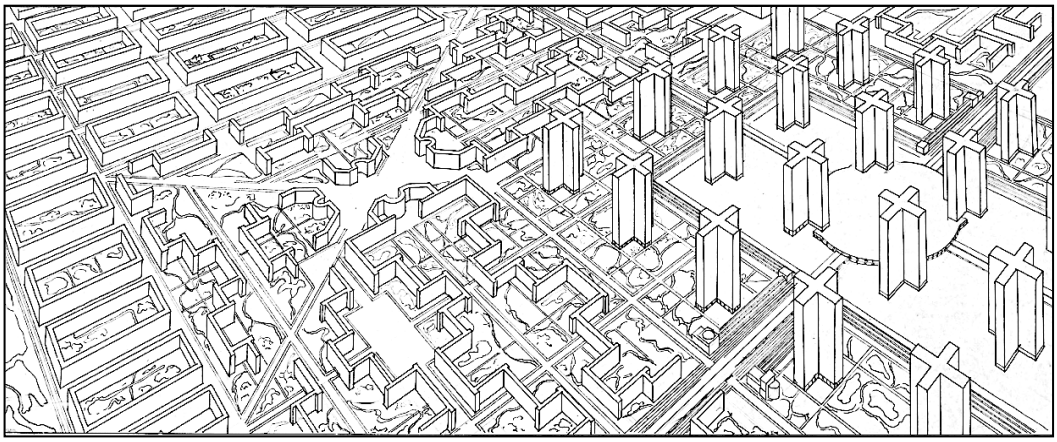

Figure 2.18 Bird-eye view of 'A Contemporary City,' Le Corbusier.[76]

The Geneva project of Otlet and Le Corbusier was less ambitious than its prewar predecessor, the Andersen and Hebrard's World City. This city became a cultural and intellectual center and was no longer a whole city with industrial and commercial

[76] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

zones. The common feature of these cities was that they could have been transferred to any city, like the previous projects this was also a mainly independent design.

The change in his conception of urban planning could be noted in light of this proposal. In his previous projects, he used the projection of a static concept. This project could be the representation of Cartesian images with process notions that were adaptable to growth and regional variations. In the sketch above, it could be interpreted that the functional division and high-rise blocks in wide open areas that were built as sculptures, reminded us of CIAM's principles. In the context of the CIAM's abstraction of urban forms that display an orthogonal – mechanical order and also a new spatial understanding of the high-rise building, the efforts of Le Corbusier would provide opportunities in a real and concrete form utilizing this project. He implemented precisely the same Otlet's scheme as diagonal organization in the Mundaneum plan, shown in the sketch below:

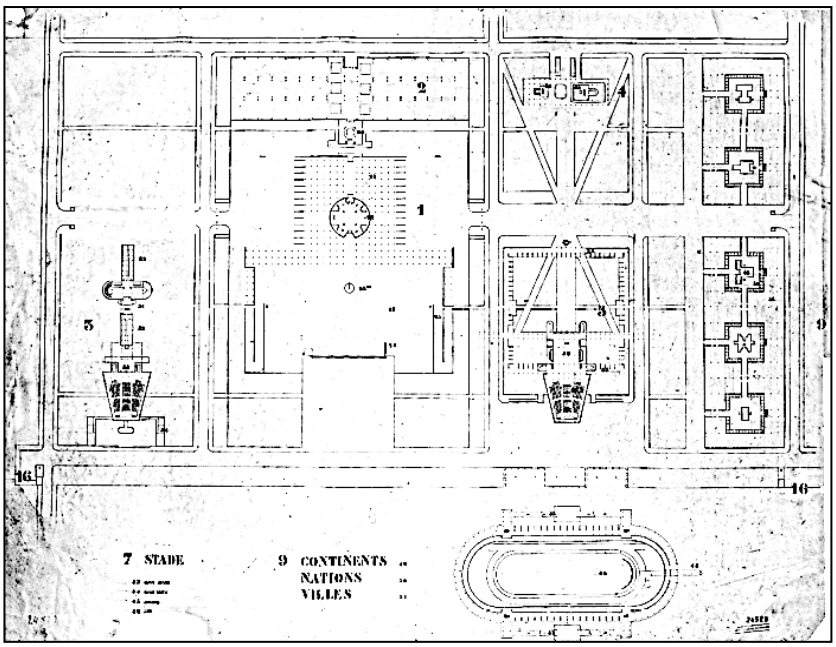

Figure 2.19 Ground Floor Plan of the Mundaneum, 1928, by Le Corbusier and P. Jeanneret.[77]

[77] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

Figure 2.20 Perspective of the Mundaneum, 1928, by Le Corbusier and P. Jeanneret.[78]

Le Corbusier and Jeanneret mainly focused on the planning of the World City as a 'campus,' and the whole buildings were considered more introverted than outward. The linear organization of the CIAM attracted them, and they experienced the idea in this urban area. In the light of Otlet's proposal, Le Corbusier built the city around the Mundaneum's pyramid form to hold and make available all of the world's scientific knowledge. Around the pyramid, all the intellectual institutions, economic and political world were brought together. In order to facilitate the movement and reception of visitors, an airport and a housing area were added to this transit city. Le Corbusier designed a series of residential units in their proposal, along with a draped boulevard opening up to a sports complex and the proper campus of the World City.

[78] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

The proposed large open squares in their public buildings which were organized around the minor axis of the design. By doing so, they enabled each structure to maintain its own distinctive identity.

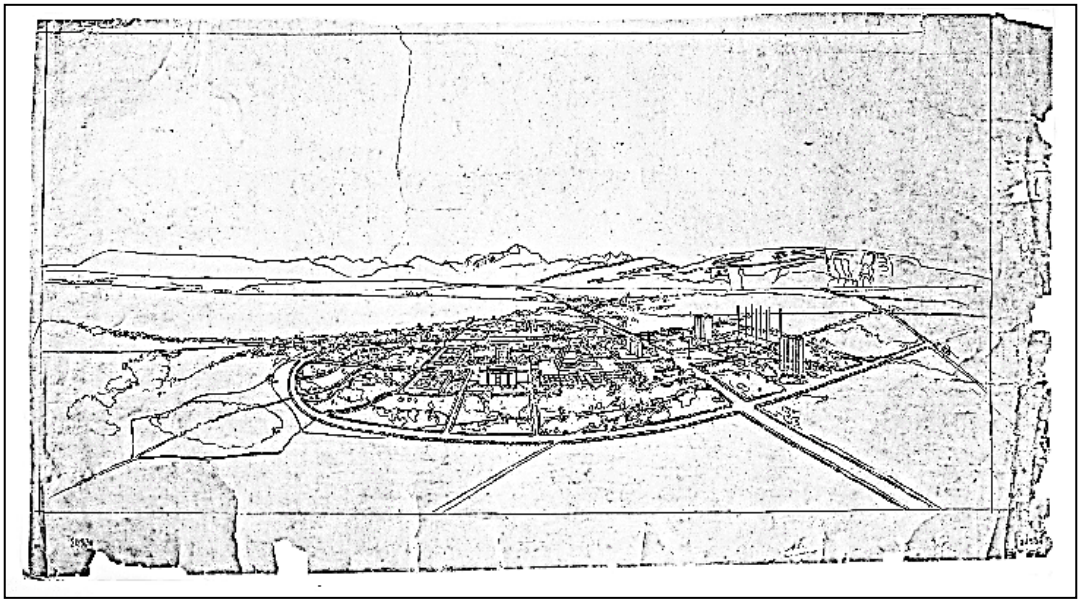

Figure 2.21 Drawing of the World City by Le Corbusier and P. Jeanneret.[79]

According to Lewis Mumford, the museum represented 'the most typical institution of the metropolis, as characteristic of its ideal life as the gymnasium was of the Hellenic city or the hospital of the medieval city.'[80] In the light of this statement Otlet defined the Musée Mondial was the central monumental component of his project. He defined it as a demonstration of the current world situation, of its complex mechanism, and its collaborative life. This museum was planned as a visualization of 'the essential elements of a geographical and historical museum, a scientific and teaching museum, a commercial and social museum, and a museum of civilization and culture.'[81]

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[79] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

[80] Mumford. op cit., p. 639.

[81] Paul Otlet and Le Corbusier. *Mundaneum*. Brussels: L'Union des Associations Internationales, Palais Mondial, 1928, pp. 7-8 (Anthony Vidler's translation).

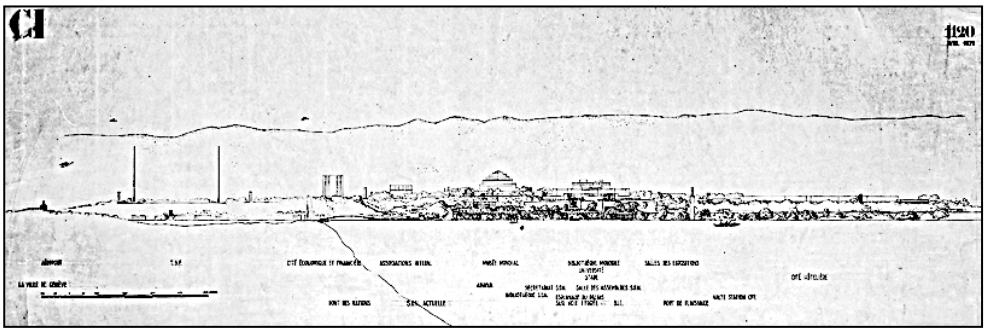

Figure 2.22 Elevation of the World City by Le Corbusier and P. Jeanneret.[82]

In the city center, overlooking the city, the Mundaneum was the focal point of their design as a monumental pyramid of seven ziggurats terraces of Mesopotamia. This was a focal point that dominated the World City's skyline. Charles Jencks stated that the intention behind the architecture of this museum was the example of the controlled *promenade architecture*.[83] Despite many attempts, the project of Le Corbusier's had never been realized as planned. He later worked in various times on the same scheme. As in the museums constructed in Ahmedabad (1952-57), Tokyo (1952-1957), and Chandigarh (1960-1965), his vision of organic growth and an expanding museum became a stratified form and completed space. A pyramid would be planned around all the political, social, intellectual, and economic institutions. This urban design also included an airport and a housing area.

Paul Otlet adviced him to design circular and spherical forms. In Kaufmann's *From Ledoux to Le Corbusier: Origin and Development of Architecture*, Le Corbusier was compared to Ledoux with the design and projection of Mundaneum monuments in its pyramid scheme for the World Museum, which was reminiscent of the pyramids of Ledoux and Boullée.[84] Anthony Vidler referred to the Corbusian commonplaces of the 'fascination for the straight line,' or the 'return to the fundamental realities of the

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[82] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

[83] Charles Jencks. *The Architecture of the Jumping Universe*. Great Britain: Willey, 1997, p. 88.

[84] Emil Kaufman. *Von Ledoux bis Le Corbusier*. Ursprung und Entwicklung der autonomen Architektur. Wien, Leipzig: Verlag dr. Rolf Passer, 1933.

sphere, the cube, and the cylinder in great architecture.'[85] In brief, the interests of Le Corbusier had always been deeply complex and trans-historic:

> '…cubes, cones, spheres, cylinders or pyramids are the great primary forms which light reveals to advantage . . . these are beautiful forms, the most beautiful forms . . . Egyptian, Greek or Roman architecture is an architecture of prisms, cubes and cylinders, pyramids or spheres … the new horizons before us will only recover the grand line of tradition by a complete revision of the methods in vogue and by the fixing on a new basis of construction established in logic.'[86]

Otlet proposed a circular Lapidarium, an exhibition of the encyclopedic collections about the geological and mineralogical matter of the Earth, and a sphere-shaped Georama for the esplanade of the World Museum with a sketch sent to Le Corbusier in September 1928. Otlet thought that this international design merged on its opposite ground a geosphere and on its internal side a separate sphere. At that point, Anthony Vidler described the Musée Mondial as:

> 'In the simple formal gesture of the spiraling stepped pyramid, the Musée Mondial fused the street -internalized as in the 19th century arcade and divided like a cathedral into three naves- with the book and the museum to form a modern monument that once and for all stabilized historical development and celebrated its final denouement in an 'eternal' present.'[87]

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[85] Anthony Vidler. *Histories of the Immediate Present: Inventing Architectural Modernism*. The MIT Press: Cambridge, 2008, p. 40.

[86] Le Corbusier. *Towards a New Architecture* (1931), Frederick Etchells (trans.). New York: Dover Publications, Inc., 1986, p. 63.

[87] Vidler. op. cit., 2001, p. 171.

Le Corbusier conceived the museum as a continuous spiral that would 'express the uninterrupted succession of the enlarging links of the chain.'[88] The form was also a permanent panorama presentation, no longer circular, but then continuous spirals. It was subsequently presented in an infinite sequence. The pyramid form allowed the observer to expand the space, reflecting the development of world civilization, culture, and human knowledge from top to bottom. In his initial architectural project, the World Museum was entered from the top. The visitor had to climb up a spiral ramp 2,500-meters long on the exterior overlooking the city surrounding, and the entrance was located at 85 meters high. He explained the whole of the valley from the Alps to the lake and the Rhone to the sea. Only on this route, the visitor could enter the museum. Karel Teige described this proposal as:

> 'The purpose of the World Museum, according to Otlet, would be to demonstrate the present state of the world, its complex mechanism, the community and interdependence of the individual phenomena of life. Here the world would be divided into three categories according to location, time and type… The museum would collect vernacular and characteristic things not rare and costly objects; copies, casts, facsimiles and reproductions would suffice. Its aim is not preservation, but systematic exposition and demonstration, an encyclopedic and composite museum, a tool and aid for research and scientific work, the collections of which are accessible at any time (like school collections). It would be under continuous critical review and could be reorganized at any time, so that its usefulness could really be maximized. This whole museum is supposed to be a sort of 'idearium;' a picture of the thoughts that are hidden under facts.'[89]

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[88] Vidler. op. cit., 2001, p. 172.

[89] Teige. op. cit., p. 87.

Otlet invited Le Corbusier to design the architecture of his program for the League of Nations. In 1928, they published a booklet of the plans with an information center, science, and education. The most outstanding part of this architectural project was again the Mundaneum, referred to as a World Museum, with a spiraling pyramid form which was reconfigured from Otlet's International Museum in Brussels. Thus, the museum was designed as a place for all kinds of exhibitions.

In 1928, Le Corbusier was assigned to design the museum of the World City based on Otlet's invitation. From the very beginning, Otlet presented the assignment to Le Corbusier as the planning of a schematic challenge. As shown below, Le Corbusier designed the Mundaneum by creating an architectural composition and applied three-dimensional organizational forms such as a sphere, cylinder, pyramid and a cube. As Reyner Banham explained, this only 'reduced the architecture to the representation of pure abstraction,'[90] and claimed that this abstraction could be the pioneers of the Modern Movement after the turn of the century.

One year later, Otlet assigned Le Corbusier to design a Mundaneum project to be constructed in Geneva, in 1929. The World Museum was designed to narrate a single chronological timeline going from prehistory to the present day. Le Corbusier graphically described the major exhibitions, from the images of the world to the modern metropolis, rather than incidentally a progression which marked the architecture's development alongside that of a civilization:

> 'Here is the first man! Here his skull, there a number of skulls of fearful men.
> There is the skull of man, evolved with his forehead like a dome.
> Here are tombs.
> Grave mounds.

[90] Reyner Banham. *Theory and Design in the First Machine Age*. Massachusetts: MIT Press, 1960, p. 35.

> Organizations of stones in the form of architecture. Man is architect! His function is to order.
> The civilizations:
> The pots and weapons of the Myceneans.
> This Egyptian bas-relief.
> This Chaldean granite.
> This Cypriot stone.
> There is a Fate carved by Phidias.
> The head of Caesar.
> That of Nero.
> A porch of a Roman basilica.
> A cathedral porch.
> Giotto.
> Michelangelo and Rembrandt.
> Grünewald and Poussin.
> El Greco, Spain, Columbus, America, the Incas and the bloody pre-Columbian splendours.
> The Sun King, his men and their works.
> All Europe enlightened.
> The portraits of Rousseau and Voltaire.
> Marat, Robespierre, Guillotin, Charlotte Corday, Bonaparte, Napoleon.
> Goya and the Spanish court.
> The growth of the United States, the birth of new nations.
> Haussmann, Napoleon III and the plan of Paris.'[91]

Le Corbusier proposed his first drafts of the spiral-museum typology and used this diagram for his future museum proposals. The fundamental concept of the project was very rigid and reserved corridor-shaped chronological exhibition path that was started from the center of the spiral and ended up at the top of the building. The Mundaneum was designed as a museum that contained representations of the accumulation of knowledge in time.

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[91] Vidler. op. cit., 2001, p. 173.

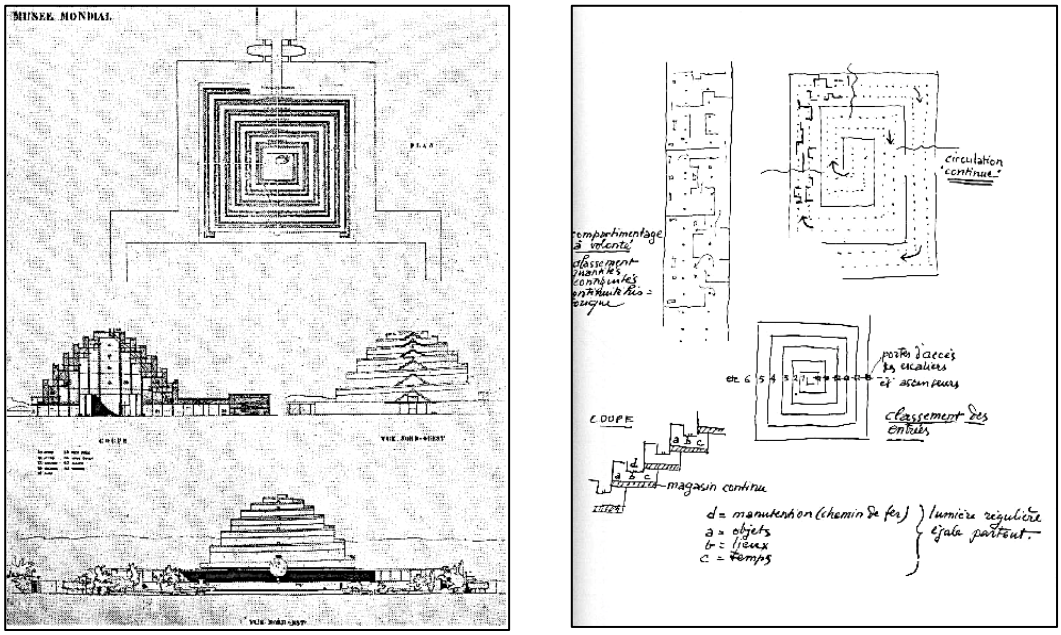

Figure 2.23 (left) World Museum, plan, section and elevations, 1929, by Le Corbusier and P. Jeanneret, (right) The World Museum of 'Unlimited Growth,' 1929 by Le Corbusier. [92]

According to Le Corbusier's design, the World Museum was a spiral with overlapping slopes, transformed into a rectangular pyramid. Le Corbusier designed his diagram to meet the Otlet's interpretation that gave the impression of sacred space. Beatriz Colomina stated that 'the museum was a pyramid made out of a square spiral, a continuous development. By doing so, Le Corbusier experimented with the spiral form offering the museum an opportunity for tremendous growth. Visitors would take an elevator to the top of the pyramid and walk down the spiral ramp until reaching the ground: the present day.'[93] As shown above, the plan was based on a rectangular form, and each level consisted of the smaller-scaled rectangles. In each section, the rectangles formed a pyramid structure, and the visitors of the museum experienced these terraces on each level throughout the spiral ramp. Pierre Chabard defined the project that the stepped terracing, despite its discontinuous and hierarchical

[92] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

[93] Beatriz Colomina. 'The Endless Museum: Le Corbusier and Mies van der Rohe' in *Anyone*. Log, no: 15, winter 2009, p. 56.

appearance, hid the most consistent form: 'a helical sloping gallery that seamlessly outlined the globalism of historical moment and geographical space.'[94] He designed the World Museum to narrate the history of humankind from its primal beginnings and stated:

> 'This form is a triple nave that unrolls along a spiral. At the start of the spiral: on top, pre-historic times... then the first historical epoch. And descending the spiral, the following [historical epoch] and the next, the entirety of world civilization. History and archeology accumulate more and more documents. We learn more and more how man maintained himself through different periods of cultural organization. The diorama becomes more and more vast and more and more precise. The spiral enlarges its spiral, the space is augmented. The exhibition of objects in space and time provoke [one] like a clamor getting stronger and stronger. Everything is linked together; every act, crazy, egotistical, reckless, or disinterested, has its consequence. The map of the world gets larger, modifies, pounds like a... prize in a slow-motion cinema. What a lesson!'[95]

Peter Eisenman referred to the Sigfried Giedion's *Space, Time and Architecture* as an attempt to relate Einstein's Theory of Relativity, the idea of space-time as a fourth dimension of space, with mathematics and physics. By doing so, Giedion tried to comprehend its impacts on modern architecture. He introduced this idea of space-time in terms of the transparency of glass, as he allowed the subject to simultaneously conceptualize a building's interior and exterior.[96] Clearly, Le Corbusier's spiraling

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[94] Chabard. op. cit., p. 64.

[95] Otlet and Le Corbusier. *Mundaneum (1928)*. op. cit., pp. 36-37 (Anthony Vidler's translation).

[96] Peter Eisenman. 'Time Warps: The Monument' in *Anytime* ed. Cynthia Davidson. Massachusetts: MIT Press, 1999, p. 254.

ramp for Mundaneum was an attempt to displace the axis of bodily symmetry from the symmetrical axes of classical architecture.

This World Museum proposal symbolized both the beginning and the end of the history, a timeline of the history with a new 'globalized' order and Otlet described its role as the starting of harmony and cooperation between the countries. It could be interpreted here that all analogies between Otlet's and Le Corbusier's projects and also Geddes' were to be visited starting from the top and to the terrestrial globe. The world museum should be a visual exposition of the country's concrete reality that was connected to other countries at all points, thus marking its place in the universe, as an apparent manner.

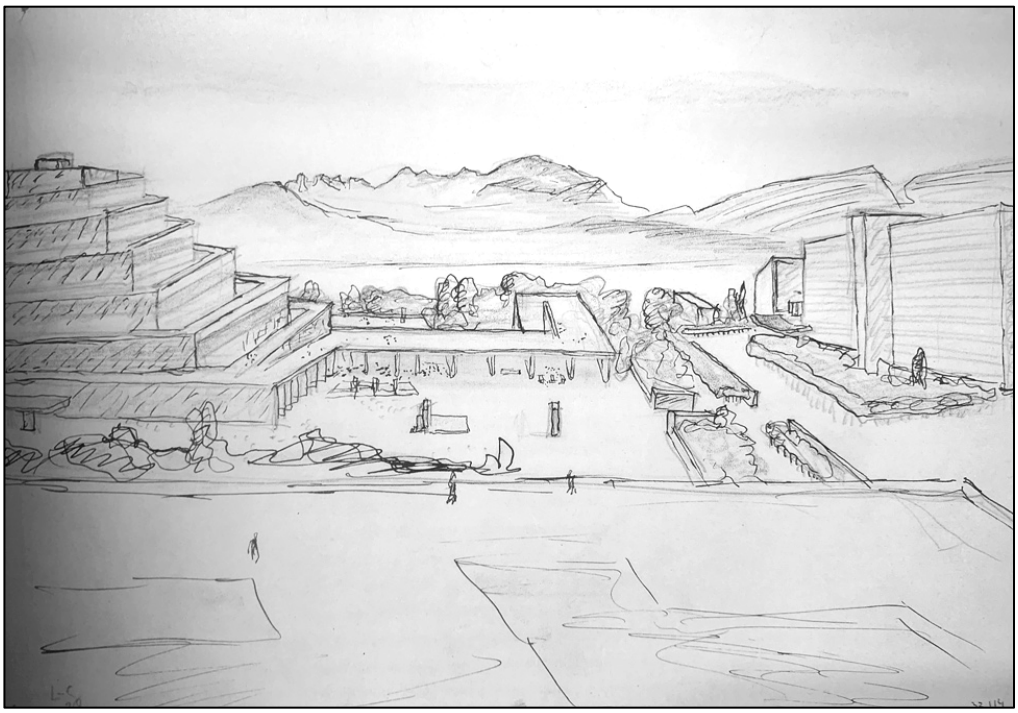

Figure 2.24 Sketch of the Mundaneum and World Museum, by Le Corbusier, 1929.[97]

[97] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

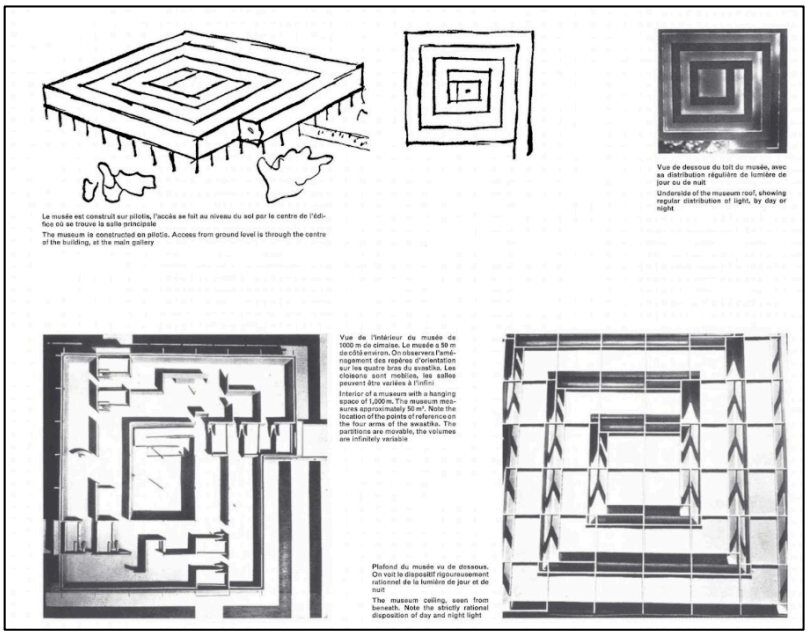

Figure 2.25 The Museum of Unlimited Growth, Le Corbusier, 1939.[98]

The concept of the Museum of Unlimited Extension had been developed over a forty-years by Le Corbusier. The unlimited growth concept was related to 'the simultaneous exhibition of the objects as well as the times and place that have produced them.'[99] It was rooted in his World Museum project that he proposed in a square spiral as an ascent ramp that resulted in a 'ziggurat' form. This project was displayed in 1931 for the contemporary art collections of Paris. The same project was represented in 1937 for the Paris International Exposition and then put forward again in 1939 for the International Exposition which was to have been held in Liége or San Francisco[100]

The idea of the World Museum came out of the Museum of Unlimited Growth. The building could be extended infinitely around its perimeter, with the exhibits emanating

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[98] Le Corbusier: Oeuvre Complete 1938-1946, Les Editions D'architecture: Paris, 1946, p.17.

[99] Alberto Boralevi. 'The Architectural Conception of the Museum in the Work of Le Corbusier,' in *The Journal of Museum Management and Curatorship* (edited translation from the Italian text by Cynthia Rockwell). No. 2, 1983, p. 185.

[100] Ibid., p. 178.

from the center. Le Corbusier applied this concept to The National Museum of Western Art in Tokyo, Sanskar Kendra Museum in Ahmedabad and The Government Museum and Art Gallery in Chandigarh. It could be interpreted that some fundamental elements of Le Corbusier's museological conception were defined in his mind at this stage, and they may be summarized as follows:

> 1. Internal and external flexibility, according to a predetermined law of growth (the square spiral),
>
> 2. Overhead illumination, whether natural or artificial, with particular study of the angle of incidence and reflection of the flow of light,
>
> 3. The museum 'without façade,' which one enters from beneath *pilotis*, or through a subterranean passage, penetrating directly to the core of the structure,
>
> 4. The central nucleus, a large square hall which constitutes the heart of the museum, entrance atrium and constant reference point for every visitor route, which uncoils with continuous circulation and without stairs,
>
> 5. Gardens surrounding the museum, initially as space to equip for services and outdoor sculpture display, and subsequently to accommodate the 'prolongations' of the museum itself.[101]

The Mundaneum was designed as a global archive for the world and its knowledge. Le Corbusier stated that '… our desire is that in one place on the globe, the total image and significance of the world should be visible and understood.'[102] It was to testify to the rise of a 'global' consciousness which transcended the 19th century nationalism. Le Corbusier and Otlet proposed that the World Museum was a meeting place for the

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[101] Boralevi. op. cit., p. 186.

[102] W. Boyd Rayward. 'Vision of Xanadu: Paul Otlet (1868-1944) and Hypertext,' in Journal of the American Society for Information Science, 45, 1994, p. 235.

global public to bring together all aspects of culture and society, therefore, making the democratic exchange of ideas and beliefs at a neutral site would be possible. In regard to the First World War, Le Corbusier wanted to give nations a means of developing a shared sense of history and tradition, thus Jeanneret designed the ziggurat form to represent global unity.

The museum was to be completed by a library in the form of a massive prism on pilotis. The first floor of the library was divided into two entrances: one for the staffs and the other for the public that had lecture rooms, offices, and a restaurant. A university was located in the center of the project to connect all institutions with temporary exhibition pavilions and a garden. The rest of the project consisted of a car park, a hotel, a telegraph station, a university, and its dormitories - the entire project aimed to protect the Lake Geneva's natural panorama.

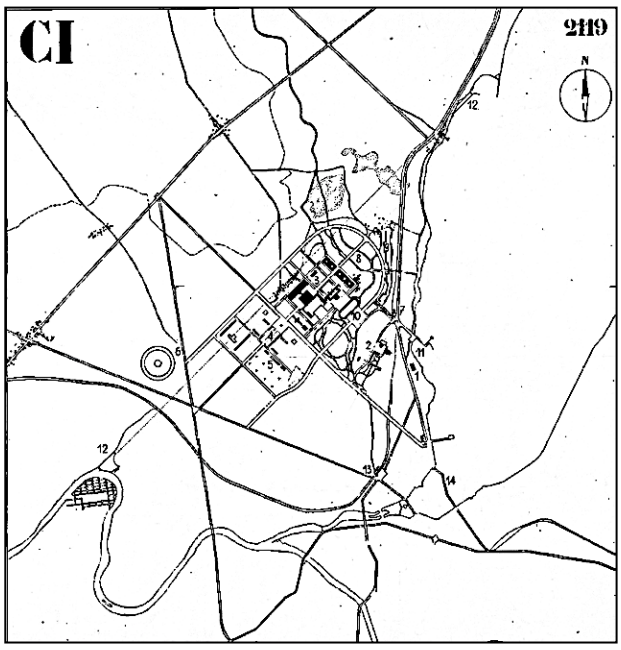

Figure 2.26 Plan of the Cité Internationale in Geneva, by Le Corbusier, 1929.[103]

[103] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

2.2.3. Victor Bourgeois - 1932

After Le Corbusier's unrealized project, Otlet searched for a new collaboration with Belgian architects to design his dream of the Cité Mondiale. Firstly, he met with Victor Bourgeois who had a good relationship with Le Corbusier because of his position in the (CIAM) as Vice-President and the organizer of the third CIAM congress (1930) that was held in Brussels.

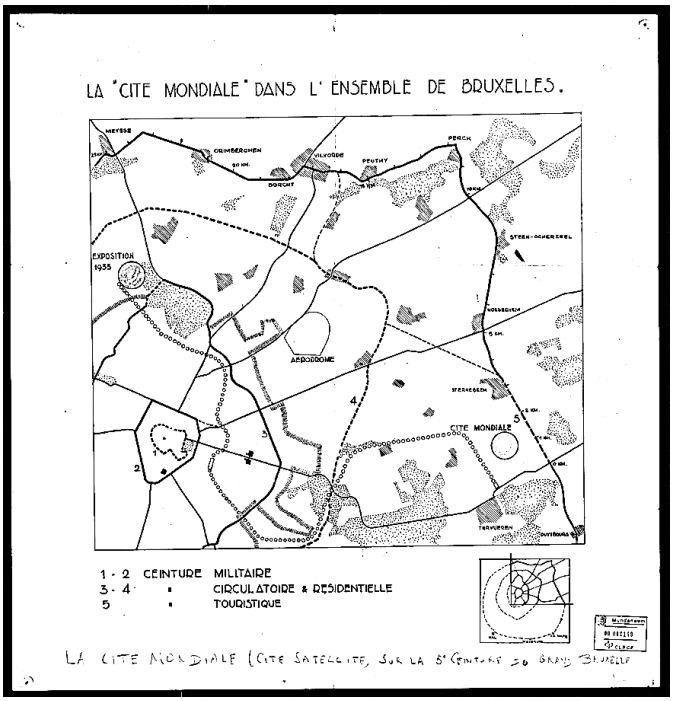

Figure 2.27 The 'Cité Mondiale' in Brussels by Paul Otlet, 1931.[104]

In 1931, Otlet focused on the idea that he could redesign the Cité Mondiale for the 1935 World's Fair in Brussels. The fair would take place on the grounds of the Heizel Park. Otlet and Bourgeois planned to construct their Cité Mondiale in Tervuren near Brussels. The primary purpose of this design was based on the world fairs showcase of national events that would represent the unique national characteristics for a limited

[104] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

time. In particular, the world's fair had a significant role in unifying discourse about the universal process in science, art, and industry; the event lifespan was limited.

Concerning the World Fair, their way of understanding the Cité Mondiale was mainly related to highlighting the universal visibility of Brussels as a 'World City.' They proposed an interrelated connection between the airport and an electric railway station as they wanted to connect this city to the World Fair and other European cities. However, in this case, the World City was not designed as a temporary event since the national pavilions had permanent functions consisting of embassies, museums, and a congress center for academies and universities. This event provided an opportunity at different levels: architecture, economic, tourism, and culture for the Belgian government.

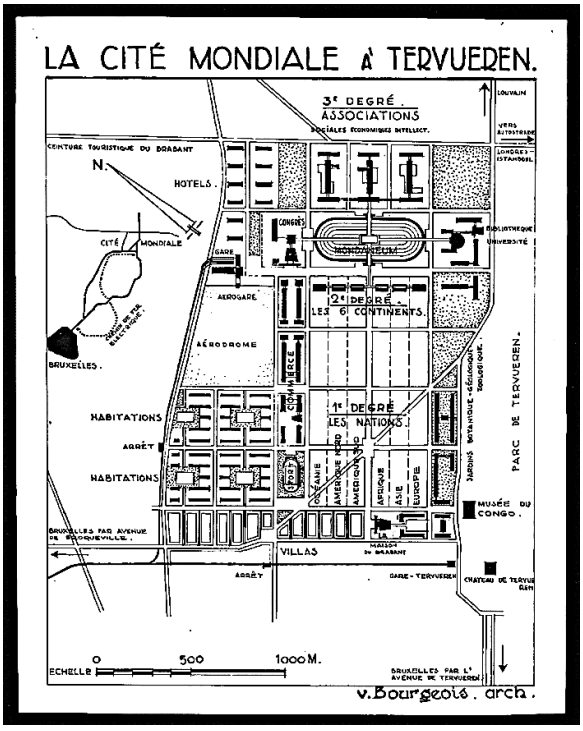

Figure 2.28 The Cité Mondiale in Tervueren by Victor Bourgeois.[105]

[105] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

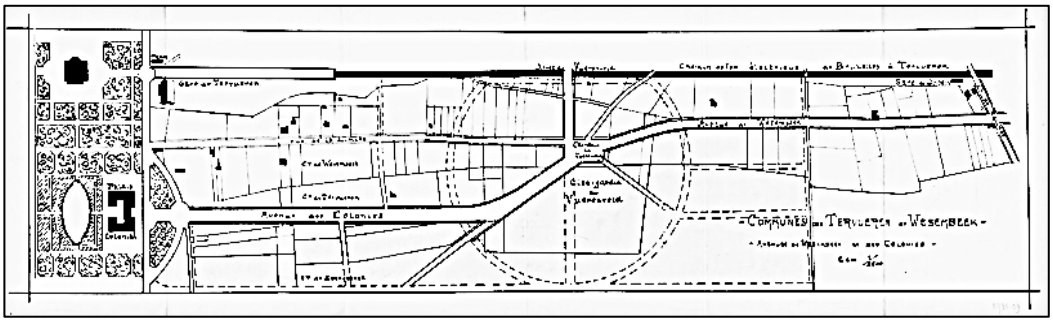

Figure 2.29 Plan of a new Avenue des Colonies in Tervueren by Victor Bourgeois, 1931.[106]

In this sketch, Bourgeois created an integration between the Avenue des Colonies (Avenue of Colonies) and the existing built environment that would meet the needs of the Cité Mondiale. The center of this plan would be the Congo Museum that was renamed by Otlet and Bourgeois as 'Congoleum.'

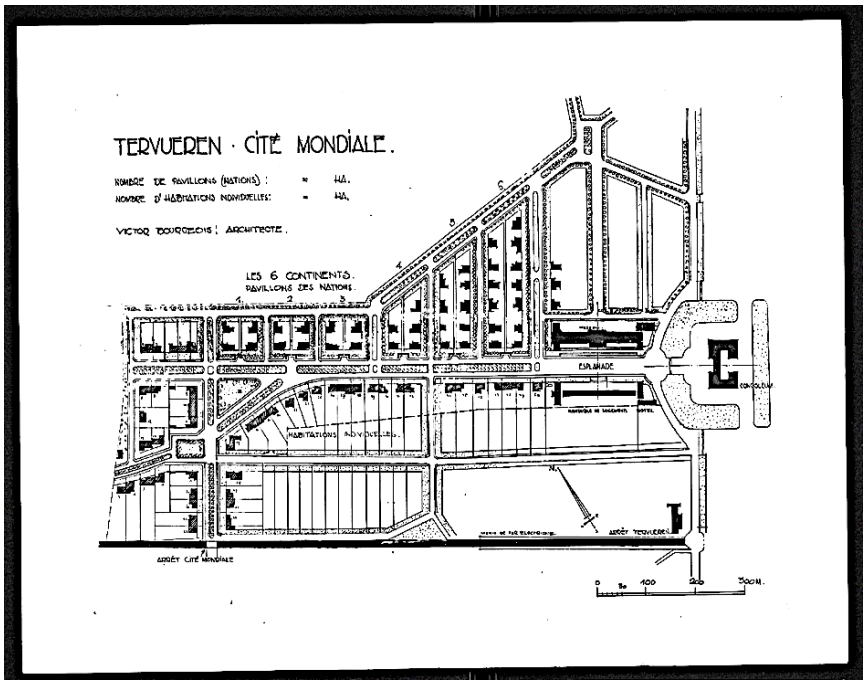

Figure 2.30 Plan of the Cité Mondiale, by Victor Bourgeois, 1931.[107]

[106] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[107] Ibid.

In the plan, there were six parcels for the national pavilions that represented the six continents over the avenue. These parcels consisted of mechanically arranged series of parallel blocks and as Joan Oackman criticized they were 'anti-sentimental and scientific both in layout and iconography' and identified with 'smooth white surfaces, flat roofs, repetitive slabs.'[108] Bourgeois foresaw a need for new housing on the southern side of the city. Therefore, he planned a museum with a hotel that would serve as temporary accommodation at the end of the avenue that would be a neighbor to the Congo Museum.

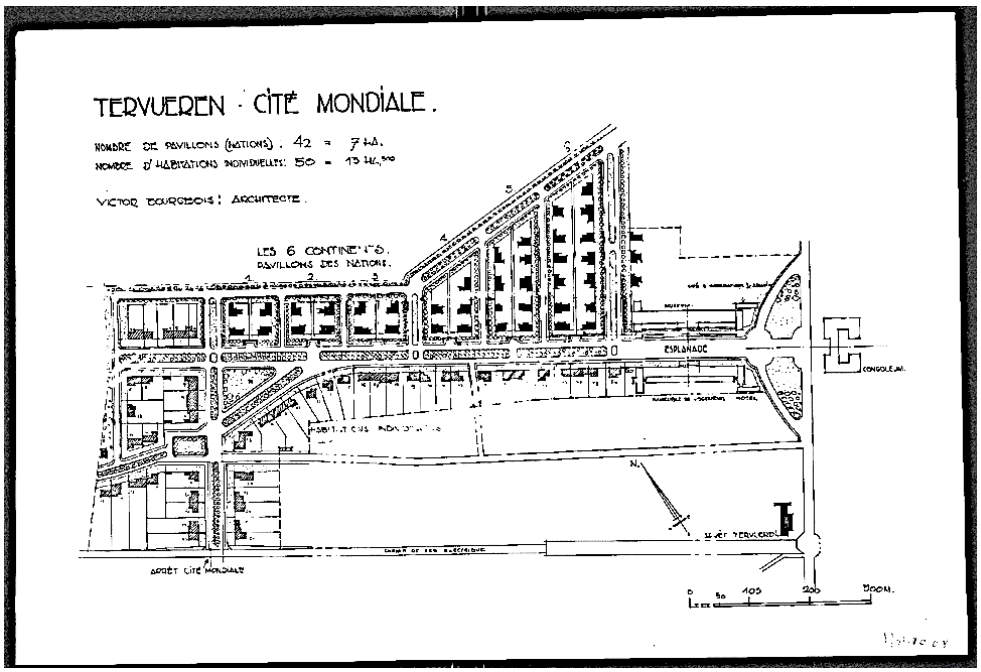

Figure 2.31 Plan of the Cité Mondiale, by Victor Bourgeois, 1931.[109]

As shown above, Bourgeois designed his final plan around an Avenue des Nations (Avenue of Nations) for the world fair. The six continents had their parcel containing

[108] Joan Ockman. *Architecture Criticism Ideology*. New Jersey: Princeton University Press, 1985, p. 108.

[109] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

national pavilions. A continental pavilion was placed at the end of each parcel. Thus, the six parcels were designed along the central avenue representing the six continents.

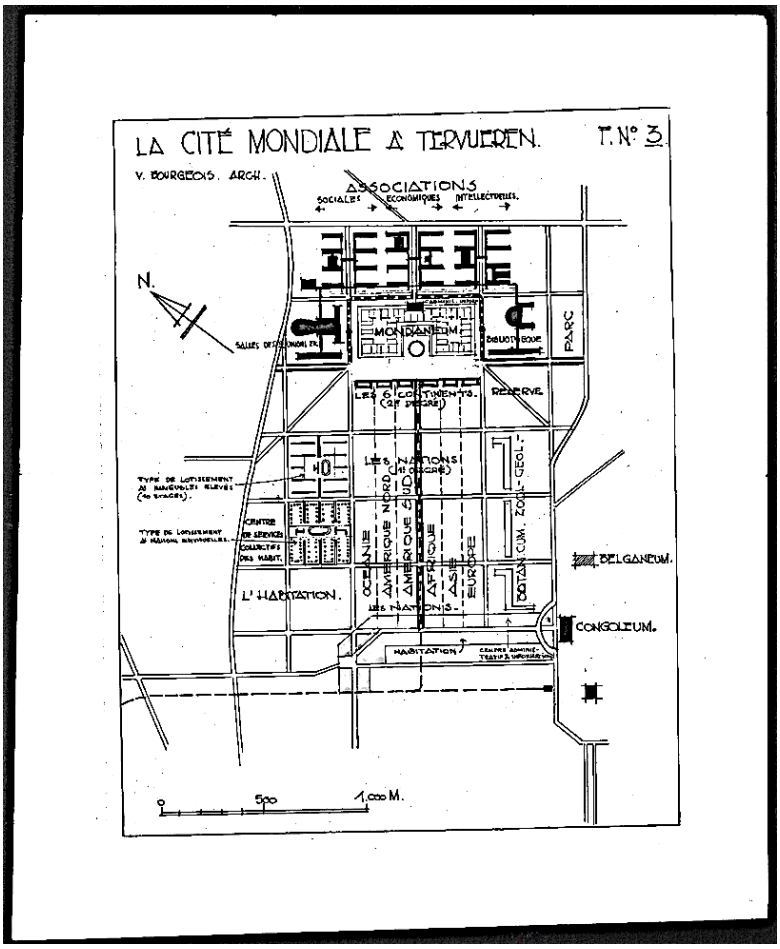

Figure 2.32 Plan of the Cité Mondiale, by Victor Bourgeois, 1931.[110]

The Avenue of Nations ended in the International Center that consisted of a university, a library, a congress center and a center for the social, economic and intellectual organization. The masterpiece of the International Center plan was the 'Mundaneum.' These functional indications could be interpreted as 'zoning' was one of the Modern Movement's mottos in architecture.

[110] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

The primary purpose of the design of the world's fairs was to be a limited showcase for national events. In particular, the world's fair had a significant role along with a defined duration that aimed to provide a format for discussion in the universal process present in science, art, and industry. The Cité Mondiale was not designed as a temporary event as the national pavilions had permanent functions consisting of embassies, museums and congress center for academies and universities. Therefore, the architecture of this city had to be permanent.

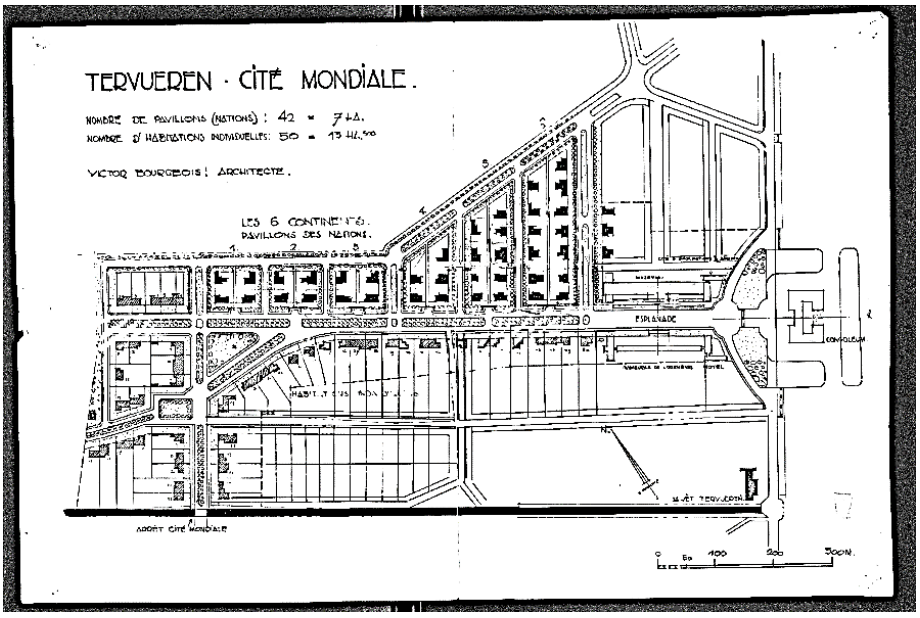

Figure 2.33 Plan of the Cité Mondiale, by Victor Bourgeois, 1931.[111]

2.2.4. Maurice Heymans – 1938

Paul Otlet contacted Maurice Heymans, a Belgian architect who was renowned for his accomplishments as head of the Department of Urban Planning in Congo following World War II, after his failure to build the World City Mundaneum in 1935 for the World Fair. Otlet collaborated with Heymans to design a model representation of the Mundaneum as a scientific, documentary, educational, and social institution due to its role in the world. To this extent, he believed that it would create a new and better

[111] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

world. Heymans analyzed Le Corbusier's proposal for the Mundaneum and the Cité Mondiale. He translated Otlet's 'Mundaneum' into architecture. Therefore, he planned in detail the different versions and prepared various sketches and architectural drawings of the Mundaneum from 1934 to 1938.

2.2.4.1. The First Proposal of the Mundaneum by Maurice Heymans

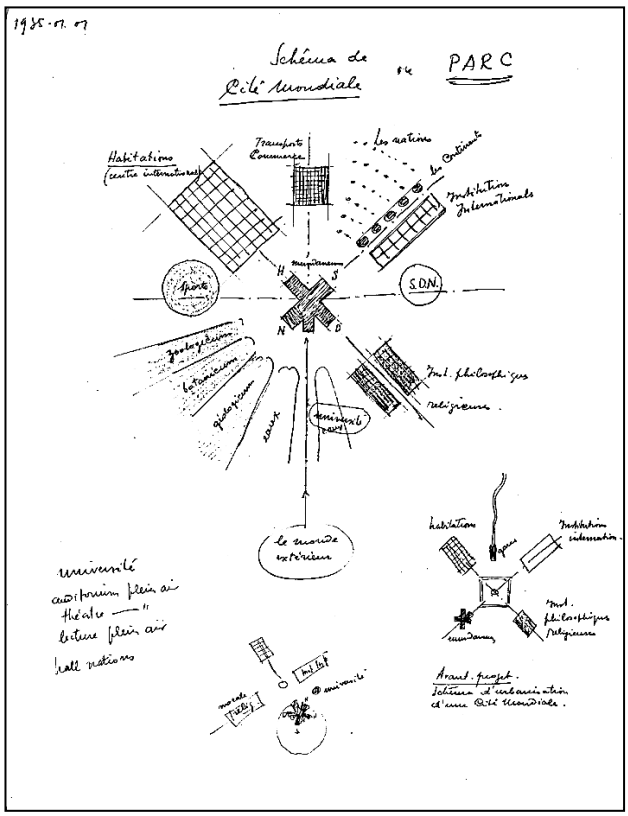

Figure 2.34 Sketch of the Cité Mondiale, by Maurice Heymans, 1934.[112]

Heymans' Mundaneum design did not receive as much attention as he deserved; it was a detailed analysis showing an attractive manner that explored the analogy between architectural space and the knowledge organization. He proposed that the city should be in abstract geometric forms as these geometric forms had a significant influence on the memory of human beings. Frances Yates also highlighted this issue in his book as

[112] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

such: 'Think of the great medieval encyclopedic schemes, with all knowledge arranged in static parts, made yet more static in the classical art by the memory buildings stocked with the images.'[113] These forms helped to differentiate the architectural structures in the plan. He adapted the Mundaneum utilizing three structures: the spiral, the cross, and the cone that could be identified both symbolically and functionality. These forms used for architectural structures were the general site plan of the organization; and each different form functioned in various architectural programs.

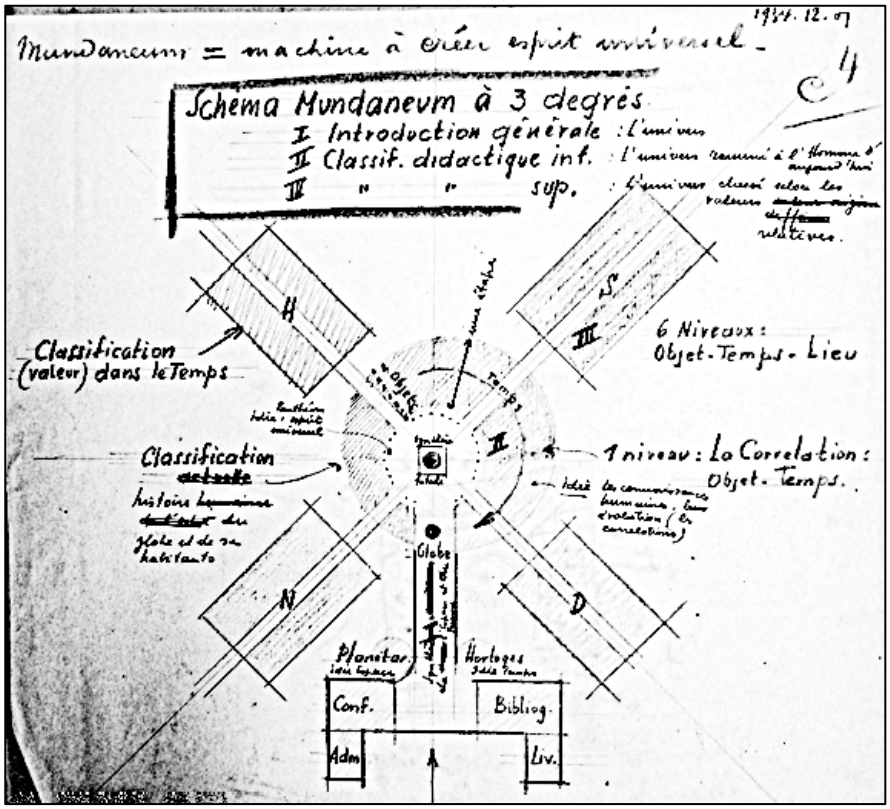

Figure 2.35 Sketch of the Mundaneum, by M. Heymans, 1934.[114]

[113] Frances Yates. *Selected Works, Volume III, The Art of Memory*. Routledge: London, 1966, p. 176.

[114] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

Heymans designed the Mundaneum over three structures: a corridor, a spiral, and a cross. In the plan of the Mundaneum, Otlet's classification could be traced. A corridor was the representation of the universe in respect to its various aspects, including a planetarium, and a clock. A spiral form described the history of the world with its inhabitants. The last one, the diagonal cross represented the Otlet's four ontological categories that were defined by the relative values of the universe: nature, humankind, community and religion.

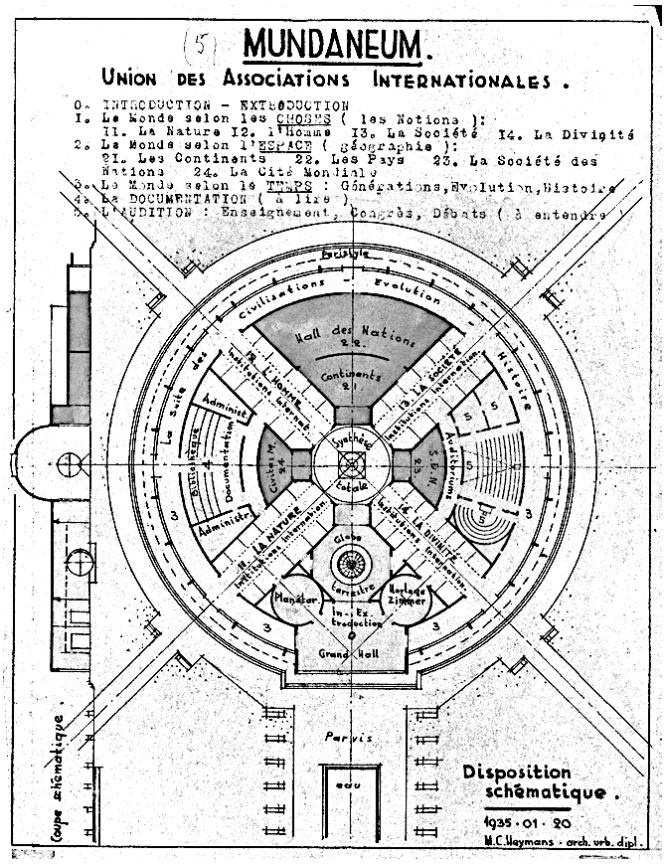

Figure 2.36 Schematic Layout of the Mundaneum, by M. Heymans, 20 01.1935.[115]

In this schematic plan of the Mundaneum, the entrance was located between the 'Nature' and 'Divinity,' and ended up with the nation halls. These concepts were essential as they were linked to Otlet's representational thinking of which he

[115] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

particularly concentrated on. The four exhibition rooms were located in a diagonal cross plan accommodating the 'relative values' of the universe: nature, humankind, community and religion. At the center of the cross, Heymans designed a room of 'total synthesis' that contained the monument idea. A circular exterior corridor was conceived as an exhibition hall illuminating the series of cultures. The spiral shape symbolized, as he stated in the scheme, the concept of 'evolution' and the 'walking trek of mankind.' The internal areas between the linear horizontal line and the lobby were structured on the ground as a library and offices and on the right as a meeting space. The four displayed halls were dedicated to the Continents, the Nations, the League of Nations and the Cité Mondiale – indicated as darker in the plan.

2.2.4.2. The Second Proposal of the Mundaneum by Maurice Heymans

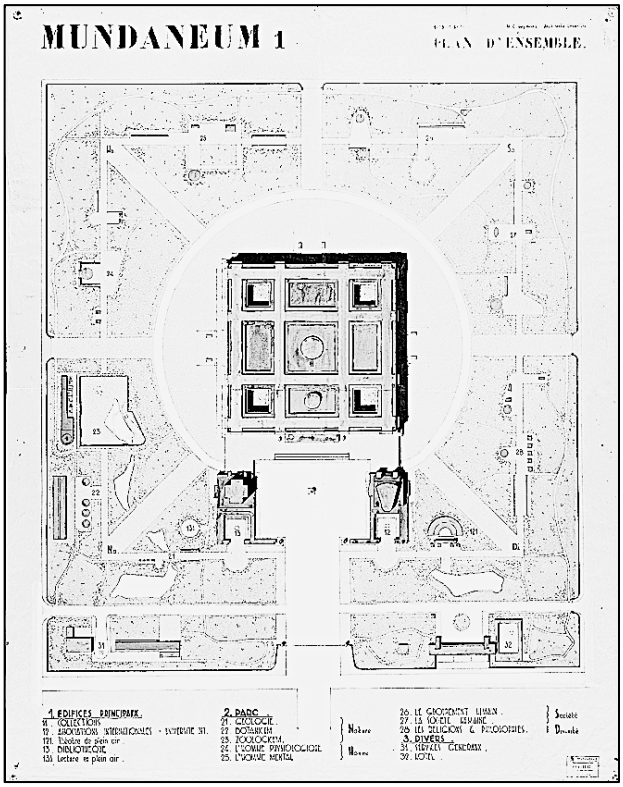

Figure 2.37 Plan of the Mundaneum, by M. Heymans, 15.03.1935.[116]

[116] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

In March 1935, Heymans worked on the architectural drawings of the Mundaneum with sections, floor plans, and detail perspectives. In the sections, three programmatic classifications could be seen in the building. He designed a park with geological, zoological and a botanical center which was around the Mundaneum complex that functioned as both educational and recreational space. In this version, he drew the whole city around the Mundaneum that included a documentation center, area for national pavilions, office buildings for international associations, workshops, housing blocks, laboratories, a sports center and transport facilities.

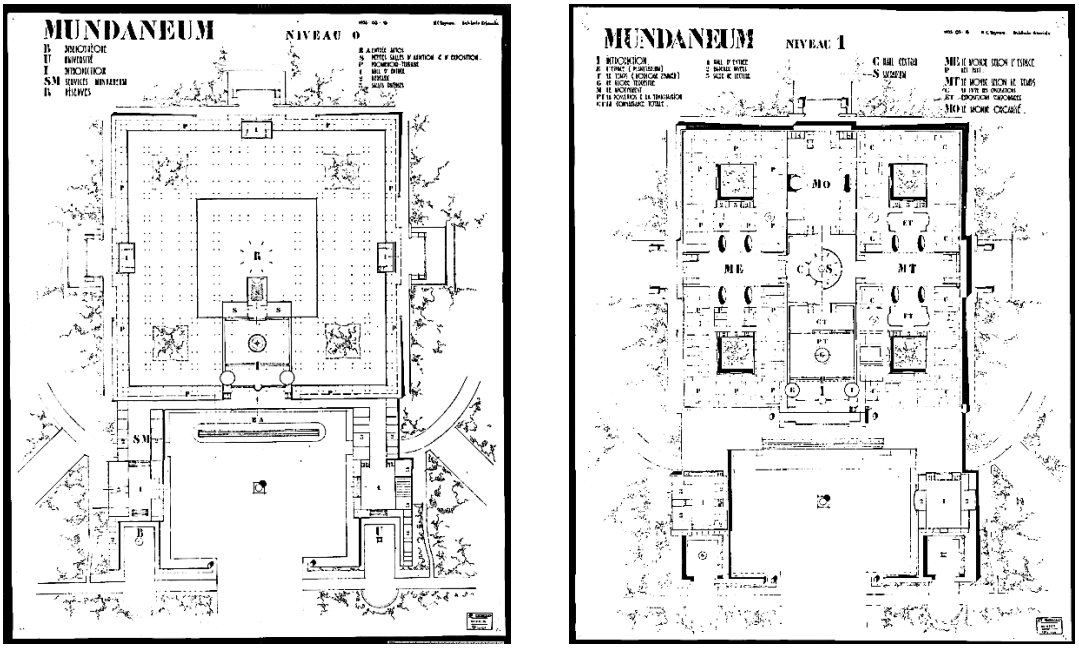

Figure 2.38 (left) Ground and (right) First Floor Plan of the Mundaneum, by M. Heymans, 15.03.1935.[117]

In order to offer the building a very functionalistic image, Heymans used architectural components including lengthy promenades, monumental stairs, massive white walls, as well as glass surfaces. On the ground floor plan, the museum and the international library were in front of the main building. The main entrance was between the library and the university for visitors with a parking zone underneath the broad staircase that

[117] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

directed the visitors to the main entrance located on the first floor. On the left side of the main entrance, there was a planetarium and on the right side, the 'Horloge Zimmer,' with a globe located in the middle of the room. On the left side, Heymans designed the 'World' according to 'space' section, with distinct rooms assigned to distinct countries. On the right side, the 'World' according to 'time' section portrayed a representation of the world's history.

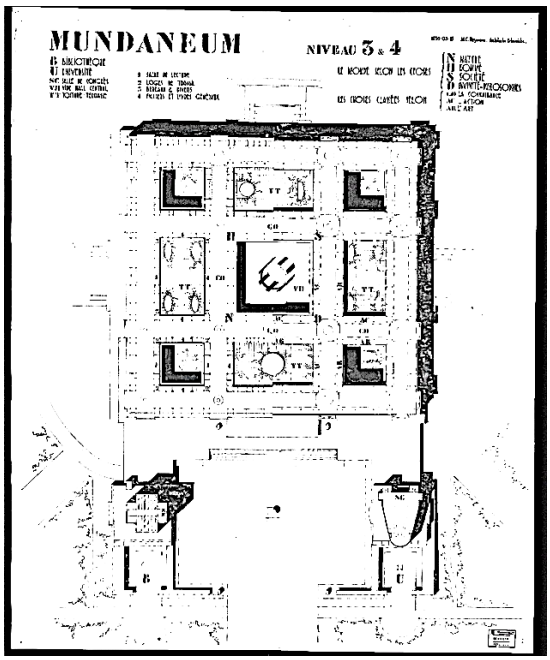

Figure 2.39 Third and Fourth Floor Plan of the Mundaneum, by M. Heymans, 15.03.1935.[118]

Moreover, the 'World' according to 'things' was displayed on the third floor and was organized around four areas: nature, humankind, community and religion. In the four corners of the Mundaneum, four roof terraces were placed among the courtyards. The courtyards and terraces around these galleries were either dedicated to knowledge, applied knowledge, or art. The central organization could be observed in this schematic plan, and there was a courtyard right in the middle of the plan. The entire organization was based on a symmetrical axis and grid planning. According to the

[118] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

zoning of the tasks, the entire organization could also be interpreted as one of the Modern Architecture's mottos. In the drawing below, the entire buildings had a flat roof. The building was raised on their pilotis so that it got rid of the massive load-bearing walls.

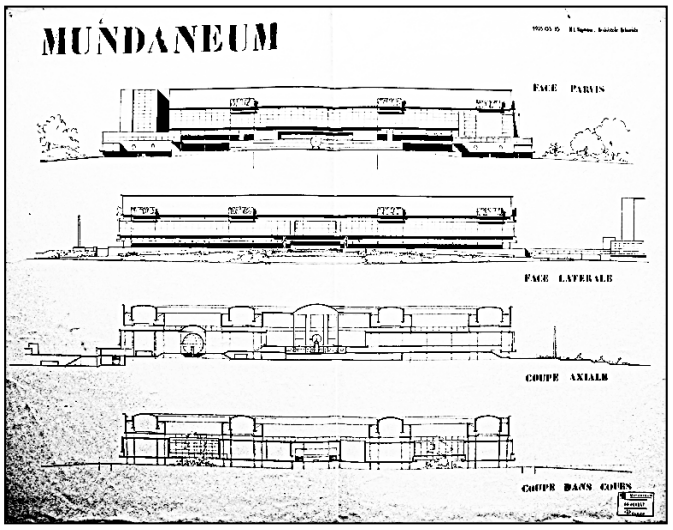

Figure 2.40 Façade of the Mundaneum, by M. Heymans, 1935.[119]

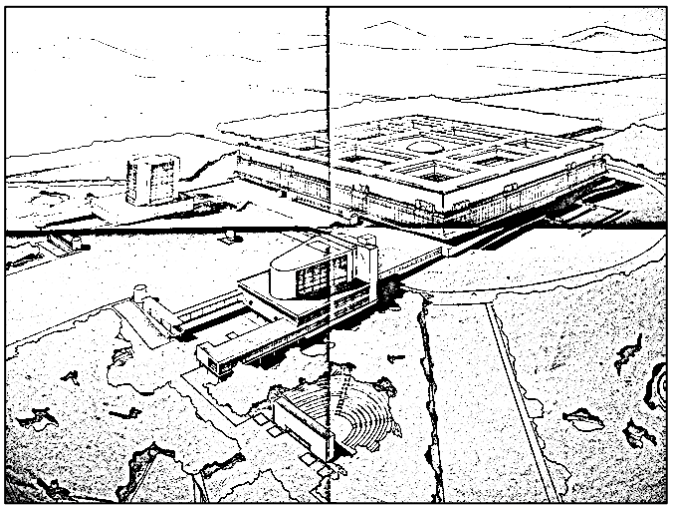

Figure 2.41 Perspective of the Mundaneum, by M. Heymans, 15.03.1935.[120]

[119] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[120] Ibid.

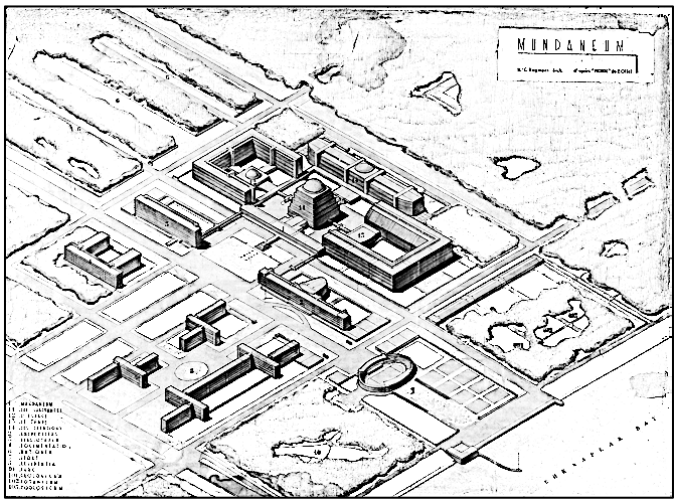

Figure 2.42 Perspective of the Mundaneum, by M. Heymans, 1935.[121]

Heyman's pyramid assimilated as a tower because of its verticality and anthropomorphic proportions with all typical values. Combining those with the globe dialectically provided discontinuous levels that distinguished the several institutions in the world. The importance of the tower for the Mundaneum was above the center's affirmation. One of the Mundaneum's primary characteristics was to centralize information, activities and institutions in an architectural organization. For Otlet, the central constitution and the monumentalism were valid principles of the organization. The construction of a tower was the most recognizable indication to signify that the center represented a network and internationalized world. Otlet particularly appreciated this characteristic of their World City project in 1911, which for a long time he had supported. Heymans devised a modest monument, effectively depicting the Mundaneum and Otlet used it in front of a screen, publicizing many of his other projects and explained:

> 'It is composed of three elements: the sphere, symbol of the unity and the connection of all the parts of the world; the pyramid, symbol Mundaneum itself and whose levels correspond to its various

[121] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

departments; a viewpoint indicator (table d'orientation) giving the distance and the direction of all the capitals in relation to Brussels.'[122]

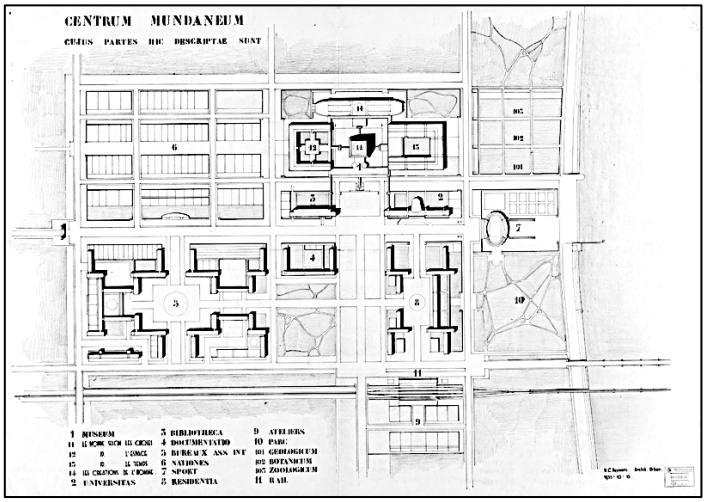

Figure 2.43 The Center of the Mundaneum, by M. Heymans, 15.10.1935.[123]

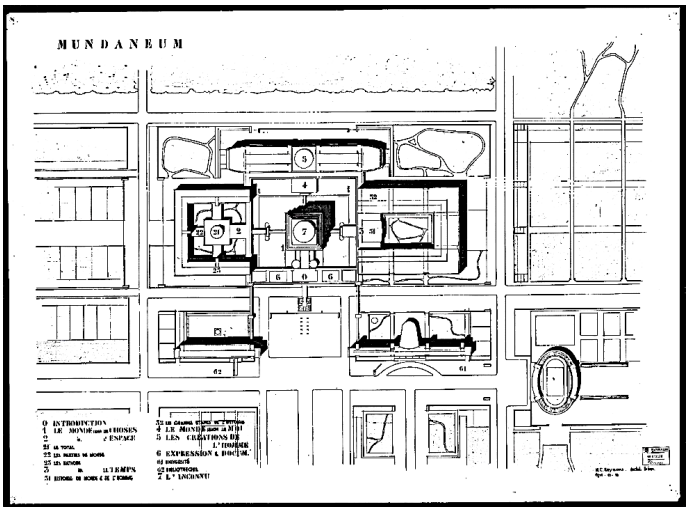

Figure 2.44 Site Plan of the Mundaneum, by M. Heymans, 15.10.1935.[124]

[122] Paul Otlet. 'Le Mundaneum a l'Exposition de Bruxelles,' in *Paul Otlet Archives.* Mundaneum, Mons, Belgium. This typescript is dated 13 March 1935, Box no. 3.

[123] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[124] Ibid.

The second version of the Mundaneum was much more meaningful in its metaphysics translation according to the architecture of the book 'Monde' which was published in the same year. The first chapter of the Monde was 'Le Monde salon Les Choses' represented the pyramid at the center of the plan. The four steps of the pyramid represented the elements of nature, man, society, and divinity. Foucault's 'Les mots et les choses' and Otlet's 'Le Monde salon Les Choses' had been interrelated as they all could be an attempt to classify world knowledge. Both provided a connection between the classification process and the knowledge formation that dwelt on this categorical approach. In terms of the three elements mentioned above, Otlet classified the world.

A cupola, on the top of the pyramid, was related to Chapter 7 of the Monde that served as a symbol of the 'unknown' or the 'ultimate finality' of things. There were two u-shaped buildings on both sides of the pyramid that were covered in Chapter 2 and 3 of the Monde's spatial and temporal dimension representation of the world. Following the pyramid, there was a small room dedicated to the 'World' according to 'self' based on Chapter 4 of the Monde. This hall had entrance to the 'Creation of the Man' as a transverse structure outlined in chapter 5. The 'Expression and Documentation' depictions described in Chapter 6 were a hall in front of the library, the university and the pyramid.

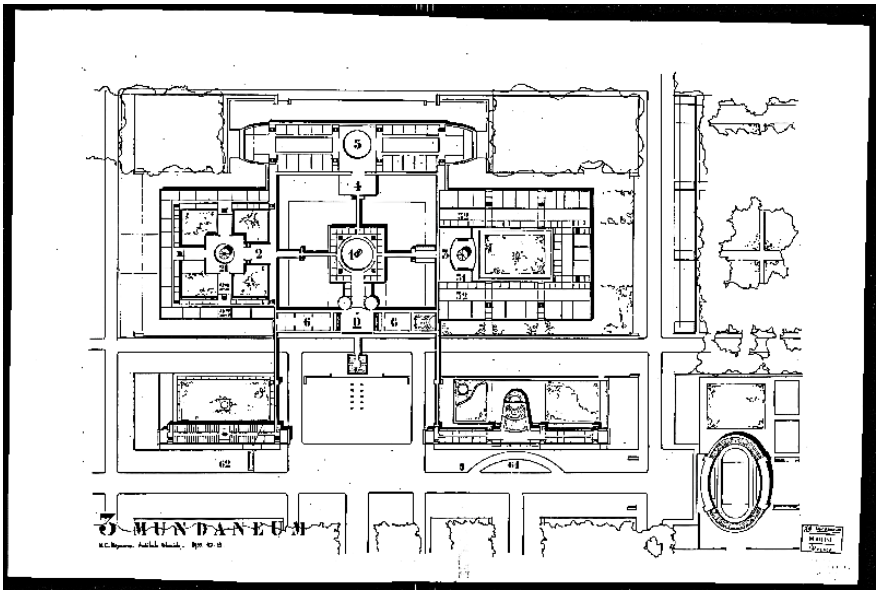

Figure 2.45 Ground Floor Plan of the Mundaneum, by M. Heymans, 15.10.1935.[125]

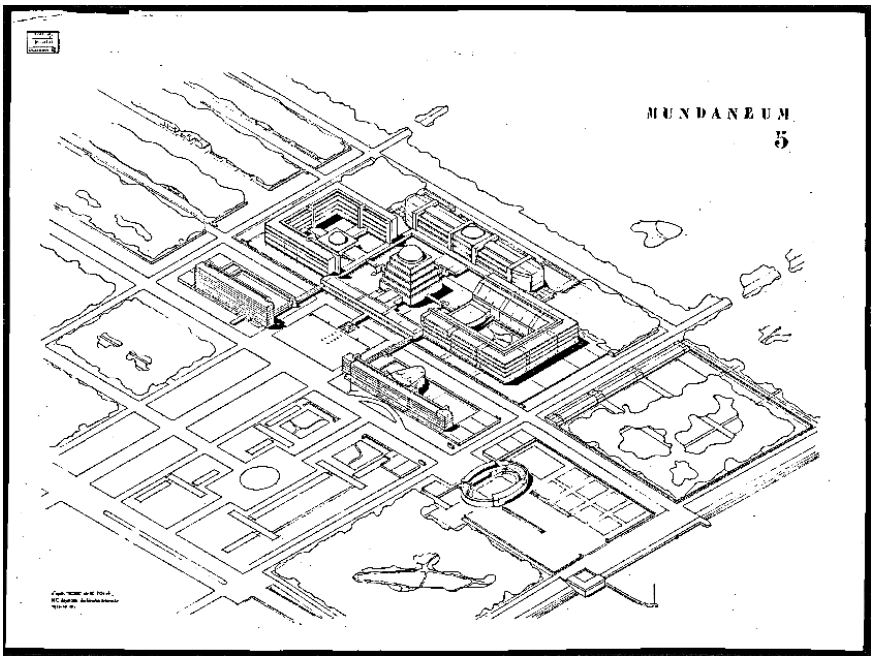

Figure 2.46 Perspective of the Mundaneum, by M. Heymans, 15.10.1935.[126]

[125] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[126] Ibid.

2.2.4.3. The Third Proposal of the Mundaneum by Maurice Heymans

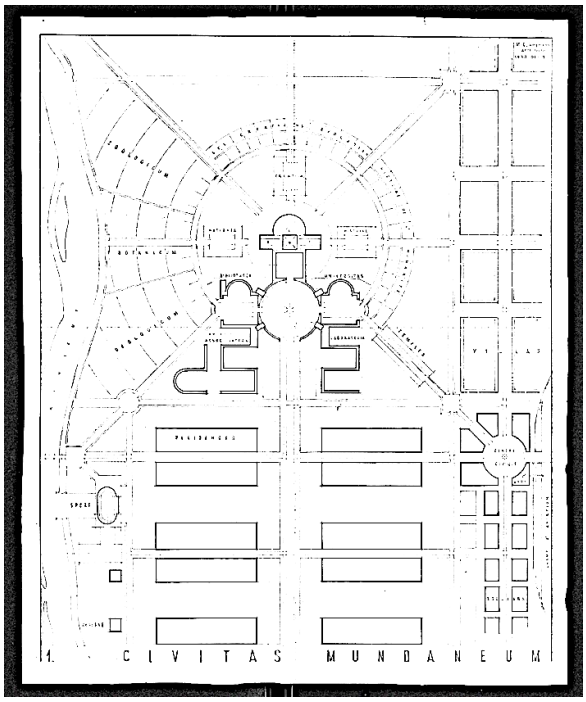

Figure 2.47 Civitas Mundaneum, by M. Heymans, 1938.[127]

Heymans designed the third proposal of the Mundaneum according to changes recommended by Otlet in 1938 that was based on a centralized institutional network. The centralization had a different perspective from the previous proposals. This networked proposal of the Mundaneum institution had a different dimension and was extended to all specializations and places within an organization. The Mundaneum was presently a network that gathers all social knowledge of the globe.

In 1938, according to the changing perception of Otlet, Heymans redesigned the whole Mundaneum. In this proposal, he designed a Mundaneum in different scales: a local Urbaneum, a regional-Reginoneum, a nationwide-Nationeum, a continental-

[127] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

Continentaneum, an international-Internationeum, and a global-Mundaneum. He drew all the perspectives and the schematic plans according to different scales.

2.2.5. Raphaél Delville and Stanislas Jasinski – 1943

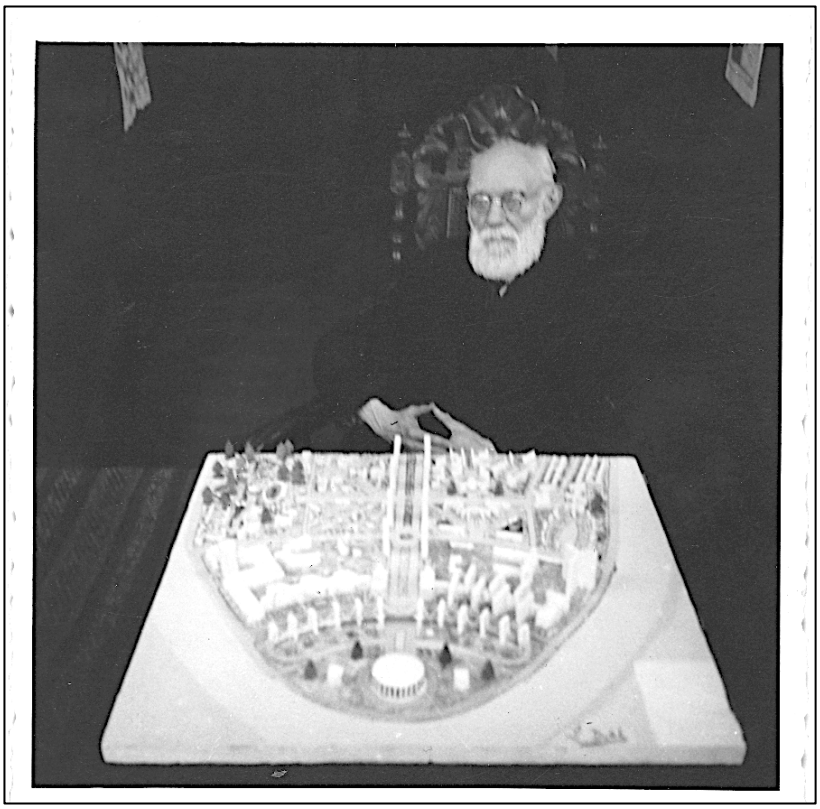

Figure 2.48 Paul Otlet and the model of The World City, by R. Delville and S. Jasinski, 1943.[128]

The latest version of the Cité Mondiale was designed by Raphaél Delville (1894–1970) and Stanislas Jasinski (1901–1978) in October 1941. This final version was located on the left bank of Antwerp. Raphaél Delville was the son of the painter Jean Delville (1867–1953), the close friend of Otlet.[129] Both Delville and Jasinski were the interns at the office of the architect Victor Horta. Jasinski focused more on theories

[128] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[129] See Daniel Guéguen. *Jean Delville la contre-histoire*. Lineart: France, 2016.

about urbanism and mentioned that their design of the Cité Mondiale met the necessities of an 'exemplary and model city.'[130] He believed that urbanism was a universal science that was rationalized as CIAM did in terms of universal principles, organizations and norms.

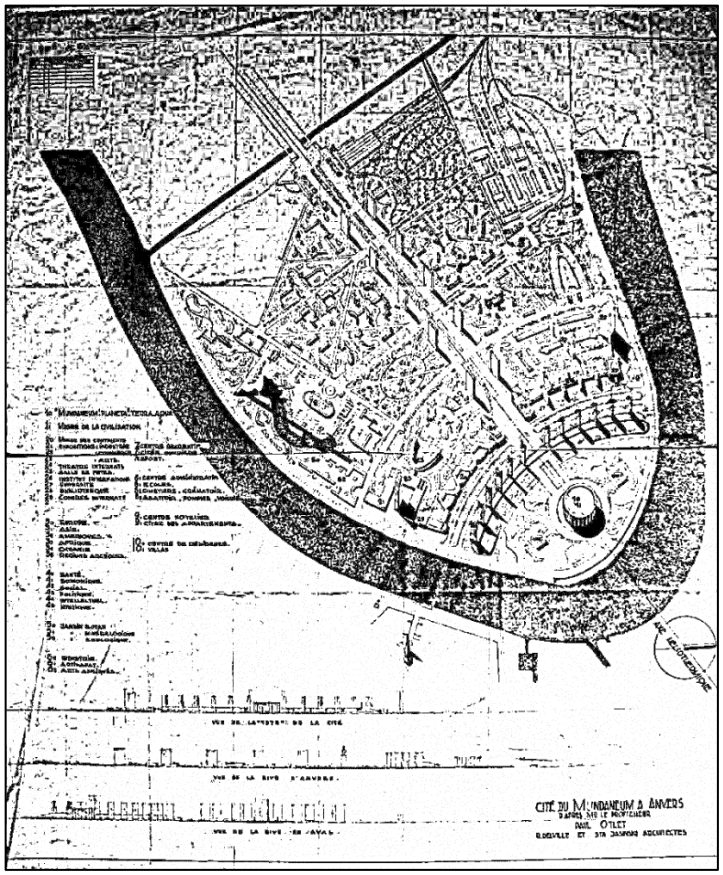

Figure 2.49 The World City, by R. Delville and S. Jasinski, 1943.[131]

In this plan, the Cité Mondiale was configurated based on a symbol of the cross; Jasinski intentionally designed the cite as he thought it had to be defined concerning to the intersection of a radial road with the Mundaneum in the center. The

[130] Stanislas Jasinski. Letter to Paul Otlet in *Paul Otlet Archives*. Mundaneum, Mons, Belgium. 01 January 1941, Box 8 Correspondance Architectes, Folder Jasinski.

[131] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

intersectional organization should have established an alternative way to urbanize the city. In this cruciform of the city, the longitudinal axis consisted of the pavilions of the nations, while the curved transverse axis constructed the international organizations and associations.

In this proposal, they defined the longitudinal axis as the connection between the local residential area and the industrial functional area on the side of the station and the international functional area was on the side of the Mundaneum. On the other hand, the curved transverse axis assembled the international functions and was formed with twelve elongated towers; six of them were connected on one side with the International Organization, and the other six were designed to represent continents on the opposite side. A quasi-continuous string of the buildings brought together the various international institutes designed for scientific, cultural and documentary functions along the curved transverse axis.

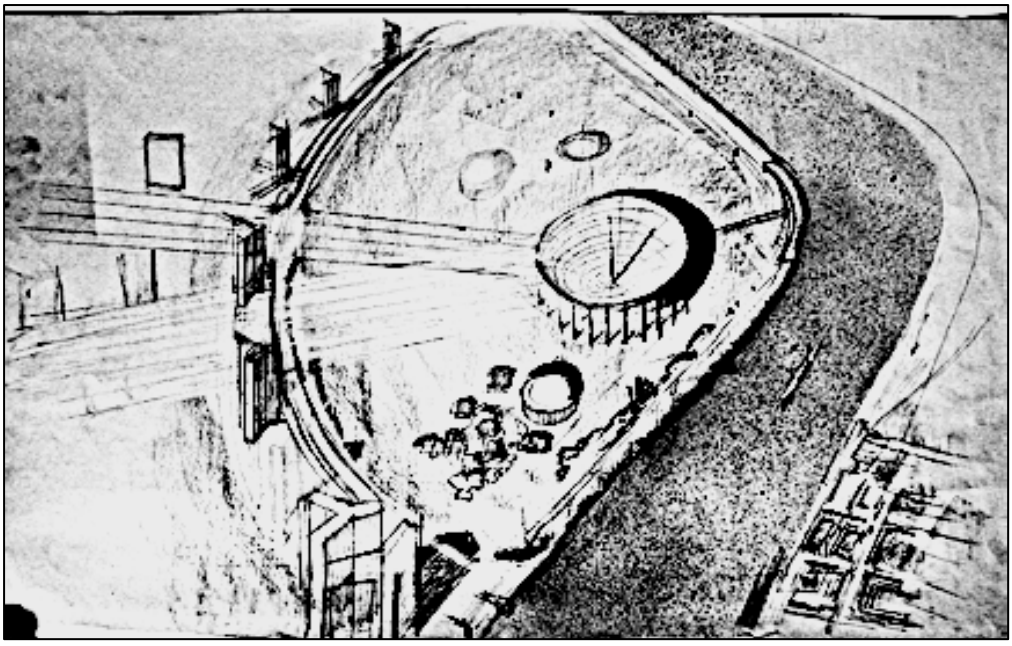

Figure 2.50 Sketch of the transverse axis, by R. Delville and S. Jasinski, 1941.[132]

[132] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

The Mundaneum was designed at the intersection of these axes in the form of a spiraled reversed cone. The height of the structure was 36 meters, and its highest point was measured 116 meters horizontally. The building had columns on the side that consisted of more than thirty posts constructed around the perimeter followed by the second row of columns. As mentioned by Jasinski, the movement of circulation was provided by using a spiral form of the building that represented civilization: art, science, and religion, respectively. He drew up the floor plan with its sections in 1941; the Mundaneum was displayed in the 1958 Universal Exhibition prospectus in Brussels.

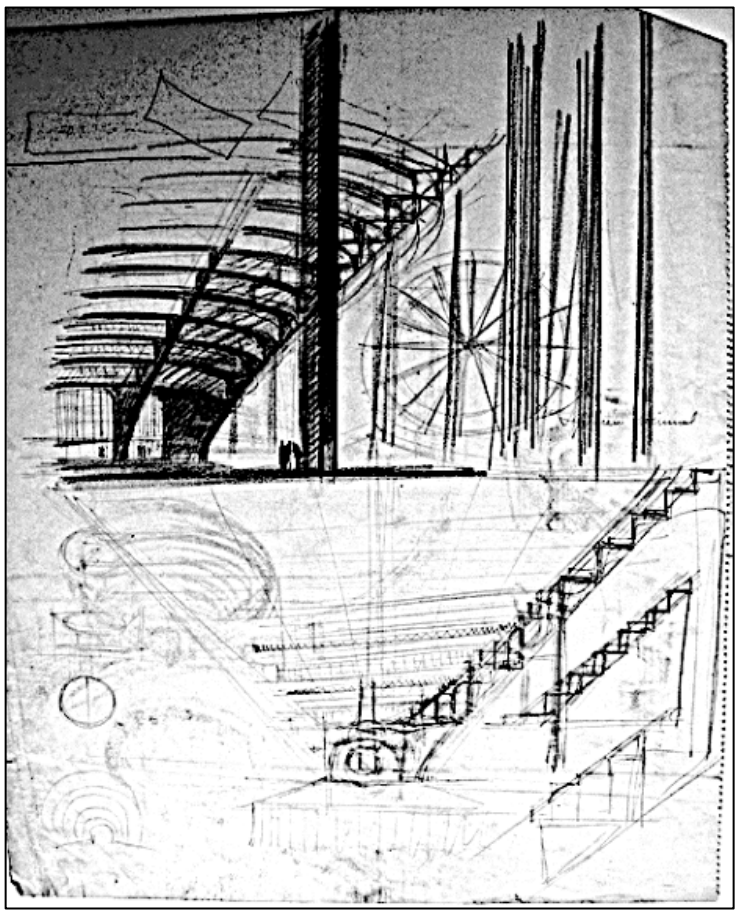

Figure 2.51 Elaboration of the floor plan and the sections of the Mundanuem for the Universal Exhibition in Brussels, by R. Delville and S. Jasinski, 1968.[133]

[133] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

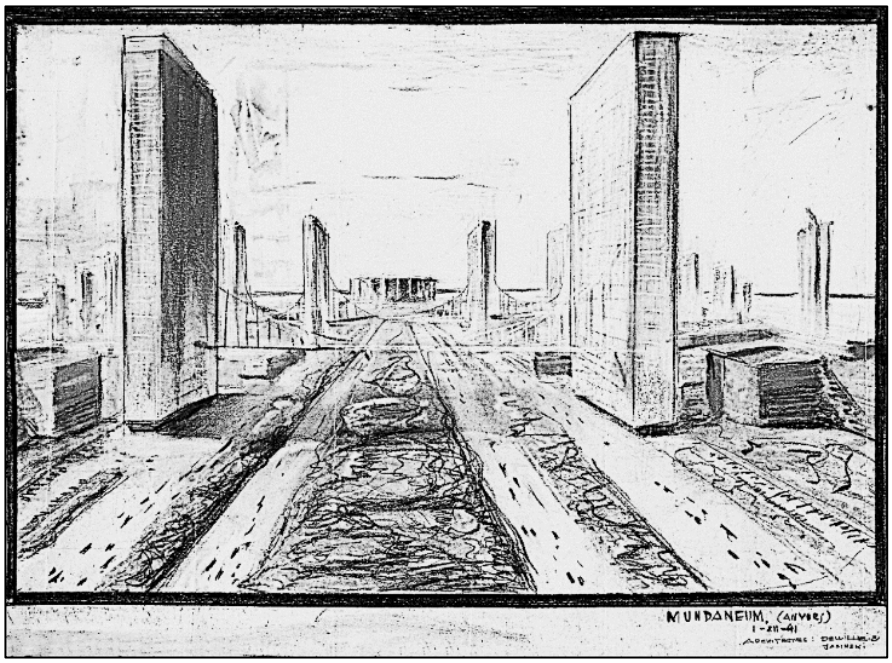

Figure 2.52 Sketch of the Mundaneum, by R. Delville and S. Jasinski, 1941.[134]

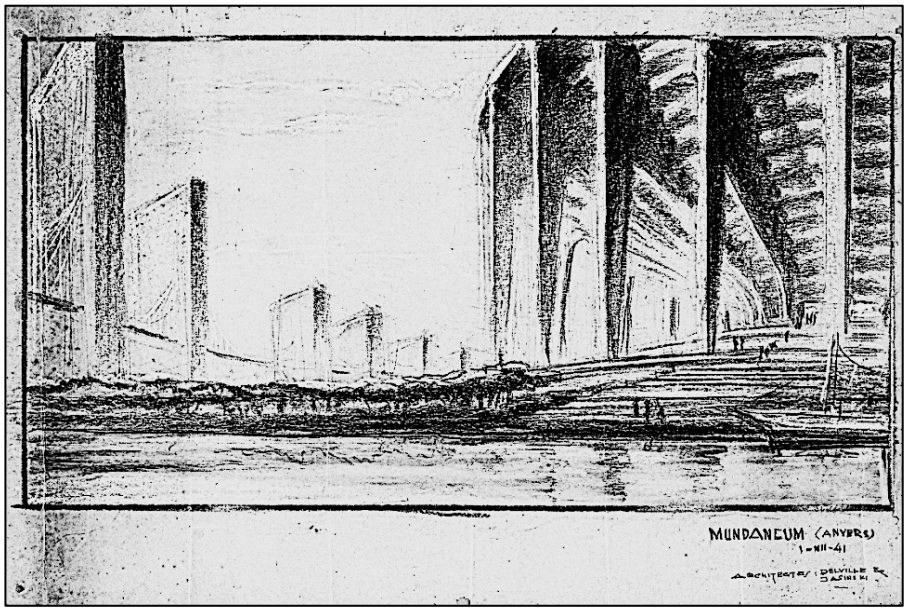

Figure 2.53 Sketch of the Mundaneum, by R. Delville and S. Jasinski, 1941.[135]

[134] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[135] Ibid.

2.2.6. Otlet's Proposal for the Mundaneum

Otlet defined the Mundaneum as an idea, a method, a network, an institution and a 'Summary of the whole including symbol of all symbols, prototypes of all relevant things ordered and connected, classification of classifications, documentation of documentation, the focus of focuses, university of universities.' This communication, documentation, and mapping systems could, therefore, be interpreted as a tool for introducing a system of signs into a genuine semiotic system.

The Mundaneum concept consisted of four elements: The Museum, The University, The Documentation Center, and The Federation of Associations Center, which was all inter-related to the accumulation of knowledge. The museum and the documentation place, in particular, had much more to do with knowledge organization than with its representation.

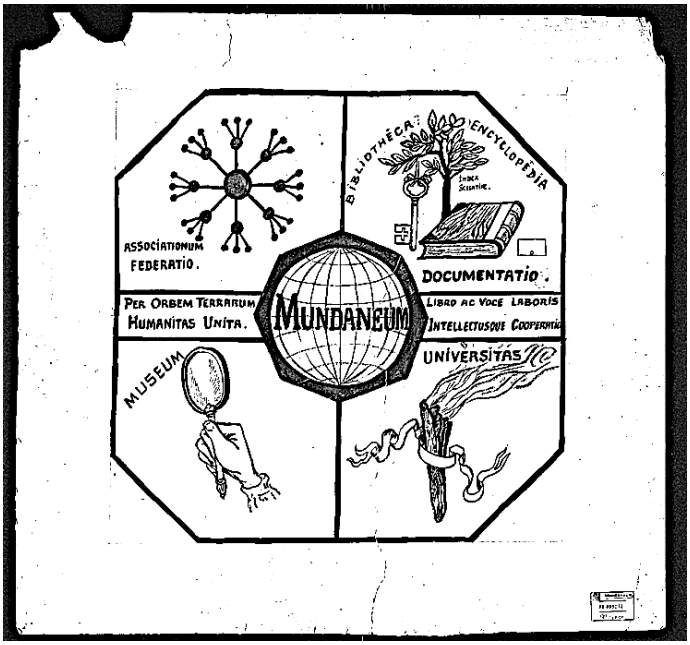

Figure 2.54 Schematic Organization of the Mundaneum as a documentation center, a university, a museum, a network of institutions by Paul Otlet.[136]

[136] Mundaneum, October, 2017 Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

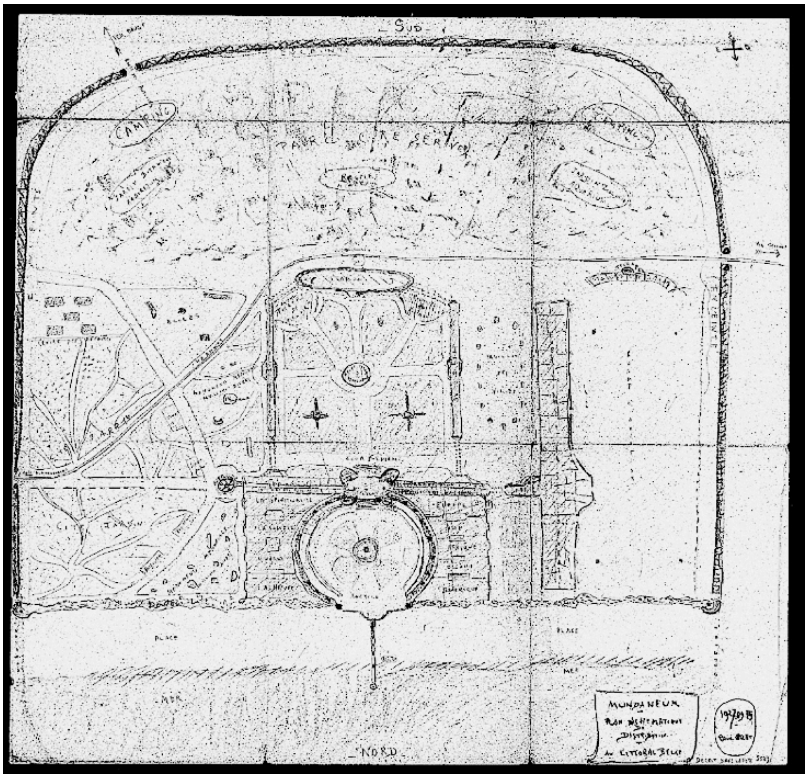

Figure 2.55 Schematic plan of the Mundaneum situated at the seaside between Wenduine and De Haan, Version 1, 1927, by Paul Otlet.[137]

In this schematic plan, the Mundaneum had again a tower centered planning. The presence of religious symbolism (always a cross) and Otlet's conception of the Mundaneum was the most apparent in an architectural schema; the Mundaneum was situated along the Belgian seaside, between Wenduine and De Haan, on 300 untouched hectares of land that was owned by the government.[138] This was quite different as the Mundaneum of 1927 was separated from the rest of the world by urban elements: an artificial canal, a railway, and an embankment. Among the various suggestions, only some elements altered.

[137] Mundaneum, October, 2017 Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

[138] Paul Otlet. *Déscription de la Cité Mondiale—Mundaneum. D'après le plan*. 1927.09.15. MDN, CM, Note no. 5589.

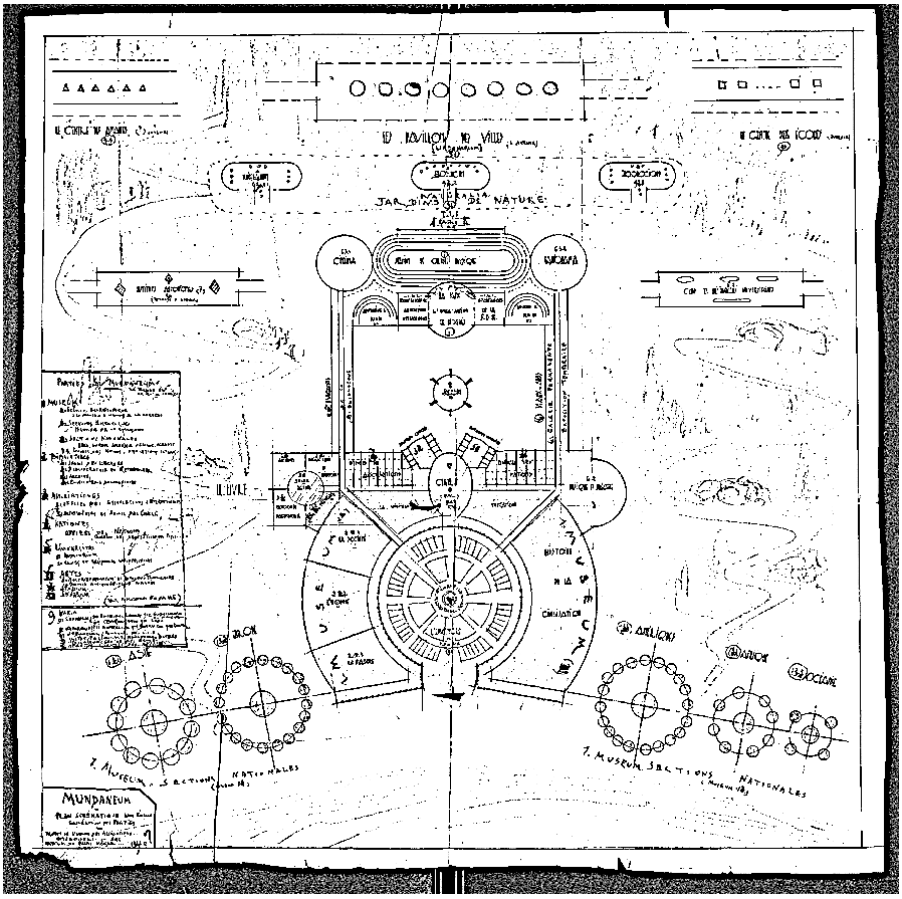

Figure 2.56 Schematic plan of the Mundaneum situated at the seaside between Wenduine and De Haan, Version 2, 1927, by Paul Otlet.[139]

There were three different types of accessibility to the Mundaneum: the members could access the building from the beach, individuals who came from overseas could moor their vessels at a pier marked by a lighthouse, and those who came by aircraft could land on the field of aviation. Moreover, the academic and intellectual members of the university, including students, teachers, delegates, societies, and businesspeople could reach the area through gates via trams and buses.

[139] Mundaneum, October, 2017 Paul Otlet's schematic drawing, personal archive in Mundaneum, Mons, Belgium.

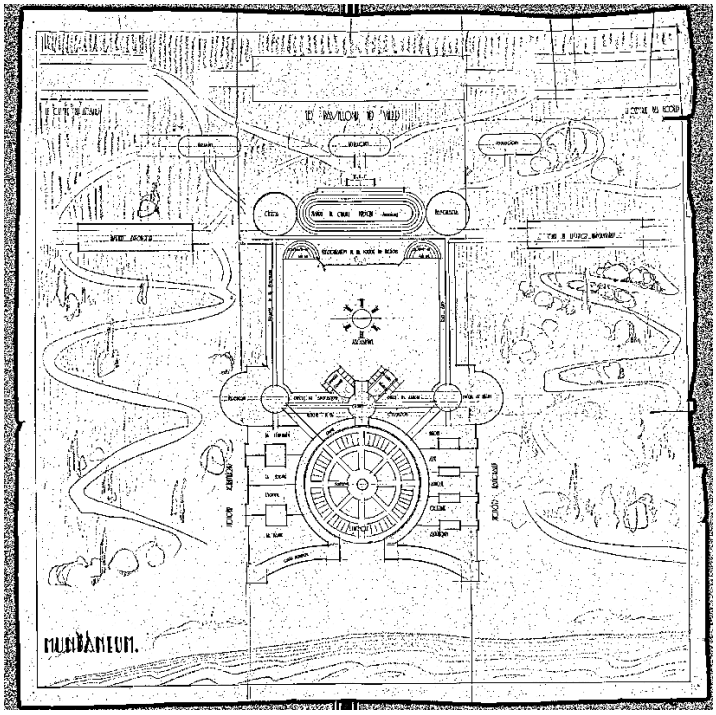

Figure 2.57 Schematic plan of the Mundaneum situated at the seaside between Wenduine and De Haan, Version 3, 1927, by Paul Otlet.[140]

The four towers consisted of a hall, a music theatre, a documentation-library, and a university auditorium. Around the Center Court, there were several 'Pavilions of Cities' next to the main building. This building block was intended to represent the possibility and existence of a universal culture that consisted of a museum on universal art, a museum on the history of humanity, an open-air museum on the history of the house, an Olympic stadium, a Planetarium, a Sacrarium that symbolizing the religious unity, and natural study centers in a symmetrical organization. Otlet mentioned:

> '… that from one place on Earth, the image and total meaning of the World be perceived and understood; That this become a sacred place, a place that inspires and that coordinates great ideas and noble activities; — That a treasure be created, made up of the sum of

[140] Mundaneum, October, 2017, Paul Otlet's schematic drawing, personal archive in Mundaneum, Mons, Belgium.

intellectual work, offered as a contribution of the great epic and magnificent adventure pursued by humanity through the ages.'[141]

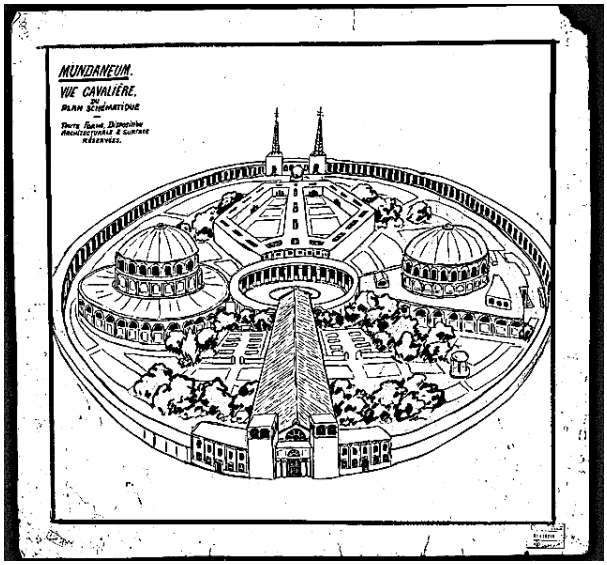

Figure 2.58 Bird's-eye view of the schematic plan of the Mundaneum, 1932, by Otlet.[142]

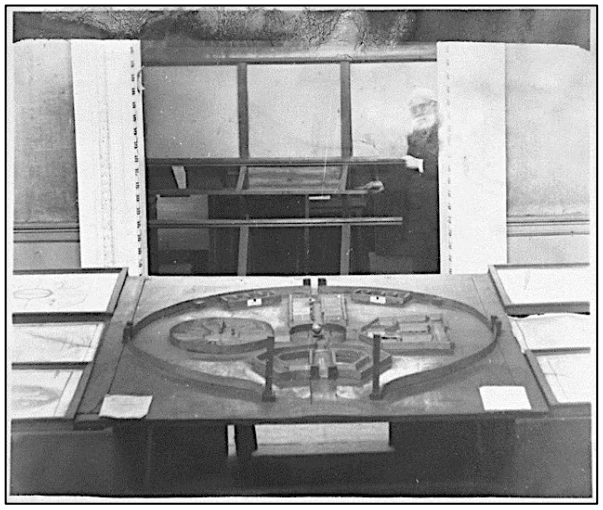

Figure 2.59 Photograph of Paul Otlet and a Relief of the Mundaneum.[143]

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[141] Otlet. op. cit., 1935, p. 642.

[142] Mundaneum, October, 2017, Paul Otlet's schematic drawing, personal archive in Mundaneum, Mons, Belgium.

[143] Ibid.

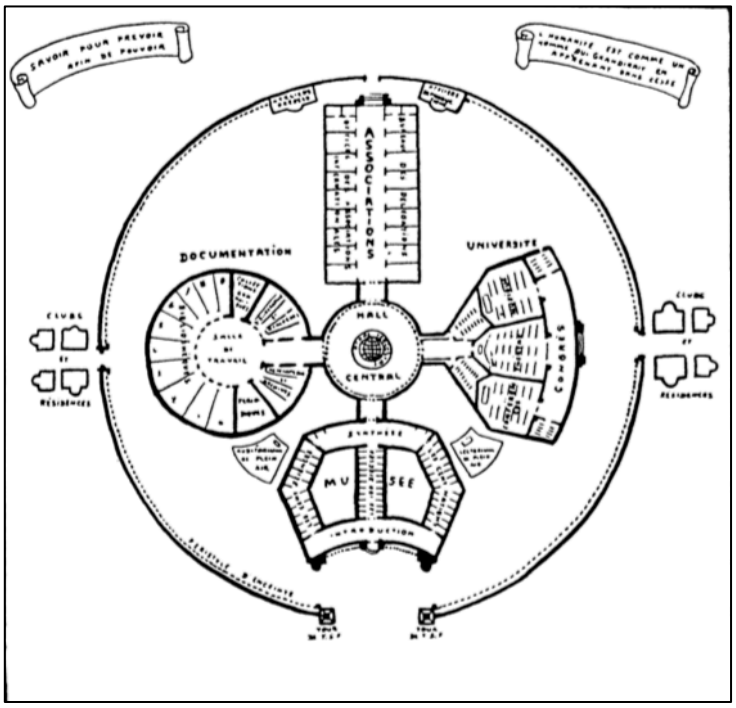

Figure 2.60 Schematic plan of the Mundaneum by Paul Otlet, 1914.[144]

Four different buildings were defined in the schematic plan of the Mundaneum. The central hall acted as a center of the building block with accesses to these buildings by a circular hall. The building block consisted of a documentation center, a university, an international museum, and international associations offices. The massive walls and colonnade system enclosed the whole building. Defined by the massive walls, the whole organization had four entrances for each building with different functions. Giuliano Gresleri and Dario Matteoni mentioned for the Otlet's sketch above:

> 'the museum would be a world in miniature, a cosmos cope that permits one to examine and understand humanity, society, and the universe; it will give a vision of the future, a combination and synthesis of all the factors of past and present progress.'[145]

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[144] Mundaneum, op.cit., Paul Otlet's drawings, personal archive.

[145] Giuliano Gresleri and Dario Matteoni. *La Città Mondiale: Andersen, Hébrard, Otlet, Le Corbusier*. Venice: Marsilio, 1982, p. 34.

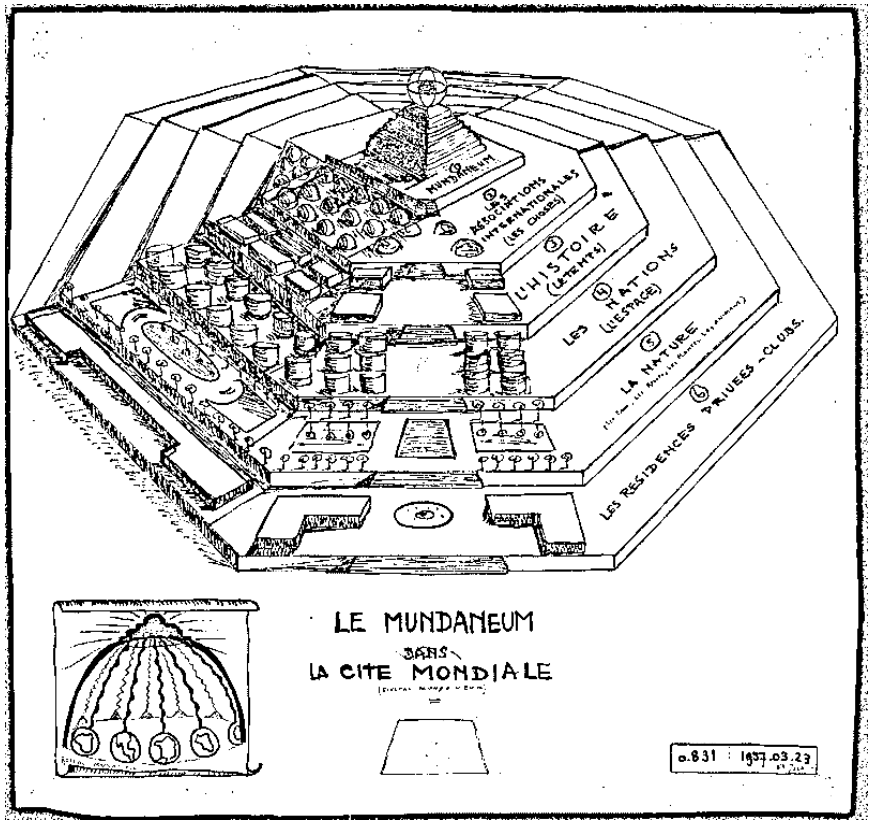

Figure 2.61 The Mundaneum in the Cité Mondiale, 1937, by Paul Otlet.[146]

In the sketch above, Otlet showed for the first time the essence of the museum and its connections with other components in the city context. He defined the network relationships between the Mundaneum and the continentals, on the left below the sketch. He thought that the museum, representing his modern temple of knowledge, should have depicted reality. He called 'Cosmos cope' displaying a World in a miniature. Thus, this helped us to see and understand the relationship between 'Mankind, Society and the Universe' in Otletian phrases.

[146] Mundaneum, October, 2017, Paul Otlet's drawings, personal archive in Mundaneum, Mons, Belgium.

2.2.7. The Rebirths of the Cité Mondiale after Paul Otlet's Death

After the death of Paul Otlet in 1944, the idea of the Cité Mondiale emerged again by Le Corbusier while the United Nations Headquarters was designed along the East River on Manhattan Island in New York. This architectural process reminded Le Corbusier of the League of Nations palace that was located in Geneva (1917). He rethought about the 'internationalism' concerning this project and went back to the proposal of the Cité Mondiale which was located in Geneva. In New York, he was determined to design international political and cultural institutions as well as residences for administrators and diplomats. He stated:

> 'At this point, it is opportune to speak of the legacy of Paul Otlet. This Belgian, who during fifty years was the proponent of 'Mondialisme,' devoted to it his fortune, his life and, above all, an untiring passion. He was derided, blamed, opposed, sneered at … He submitted plans for a 'Cité Mondiale' on the hills of Grand Saconney [in Geneva in 1928]. In 1933, he pursued the task in Antwerp, at the time of the planning of a new city on the left bank of the Scheldt. I helped him in this work both as an architect and as an urbanist/city planner. I undertook extensive studies for him. Is it possible that the work of such a forerunner might be wasted? Of this heritage, the United Nations may well take into consideration the World Museum, rather poorly named 'Mundaneum,' with its annex the temporary exhibit, the building of International Associations, the world library, the world law faculty and lastly, the 'URB'; that is, a continuously renewed exhibit of applied urbanism, kept up to date by each nation—the social regulator par excellence.'[147]

[147] Le Corbusier. *UN Headquarters*. New York: Reinhold Publishing, 1947, p. 35.

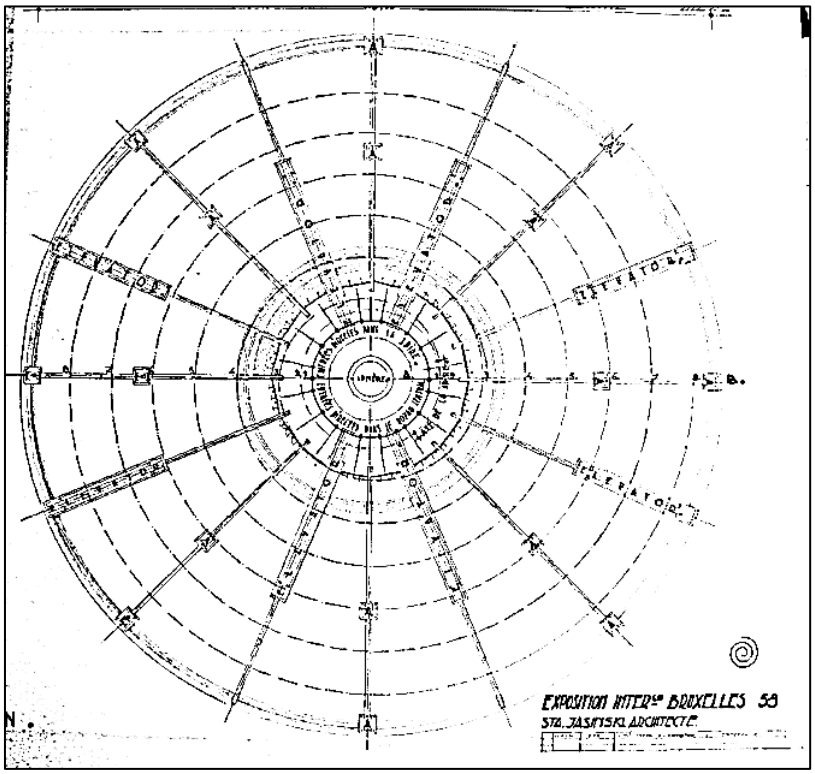

Figure 2.62 Plan for the 'Exposition Internationale Bruxelles 58' by S. Jasinski, 1954.[148]

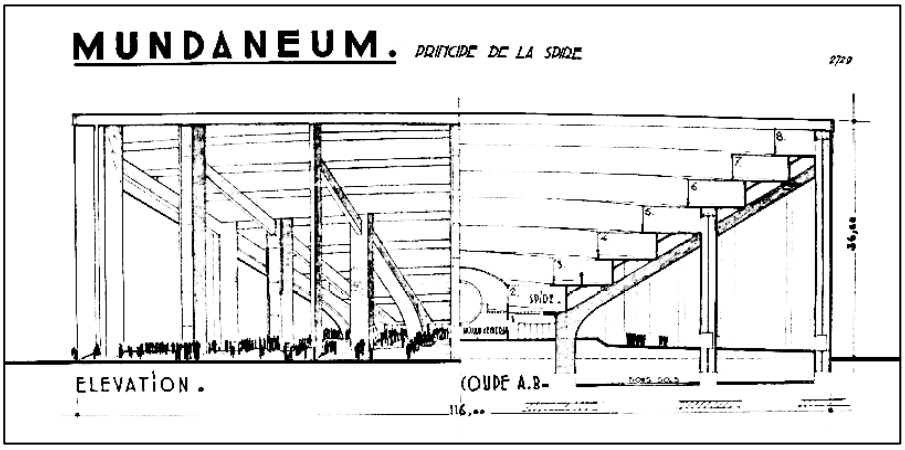

Figure 2.63 Elevation and Section for the 'Exposition Internationale Bruxelles 58' by S. Jasinski, 1954.[149]

[148] Mundaneum, October, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[149] Ibid.

Ten years after Otlet's death, the concept of the Cité Mondiale project came to light again in November 1954. Stanislas Jasinski redesigned the plan, section, and elevation of his 1941 design of the Mundaneum for the Universal Exhibition in Brussels in 1958.

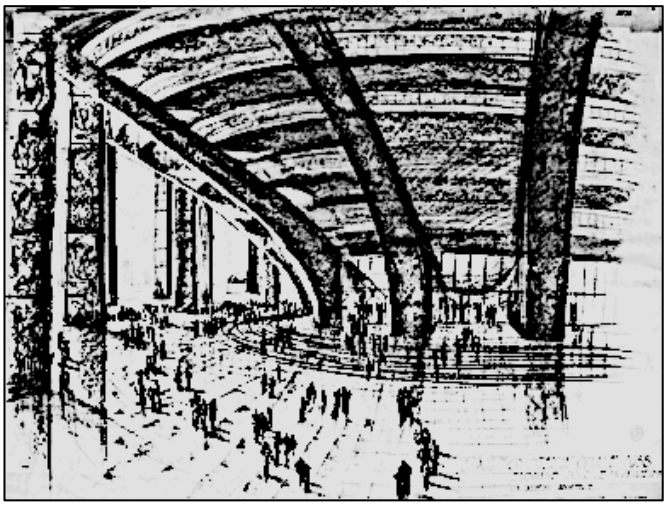

Figure 2.64 Sketch for the 'Exposition Internationale Bruxelles 58' by S. Jasinski, 1954.[150]

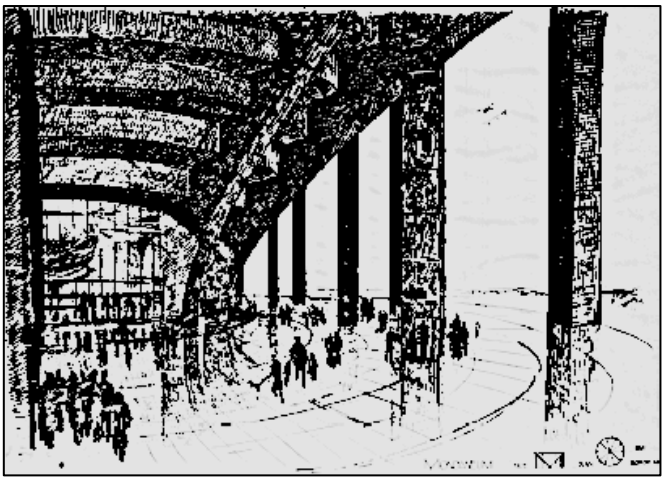

Figure 2.65 Sketch for the 'Exposition Internationale Bruxelles 58' by S. Jasinski, 1954.[151]

Urbanism was thought by Otlet to be a universal science with valid principles and standards. In the study, research and planning of the spatial developments, this

[150] Mundaneum, October 8, 2017, La Cité Mondiale archive in Mundaneum, Mons, Belgium.

[151] Ibid.

universal rationality could be implemented in different scales: local, regional, national, international and lastly global. These urban planning studies could be characterized as systematic, unidirectional and positivistic approach to the 20th century contextual thinking. Moreover, Otlet's rational decision-making system might be endorsed in a logical way in terms of observation, documentation, study, research, calculation, plans, decisions and execution followed one another.

In particular, Otlet stated that 'all information about bibliography and documentation should be coordinated, and a distinct brand of study created,' in order to classify and standardize the terms of this fresh specialty, closely identified with a dictionary issued. Here, the term discipline was redefined by Stanford Anderson to understand the interrelationships as:

> 'The social construct incorporates not only architects but critics, theoreticians, historians, builders, engineers, preservationists, and lay people. In addition to this, it also has corporate organizations such as institutions, archives, and libraries devoted to architecture.'[152]

Ayşen Savaş mentioned that the institutions of the discipline could be interpreted as 'a control mechanism.'[153] These organizations, their related influence in artifacts and their institutions had the ability to turn documents into sources of knowledge for the developments of different disciplines. As Raywards pointed out that 'the documentation was at the center of a complex process of communication, of the accumulation and transmission of knowledge, of the creation and evolution of institutions for Otlet.'[154] By doing so, the transmission of knowledge had created available both physically and intellectually. Thanks to the availability and

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[152] Stanford Anderson. 'On Criticism' in *Places*, Vol. 4, No. 1, 1987, p. 7.

[153] Savaş. op. cit., p. 20.

[154] W. Boyd Rayward. 'The Case of Paul Otlet, Pioneer of Information Science, Internationalist, Visionary: Reflections on Biography' *in Journal of Librarianship and Information Science*. No. 23, September 1991, p. 137

accessibility of information, the emergence and growth of a variety of subjects could provide the researchers to develop new fields/areas. This diversity in research fields ultimately promoted disciplinary thinking and interdisciplinary developments.

Following inquiries into the documentations of these architectural projects, the conclusion of this chapter is reached to highlight the differences and similarities. As they portray the uniqueness of these examples and represent the general principles of the Cité Mondiale, the examinations of these architectural projects are essential. All of the World City's distinct models are discussed to convey the notion of 'center'. By doing so, this centrality is to assert universality and internationality. The city thus sets itself the task of becoming the memory and decision-making center.

From an architectural point of view, Otlet's ideas on urban planning linked to the flexibility, internationalism, zoning, rationality, and abstraction are reinterpreted as specific aspects of Modern Architecture. Therefore, these terms allow architects, urban planners, landscape architects and sociologists to think about the principles of Modern Architecture and in particular the mottos of the CIAM meetings. Furthermore, the similarity of the terms used by both Otlet and Le Corbusier provides the basis for the understanding of the 20th century context. In terms of several concepts such as plan, analysis, classification, abstraction, standardization and also synthesis, these similarities can be noted to comprehend the connection between architecture and organization of knowledge.[155]

[155] These terms are inferred from the correspondence between Paul Otlet and Le Corbusier which are archived in Mundaneum, Mons, Belgium.

CHAPTER 3

THE UNIVERSAL REPERTORY

In the historiography of both Belgian and European or even World architecture and urban planning, Paul Otlet's works did not receive commensurate attention. Further, Otlet's consideration of classification and architectural concept of this classification were essential for both architectural history, practice, discourse and also urban planning in multiple scales such as Urbaneum, Nationeum (Belganeum) and Mundaneum. This chapter constitutes of different parameters of his understanding of classification in the 20th century and its concrete forms linked to this context.

In 1895, Paul Otlet and Henri La Fontaine were again commissioned for an extremely creative and challenging fresh position. They collaborated together on the project of creating the 'universal' catalog called Universal Bibliographic Repertory (Répertoire Bibliographique Universel, referred to as the RBU) that continued until the end of their lives. Their project was aimed to constitute a comprehensive repertory of index cards, which would eventually catalog all the publications of 'all times' and 'all places.' By the end of 1895, it had 400.000 entries and later on it would reach over 15 million.

In parallel to this ambiguous collaborative work, Otlet had an influential role in the documentation, bibliographies, and the establishment of the discipline now called: museology. Ronald E. Day said he was a visionary thinker because of his belief in unified positive science and also, he practiced a documentary technique that was based on a small 'atomic' mass of texts, which was the part of the networking of the mass into paper-based documents. While imagining the structures and forms, he was aware of the physical and conceptual possibilities in a concrete way as he was particularly interested in architecture. As he stated:

‘Immediately and without confusion, it [documentation] allows us to find a place for each idea, for each thing and consequently, for each book, article, or document and even for each part of a book or document. Thus, it allows us to take our bearings in the midst of the sources of knowledge, just as the system of geographic coordinates allows us to take our bearings on land or sea.’

In 1896, Otlet designed a fee-based service to answer the questions by mail in which the copies of the relevant index cards were sent for each inquiry. Alex Wright has referred to this service as an ‘analog service engine’ or ‘paper google.’ Through 1912, this available service responded to over 1500 inquiries a year. Otlet proposed a copy of the RBU in each critical city all around the world under the condition that Brussels would hold the master copy. Between 1900 and 1914, there were several attempts to send full copies of the RBU to Paris, Washington D.C. and Rio de Janeiro, but this proposal failed as there were difficulties in copying and the most of the transportation was quite expensive. Thus, these cities received only a few thousand cards

3.1. The Mundaneum

The Belgian government helped Otlet and La Fontaine arrange an ‘International Bibliography Conference’ in September 1895 to bring together scientists, bibliographers and librarians from around the globe. As a result of this conference, the RBU would be elaborated and classified on cards that would be eventually defined as the Universal Decimal Classification System (UDC). The significance of the system originated from its being able to organize and reach into the contents of document - the sort of ‘things.’

Following the International Conference, the International Office of Bibliography (OIB) was established by a Royal Decree in 1895. The OIB aimed to collect, retrieve, and publish the RBU as well as become a center for the International Institute of Bibliography (IIB). This conference led to the establishment of the IIB, which was established to offer an international ‘network’ bibliography. Here, the term ‘network’

was crucial for Otlet since he interrelated it not only with the bibliography but also with 'the relation of books to one another, to facts, and thought.'[156]

The intention behind the institutionalization of the IIB was to provide new bibliographic methods and to develop the UDC system. In 1937, the IIB was transformed into the International Federation of Documentation (FID), with the headquarters located in The Hague, Netherlands until 2001. Since then, it has been continued by the UDC Consortium in The Hague.

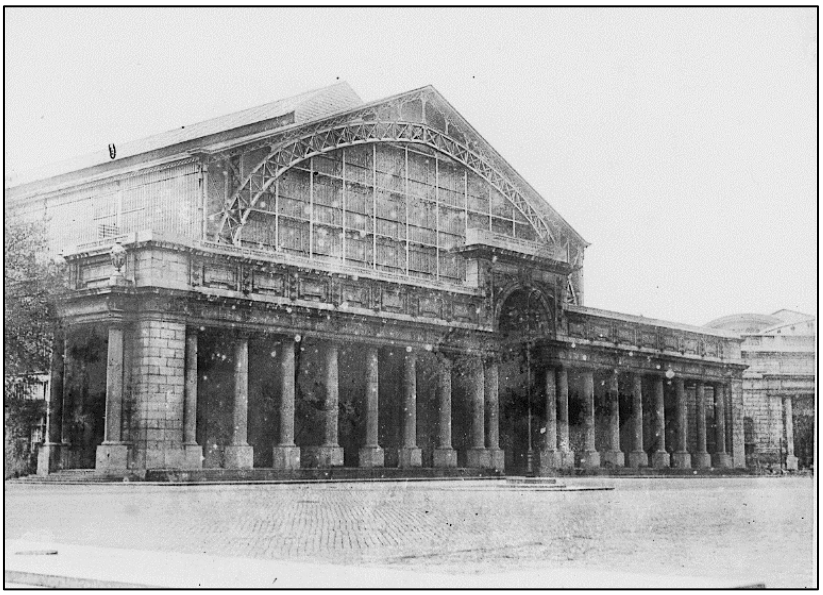

Figure 3.1 The Palais Mondial in the Parc du Cinquantenaire.[157]

Otlet and La Fontaine directed a group of institutions known as the Palais Mondial, which had 150 rooms and located in the Left Wing of the Palais du Cinquantenaire in Brussels. In 1910, with the approval of the Belgian government, they founded the International Museum as a part of The World Congress of International Associations. This was the time national museums came out all around the Europe. It is crucial to

[156] Day. op. cit., 2001, p. 14.

[157] Mundaneum, October, 2017, unpublished photograph of the Palais Mondial in Mundaneum, Mons, Belgium.

add that these knowledge spaces showed a tendency to be nationalized. Thus, these representation spaces became the fundamental institutions of the nation-state. At this point, there had to be established a dialectical relationship to legitimize its being between the nationality and universality because of the effects of the colonialism. As Tony Bennett clarified:

> 'universal histories being annexed to national histories as, within the rhetoric's of each national museum complex, collections of national materials were represented as the outcome and culmination of the universal story of civilization's development.'[158]

The Palais Mondial as a universal institution also provided offices for international organizations that were based in Brussels. Since 1910, Otlet opened up his International Museum in the Palais du Cinquantenaire in Brussels, which was later renamed as 'Mundaneum' or 'Palais Mondial' in the interwar period. The Brussels International Museum was a museum of 'ideas' and of 'facts.' From an internationalist point of view, this was a spatial encyclopedia created to 'visualize' and synthesize what was known. Otlet clarifies the nature of the Mundaneum:

> 'The Mundaneum' was designed as a blend of public museum, a meeting place for scholars, a vast catalog of information, and an archive on the intellectual world in the early 20th century. The RBU represented the major part of the Mundaneum which portrayed the idea of 'global knowledge' in French. In the 1920s, the institution operated an enormous catalog of world knowledge. In this project, they obtained to create international networks designed to promote the exchange of knowledge.[159]

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[158] Tony Bennett. 'The Exhibitionary Complex' in *New Formations*. London: Lawrence and Wishart, Number 4, spring 1988, p. 89.

[159] C. Dubray. 'Introduction,' in *Occasional paper* ed. by W. Boyd Rayward. No.215. GSLIS. University of Illinois Urbana Champaign, 2010, p. vii.

Figure 3.2 Paul Otlet and the diorama of the World Palace, in Cinquantenaire, Brussels, Belgium.[160]

After the First World War, the organization of the RBU faced financial difficulties due to decreasing incomes as a result of the works slowed down and then the Belgian authorities decided to close the Palais Mondial and relocate it in the Parc du Cinquantenaire in Brussels; therefore, all institutions directed by Otlet were closed. In the sketch above, the architectural spaces were defined under four categories: museum (as indicated with bold hatching), education, documentation, and associations. The museum part also divided into six categories: introduction part, historical section, scientific section, nationals – geographic section, international life, and organization – methods. The documentation part consisted of bibliography, encyclopedia, and a library.

[160] Mundaneum, October, 2017, unpublished photograph of the Palais Mondial in Mundaneum, Mons, Belgium.

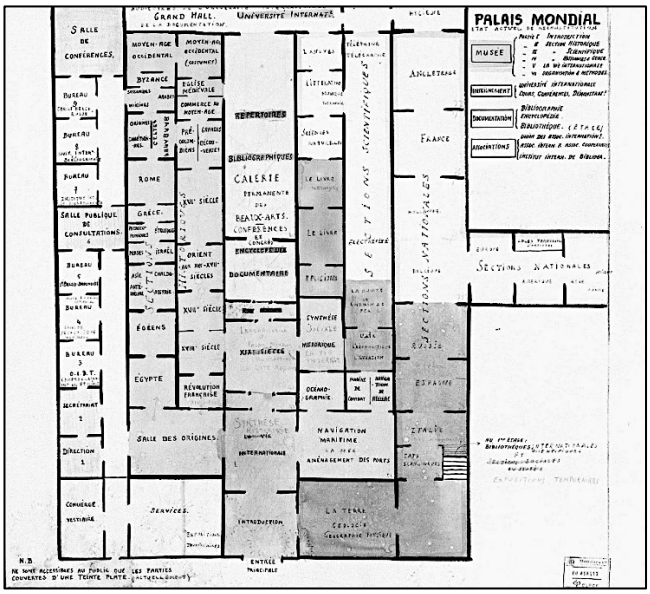

Figure 3.3 Floor Plan of the Palais Mondial in the Parc du Cinquantenaire.[161]

Otlet structured the museum in three sections, focusing on history, geography, and science, respectively, preceded by an introductory hall. In addition to 3D materials such as objects, models, and also graphic material, the museum displayed posters aimed at transferring knowledge from books to documents which were 'discursive, slow and compact' into 'intuitive, direct and rapid' explanations. The distribution of the spaces as followed:

1. Administration Offices of the International Associations (1-18),
2. Auditorium and Reception Room of the International Congress (28, 43, 48, 68),
3. International Institute of Bibliography (7-9, 46, 47),
4. International Library (51-54, 61-65),
5. Encyclopedic Documentary (35-37),
6. International Museum (21-33, 50, 70-99),
7. International University (19, 29, 38, 39, 49, 58, 59),
8. Ancillary Services, Entrance Hall, Indicator Services (40, 41), Posts and Telegraphs (30), Restaurant, Smokehouse (98, 99).

[161] Mundaneum, October, 2017, Otlet's sketches archive, Mundaneum, Mons, Belgium.

Figure 3.4 Microphotographic Gallery, Palais Mondial, 1910.[162]

In the figure above, the image of the Palais Mondial represented the interior of the microphotographic gallery. Here, it was clear that space would have exhibited significant amounts of equipment and also a variety of documentary representation considering Otlet's microfilm experiments.

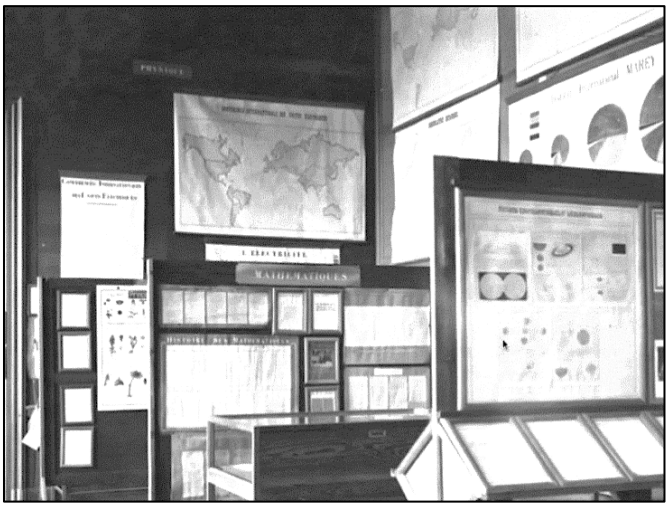

Figure 3.5 The Exhibition of the Infographics, the Palais Mondial.[163]

[162] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

[163] Ibid.

When the RBU closed, it had about 16 million cards in its archives. While recovering from the economic conditions of the First World War, Otlet and La Fontaine established a new organization at the Palais Mondial that later became worldwide famous as 'Mundaneum: Archives of Knowledge.' The Mundaneum had huge ambitions with the main goal to be presented as an assemblage of the entire world's written knowledge.

In the Mundaneum, all types and sources of knowledge were cataloged by the Universal Decimal Classification (UDC) system. They intended to create an international network for the exchange of knowledge as founding the Mundaneum that would be designed as a space for data collection, classification, and management. The primary goal was to make all the data accessible to people around the world. To this extent, they believed that this accessibility would assist them to give the world peace. Even during the World War period, Otlet re-identified his anti-militarist and anti-nationalist position, as well as supporting pacifism and internationalism. He also dedicated one of his archives and its collecting to the pacifism. The Mundaneum preserved archives related to three main themes: pacifism, anarchism, and feminism.

Ronald E. Day stated 'Otlet's work was dedicated to world peace, arguing for the reorganization of documents, cultures, and societies through larger, international, structures.'[164] The archive would become the center of documentation in the utopian city where all the information in the world would be gathered, preserved, organized and disseminated and where ideas and information exchange would foster peace throughout the world.

In the 20th century, the Mundaneum became a universal documentation center consisting of a multitude of books, newspapers, magazines, journals, documents, posters, glass plates, postcards and other types of bibliographic cards. It was the

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[164] Ronald E. Day. *Indexing It All: The Subject in the Age of Documentation, Information, and Data*. The MIT Press: Massachusetts, 2014, p. 20.

utopian notion of a globe center to accumulate, classify, disseminate, and organize UDC information.

Figure 3.6 Paul Otlet, Henri La Fontaine and Mathilde Lhoest (his wife) in front of Palais Mondial (World Palace), in Cinquantenaire, Brussels, Belgium.[165]

In 1934, the Belgian Government decided to close the Palais Mondial including of its organizations and programs. Otlet moved the Mundaneum secretariat to his own house located on Rue Fétis, Brussels. When the German invasion began, he had to move from the Palais du Cinquantenaire to a wing of the Institut Pasteur in the Parc Léopold. During the transition, the Germans confiscated a large amount of the archive of the files due to their potential significance of the information. Up to 1972, Georges Lorphévre, Otlet's secretary, maintained the Mundaneum's existence preceding the death of Otlet in 1944 at Parc Léopold. When the Mundaneum in the Parc Léopold was closed, the collections were moved to various locations in Brussels; a large part of the collections was torn down, stolen and damaged. This deprivation of the

[165] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

collections continued until the reestablishment of the Mundaneum in Mons in 1996. This revitalization was maintained by the *Communauté française de Belgique*.

Since 1998, the Mundaneum has maintained its existence in a museum in the 'Centre d'Archives de la Communauté Française' in Mons, Belgium. It has a conference center, a museum, a documentation center, an archive center, and an exhibition area. The Mundaneum Archive Center contains around 12 million items, mainly made up of the founder's sketches. The three central archives that make up the Mundaneum are dedicated to pacifism, anarchy, and feminism that are all open to the public.

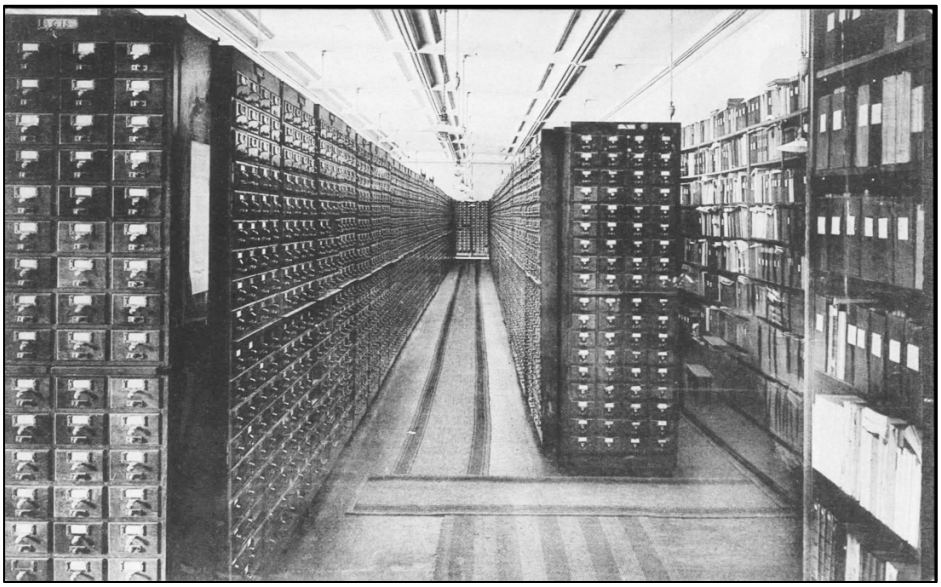

Figure 3.7 The RBU Hall of the Mundaneum.[166]

Therefore, an archive of the world knowledge could be linked together in terms of the index cards. The RBU had gathered, maintained, cataloged, structured, and ranked nearly 16 million cards by the 1930s. This classification required the standards regarding the bibliographic cards and their organization and placement in the card cabinets. There was a potential in the index card systems that they could democratize, distribute knowledge among people, but also centralize, and regulate people. They

[166] Mundaneum, October, 2017, unpublished photograph, Mundaneum, Mons, Belgium.

also referred to rationality in which everything could be assigned, concentrated on file and data.[167]

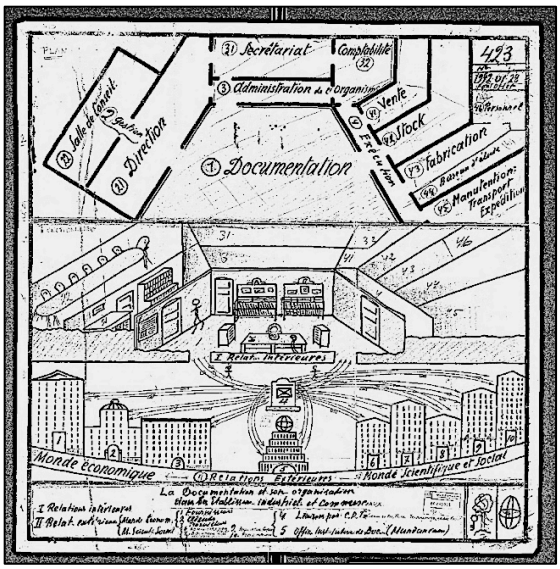

Figure 3.8 The Documentation and Its Organization, by Otlet.[168]

In the sketch below, Otlet depicted this correlation in terms of documentation and information flows among the economic, social, and scientific 'monde.' They were supposed to have a documentation center linked to the Mundaneum. He indicated that a communication network of railway, telegraphy, telephony, post and radio could provide these flows. He also sketched and organized the architectural organization of the documentation in rows: the conference room, administration room, and the process of the documentation provided by the architectural organization of the spaces: sale room, storage, manufacturing and transportation room, in respectively. Thus, the distribution of the knowledge into institutions had started at the end of these spaces.

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[167] Henning. op. cit., p. 136.

[168] Mundaneum, October, 2017, Otlet's Encyclopedia Universalis Mundaneum papers, personal archive in Mundaneum, Mons, Belgium.

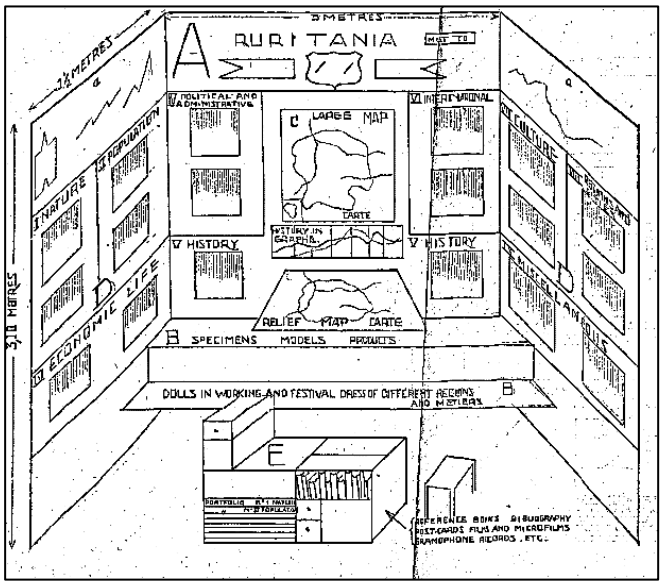

Figure 3.9 The sketch of 'Classification and Presentation of Didactic Material,' 1929.[169]

This sketch depicted the presentation and classification of didactic material proposed by the International Commission for the League of Nations Societies at the 1929 World Federation of Education Associations' exhibition in Geneva. This exhibition was the representation of new and improved teaching material which was showing the coordinated knowledge of the modern world's nations and their institutions.

Atlas Universalis Mundaneum (AUM) was Otlet's other project, which was based on a collection of diagrams on large movable panels. The intent was to exhibit visual materials on a large number of topics, including history, geography, and science. This visual language was designed to use these contents of Mundaneum in different spaces, such as the classroom, museum, and exhibition spaces. This Atlas was also a product of the Enlightenment. It was produced by the same intellectual desires that the created of the encyclopedias. The encyclopedia came first and served the atlas as a model.

[169] Mundaneum, October, 2017, Otlet's Encyclopedia Universalis Mundaneum papers, personal archive in Mundaneum, Mons, Belgium.

Figure 3.10 Paul Otlet and the Cabinet of the Index Cards.[170]

[170] Mundaneum, October, 2017, Paul Otlet's unpublished photograph, personal archive in Mundaneum, Mons, Belgium.

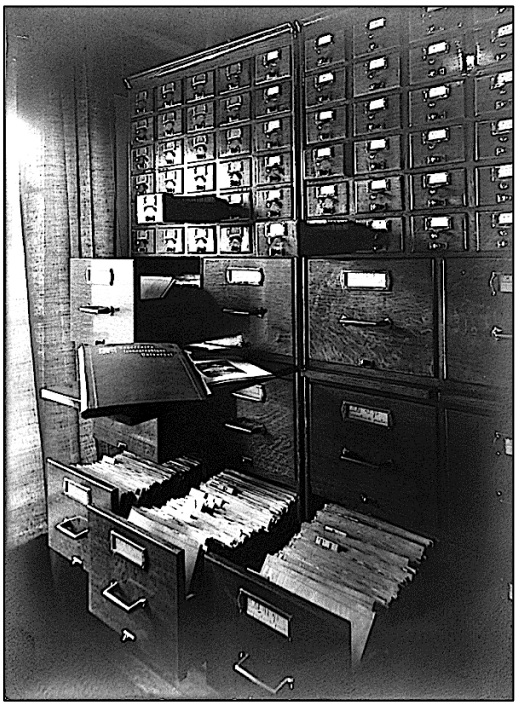

Figure 3.11 The Cabinet of the Index Cards and Documents.[171]

The cabinet of the index cards was designed to give the order to the documents. It also provided the public with consistent and direct access. There were two types of cabinets to build a classification of knowledge: a larger type of stands like a wall and a small free-standing one. These cabinets were used for collecting the index cards such as shelves for the books in the library, racks for the administrative files and the easels for the museum with standard elements which were easy to use and adaptable to various locations. As Beatriz Colomina stated that these photographs were important role in experiencing the space that was comprehended by using this furniture. This was one of the representations of the space; in this sense, built space had no more authority than photographs.[172]

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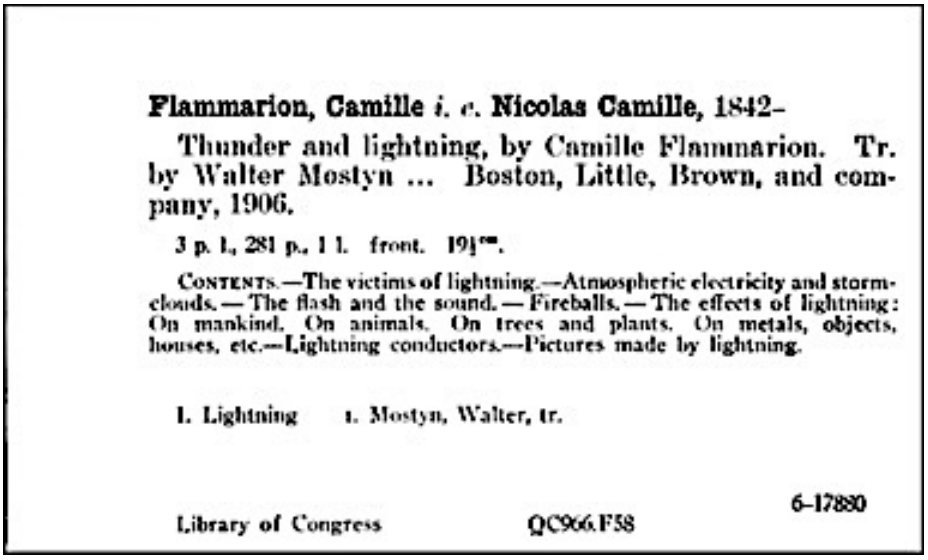
[171] Mundaneum, October, 2017, Paul Otlet's unpublished photograph, personal archive in Mundaneum, Mons, Belgium.

[172] Beatriz Colomina. 'The Split Wall: Domestic Voyeurism,' *Sexuality and Space*. New York: Princeton Architectural Press, 1993, p. 75.

Figure 3.12 (left) The Index Card Drawers and (right) a metal rod detail at the bottom of the card drawers.[173]

The cards were stored in drawers, which provided for an optimal search. Color-coded cards and extended tab markers were also used to provide easy access to card drawers; a metal rod was installed at the bottom of the card drawers to hold the cards in the drawers. By doing so, bibliographic records were threaded by the metal rod to ensure the classification of the order. If the cabinet was not completed, a piece of wood inside the cabinets could be passed along the metal pole to ensure lock retention. The triangular shape of this block allowed the inclination of the cards to make it easier to read. At the end of each set of cards, there was a wooden block with an adjustable clasp that was placed to ensure that the cards maintained an upright position. The card cabinets were filled with a tablet on which the drawer could be placed during the search. They were able to receive up to 72 drawers and were considered as mobile since they had wheels on the bottom and the height was moderate to move. Thus, mobility allowed it to be readily arranged and adapted to place configuration.

[173] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.



Flammarion, Camille *i. e.* Nicolas Camille, 1842–

Thunder and lightning, by Camille Flammarion. Tr. by Walter Mostyn ... Boston, Little, Brown, and company, 1906.

3 p. l., 281 p., 1 l. front. 19½ᶜᵐ.

CONTENTS.—The victims of lightning.—Atmospheric electricity and storm-clouds.—The flash and the sound.—Fireballs.—The effects of lightning: On mankind. On animals. On trees and plants. On metals, objects, houses, etc.—Lightning conductors.—Pictures made by lightning.

1. Lightning 1. Mostyn, Walter, tr.

6-17880

Library of Congress QC966.F58

Figure 3.13 Organization of the 3”X7” Index Cards.[174]

By designing 3”x5” index cards, he expected all the world’s knowledge to be well organized, an archive of international knowledge linked together. Also, the index card was a technology that enabled data to be stored in a standardized form and retrieved systematically. The advantage was that each card had a unique and single record and was always up-to-date when cards were inserted and extracted between them.

This system was developed in the mid-19th century to enable the organization and use of accumulated knowledge. It was a solution for quick retrieval of standardized records, and for ‘fundamental problem of the archive, the problem of volume.’[175] However, it also provided the new mobility of data and objects. Otlet intended to collect and interlink all the books that were ever published by using an archival system that he developed.

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[174] Mundaneum, October, 2017, Paul Otlet’s personal archive in Mundaneum, Mons, Belgium.

[175] A. Sekula. ‘The body and the archive,’ in R. Bolton (ed.) *The Contest of Meaning: Critical Histories of Photography*. Cambridge, MA: MIT Press, 1993, p. 358.

W. Boyd Rayward stated that Otlet's classification system based on breaking multiple textual elements into simpler, molecular forms and then linked to a database concerning the Universal Decimal Classification system. Otlet's system was to split the material book into atomic units by using note cards and rebuild it regarding classification. The classification tool of UDC based on single and combined numbers stored in drawers.

3.2. The Universal Decimal Classification System (UDC)

By constituting the Mundaneum, Otlet and La Fontaine recognized the importance in the standardization of the knowledge classification. While analyzing the Dewey Decimal Classification system, they attempted to design the Universal Decimal Classification as a faceted classification, which represented the bibliographic and library classification system in Europe. This classification system was conceived as a taxonomy of human knowledge. Even though the general structure of the system resembled the DDC system, the UDC system was more powerful when it introduced as a faceted classification in Europe. The development of the UDC system assisted them in standardizing the indexation method.

The UDC provided a systematic organization of all branches that were formed by using Otlet's terms that would classify all types of human knowledge as a coherent system where knowledge fields were interrelated and interlinked to each other. This structural system provided logical relationships in terms of grouping and cross-reference between and within the major classification categories. Grouping and cross-referencing could be regarded as suitable for researching the variety of applications within the specified field. The UDC had many functions that were revolutionary in the context of knowledge classification that enabled a very detailed content indexing and information retrieval in extensive collections.

Otlet designed the system to serve as an innovative analytical synthesis classification system with a considerably larger vocabulary and syntax. The universality of the UDC

could be defined by two ways: firstly, since its subject arrays covered every field of knowledge; and secondly, since the numerical codes derived from the classification could be transferred to the vocabulary and specific linguistic requirements of every natural language that used an index card system. The first version of 'UDC *Manuel du répertoire bibliographique universel: Organisation—État des travaux—Règles—Classifications'* was published in fascicules from 1899 to 1905 and consisted of nine volumes.

This classification system had tables of mostly relevant concepts, referred to as mutual auxiliary tables; a set of individual auxiliary tables with reusable properties in a given field of knowledge; a powerful notation system linking symbols and syntax rules to allow coordination of subjects and designed an appropriate documentation language. Although the UDC was designed as an indexing and retrieval system; the scalability made it one of the most widely used knowledge classification systems in libraries for shelf arrangement, content indexing and some situations including both. This encoding system could be used to describe any category of documents/objects at any level of detail. These could be from textual documents to other media such as video, films, recordings, maps, illustrations as well as museum objects.

The UDC scheme was focused on a human knowledge taxonomy that could be articulated 'in an international language-numbers'; they believed that the extensibility of decimal numbers could accommodate the detail needed for bibliographic use rather than strictly library use. The strength of the system came from the ability to add further data, such as a second subject category, the location, and the date to which the document referred, the language of the text and the form of the document. This system specified as following:

- Facts: empirical observations or assertions.
- Interpretation: analysis or conclusions, derived from facts.
- Statistics: measured, quantifiable data.
- Sources: citations or references.

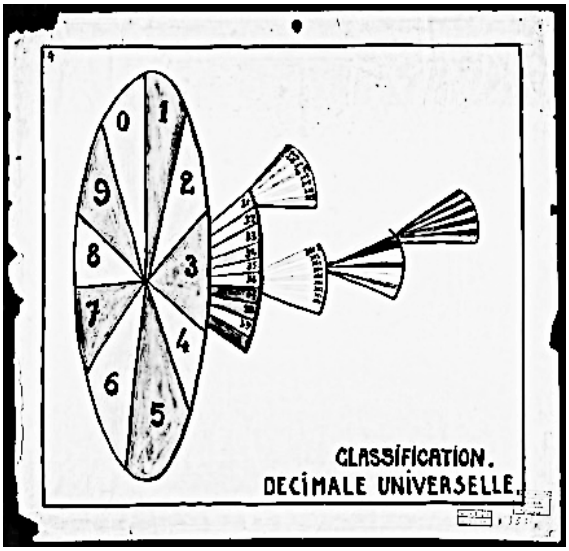

Figure 3.14 Schema of the UDC, by Otlet and La Fontaine.[176]

The UDC defined itself as a multi-faceted system and could be identified by more than a dozen auxiliary relators. The relators (standard auxiliaries) were used to denote facets of time (by means of quotation marks), place (using parentheses with the standard 2 to 9 subdivisions), form of publication (parentheses with the 0 subdivisions), language (equal sign), race (parentheses with equal sign), point of view (.00 subdivisions), inclusion (slash), and many other general and special auxiliaries (.0, -, ,' etc.). The development of UDC helped them to standardize the indexation method. The main categories were as follows:

Table 3.1. *The Main Categories of the UDC*

• **0 generalities**	• **5 natural sciences**
• **1 philosophy, psychology**	• **6 technologies**
• **2 religion, theology**	• **7 the arts**
• **3 social sciences**	• **8 language, linguistics, literature**
• **4 vacant**	• **9 geography, biography, history**

[176] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

Table 3.2. *The Architecture Classification in the UDC*

7 The arts. Recreation. Entertainment. Sport
700 Arts
710 Landscaping & area planning
720 Architecture
730 Sculpture, ceramics & metalwork
740 Drawing & decorative arts
750 Painting
760 Graphic arts
770 Photography & computer arts
780 Music
790 Sports, games & entertainment
72 Architecture
72.01 Architectural theory / Aesthetics / Architectural criticism
(A-Z name of author)
72.012/013 Architectural design / Digital architecture / CAAD
72.017 Color / Light
72.02 Presentation techniques / Architectural drawing
72.025 Conservation / Preservation / Renovation / Restoration
72.03 Architectural history *further subdivision by continent / country*
72.031 Prehistoric / Primitive / Vernacular architecture
72.032 Classical architecture
72.033 Islam / Mediaeval architecture (Roman / Gothic architecture)
72.034 15th / 18th century (architecture) (Renaissance / Baroque / Rococo)
72.035 19th century (architecture)
72.035/036 19th / 20th century (architecture)
72.036 20th / 21st century (architecture) (A-Z name of author) *further subdivision by continent / country*
72.04 Architectural details

72.071 Architects / Interior architects / Urban planners (A-Z)
721 Buildings (typology)
725 Public, commercial, industrial buildings
725.1 Public buildings
725.2 Offices / Commercial buildings
725.3 Buildings for traffic, transport and storage
725.4 Factories / Industrial buildings
725.5 Buildings for health care
725.6 Prisons
725.7 Bars / Restaurants / Swimming pools / Seaside resorts / Spas
725.8 Concert halls / Cinemas / Theatres / Community centers / Sport accommodations
725.9 Pavilions / World Exhibitions / Bridges
726 Religious architecture
726.1 Sanctuaries / Temples
726.2 Mosques
726.3 Synagogues
726.5 Churches
726.6 Cathedrals
726.7 Monasteries / Beguinages
726.8 Cemeteries
727 Buildings for cultural, educational and scientific purposes
727.1 School buildings
727.3 Universities
727.5 Research centers
727.7 Museums
727.8 Libraries / Archives
728 Housing
728.01 Housing (theory)

	728.03 Housing (history)
	728.2 Collective housing / Apartments
	728.4 Social housing
	728.5 Hotels / Holiday resorts
	728.6 Farms
	728.7 Flexible / Mobile / Modular / Temporary housing
	728.8 Castles / Townhouses / Villa's (country houses)
	728.9 Orangery's

According the table above, the art was classified as one of the main categories under the 7th section. In the next step, the class of architecture was labeled as coded 720 under the category of the arts. The categories of the architecture also divided into eight in the next stage. The buildings used for cultural, educational and scientific purposes were indicated by the number 727. Finally, the 727.7 was the representation of the museums under these buildings heading.

The benefits of the enumerative classification system could be helpful to define the various possible relationship between 'things' concerning symbols assigned to represent them. The understanding of these relationships allowed us to synthesize between the subjects. In the first edition of Dewey's classification, it was understood that many subjects could be assembled as a separate list and repeated patterns of digits, where the same characteristic of the division that was previously applied. Therefore, the terminal digits had to be listed as tables of auxiliary numbers so that the user could add as if they were needed. This synthetic principle process could be given in detail that would be more meaningful than the previous scheme. For the time being, Otlet and La Fontaine had developed the purely enumerative content due to the extensive requirements of the repertory. As a result, they obtained a more sophisticated and comprehensive scheme than their predecessors.

In the first edition of the UDC, there were many revolutionary features in the context of classification of data: tables with generally applicable concepts -common auxiliary tables; a series of particular auxiliary tables with specific but reusable attributes in a particular field of knowledge; an expressive notational system with connecting symbols and syntax rules to enable the coordination of subjects and the creation of a proper documentation language. UDC was developed as an indexing and retrieval system because of its consistent, rational structure and scalability; it had become one of the most widely used systems in libraries for both shelf arrangement and context indexing.

This system could be used for any documents or objects at any desired level. These included textual documents and any other kind of materials, such as films, videos, sound recordings, maps, illustrations, sketches, and also museum objects. The documentary technique was to obtain records so that the information stored could be readily supplied and regarded a needed addition to other research methods, such as analysis or testing.

Documentation was meant to collect and coordinate separate documents to create integrated bulk. Otlet continued to document all materials suitable for the communication, transmission, scientific facts, and development of information in one word, documents of all kinds made up of texts or images. Otlet said documents and books together formed humanity's graphics memory, the written expression of civilization and the physical body of our knowledge.

Otlet was aware of the critical aspect of documentation that was visualization. The visualization not only referred to the use of the conventional illustrative materials, but rather to the schematic representations of any kind: drawings, charts, diagrams, and graphics. By doing so, he wanted to achieve more comprehensive information about representation, segmentation, systematization, and simplification.

The development of a new flexible information search and retrieval system enabled Otlet to establish a relationship between cards and the information they contained corresponding to the evolving and complicated interrelationships of subjects defined in the UDC code and the combinatorial processes. Otlet outlined how cards constituted to reveal a complex, multidimensional conceptual relationships. An example of how the information objects transformed into bodily interfaces in a network of things was his experiments with index cards and their stand.

As an instance of a first function-oriented user interface, Otlet's UDC scheme could be viewed. A UDC code was obtained for a particular piece of data from its primary databases and additional lists. Within hierarchical topic set and other coded interactions, it could be used as a navigator. Otlet represented this connection in the manner of a picture that used a matrix containing sequences of binary digits to illustrate the administration of the city of Brussels in 1944.

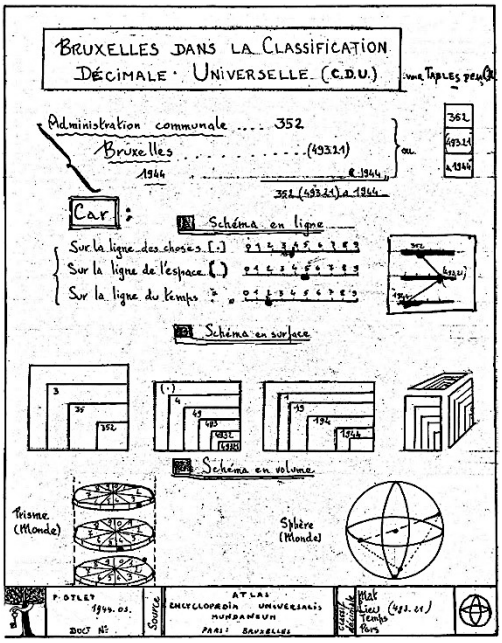

Figure 3.15 Brussels in the UDC for the Communal Administration of Brussels.[177]

[177] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

This sketch showed the organization of the Communal Administration of Brussels through the UDC system in 1944. Thus, this image could be viewed as the creation of points in rows depicting interactions between material, architectural space, and time. It could also be interpreted as a 2D surface system that could be merged into a 3D cube. In this representation, the dependent connections codified in UDC expression were demonstrated by each triangular component labelled with its amount. Finally, in two distinct 3D volumetric depictions of the globe, the components could also be schematically arranged. These multidimensional depictions were both possible methods to visualize UDC's features as well as fresh methods to offer Otlet's suggested exchange of understanding.

The UDC scheme performed a key part in standardizing and optimizing the information infrastructure needed to function in the Universal Documentation Network. The UDC system illustrated the order of finely detailed subject tables. The arrangement of these subjects was listed in a static array of classes, using complicated and lengthy codes formulated from the decimal numbers. Furthermore, a thorough subject-specification of the properties of personal files on facets such as place, distinct viewpoints, moment, language, and the physical structure of the files was created feasible through many procedures of merging. The UDC mechanism was more complicated than when it was first conceived as well as the use was infinitely subtler than before. It was an ongoing and helpful life but already proposed significant revisions.

At the beginning of the 20th century, the ideal structural model for the accumulation, dissemination, and classification of knowledge was the tree of knowledge. Otlet defined the ‘universe of knowledge’ as a tree of knowledge rather than a network that served as the structural model for his proposal. His belief in the model of a tree played a significant role in the future organization in the history of knowledge organization. The main reason for choosing the tree structure was the definition of unity, which he sought to restore against the disappearance of unity. He focused on the unity of the

sciences and thought that the scientific community and its institutions could only continue unity.

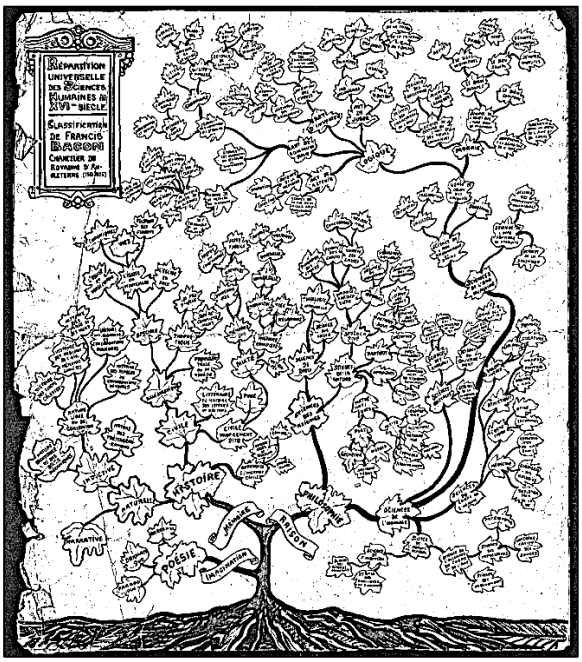

Figure 3.16 The Universal Distribution of the 16e century Human Sciences, Francis Bacon.[178]

The representation of knowledge as a tree was an old metaphor for the organization of human knowledge. Firstly, Francis Bacon used this metaphor, and also Diderot and d'Alembert used the same idea in their Encyclopedia. The encyclopedia was here objectively associated with the logical framework of science. Bacon considered that the only scientific way of understanding the world was by collecting observations and theorizing the evidence. These scientific methods were so necessary as developed research and trade techniques showed the extraordinary diversity of the world. He was against scholastic philosophy and claimed that knowledge was not limited in texts in the world. Later, Melvil Dewey designed his classification code based on this tree organization in 1876. For many centuries, this organizational thinking has been the

[178] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

most common metaphor of the genealogy of the sciences, which underlies the unity of all the sciences.

Otlet believed in the unity of knowledge and depicted it on each of the title pages of the publications of his International Institute for Bibliography with the 'tree.' He used the tree of knowledge to highlight the accumulation of knowledge by collecting data from millions of publications concerning his UDC system in a new structured unity. The main argument of his documentation and information conception was to achieve unity and synthesis.

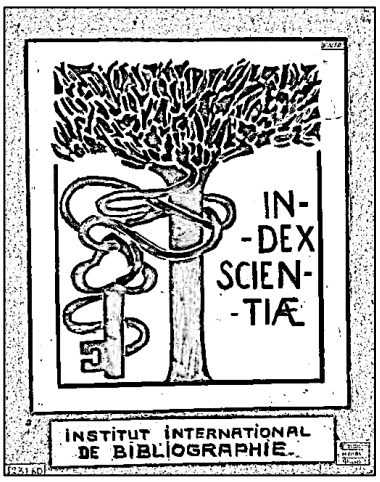

Figure 3.17 Paul Otlet, Institut International de Bibliographie, Index Scientiae.[179]

The Universal Decimal Classification solved the problem of the organization through the inclusion of systematic tables of classification that was based on a subject in numerical terms. Otlet applied the Dewey Decimal Classification numbers to represent the classification and organization of knowledge. In the UDC system, the classification code established a link between the facts and the data. This connection helped the researchers to identify the 'place' for facts within the classification hierarchy. This expanded version of the DDC system was assigned the documents to specific numerical subject codes, allowing for standardized searching and cross-

[179] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

referencing. In this manner, as Henning claimed that the databases and hypertext had the precursors in the archiving and classification systems which was developed in the museums and libraries, particularly in the work of Otto Neurath and Paul Otlet, founders of the museums in Vienna and Brussels in the early 20th century.[180]

Figure 3.18 The Exhibition of the Telegraphic devices, the Palais Mondial.[181]

Otlet also thought about how to apply a similar system to museums and their classification systems. He focused on alternative ways to exhibit museum collections. This could be observed in the telegraph room exhibition where a lot of interesting devices were representing such as electric telescopes could be interpreted the forerunning phenomena of the computers. There were a lot of 'things' behind the glass cabinets that were infographics. Take a subject like electricity and sort of lay it out with a mixture of words, images and pictures and give people an overview about the specific topic.

[180] Michelle Henning. *Museums, Media and Cultural Theory*. Open University Press: UK, 2006, p. 74.

[181] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

His primary target was to open museum collections to a broader audience. In 1925, he developed the Encyclopedia Universalis Mundaneum (EUM), which was stored on microfilm and allowed the public to purchase thematic collections from the archives of the Palais Mondial.

This encyclopedia was developed to provide an interactive knowledge space that differed from the aspects of a traditional encyclopedia. His goal and aspiration were to encyclopedic in this collection; his project involved the development of a three-dimensional encyclopedia. Indeed, there was probably no better example than the encyclopedic attempts to organize and explain the world by human rationality. Encyclopedia took on and gave him order and system, which otherwise would have been the vast chaos of the world. It was the key element to show the human mind's power to understand everything logically.

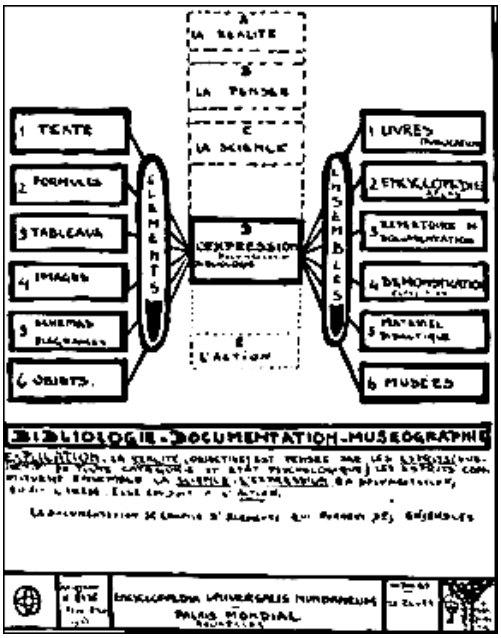

Figure 3.19'Bibliology, Documentation and Museography,' 8 June 1937, Expression as a double interface between processes of deconstructing and reassembling documentation (horizontal) and thought (vertical).[182]

[182] Mundaneum, October, 2017, Otlet's Encyclopedia Universalis Mundaneum papers, personal archive in Mundaneum, Mons, Belgium.

Otlet presented the general problems of the documentation process and showed the interrelationships between the elements of knowledge in Figure 16. In this sketch, Otlet questioned the relationships between A. Reality, B. Thought, C. Knowledge, and particularly D. Expression as a second interface between the processes of deconstructing and reassembling documentation. Expression in the documentary involved six types of physical elements: 1. Text, 2. Formulas, 3. Charts and Tables, 4. Images, 5. Schematic Representations such as diagrams and 6. Objects. In his 'Bibliogical' format, these elements become the basis for six kinds of physical collections: 1. Books – publications, 2. Encyclopedias in the form of atlases or collections of charts, diagrams, posters, and any other kinds of schematic representation, 3. Catalogs or inventories of documents, 4. Exhibitions and demonstrations, 5. Educational materials, and 6. Museums. By doing so, Otlet attempted to discover a rational manner to classify of the whole universe of knowledge.

In the light of his sketch, it could be interpreted that Otlet concentrated mainly on collecting and documenting information that helped him to understand and discover the potential of the bibliography. He identified it as predominant and central in the direction and categorization of the information; he published several books on the topic. Therefore, he made this documentation tool available to the entire society.

3.3. The Term of Documentation

Besides the Mundaneum, Paul Otlet wrote many books, but his two major books are *Traité de Documentation, le livre sur le livre* - Treatise on Documentation: The Book about The Book, published in 1934, and *Monde* - World, published in 1935. The first book was about documentation and interpreted as the first comprehensive treatise on what was subsequently regarded as 'information science.' Thus, this book became the milestone in the organization and retrieval of the bibliographical, archival, and museological information. Rayward stated that 'was perhaps one of the first comprehensive introductions to study of information as an important social

phenomenon'[183] and described it as an overarching exercise in the synthesis and continued the debate.

This book was the first modern, systematic discussion of the general issues related to information organization and one of the first manuals on information science.[184] Otlet used 'Documentology' to describe the field of research that included the three words bibliography, bibliology, and documentation. His theoretical approach was related to the classification, organization, and dissemination of knowledge, which was the basis for the Internet, Hypertext, and the World Wide Web. He has been acclaimed as a 'forefather of the internet' for progress in the organization of data and its retrieval process since he was the first to imagine all the information of the world as one vast 'network' and connected by 'links' and remotely accessed via desktop screens.

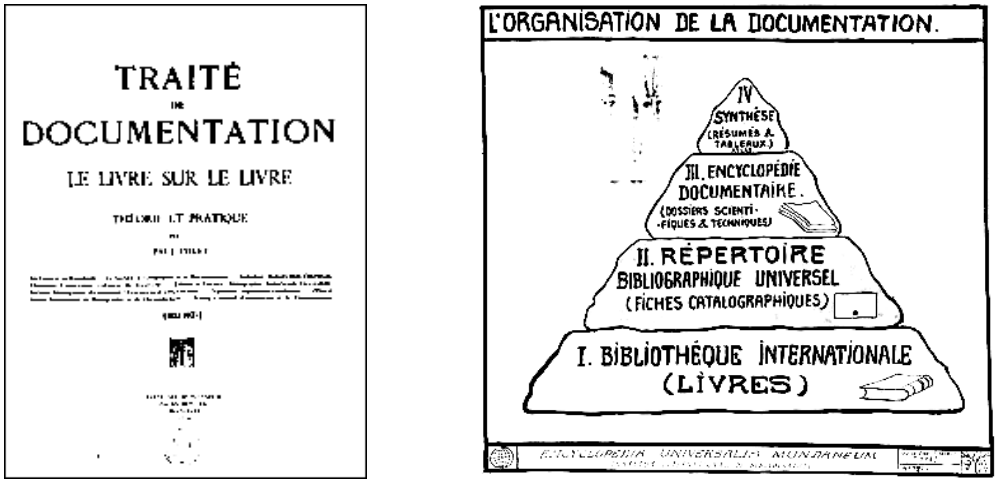

Figure 3.20(left): Traité de Documentation, le livre sur le livre - Treatise on Documentation: The Book about the Book, 1934 and (right): The organization of Documentation, Otlet.[185]

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[183] Rayward. op. cit. 1991, p. 138.

[184] W. Boyd. Rayward. *International Organization and Dissemination of Knowledge: Selected Essays of Paul Otlet*. Elsevier, Amsterdam, 1990, p. 181.

[185] Mundaneum, October, 2017, Otlet's Encyclopedia Universalis Mundaneum papers, personal archive in Mundaneum, Mons, Belgium.

In ‘Treatise on Documentation: The Book about The Book,’ Otlet collected and organized his ideas on documentation and bibliography. The main argument was about the difficulties in generating new systems and improving the existing ones for the organization of knowledge. W. Boyd Rayward referred to Otlet’s book as ‘the first systematic, modern discussion of general problems of organizing information ... one of the first information science textbooks.’[186] This book was the first textbook on information science. It constituted all forms and sources of organizing information for modern libraries and documentation science. Thus, it led to new ways of looking, thinking, searching, and speaking about the world of knowledge and its organization concerning books, encyclopedias, archives, libraries, and museums.

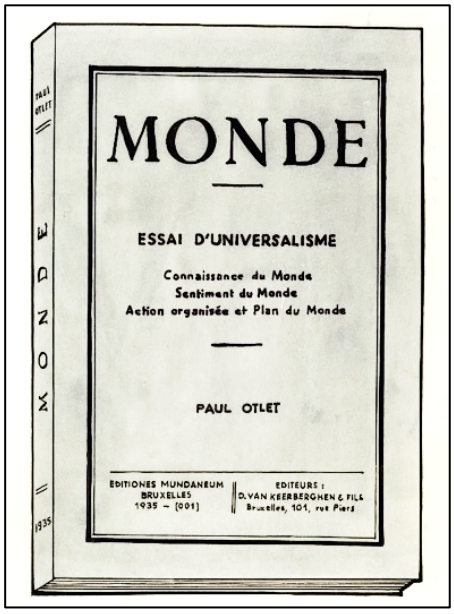

Figure 3.21 The Sketch of the book ‘Monde’ – World by Paul Otlet, 1935.[187]

The ‘Monde: Essai d’Universalisme’ was the outcome of a course of fifteen lessons on ‘universalism’ that he gave annually from 1919 until 1933 at the Insititut des Hautes études de Belqiue (Université Nouvelle), in Brussels. In 1925, Otlet wrote to

[186] Rayward. op. cit. 1994, pp. 237-238.

[187] Mundaneum, October, 2017, unpublished sketch, Mundaneum, Mons, Belgium.

Geddes that the same ideas need be taught, deepened and better classified, correlated, more vividly expressed, simplified and, above all, made less 'local.'[188] Otlet's 1924 report to the international associations was a premature result of this refining process, as imagined during his lectures, a process that led to his book about universalism, 'Monde', ten years later.

At the beginning of his book, he questioned the possibility of unity between things aside from the pluralities, divisions, and parts, doctrines and sciences, district harmonies and arts, fragmented programs, and plans. He wanted to see this unity in science, politics, and culture as an urgent necessity of organization and systematization so that unity was characteristic of his work throughout an embodying institutional system of knowledge. The notion of universality that encompassed everything in the world was reflected in his thinking and organization of the whole world.

The definition of 'documentation' was limited to the traditional bibliographic fixation. In the 20th century, there was a paradigm shift, and the European documentarists expanded this definition. Consequently, not only written sources but also various objects had a place within the definition of meaningful 'documents.' This idea could be interpreted to mean that defining a document was not only related to its physical format but also its function. Paul Otlet redefined document to include natural objects, artifacts, objects related to human activities, models for representing ideas and the artworks, as well as related texts.

In 1903, Otlet generated a new discipline, new term, and new concept 'documentation' to revolutionize the understanding of information, and examined the term in his works. At that time, he founded the notion of the 'Universal Network of Documentation' that

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[188] Otlet to Geddes. *Otletaneum. Dossier No. 92*, 1 September 1925.

was a network of assembling, collecting, concentrating, classifying, and disseminating knowledge.

He defined documentation as 'the means of bringing into use all of the written or graphic sources of information… Documentation consists of whatever represents or expresses an object, a fact, and an impression using any sign whatever.'[189] He defined the document as a book, manuscript, archive, map, scheme, ideogram, diagram, drawing, and its reproduction as well as photographs of the real objects.

Figure 3.22 Encyclopedia Universalis Mundaneum, Otlet.[190]

He suggested that documents consisted of several kinds. He scaled the levels of the documents and at the most fundamental level, there were natural physical objects, in particular specimens/samples, and non-graphic (3D) models or representations of

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[189] Paul Otlet. 'The Systematic Organization of Documentation and the Development of the International Institute of Bibliography,' 1907, in *The International Organization and Dissemination of Knowledge: Selected Essays of Paul Otlet*. Institut International de Bibliography Publication, No. 82, 1990, pp. 105-106.

[190] Mundaneum, October 8, 2017, Otlet's Encyclopedia Universalis Mundaneum papers, personal archive in Mundaneum, Mons, Belgium.

these objects. Then, he arranged in order of monuments and enumerated as inscriptions, drawings, all kind of plastic works, decorative/pictorial art, monuments, antiquities and several objects which were related to art, archaeology, iconography, and epigraphy.

At the next level, there were all kinds of graphic, schematic/symbolic, and figurative representation of knowledge. In this category, all written and printed materials such as books, journals, archival and administrative records, newspapers, and brochures. In this category, he also included drawings, prints, etching, charts, maps, diagrams, photographs, and music scores, which was considered unusual. He thought that various formats of knowledge had a 'documentary character' because of their contribution to knowledge and whoever was searching for particular information on a given matter.

As per his discussions, there were two different points of view in terms of documentation: one of them was engaged with the organization of the documents as sources of information, and the other one was related to the organization of the information.[191] Documentation consisted of six phases, which would have to be incorporated by the entire organization, and all could be interlinked within the spatial organization:

- 1st stage: The Production of Materials that contained Information - ideas, experiments; discoveries are registered in publications.
- 2nd stage: The Collection of them– works are assembled in libraries, and totality is formed from all of the documents.
- 3rd stage: The Cataloging of them– works are described, attention is drawn to their existence and their location; existing collections are inventoried.

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[191] W. Boyd Rayward. 'The Origins of Information Science and the International Institute of Bibliography/International Federation for Information and Documentation (FID),' in *Historical Studies in Information Science*. ASIS: Medford, NJ, 1998, p.32.

- 4th stage: The Analysis of the Contents – a summary of what each work contains individually is made.
- 5th stage: The Systematic Redistribution – the publications are dissected, and their various parts are physically redistributed in such a way that similar information is assembled in documentary files.
- 6th stage: The Codification and the Formation as an Encyclopedia.[192]

Otlet's publications were related to the concept of organization, creation, dissemination, and systematization of information that was mainly related to reaching universal knowledge. As the father of Modern Documentation, he used different media to embody this universal knowledge, they were derived from:

- Bibliography,
- Encyclopedia,
- Book,
- Documentation,
- Museology,
- Architecture,
- Urban design.

Related to the organizational issue, he also worked on the Bibliographic Repertory (RBU), which was the main work of the International Office and Institute of Bibliography. The RBU was placed in the 'Mundaneum' which in French represented the idea of 'global knowledge,' and Rayward stated that it was a materialization of synthesis, universality, and education, or microcosm of knowledge.[193] According to Otlet, an internationalism concept of the postwar period required a rational international center; it was the Mundaneum mission, which Otlet designed.

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[192] Paul Otlet. op. cit., p. 185.

[193] Rayward. op. cit., 1990, p. 162.

In order to demonstrate and use its educational potentials, he developed and carried out an effective program that consisted of using and expending the current collections. He studied, gave lectures, and wrote that this institution was able to perform essential social and intellectual functions. This institution aimed to collect a gigantic catalog of world knowledge and arrange the entire knowledge of the world on neatly on index cards.

At the beginning of the 20th century, Paul Otlet used the UDC system to regulate, organize and classify various sources of information; not only written sources but also images along with objects that were considered to be 'documents' that were organized according to the requirements of this classification system. In 1903, Otlet began to use the term 'documentation' to define the new branch of study and research on the methods of classification in terms of 'documents' that would include all kinds of documented information to be conceptualized as 'Office of Documentation' that would transform libraries, archives and museums into a new type of information service.[194] Rayward stated that the Office of Documentation aimed to criticize the information services' conservative strategy and their outdated classification and cataloging methods.[195] In 1907, Otlet defined documentation as:

> 'Documentation is today defined as the implementation of all written or graphic sources of our knowledge, as constituted by documents of any kind and printed texts in particular. These documents comprise everything that represents or expresses with the aid of signs of all kinds (writing, pictures, schemas, and symbols), an object, a fact, or an impression. […] The aim of Documentation is to rapidly and easily furnish all researchers, whatever their level of knowledge or culture, with the study materials that are the sum of universal experience, and with detailed pieces of information on particular

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[194] W. Boyd Rayward. 'Some schemes for restructuring and mobilizing information in documents: a historical perspective,' in: *Information & Management*. Vol. 30, 1994, p. 170.

[195] Rayward. op. cit., 1998, p. 295.

> points of interest. In matters scientific, technical, historical, social and industrial, it is the systematically organized intermediary between the public and the documents, between those who read and those who write. It carries out the documentation of information, that is to say, the dissemination of a piece of information via the book, the journal, the newspaper, and the photographic image.'[196]

The Universal Network of Documentation was designed to be a hierarchical institutional network linking the institutions on both a local and national as well as international levels. In addition to this, it could be governmental, academic, private, public, or business in character. This network included libraries, museums, archives, research institutes, international associations, academies, and scientific societies.[197] In the '*Traité de Documentation'* (1934), Otlet defined the concept of the 'Universal Network of Documentation' in the following terms:

> 'The Network must link together, by whatever means, the centers of production, distribution, and use... In practical terms, it is the matter of every producer who has a fact to make public, or a proposition to present or to defend; every user who needs information for the development of his theoretical or practical work; and every person, ultimately, being able to get hold of what is available to them with the minimum of effort and the maximum in terms of assurance and reward.'[198]

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[196] Paul Otlet, L'Organisation systématique de la documentation et le développement de l'Institut International de Bibliographie. Bruxelles: Institut International de Bibliographie, 1907, pp. 7–8.

[197] Rayward. op. cit., 1994, p. 239.

[198] Paul Otlet. *Traité de documentation: le livre sur le livre, théorie et pratique*. Belgium: Eds Mundaneum, 1934, p. 415.

Figure 3.23 The Photograph of Suzanne Briet at shelves.[199]

In 1951, the Documentation Committee of the Special Library Association (SLA) defined documentation as 'Documentation is the art comprised of document reproduction, document distribution, document utilization...'[200] At this time, Suzanne Briet, a librarian and documentarian, published a manifesto on the nature of documentation *'Qu'est-ce que la documentation?'* K. Michael Buckland introduced Briet 'significant pioneer of information science in the days when it was called documentation.'[201] Briet defined the document as 'evidence in support of a fact' and continued to say that it can be 'any physical or symbolic indexical sign, preserved or recorded with the intent to represent, to reconstruct, or to demonstrate a physical or conceptual phenomenon.'[202] Briet explained that documentation is not related to merely text but access to evidence. To prove her point, she detailed six objects and asked whether each of them was a document or not.

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[199] UCLA, < www.ucla.edu >, [retrieved on 30.05. 2019.]

[200] A. Kent and H. Lancour (ed.). *Encyclopedia of Library and Information Science*. Vol. 7, 1972, p. 264.

[201] K. Michael Buckland. 'The centenary of 'Madame Documentation': Suzanne Briet, 1894-1989.' *Journal of the American Society for Information Science*, 46 (3), 1995, p. 235.

[202] Suzanne Briet. (translated and edited by Ronald E. Day and Laurent Martinet) *What is documentation?*. Paris: EDIT, 1951, p. 7.

> Object – Document, Star in the sky – No, Photo of star – Yes, Stone in the river – No, Stone in the museum – Yes, An animal in the wild – No, An animal in the zoo – Yes.

Briet started the discussion with an antelope, and she questioned the status of antelope in the documentary world. She mentioned that an antelope running wild on the plains of Africa could not be defined as a document and further explained the conditions under which it could be considered as a document. When an antelope was captured, taken to a zoo and then made the object of the study, in this case, the researcher could interpret as a document because it had become the physical specimen for people who wanted to examine, study, and observe it. She continued her discussion with the statement that audio recordings and photographs could be interpreted as secondary documents; the antelope itself was the first. In this regard, Buckland summarized Briet's established four criterions for determining a document as an object:

- There is materiality: Physical objects and physical signs only,
- There is intentionality: It is intended that the object be treated as evidence,
- The objects have to be processed: They have to be made into documents, and
- There is a phenomenological position: The object is perceived to be a document.[203]

Here, materiality can be associated with museum objects that have a physical form. The second criterion is more related to the objects, especially for a museum, have a high value; they represent a kind of a good idea, behavior, event, person, or function. The third criterion is based on the process of the organization that cataloging is an essential part of the standardized museum work. The last one is a phenomenological

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[203] K. Michael Buckland. 'What Is a Document?,' in *Journal of the American Society for Information Science,* v. 48, 1997, p. 806.

position that the objects are the documents that must be preserved, recorded, displayed for meaningful representation, and provided a physical or intellectual phenomenon.

Paul Otlet and Suzanne Briet profoundly influenced K. Michael Buckland, so he interpreted Otlet's experimentation on 'things' and designed its variation as 'information as thing.' This solution was also the continuation of his multidimensional representations of documents and metadata. Buckland defined documentation as

> '…any 'thing' regarded as signifying: books, records, data, speech, signs, and symbolic objects… Information is not, in itself, important, only in its relationship to what people do or might know. We are thereby, concerned with the creation, dissemination, and utilization of knowledge. I take documents, in that broad sense, to be the anchor of our field.'[204]

Buckland criticized the limitation of the documentation to the text. He expanded his discussion with the definition of *Union Français des Organismes de Documentation* 'any source of information, in material form, capable of being used for reference, study or as an authority, such as manuscripts, printed matter, illustrations, diagrams, museum specimens.'[205] Buckland identified the 'information' concerning three categories in his article 'Information as Thing':

1. 'information-as-process,'
2. 'information-as-knowledge' and
3. 'information-as-thing.'[206]

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[204] K. Michael Buckland. 'The academic heritage of library and information science: resources and opportunities,' paper presented at the opening plenary session, *Association for Library and Information Science Education 85th Anniversary Celebration*, San Antonio, TX, 2000, p. 11.

[205] Buckland. op. cit., 1997, p. 805.

[206] K. Michael Buckland. 'Information as Thing,' in *Journal of the American Society for Information Science,* v. 42, 1991a, p. 351.

Buckland explained that 'information-as-process' was related to the process of becoming informed and that the process resulted in changing the boundaries of what was known. The second one was the product of that process and interrelated with the traditionally 'content' of the documents. The last one was based on all kinds of materials varied from data to documents, which could be interpreted as an informative tool. Buckland focused mainly on the 'things' in his next article 'What Is a Document?' in 1997.[207] He discussed that the information is considered as evidence and semantically signifying thing without the limitations of a physical form.

The French term 'documentation' is still valid and used within the profession. It covers many concepts that it embraces the entire field of information science. It embraces a wide range of activities linked with documents and collections, classification schemes, retrieval, storage, evaluation of materials and document delivery and the technological and technical processes of these activities. It also provides a secure search scheme and collects a large number of documents on each topic.

Buckland's concept of 'information-as-thing' was related to representations of knowledge, and his primary focus was to 'develop and present an overall conceptual framework for considering information systems.'[208] The 'thing' was already out there, in the world, and then human beings perceived and processed it. Therefore, the 'thing' became a representation in the mind of the individual who processed it. This 'thing' was only a representation, and Buckland claimed that only it could be known in the mind of humankind. This representation of knowledge must be information-as-thing whether in a library, a museum or with computer-based systems. Buckland has exemplified these organizations by using the metaphor of information-as-thing:

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[207] Buckland. op. cit., 1997, p. 804.

[208] K. Michael Buckland. *Information and Information Systems*. New York: Praeger, 1991b, p. 31.

- Libraries deal with books;
- Museums deal with objects; and
- Computer-based information system deal with data in the form of physical bits and bytes.[209]

Buckland classified both the information and the information systems, which include management systems, records systems, archival systems, and museums.[210] He analyzed museums as a component of the information system. Museums were his particular interest as they were the part of those educational systems whose informative material was the museum object. In the course of Buckland's theory, it was noteworthy to consider the relationship between the knowledge organization and the classification of the museum objects. He claimed that:

> 'That museums should be considered information systems follows from their nature and purpose. Informative objects are selected, collected, arranged, described, retrieved, displayed, and interpreted so that knowledge may be increased and disseminated. Researchers use museum collections to make new discoveries. Others learn things that they did not know from items in the museum's collections, rather as they do from items in libraries' collections.'[211]

According to Buckland's trilogy, the objects in the museum collection were examples of 'information-as-thing.' He mentioned that objects were theoretically informative based on the location of their assemblage. These objects were organized within the museum to be studied, researched, and learned. He stated that the museums were the place where cultural objects could be stored, retrieved, described, interpreted, and displayed within their particular space. As Buckland stated that:

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[209] Buckland. op. cit., 1991a, p. 352.

[210] Buckland. op. cit., 1991b, p. 51.

[211] Ibid.

> 'Objects are collected, stored, retrieved, and examined as information, as a basis for becoming informed. One would have to question the completeness of any view of information, information science, or information systems that did not extend to objects.'[212]

In Otlet's terms, documentation was 'a set of complex professional tasks based on the tools and techniques.'[213] It can also be interpreted as a set of organized rationalizations that require a context for their inferences and applications. About museum space, the objects were the documents whose existence was to provide 'evidentiary supports for particular propositions.'[214] In the 16th century, 'Cabinet Curiosities' did not support accounts, claims, and propositions about the objects displayed; instead, they were designed to limit, constrain, and impede.[215] Their exhibition was limited to just the objects themselves and constituted boundaries around what knowledge could be garnered. Otlet attempted to discover the taxonomic relationships between the objects concerning a universal language and stated:

> 'Collections of objects brought together for purposes of preservation, science and education are essentially documentary in character (Museums and Cabinets, collections of models, specimens and samples). These collections are created from items occurring in nature rather than being delineated or described in words; they are three dimensional documents.'[216]

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[212] Buckland. op. cit., 1991a, p. 354.

[213] Rayward. op. cit., p. 32.

[214] Bernd Frohmann. 'Revisiting 'What Is a Document?.' in *Journal of Documentation*, vol. 65, 2009, p. 297.

[215] Frohmann. op. cit., p. 297.

[216] Otlet. op. cit., p. 197.

- Paul Otlet – ‘object as documents’
- K. Michael Buckland – ‘information-as-thing’
- Gonca Tuncbilek – ‘museum as document’

The works of Paul Otlet have a critical position in several ways: the first one is related to information science due to Otlet’s leading role in the field of documentation and also the bibliography. He had a foundational role in establishing the European documentation network and shaping culture and the information policies between the world wars.[217] In addition to this, his utopian vision mainly focused on the architecture of ‘Mundaneum’ and ‘The World City.’

In this chapter, the intention is to underline Paul Otlet’s utopian vision of knowledge classification, its influential role in the international knowledge organization. The works of Otlet have an essential position related to information science because of Otlet’s leading role in the field of documentation. He not only has a significant impact on the classification of knowledge but also on the classification of architectural space of knowledge: museums.

His knowledge organization and its historical legacy help us to understand the significance of ‘object as documents’ in a museum. Furthermore, Buckland’s information trilogy is re-examined, particularly in the ‘information-as-thing’ category to explain the relationship between the museum objects and their informational characteristics. Therefore, museum objects can be seen as elements of Buckland’s information system. By combining the theories of both ‘object as documents’ and ‘information-as-thing,’ this study focuses on the ‘museum as a document.’ This dissertation is particularly emphasized the museum as a document since its significant role in the information science. Thus, this chapter is claimed that there is a strong

[217] Day. op. cit., 2001, p. 9.

dialectical relationship among the universal knowledge, organization, documentation, and in particular the classification of museum itself.

CHAPTER 4

MEMORY SPACE AS A SPATIAL ENCYCLOPEDIA

Paul Otlet also regarded the museum as a space for classifying the documents and focused on its process in particular. It was an area of data classification, rather than merely containers. Therefore, Otlet concentrated both on the museum and its order of classification. The main argument was based on museum space and its organization corresponding to the knowledge of Otlet. Within his spatial analogies, space could enhance the organization and development of knowledge.

Not only was the museum space viewed as a container, but the objects on display formed the representation, classification, and organization. Otlet was aware of the museum space's exhibition characteristics, but he also concentrated on the classification qualities in particular. He thought about the museum and its order of classification in this respect. He concentrated on the alternative exhibitions of the museum collection, as his primary objective was to make the museum collections more accessible to the general public.

4.1. The Museum Classification

In the 1980s, there was a paradigm shift in museology regarding the significance and the meaning of the object and the information it contained. Eilean Hooper-Greenhill explicitly claimed that the position of museums in society had changed from the repositories of the objects to the storehouses of knowledge in her book 'Museums and the Shaping of Knowledge.'

Museum studies and practices have thus become a crucial component of the information systems, and the object of the museum has been an integral part of this informative cultural transformation. The museum has proven to be an institution

which selected, categorized, and preserved the physical things and objects as well as information. Consequently, museums have become 'storehouses of knowledge as well as storehouses of objects.[218]

Alan F. C. Pollard stated that 'from a scientific or technological point of view the museum (objects) itself is of greater value than a written description of it and should, therefore, be regarded therefore as a document from a bibliographical point of view.'[219] The displayed objects were regulated by the classification of information in the museum space and vice versa. Physical objects can serve as an informative tool, as well as books, manuscripts, and microfilms. In addition to all these information sources, museum objects can be essential documents.

Museum objects cannot be displayed without relevant information. They are grouped and linked to the generation of knowledge and its recording. Orna and Pettitt explained that these objects convey information about themselves. In museums, all the objects were selected according to their way of transmitting information, so that artifacts, texts, specimens, photographs, paintings, and models were chosen since they transmitted information by 'their uniqueness or representativeness, their historical significance, or their aesthetic appeals.'[220]

> 'The fundamental role of the museum in assembling objects and maintaining them within a specific intellectual environment emphasizes that museums are storehouses of knowledge as well as storehouses of objects, and that the whole exercise is liable to be futile unless the accumulation of objects is strictly rational.'[221]

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[218] Peter Cannon-Brookes. 'The nature of museum collections,' Thompson, J. (ed.) in *Manual of Curatorship*. Butterworth, London, 1984, p. 501.

[219] A. F. C. Pollard. *British Society for International Bibliography Proceedings* 6: v. 54, 1944, p. 86.

[220] E. Orna, & C. W. Pettitt. *Information Management in Museums*. Aldershot: Gower, 1998, p. 29.

[221] Cannon-Brookes. op. cit., p. 116.

As mentioned above, there is a strong connection between knowledge, classification, and representation. On this basis, it is necessary to return to the discussion of these relationships in museum space. Michel Foucault repeatedly addressed these critical questions: 'What is the border/boundary/definition of knowledge?,' 'How can it be classified?' and 'Can this classification change according to changing of the conditions (time, context, culture)? Are these questions relevant to architecture, and if so, how?

4.2. The History of the Architecture Classification

Architecture has still relied on codified historical types and principles of the formation. The concept of type can also be considered within several different sciences. 'Type' is used as a classification tool with/without the scope of the critical invention. In this study, type theories are considered as epistemological and discursive, as well as historical and formal architectural knowledge in terms of the form of architecture.

In the 18th century, the notion of 'type' began to gain importance. In the Age of Enlightenment, it was thus called 'type.' During this period, Newton had been analyzed in several disciplines for his revolution in physics and related systematic thinking. These analyses led to the typological studies creating a mutual relationship between logical-mathematical sciences and socio-cultural sciences. Since the typological approach has been adapted to all forms of humanity and followed the rationalist philosophy of the Enlightenment, several attempts were made in many disciplines to write first encyclopedias.

According to Friedrich Wilhelm Nietzsche, the philosophers from the 18th century had produced encyclopedias as a tool for orienting knowledge and history to life, relating various disciplines and criticizing the authorities and knowledge hierarchies.[222] The encyclopedia was to be an interconnected and divergent network of information and

[222] Henning. op. cit., p. 79.

not an overall total system. As part of the architectural discourse, the type was derived from the texts of Quatremére de Quincy in the 18th century, and different interpretations of the term have emerged since Enlightenment In his book 'Encyclopédie Méthodique: Architecture' published in 1825, Quatremére described the classification of the disciplinary of architectural knowledge related to typological ideas.

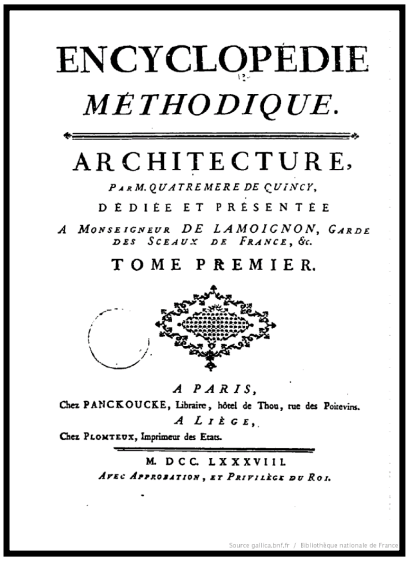
ENCYCLOPÉDIE
MÉTHODIQUE.
ARCHITECTURE,
PAR M. QUATREMERE DE QUINCY,
DÉDIÉE ET PRÉSENTÉE
A MONSEIGNEUR DE LAMOIGNON, GARDE DES SCEAUX DE FRANCE, &c.
TOME PREMIER.
A PARIS,
Chez PANCKOUCKE, Libraire, hôtel de Thou, rue des Poitevins.
A LIÈGE,
Chez PLOMTEUX, Imprimeur des Etats.
M. DCC. LXXXVIII.
AVEC APPROBATION, ET PRIVILÈGE DU ROI.

Figure 4.1 Encyclopédie Méthodique: Architecture, by Quatremére de Quincy.[223]

In this encyclopedia, the type defined by Quatremére was not an image of something to be copied or imitated but served as a principle. All conditions of one type were ambiguous compared to a model. He expanded his type of discussion as a discursive source by providing a fundamental idea for an invention based on an essential justification for defining the rules of the model during the design process. A model was a form to be copied or imitated; on the contrary, the type was the basis for the conception of the works, which did not resemble each other.[224] The type was a

[223] gallica, < http://gallica.bnf.fr >, [retrieved on 30.05. 2019.]

[224] Quatremére de Quincy. 'Type' (trans. A. Vidler), in *Oppositions Reader: Selected Readings from A Journal for Ideas and Criticism in Architecture 1973-1984*, ed. & intro. Michael Hays. New York: Princeton Architectural Press, 1998, p. 618.

metaphysical and a general epistemological idea which introduced the principles of the model into the design process, according to his encyclopedia.

Jean-Nicolas-Louis Durand, a contemporary of Quatremére, was also influenced by the rational thinking of natural sciences, particularly in taxonomy and descriptive geometry. The difference between Durand and Quatremére's concept of the type of architecture was based on a differentiated use of method and theory, all rooted in the architectural discourse of the 18th century's French normative discipline. Durand applied the comparative taxonomy methods to analyze building forms, in particular, a limited number of elements: the rules of composition and the architectural components.

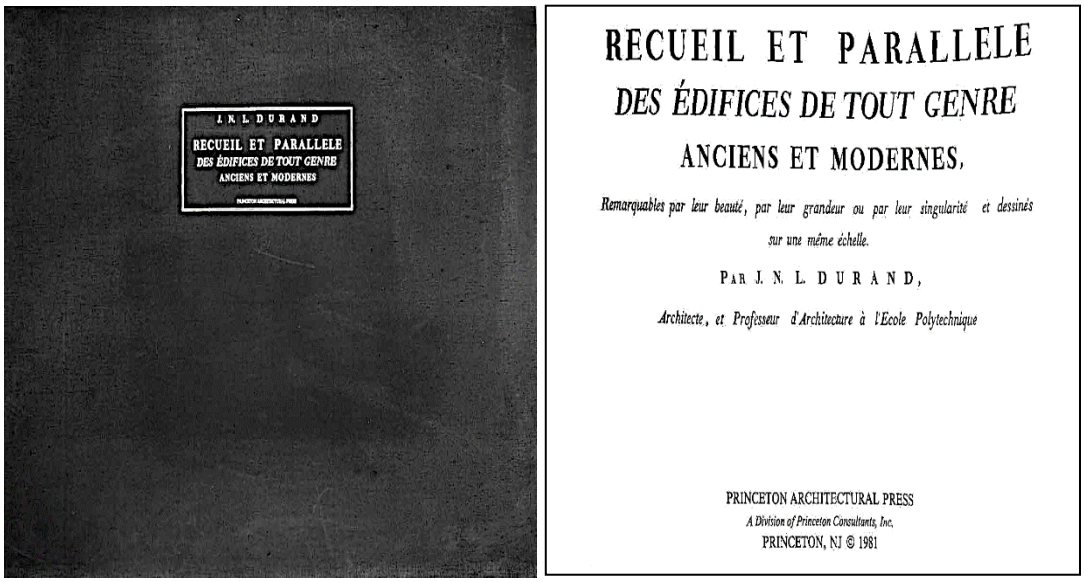

Figure 4.2 Recueil et parallèle des édifices de tout genre,' by Jean-Nicolas-Louis Durand.[225]

As a result of these analyses, in the 1800s he revealed a typological atlas of architecture called 'Recueil et parallèle des édifices de tout genre' (Compendium and Parallel of Buildings of all Kinds). In this atlas, Durand examined several plans of the

[225] sequiturbooks, < http://www.sequiturbooks.com >, [retrieved on 30.05. 2019.]

known types of buildings that were 'classified according to their kinds, arranged in orders of the degree of similarities and drawn to the same scale.'[226] This classification introduced not only the collection of constructed buildings but also the design method. He aimed to redefine the relationship between the historically existing typology and the general form of universal geometry laws.

The epistemological shift in modern architecture criticized the classical, the type of architecture and also transformed the understanding of its type. In the modernist understanding of architecture, attempts were made to reject classical using an empirical reduction. The term 'type' was formed to find an architectural design 'model' by the production itself. In the early 20th century, Rafael Moneo summarized the character of type:

> 'What then is the type? It can most simply be defined as a concept, which describes a group of objects characterized by the same formal structure. It is neither a spatial diagram nor the average of a serial list. It is fundamentally based on the possibility of grouping objects by certain inherent structural similarities. It might even be said that the type means the act of thinking in groups.'[227]

In the quotation above, Rafael Moneo sought a definition of architecture type that questioned the role of the formal structure. He criticized the existing type interpretation and ignored its reduction as a spatial diagram or the serial list average. In his opinion, the type could be interpreted as an interrelation between 'the group of

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[226] Anthony Vidler. 'The Idea of Type: The Transformation of the Academic Ideal, 1750- 1830,' in *Oppositions Reader: Selected Readings from A Journal for Ideas and Criticism in Architecture 1973-1984,* ed. & intro. Michael Hays. New York: Princeton Architectural Press, 1998, p. 451.

[227] Rafael Moneo. 'On Typology' in *Oppositions Reader: Selected Readings from A Journal for Ideas and Criticism in Architecture 1973-1984*, ed. & intro. Michael Hays. New York: Princeton Architectural Press, 1998, p. 23.

objects' and 'the act of thinking in groups.' Because of this interrelation, the type has opened up a dialogue between the past and the future in its context and its culture.

Many studies have redefined the typological discourse throughout the history of architectural discourse. In the article 'On the Typology of Architecture,' Carlo Argan stated that 'type is never formulated a priori**,** but it is always deduced from a series of instances.'[228] The type referred to a series of architectural buildings with a noticeable formal and functional analogy or specific characteristics common to each unit of the series. The intention behind this formal or functional analogy could be considered to identify 'the indicator of an ideological, religious, or practical demand'[229] depending on the historical condition of the culture from which it arose.

> 'When a new type emerges – when an architect is able to describe a new set of formal relations which generates a new group of building or elements – then that architect's contribution has reached the level of generality and anonymity that characterizes architecture as a discipline.'[230]

As stated above by Rafael Moneo, there was a close relationship between architectural discipline and type theory. Regarding the changes in technology, materiality, methods, time, knowledge, and society, the type of architecture has also changed in following its dialectical relation. At the beginning of the 20th century, the Modern Movement opposed the type idea of the 19th century. Depending on the social change, the type theory also shifted, and architectural production is based on standardization and typification. In particular, modern planning was associated with new methodologies:

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[228] Giulio Carlo Argan. 'On the Typology of Architecture,' in *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, ed. by Kate Nesbitt. New York: Princeton Architectural Press, 1996, p. 117.

[229] Ibid.

[230] Moneo. op. cit., p. 23.

'an organizational framework, a scientific approach, and an increasing reliance on professional experts to impose purposive controls in the interest of society as a whole.[231] These reforms could be interpreted as the beginning of the 'Age of Organization.'

This argument could be demonstrated from a new perspective, Moneo mentioned in his article 'On Typology' with two different approaches to the concept of type. To begin with, architecture had its own rules, 'as an entity itself,'[232] that was categorized by its unique character. From this perspective, architecture could not be reduced to any other classification. On the other hand, he stated that '…the architectural production can also be considered as belonging class of repeated objects, characterized by some general attributes as a class of tools or instruments.'[233] He mentioned that naming the architectural object was a process of typing the language. Identification of architectural element referred to an entire class of similar objects with common characteristics.

Anthony Vidler put forward two essential principles of the type for architecture production in the quest for the origin of the idea of typology.[234] The first was the return to the natural origins, a primitive hut model, as a guiding principle it gave orders. In this typology, architecture imitated the fundamental orders of nature itself. A model of the primitive hut was considered an ideal of perfect geometry. The second idea of Vidler's typology emerged as a result of the Industrial Revolution. According to this typology, the architectural design model should be determined in the production process itself. Thus, architecture became an object of mass production. He mentioned

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[231] Stanley Buder. *Visionaries and Planners: The Garden City Movement and the Modern Community*. New York: Oxford Press, 1990, p. 97.

[232] Ibid., p. 28.

[233] Moneo. op. cit., p. 23.

[234] Anthony Vidler. 'The Third Typology,' in *Architecture Theory since 1968*, ed. & intro. Michael Hays. New York: Columbia Books of Architecture, 1998, p. 288.

that the production of the pyramid from the smallest to the most complex machine corresponded to the relationship among the column, the building, and the city.[235] This typology was developed as a natural analogy which appeared directly as an architectural production to the progress of one's nature.

This discussion was expanded by Vidler, claiming that the type was not composed of individual elements or objects classified by purpose, social, ideological, and technical characteristics.[236] It was finished and could now be decomposed into fragments. These fragments were neither reinventions nor repetitions of earlier typological forms of institutional type. Preferably, they were generated from three levels of meaning: 'inherited from meanings ascribed by the past existence of the forms, derived from the choice of the specific fragment and its boundaries; and proposed by a re-composition of these fragments in a new context.'[237] When architecture developed in parallel with changes in time and society, the concept of type gained a new meaning, namely context.

4.3. The Paradigm Shifts in the Classification of Knowledge and Related Effects on the Museum Classification

As previously mentioned, 'type' was used as a classification tool for historical and formal disciplinary knowledge in architecture. On common ground, the discussion of knowledge, its classification in a museum space, and the classification of museum itself had to be returned. In the museum, the emphasis was on the understanding of artifacts rather than the organization of knowledge, although there was always an interest and familiarity with knowledge organizations.[238]

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[235] Vidler. op. cit., 1998, p. 291.

[236] Ibid., p. 292.

[237] Moneo. op. cit., p. 23.

[238] Richard J. Urban. 2014. 'Library Influence on Museum Information Work.' in *Library Trends* 62. no. 3, p. 599.

In the 19th century, researchers became aware of knowledge exposure and its relationship to representation and classification methods. Moreover, the classification of the 19th century museums was referred to as 'the grounds of singularity from the object to a category within a taxonomy.'[239] The museum objects were arranged according to a 'rational' classification relating to a taxonomical approach.

Taxonomy was crucial for the 19th century's study of the natural world and the museums. The museum was a space where knowledge was classified according to the objects contained there, requiring the strict rationality of natural science, which even created the world in the museum. The objects on display were subject to a particular classification. The museums showed a development/differentiation of knowledge in the composition of the collections.

Michel Foucault was seeking to answer the critical question in his book 'The Order of Things: An Archaeology of the Human Sciences,': 'What if empirical knowledge at a given time and in a given culture had possessed a well-defined regularity?'[240] Three classes of knowledge were presented to identify the origin of the question: the knowledge of living beings, the knowledge of language laws, and the knowledge of economic facts from the 17th to the 20th centuries.[241] In this comparative study, he compared various incidents to underline a critical point for the existing knowledge of the times.

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[239] Barbara Kirshenblatt-Gimblett. 'Objects of ethnography,' in *Museums and Communities: The Politics of Public Culture,* edited by Christine Mullen Kreamer, Ivan Karp, Steven Levine. Washington: Smithsonian Books, 1991, p. 392.

[240] Michel Foucault. *The Order of Things: An Archaeology of the Human Sciences*, trans. A. M. Sheridan Smith. London and New York: Routledge, 1991, p. x.

[241] Ibid.

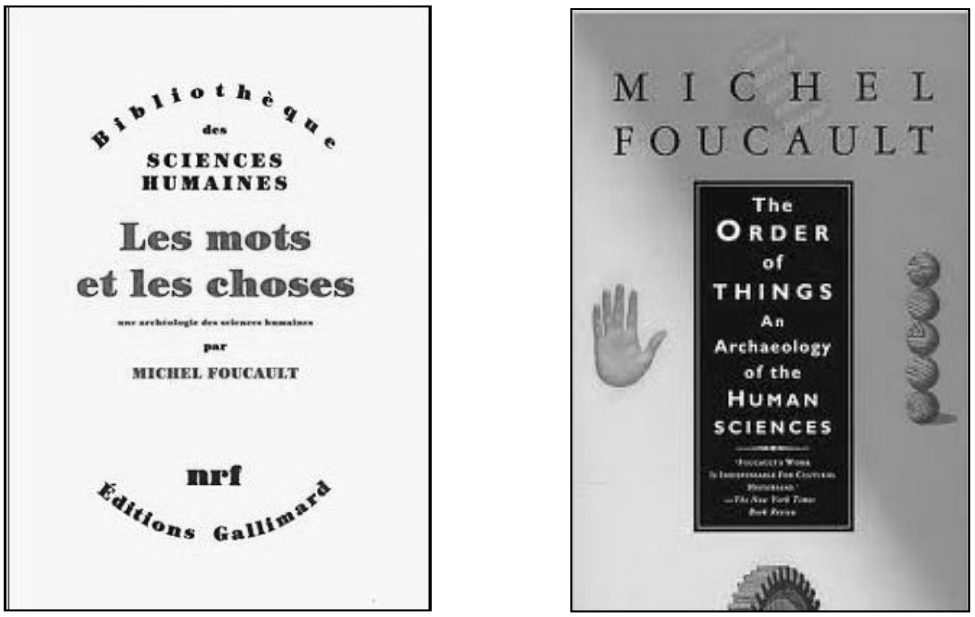

Figure 4.3 The book covers of Les Mots et Les Choses written by Foucault.[242]

Foucault uncovered the implicit rules governing the organization of knowledge in a particular historical period and provided a history of the human sciences regarding their relationship with the history of knowledge. He played an influential role in the history of visuality, the classification of knowledge, and the museum studies. Using archaeological methods, he searched for the underlying 'rules' of knowledge classification and referred to Jorge Luis Borges, who was a researcher on the classification logic. His statement regarding 'a certain Chinese encyclopedia'[243] in the preface of his book in which he classified animals within the context of the book:

> 'This book first arose out of a passage in Borges, out of the laughter that shattered, as I read the passage, all the familiar landmarks of my thought—our thought, the thought that bears the stamp of our age and our geography—breaking up all the ordered surfaces and all the planes with which we are accustomed to tame the wild

[242] Amazon, < http://www.amazon.com >, [retrieved on 30.05. 2019.]

[243] Foucault. op. cit., p. xvi.

> profusion of existing things, and continued long afterwards to disturb and threaten with collapse our age-old distinction between the Same and the Other. This passage quotes a 'certain Chinese encyclopedia' in which it is written that 'animals are divided into: (a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camel-hair brush, (1) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies.' In the wonderment of this taxonomy, the thing that we apprehend in one great leap, the thing that, by means of this fable, is demonstrated as the charm of another system of thought, is the limitation of our own, the stark impossibility of thinking that.'[244]

Foucault claimed that such categorization was based on the classification in the Chinese culture, and this categorization, taxonomy, classification, arrangement, and framing could only be relevant to those who created it. According to the Western perspective, it would appear to be 'irrational' and 'unthinkable,' as they did not share a common basis. The encyclopedic classification of Borges was a significant starting point for Foucault's investigations into the historical context. Foucault pointed out the importance of a shared consistency of logic with a shared understanding:

> 'In the wonderment of this taxonomy, the thing we apprehend in one great leap, the thing that, by means of the fable, is demonstrated as the exotic charm of another system of thought, is the limitation of our own, the stark impossibility of thinking that.'[245]

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[244] Foucault. op. cit., p. xv.

[245] Ibid., p. xvi.

In the above statement, Foucault underlined the fact that this classification could not be considered from his position as it was part of a different understanding of spaces. In this example, he stated that classification is linked to its own cultural rules and that in every culture, the classification of knowledge associated with an ordering system that was based on 'the pure experience of order and its modes of being.'[246] He used the term 'a tabula' to acknowledge the role of the table in framing thoughts in order to operate and understand the world.[247]

He focused on the term 'a tabula' to recognize the role of the table that enabled thought to function in the world's entities.[248] Knowledge was ordered, divided into classes and grouped by names indicating their similarities and differences concerning this tabula, to which language has penetrated since the beginning of time. He continued to talk about the nature of the knowledge order:

> 'Order is, at one and the same time, that which is given in things as their inner law, the hidden network that determines the way they confront one another, and also that which has no existence except in the grid created by a glance, an examination, a language; and it is only in the blank spaces of this grid that order manifests itself as depth as though already there, waiting in silence for the moment of its expression.'[249]

Foucault's archaeology of human science suggested that each period had its episteme, and each epistemic period could be identified by a fundamental paradigm shift characterizing the discontinuous history of knowledge. Episteme is defined 'as a set of social conditions requiring and allowing particular historical forms of discourse and

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[246] Foucault. op. cit., p. xxiii.

[247] Ibid., p. xix.

[248] Ibid.

[249] Ibid., p. xxi.

knowledge.'[250] Foucault's epistemological studies focused on discontinuities rather than linearity, exposing the different relationships between things in the world and the language system of every era. As a result of this discontinuity, knowledge, and reason did not progress, as was commonly assumed in history and the unpredictable epistemic shifts, and ruptures determined this discontinuity.

According to him, the paradigm shifts determined the episteme, which acted as unbridgeable discontinuous breaks. In an earlier interpretation, he opposed linear theories of history, upheld the continuous development of the new from old times, but later held that history was changed by the radical transformation of relations in society.[251] In Foucauldian thinking, each historical period was characterized by a fundamental paradigm that determined the cultural production of certain types of knowledge, and the archaeological method could be used to analyze it. He argued:

> '…one thing in any case is certain: archaeology, addressing itself to the general space of knowledge, to its configurations, and to the mode of being of the things that appear in it, defines systems of simultaneity, as well as the series of mutations necessary and sufficient to circumscribe the threshold of a new positivity.'[252]

Here, he used the term 'archaeology' to represent the analysis of the conditions. In archaeology, it was necessary to create and impose in a given system of thinking,[253] with the rules of the analysis defined as the 'episteme' of the period. He not only searched for the present situation but also examined the past condition by using an

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[250] Charles C. Lemert and Garth Gillab. *Michel Foucault: Social Theory as Transgression*. New York: Columbia University Press, 1982, p. 130.

[251] Lemert and Gillab. op. cit., p. 129.

[252] Foucault. op. cit., p. xxiii.

[253] Lisa Downing. *The Cambridge Introduction to Michel Foucault*. New York: Cambridge University Press, 2008, p. 9.

archaeological method and defined his archaeological method as the following position:

> 'By 'archaeology,' I would like to designate not exactly a discipline, but a domain of research, which would be the following: in a society, different bodies of learning, philosophical ideas, everyday opinions, but also institutions, commercial practices and police activities, mores – all refer to a certain implicit knowledge (savoir) special to this society. This knowledge is profoundly different from the bodies of learning (des connaissances) that one can find in scientific books, philosophical theories, and religious justifications, but it is what makes possible, at a given moment, the appearance of a theory, an opinion, a practice.'[254]

Following the methodological principles of the archaeological method (la méthode archéologique), he identified three different epistemes defined by ruptures in Western knowledge's social, political, cultural, economic, theological, and scientific status quo. In each age, the episteme was determined by the general knowledge of the particular time and specific culture: Renaissance, Classical, and Modern, and these epistemes influenced the formation and identity of institutions.

Museum studies have been strongly influenced by Foucault's theories, which provided an extensive reference for understanding classification, particularly since the 1990s. Paul Smith highlighted the dialectical relationship between the museum studies and the Foucauldian episteme, and defined the episteme as 'the exhibits, the museum building and its placement within an urban context were seen as parts of a discursive system of political rationalities.'[255] Eilean Hooper-Greenhill applied the formulation of

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[254] James D. Faubion. *Essential Works of Foucault, 1954-1984 –Aesthetics, Method, and Epistemology Vol II*. New York: The New York Press, 1998, p. 261.

[255] Paul Smith. *Discerning the Subject*. Minneapolis: University of Minnesota Press, 1988, p. xxvii.

Foucault's episteme to the history of the museums. Referring to Foucault's notion of discontinuity, she claimed that the museums' history could only be recognized as a series of ruptures, rather than as absolute continuity.

> 'A 'history of the museum' written from the standpoint of effective history should reveal new relationships and new articulations. Focusing on when and how 'museums' in the past changed, and in which way and why longstanding practices were ruptured and abandoned may provide a context for today's apparently all too sudden cultural shifts.'[256]

In her book 'Museum and the Shaping of Knowledge,' she mapped the Foucault's concepts of the Renaissance, Classical and Modern Episteme on a specific paradigm shift on the notion of knowledge. The paradigm shifts replaced another and introduced a new set of theories, approaches and definitions. Therefore, she applied them to museum history to understand how these paradigm shifts influenced the museum's collections and their representation. Her analysis of these shifts throughout the museum history provided a useful chronology to understand the evolution of the museum theory. P. Cannon-Brookes argued that the museum had a dialectical relationship with the knowledge it produced:

> 'The fundamental role of the museum in assembling objects and maintaining them within a specific intellectual environment emphasizes that museums are storehouses of knowledge as well as storehouses of objects, and that the whole exercise is liable to be futile unless the accumulation of objects is strictly rational.'[257]

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[256] Eilean Hooper-Greenhill. *Museums and the Shaping of Knowledge*. London and New York: Routledge, 1992, p. 11.

[257] Cannon-Brookes. op. cit., p. 116.

Foucault suggested that the first paradigm shift occurred in the 16th century, indicating the beginning of the Renaissance when a similarity principle organized the episteme as a determinant of knowledge in the Western culture. The Renaissance era reflected the cosmology of the time, and its knowledge was referred to as magic and erudition.[258] Moreover, at that time, it was assumed that the world was covered by signs ready to be deciphered - signs that revealed similarities, affinities, and forms of resemblance. Martin Prösler asserted:

> 'Things as well as words were God's creation, bearing his signature at a 'deeper level.' These signs were laid down at the moment of the Creation, so that ultimately man might reveal its secrets. The form of knowing therefore corresponded to an interpretation of signs and of the resemblances that arose among them. Just as words and things meshed together seamlessly, so in the description of natural phenomena no distinction was made between observation, document and fable. The task of a natural historian like Aldrovandi, writing a natural history based upon his collection, was to represent this complex system—to draw together all that was known about an animal or plant and to present it in terms of the semantic relationships that connected it into the world.'[259]

According to Hooper-Greenhill, 'Cabinets of Curiosity' were the precursors to the museum, created by aristocrats, scholars, wealthy merchants, artists, physicians, and apothecaries 'to represent or recall either an entire or a partial world picture.'[260] Here, this kind of representation could be linked to the Otlet's universal museum idea. His museum towards the universality encompassed the whole universe of materials and

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[258] Foucault. op. cit., p. 35.

[259] M. Prösler. 'Museums and Globalization,' in S. Macdonald and G. Fyfe (eds) *Theorizing Museums (Sociological Review monograp*h), Oxford: Blackwell, 1996, p. 30.

[260] Janet Marstine. 'Introduction,' in *New Museum Theory and Practice*. USA, UK and Australia: Blackwell Publishing, 2006, p. 22.

integrated its components within the same architectural space. From the 16th to 18th centuries, the objects were collected and exhibited by the Cabinets of the Curiosity based on their uniqueness or anomalies of their status. Thus, they were structured following the principles of rareness and novelty[261] that represented the mysterious and hidden relations between the objects and the world. Besides, their epistemic ordering system was based on the Renaissance episteme, preferably on a 'scientific' system. The system was applied both to the collection and display of the material exhibits and to the constitution of the order as subject and object.[262] She emphasized the role of the world's cabinets in two ways:

> '… firstly, to bring objects together within a setting and a discourse where the material things (made meaningful) could act to represent all the different parts of the existent; and secondly, having assembled a representative collection of meaningful objects, to display, or present, this assemblage in such a way that the ordering of the material both represented and demonstrated the knowing of the world.'[263]

[261] Sharon MacDonald. *A Companion to Museum Studies*. Oxford: Blackwell Publishing, 2006, p. 23.

[262] Hooper-Greenhill. op. cit., p. 84.

[263] Ibid., p. 82.

Figure 4.4 Ferrante Imperato, 'Dell historia natural,' Napoli, 1599. Houghton Library, Harvard University.[264]

The 'Curiosities' collected from the 16th to the 18th centuries in private collections were the part of the luxury industry. The term 'curiosity' began to be used in the 17th century to describe things admired for their beauty, complexity, rareness, or even wonderful and mythical features.[265] The cabinets were highly private, yet the gathering of curiosities seemed to be an essential part of the aristocracy's self-presentation. Both curiosity cabinets and the idea of curiosity at their peak in the mid-17th century signified as intellect, power, privilege, and property. Since knowledge was associated with power, curiosity cabinets became a necessary accompaniment to great wealth. The objects were selected according to their rareness and curiosity value in the curiosity cabinets. In the very phases of Otlet's classification understand, this kind of relations could be viewed in his botanical and geological specimens as well as his papers in an 'order.' In his first classification form, there were only two empiricist

[264] theroamingcurator, < http://www.theroamingcurator.com >, [retrieved on 30.05. 2019.]

[265] Henning. op. cit., p. 21.

categories: material and intellectual. Therefore, the classification based on many characteristics outlined in Hegelian dialectical materialism, which is theory-independent.

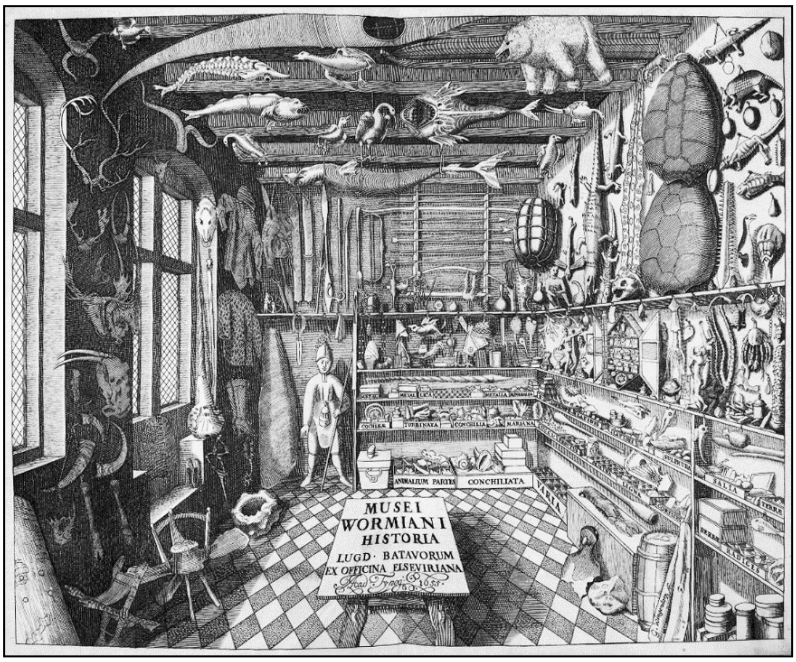

Figure 4.5 Ole Worm's cabinet of curiosities, 'Museum Wormianum,' 1655.[266]

> '… The cabinet of curiosities, in its design and in its social relations, reflects its role as a storehouse of a knowledge that is, at once, rare and exclusive, intelligible only to those with the time, inclination and cultural training to be able to decipher the relationship in which each object stands to the whole.'[267]

As mentioned above by Tony Bennett, the 'cabinet' was more than a container, a cupboard with drawers and shelves used to exhibit the small objects during the Renaissance, rather than a space in which the knowledge was stored and displayed in

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[266] theroamingcurator, < http://www.theroamingcurator.com >, [retrieved on 30.05. 2019.]

[267] Tony Bennett. *The Birth of the Museum, History, Theory, Politics*. London: Routledge, 1995, p. 41.

no identifiable order. Many terms were used to characterize the collections, the settings and also the variety of objects collected and exhibited from the period, including Pandechion, Studiolo, Gabinetto, Wunderkammer, Galleria, Kunstkammer, or Kunstschrank.

C. R. Hill claimed that the cabinet was used in the English context at the beginning of the 17th century and was defined as 'a closet beyond the principal bedchamber where the owner's collection of curiosities, pictures and other small works of art could be displayed for the delectation of close friends and important guests.'[268] The 'cabinet' could be interpreted as a space for the classification of knowledge, and the way it was displayed was the origin of the contemporary institutional museums. Michelle Henning expanded the discussion:

> 'At their peak in the mid-17th century, both curiosity cabinets and the emotion of curiosity were signifiers of intellect, power, privilege and property… they were also associated with great wealth, knowledge and conspicuous consumption… Curiosity cabinets were arousing interest for that what is curious, new, unknown and this kind of an orientation was leading to overconsumption in the sense that people became inclined to buy and make a collection of things that were curious, new and unknown to them. The curiosity of cabinets was presented as the primitive ancestor of the modern museum.'[269]

The 17th century collectors were much more selfish as they collected the things for themselves and showed only a small number of people rather than the public. The government then began buying these collections and combining them with other

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[268] C.R. Hill. 'The cabinet of Bonnier de la Mosson 1702–1744,' in *Annuals of Science*, 43. Taylor & Francis, 1986, p. 150.

[269] Henning. op. cit., p. 25.

possessions, and it could be interpreted as laying the groundwork for the publicness. This first museum's main objective was to collect the priceless original collections. These collections were first kept in real temples and palaces because of their valuable nature.

A paradigm shift occurred during the 17th century, which led to the emergence of the classical episteme and replaced the knowledge of the Renaissance with the knowledge of the Classical Age. The resemblance was the primary function of the empirical knowledge of the episteme of the Renaissance, which was recognized as the episteme of 'representation.' In the Classical Age, the resemblance was seen as muddled, confused, and disordered.[270] In his examination of the Classical Age, Foucault stated that 'it is within knowledge itself that the sign is to perform its signifying function; it is from the knowledge that it takes its certainty or probability,'[271] and he underlined the relationship between sign and signified. This episteme brought 'measurement' and 'order' ('mathesis' and 'taxinomia'), instead of 'resemblance' and 'similitude.' Prösler stated:

> 'Henceforth, no longer did one search for signs of covert resemblance and affinity, but rather, through observation, isolated those characteristics whose comparison betrayed the identity, or diversity, of cosmic creations'[272]

The Classical Age episteme was defined by achieving a 'general science of order' which was a linguistic representation of things based on the similar and different characteristics of the property. This characteristic could be clarified regarding the

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[270] Hooper-Greenhill. op. cit., p. 134.

[271] Foucault. op. cit., pp. 65-66.

[272] Prösler. op. cit., p. 30.

representation of the table, such as the tables of species established by natural history, which showed the categories of being and put each thing in its proper place.

Foucault defined two critical classifications of the general science of order as such: 'mathesis' and 'taxinomia.' Mathesis was set as a possibility for the order. Order and measurement were considered a way of understanding the relationship between things and the classification system was based on rationality. In the light of this statement, the extensive classification of knowledge gathered by Otlet and its translation into the multiple forms of the 'universal scientific language' that reflected his understanding of order of 'things' and 'beings.' By doing so, both Otlet and Foucault tried to find their own classification of knowledge system that was analyzed and structured concerning the classificatory table[273] based on the differences rather than similarities.

In addition to mathesis, taxinomia was also defined as the general configuration of knowledge in the Classical Age. Taxinomia fell within the mathesis order but was more associated with 'scientific order.' It was considered as 'the ordering of complex natures,'[274] which offered a qualitative ordering of things and also provided a cross reference system, and was the method used in the empirical sciences of the Classical Age. In the same way, taxinomia covered the genesis, although it focused on the differences in the table. Taxinomia showed a table of visible differences, whereas genesis showed an endless series of compounds.[275]

The Foucault-analyzed Linnaean taxonomy was invented to classify the natural world from species and genus, was adapted to impose hierarchies that contained a false sense of closure and containment. Here, Foucault claimed that 'the ordering of things utilizing signs constitutes all empirical forms of knowledge as knowledge based upon

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[273] Foucault. op. cit., p. 74.

[274] Ibid., p. 72.

[275] Ibid., p. 82.

identity and difference.'[276] The relationship with 'order' was equally important in this age as it replaced the relationship of the Renaissance's 'interpretation.' Foucault underlined the fact and explained:

> 'Observation, from the seventeenth century onward, is a perceptible knowledge furnished with a series of systematically negative conditions. Hearsay is excluded…but so too are taste and smell, because their lack of certainty and their variability render impossible any analysis into distinct elements that could be universally acceptable. The sense of touch is very narrowly limited to the designation of a few fairly evident distinctions…which leaves sight with an almost exclusive privilege, being the sense by which we perceive extent and establish proof, and, in consequence, the means to an analysis partes extra partes acceptable to everyone.'[277]

Hooper-Greenhill focused on the impact of the episteme of the Classical Age on the special collections. The collections were not yet open to the public, and there was a separation between the collections of natural history and art. Therefore, each collection developed its own set of representation rules based on rationality and order. The authorities of the museum became distanced from the curiosity cabinets, which they punished them as chaotic, unscientific, and poorly conserved. The idea of 'contemporary' museum was developed towards ordered typology, science, and new techniques in conservation.

During this time, new sensitivities in compiling things began to emerge, and the collections were classified more taxonomically.[278] Private collections were more in harmony with new ways of ordering and classifying objects in scientific terms,

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[276] Foucault. op. cit., p. 64.

[277] Ibid., pp. 132-133.

[278] MacDonald. op. cit., p. 23.

attempting to draw more considerable attention from the objects as curiosities, except for science and scientific curiosity. This development was how the cabinet of curiosity was introduced to the modern museum as an early ancestor. The world was understood by using arrangements and explanations concerning the classification and measurement of objects. Coins and sculptures, for example, would be separated[279] because of their shape and form.

> 'The ever more complete preservation of what was written, the establishment of archives, then of filing systems for them, the reorganization of libraries, the drawing up of catalogs, indexes and inventories, all these things represent, at the end of the classical age, not so much a new sensitivity to time, to its past, to the density of history, as a way of introducing into the language already imprinted on things, and into the traces it has left, an order of the same type as that which was being established between living creatures. And it is in this classified time, in this squared and spatialized development, that the historians of the nineteenth century were to undertake the creation of a history that could at last be 'true'—in other words, liberated from Classical rationality, from its ordering and theodicy: a history restored to the irruptive violence of time.'[280]

A final paradigm shift occurred between the episteme of the Classical Age and the Modern Age towards the end of the 18th century. In 'The Order of Things,' Foucault focused specifically on these two paradigm shifts: The Classical Age and the Modern Age, which resulted in the classical taxonomic methods being rejected. Modern thinking criticized the interpretational methodology of the 18th century classifications. The notion of 'representation' has lost its power as a basis for thought, as in modernity; studies focused mainly on economics, natural history, and language that limited

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[279] Hooper-Greenhill. op. cit., p. 142.

[280] Foucault. op. cit., p. 132.

human capacity. During this era, knowledge changed from the visible to invisible, knowing that something became more significant in the context of time and function.

> 'The ruptures of revolution created the conditions of emergence for a new truth, a new rationality, and also came a new functionality out of which came a new functionality for a new institution, namely the public museum. The old collecting practices of the king, the aristocracy, and the church were radically revised, taken over, and rearticulated in a new field of use. The collections themselves were torn out of their earlier spaces and groupings and were rearranged in other contexts as statements that proclaimed at once the tyranny of the old and the democracy of the new.'[281]

Foucault's theory of discontinuity impressed Hooper-Greenhill and applied it to the museum space since this period gave rise to the space of representation when museums were born. As it was understood in the 18th century, the museum was more than just a collection of unique 'universal' objects. She claimed that the museum space embodied the meaning of the objects within and how states started to posit public museums as a way of 'civilizing' their populations.[282] Regarding the episteme of the era, space and objects were interpreted and organized. The beginning of the episteme of the Modern Age resulted in a modern or 'disciplinary' public museum that is still in operation today.[283] P. Cannon-Brookes claimed that the dialectical relationship between the museum and the knowledge produced:

> 'The fundamental role of the museum in assembling objects and maintaining them within a specific intellectual environment emphasizes that museums are storehouses of knowledge as well as

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[281] Foucault. op. cit., p. 171.

[282] Ibid., p. 168.

[283] Marstine. op. cit., p. 24.

> storehouses of objects, and that the whole exercise is liable to be futile unless the accumulation of objects is strictly rational.'[284]

In Foucauldian thinking, the museological discipline dealt with the assembly of various elements that were brought together in specific forms of knowledge relationships. The collected objects were here understood as purposeful and knowledgeable and were accessible to everyone. In the light of this statement, Otlet proposed a utopian project of his universal museum for available to humankind since he thought that the knowledge was universal and it could not serve to any specific community. Any representation of the museum, whether real or conceptual, could be interpreted as a form of theorization involving the relationships between 'diverse parts' in order to define the boundaries.[285] Knowledge was not shaped in terms of drawing together of things 'in the setting out of kinship or secretly shared an attraction,'[286] but rather in terms of discrimination between things in the museum space.

In the early Modern Age, the collection technologies had changed, and new devices such as inventories and catalogs were invented. The UDC system of Otlet and La Fontaine could be evaluated as one of those classification tools. The knowledge space began to encourage the public to become literal collectors of the things, and after the museum had made remarkable, appropriate taxonomies and classifications to order this knowledge; the public felt like autodidactic collectors of knowledge.[287] The museum sought to navigate their attention because every effort was made to classify and organize the objects without the proper attention of the public in a consistent narrative founder. The task of the modern museum was to collect, preserve, and

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[284] Cannon-Brookes. op. cit., p. 116.

[285] Christopher Whitehead. 'Establishing the Manifesto: Perspectives on art museum work as disciplinary practice' in Simon J. Knell, Suzanne MacLeod and Sheila Watson. (ed.) *Museum Revolutions: How Museums Change and are Changed*. New York: Routledge, 2007, p. 57.

[286] Hooper-Greenhill. op. cit., p. 158.

[287] MacDonald. op. cit., p. 86.

exhibit objects in order to appreciate and preserve knowledge. According to Tony Bennett's Foucauldian reading of the museums 'stood as embodiments, both material and symbolic, of a power to show and tell which, in being deployed in a newly constituted open and public space, sought rhetorically to incorporate the people within the process of the state.'[288]

As Henning stated back in the 19th century, new forms of attention and new habits emerged as unexpected effects of the new paradigm shift resulting in the museum's new object arrangements.[289] In this period, according to the new historical and aesthetical understandings, objects were redisplayed. These understandings were the results of the new scientific paradigm shift of the era. The continental Europe's bourgeoisie was very self-assured and developed a new relationship with the past and the rest of the world, in that the colonial powers took their cultures to the top of civilization and the cultures of the rest of the world stood behind them on the development ladder. They supposed that when they completed their evolution, these cultures would be the same as them. Thus, they imagined the cultures of the colonial powers to be valid 'universally.'

Colonial relations across Europe made their culture universal and the culmination of civilization possible for the colonial powers. Thus, not only in encyclopedias, periodicals, but also public museums sampled, discussed, and represented the cultures. The products of each culture were assessed by scientific and aesthetic value according to 'universal' criteria. Bennett claimed that the museums were the places where artifacts and specimens taken from all over the world were assembled and reordered.[290]

The museum was quite literally a space to represent a space in which the system of representation itself was shown where the academics or visitors could think of the

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[288] Bennett. op. cit., p. 87.

[289] Henning. op. cit., p. 14.

[290] Bennett. op. cit., pp. 34-35.

adequacy in this 'artificial' system of nature by looking at objects. Starting from this era, the collectors tried to classify things and made them available to the public in a specific systematic form, whereas the new concern of this era was with the representation of space. Otlet's universal museum idea with its classification tool 'UDC' served an accessible knowledge space as one of the examples of this representation. Whitehead revealed the desire to contextualize artworks in historical context. He continued that there emerged a conscious need for the public museum for precise architectural and display typologies that differentiated from those that characterized the private collection's interior.[291]

Hooper-Greenhill claimed that the modern museum shaped both 'knowledge and bodies,'[292] as the collections were organized concerning them. Its origin and historical development had internal institutional aspects that focused on the changing/shifting classification, exhibition, and representation practices. Based on her analysis, it could be interpreted that the constructed meaning of museums was not fixed because the meaning was related to the changing trends in knowledge and its representation in terms of the objects of the museums. The modern museum has played an influential role in classifying objects, culture, and knowledge.

As Henning indicated that the museum's reinvention in the 20th century was strongly associated with commodity exhibition developments.[293] In the light of the Modern Age episteme, objects were not only displayed on the classification table based on their morphology but also defined by their interrelations and identities such as the UDC system provided a cross-referenced knowledge to highlight these interrelations. The objects were placed within the museum space in a new network of relationships. In the Classical Age, things were interpreted, classified, and displayed in terms of their

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[291] C. Whitehead. *The Public Art Museum in the Nineteenth Century Britain: The Development of the National Gallery*. Ashgate Publishing Limited: UK, 2005, p. 15.

[292] Hooper-Greenhill. op. cit., p. 189.

[293] Henning. op. cit., p. 8.

visible characteristics, presenting themselves about their relationship with the human race.[294] They were classified in the Modern Age according to historical links, stories, and organic relationships. Hooper-Greenhill stated:

> 'In the modern age, knowledge is no longer shaped by the secret, enclosed, circulating structures of the Renaissance episteme, nor by the flat, classificatory table of difference of the classical episteme; now knowledge is structured through a three-dimensional, holistic experience, which is defined through its relationship to people. The act of knowing is shaped through a mix of experience, activity, and pleasure, in an environment where both the 'learning' subject and the 'teaching' subject have equal powers. Subject positions are more closely related than in the past; former divisions are now bridged in a number of different ways. Where both the object and the curator are decentered, the visitor/client/customer has new opportunities.'[295]

Considering both Foucault's analyses of the history of knowledge and Hooper-Greenhill's application of these analyses to museum studies, it could be claimed that the museum has maintained a dominant role in shaping knowledge over the last 600 years. Each period had different structures of knowledge: Renaissance, Classical Age, and Modern Age epistemes. The collection and exhibition of material things, both artificial and natural, has long been one of the ways of getting to know and understand the world.

As already mentioned, the philosophy of classification of the era could only be understood in terms of historical and formal discipline. On common ground, it was necessary to return to the discussion on knowledge and its classification. The

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[294] Foucault. op. cit., p. 313.

[295] Hooper-Greenhill. op. cit., p. 214.

classification philosophy started with the question: 'How the world's entities should be classified?'

The classification of knowledge played an essential role in the storage and dissemination of information. Libraries, taxonomies, controlled vocabulary such as encyclopedias, archives, and museums were used to organize knowledge. As already mentioned, when analyzing the classification of the knowledge and its effects, it was necessary to discuss the classification of the museum itself. Museums could be classified by several schemes, similar to their content. Taxonomic systems were the conceptual devices as a classification tool for data masses. Hilde S. Hein mentioned:

> 'The ordering system not only reflected a prior intellectual choice but also determined pragmatic decisions regarding a museum's internal spatial organization, acquisition policy, exhibition-style, public outreach, and programming.'[296]

To answer the question 'What was a museum's primary role?,' a museum could be considered as an institution that functioned to gather things together based on a classification of knowledge and established an outstanding organization with its rational characteristics in a spatial environment. Paula Findlen stated that 'Knowledge, formerly embedded in texts, was created by a community of collectors, experimenters, and visitors whose viewing of nature established its authoritative image.'[297] By the 19th century, researchers became aware of the exposure of knowledge and the relationship between knowledge itself and the means of representation. Besides, the classification of the 19th century museums referred to 'the grounds of singularity from the object to

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[296] Hilde S. Hein. *The Museum in Transition: A Philosophical Perspective*. Washington D.C.: Smithson Institution Press, 2010, p. 123.

[297] Paula Findlen. *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*. London: University of California Press, 1994, p. 199.

a category within a taxonomy.'[298] The objects in the museum were arranged according to a logical structure in the sense of a taxonomic approach.

As previously mentioned, it was necessary to open a discussion into the classification of the museum itself when analyzing the classification of the knowledge and its effects. The United Nations Educational Scientific and Cultural Organization (UNESCO) Institute classified museums by collections and predominant subject of exhibits: art museums, archeology and history museums, natural history and natural science museums, science and technology museums, specialized museums, regional museums, general museums, other museums, monuments and sites, zoological and botanical gardens, aquaria and nature reserves. UNESCO also classified museums by governing or ownership authority:

- National museums,
- Other public museums,
- Private museums.[299]

Several criteria were identified, despite a range of typological systems proposed in the last twenty years by various authors. Ludmilla Jordanova identified three fundamental levels of classification in the museum. The museum as an institution could first be placed into a category that results from the nature of its contents, whether natural history, social history, fine arts, photography, technology, or geology. The second referred to the type of person around whom it was organized for such as reformers, great writers and collectors, the latter deriving from the place it served.[300] As stated by

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[298] Kirshenblatt-Gimblett. op. cit., p. 392.

[299] Ivo. Maroevic. *Introduction to Museology: The European Approach*. ed. Gary Edson. Verlag Dr. Christian Müller-Straten: München, Germany, 1998, p. 112.

[300] Ludmilla Jordanova. 'Objects of Knowledge: A Historical Perspective on Museums' in *The New Museology*, (ed.) Peter Vergo. London: Reaktion Books, 2000, pp. 23-24.

Foucault, this type of classification could only be meaningful from the perspective of the categorization owner.

Table 4.1. *Sub-Classifying Museums Diagram*

Box 3.1 Some types of museums

Classified by collections:

- general museums
- archaeology museums
- art museums
- history museums
- ethnography museums
- natural history museums
- science museums
- geology museums
- industrial museums
- military museums

Classified by who runs them:

- government museums
- municipal museums
- university museums
- independent (charitable trust) museums
- army museums
- commercial company museums
- private museums

Classified by the area they serve:

- national museums
- regional museums
- city museums
- local museums

Classified by the audience they serve:

- general public museums
- educational museums
- specialist museums

Classified by the way they exhibit their collections:

- traditional museums
- historic house museums
- open-air museums
- interactive museums

According to Timothy Ambrose and Crispin Paine, museums ranged from large international museums to the smallest single-roomed village museum. Moreover, museums differed enormously in their purpose: some were designed to preserve the data on which scientific and the others were based on historical research. They varied in their collections 'from insects to historic industrial machinery, from ancient statues to pathological specimens, from modern paintings to revolutionary flags.'[301] H. S. Hein commented on the classification of museums as follows:

> 'Like their contents, museums can be classified according to a number of schemes. Taxonomic systems are conceptual devices for ordering masses of data. The ordering system not only reflects a prior intellectual choice but also determines pragmatic decisions regarding a museum's internal organization, acquisition policy, exhibition style, public outreach, and programming. It therefore matters how museums represent themselves to themselves as much as how they are externally identified… there is no absolute method of classification, nor are museums irrevocably bound within a single designation. Most are currently experimenting with different models of self-presentation, borrowing procedures from one another, and the categories of classification are being transformed as museums mix and match to fashion new identities for changing circumstances.'[302]

Hein said there were many different types of museums, with so many diverse areas of focus and interests. Museums may have chosen to focus on and specialize in only one particular area of interest or to allocate their resources to a wide range of areas of interest and work on them to ensure their presence. Neil G. Kotler and Philip Kotler

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[301] Ambrose and Paine. op. cit., p. 6.

[302] H. S. Hein. op. cit., p. 19.

classified museums as art museums, history museums, children's museum, science and technology museum, ethnography museum and universal museum.[303]

As Didier stated, the 'museum penetrated the cultural consciousness… The 19th century mania for collecting was not merely a public concern: private collections flourished and remodeled interior spaces transformed into aesthetic and historical museums of themselves.'[304] By representing unique furniture, the owners wanted to display their collections in their environments, especially at home, as a way of showing their good taste, education, background, and social status. In 2002, a British National Museum Directors organized a conference called 'NMDC' and published a report 'International Dimensions,' according to their levels of international exposure, as followed:

- **The 'encyclopedic' collections:** These collections in their mission are fundamentally universal. These include the earliest and largest institutions: the British Museum, British Library and Natural History Museum, and the Royal Botanical Gardens for which the activities of collecting and searching have always been global.
- **Museums devoted to subjects:** Museums dedicated to subjects that extend beyond national boundaries, although not necessarily global in scope. These are part of an international group of institutions: art museums, museums of decorative art, libraries, archives, science museums and museums of military history or architecture. Victoria and Albert Museum is an example of this type of museum.
- **Institutions created in the context of the British Empire with strong historical links to countries of the Commonwealth:** Institutions created with

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[303] N. and P. Kotler. *Museum Strategy and Marketing: Designing Missions, Building Audiences, Generating Revenue and Resources*. Jossey Bass: San Francisco US, 1998, p. 30.

[304] D. Maleuvre. *Museum Memories: History, Technology, Art*. Stanford: Stanford University Press, 1999, p. 4.

> strong historical links to the Commonwealth countries in the context of the British Empire, for instance, the Imperial War Museum.[305]

During the 19th century, science represented 'a particular type of abstract knowledge and the application of its epistemological structures was crucial to the conversion of lay knowledge into a formal taxonomy.'[306] Museum spaces were almost inevitably embodied with the idea of classification and Susan Steward underlined that 'thereby making temporality a spatial and material phenomenon, its existence… dependent upon principles of organization and categorization.'[307]

In the last century, but especially since the 1950s, the museological approach to the classification of scientific collections has changed dramatically due to the number of social, political, economic, and cultural constraints. The representations have become mostly systematic and offered a limited number of interpretations, but in recent years, they have become mostly multi-layered, thematic, and increasingly interdisciplinary and reflective in content. It can be interpreted that the way taxidermy has been depicted in many museums today contrasts with the previous systematic depictions. Vidler expanded the discussion:

> 'This involved a fundamental redefinition of the museum's role: no longer dedicated solely to the preservation and exhibition of canonical works of art for uplift and inspiration, it was to function as an instrument of instruction, informing the new mass public about its own place in the world, its geographical, social, technological, and cultural potentialities. Joining an organic and historical view of city development to an insatiable will to classify all knowledge, and

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[305] British National Museum Directors' Conference (NMDC). *International Dimensions*. 2002, www.nationalmuseums.org.uk [retrieved on 30.03. 2019.]

[306] Ken Arnold. *Cabinets for the Curious: Looking Back at Early English Museums*. Ashgate Publishing Limited, Burlington, USA, 2006, p. 236.

[307] Ibid., p. 244.

> supported by the new social sciences, this notion of a 'museum without boundaries' invoked every technological aid to display and disseminate its wisdom.'[308]

4.4. The 'Universal Museum' of the 21st Century

In the mid-20th century, the shift was marked by the display of taxidermy from encyclopedic to thematic/subject-matter, which meant a change in the interpretation and understanding of nature in museums. While the museum's classification of the 20th century had shifted 'the grounds of singularity from the object to a category within a certain taxonomy,'[309] the 21st century museum has also changed its perception of the classification of knowledge. In the turn of the 20th century, Anthony Vidler described how the museum's role was redefined. Attempted to make the museum 'an instrument of instruction' used all available technical aid to teach a mass audience 'about its own place in the world, its geographical, social, technological and cultural potentialities.'[310] The museum's classification of the 21st century must establish its collection, classification and exhibition strategies, instead of signing the established institutional conventions due to their rigid nature, in order to highlight clear distinctions between categories and academic disciplines.

This process of change continued through the 21st century. This shift has moved us with a new paradigm to the contemporary museum. In October 2002, a forum of 40 world's leading museum and gallery organizers was held to discuss the annual informal situation at the International Group of Organizers of Large Size Exhibitions, known as the Bizot Group.[311] The Group deliberations resulted in the publication of

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[308] Vidler. op. cit., 2001, p. 163.

[309] Kirshenblatt-Gimblett. op. cit., p. 392.

[310] Vidler. op. cit., 2001, pp. 163-164.

[311] Based on Irène Bisot, the former head of the Reunion des Musées Nationaux, who established the group, the Bizot Group discusses the questions of the museum concerns every year.

'The 2002 Declaration on the Importance and Value of Universal Museums' by the directors of nine European and nine US Art Museums in December 2002.

The primary objective was to emphasize the importance and role of museums of world culture in promoting mutual understanding and tolerance among the population. It was mainly against the repatriation of cultural heritage on the grounds that such institutions serve not only the citizens of one nation but the people of every nation.'[312] Scientific arguments highlighted the 'universal' foundation: the ability of the remnants to contribute to the sum of human knowledge, and to the idea that the remnants should be available not only for the present but for future generations as well.[313]

Since the declaration was issued, the question of 'universal museum' has been subject to renewed examination. One of the notable aspects of the declaration was the idea created during the 18th century for European Enlightenment to be reconciled with the more recent study in areas such as post-colonial theory, postmodernism, and museology. By doing so, the world's museums could function in the future as a viable philosophical framework. This declaration was to underline the 'Universal Museum' as one of the great achievements of the 18th century and maintain the genealogical connection between the museum and the Enlightenment.

The 'Universal Museum' is a term that has continued to evolve as the museum context's outlook and practices change. Beginning in the 16th and 17th centuries with diverse and sometimes random collections, universal museums tended to systematically catalog the entire natural and human world by the 18th century. According to Harold Skramstad, Henry Ford Museum's President Emeritus, the museums of the 19th century desired to allow universal access and education to anyone

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[312] 'Declaration on the Importance and Value of Universal Museums' signed by the directors of 18 European and American Art Museums. See the Appendix C.

[313] P. Steel. 'Close to the Bone,' in *Museums Journal*. Museums Associations: London, August, 2004, p. 23.

who entered this architectural space in his article 'An Agenda for American Museums in the 21st Century.' During its arrival in the 20th century, the museum again changed its focus from education to the new type of institutions 'collection' and its social and cultural worldwide. Institutions were guided to organize and accumulate significant collections; here, the notion of 'universality' had much more to do with categorizing the collections that were universal understandability to everyone in the world.

In the 20th century, the museum would respond to Otlet's potential for cross-border mass reproduction and communication technology and build a world culture. He planned 'a network of museums dispersed throughout the world' as well as a world encyclopedia.[314] The encyclopedic museum towards the universality embraced the entire material world and the assembled its parts underneath one roof since the Enlightenment. There was a dialectical tension, as Foucault pointed out, between a faith in the susceptibility of humanity to lodging through extensive ranking and an similarly deep insistence on its opposition to such interventions within the unitary essence of Enlightenment.[315] As one of the founders of the universal museum, Otlet paid attention to the notion that it became a more coherent and more comprehensive collection. As Eugenio Donato stated:

> 'The set of objects the museum display is sustained only by the fiction that they somehow constitute a coherent representational universe ... Such a fiction is the result of an uncritical belief in the notion that ordering and classifying, that is to say, the spatial juxtaposition of fragments, can produce a representational understanding of the world.'[316]

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[314] Henning. op. cit., p. 134.

[315] Foucault. op. cit., p. 126.

[316] Eugenio Donato, 'The museum's furnace: Notes toward a contextual reading of Bouvard and Pécuchet', in J. Harari (ed.) *Textual Strategies: Perspectives in Post- Structural Criticism*. Ithaca: N.Y.: Cornell University Press, 1979, p. 223.

The imperatives went throughout the 19th century to underpin the science and manufacturing ambitions of the European colonial powers, who thought they were embarking on a 'civilizing task.'[317] Modern museology sometimes responds to post-colonialist thinking by objectifying and seeing as a historical incident which has the specific power relationships that produced many of the huge museum collections.[318] Tom Flynn stated:

> 'The universal museum nevertheless stands as an emblem of that long tradition of exploration and encounter, of the laudable pursuit of knowledge on the one hand, and of brute colonial conquest on the other. It is from the tension between those seemingly conflicting historical drives that the idea of the universal museum derives its particular power and mystique.'[319]

The museum's 'universal' concept originated in public museums. In the past, these museums had private, royal, or noble collections, and the partnership was established between the patron and the government. In its subject and geographical origins, many were eclectic that was the result of a tradition which can be traced back to the European Renaissance. In the age of Enlightenment, they gained new spirit that they were not more assemblage of curiosities but ordered/classified collections from different regions of the world.

Paul Otlet, as the collector of Enlightenment, was mainly driven by an existing rational culture of the age, as this study sought to show. The collection that formed the core of the 'Universal Museum' of Otlet allowed us to comprehend the importance of what Tony Bennett defined as a sort of 'double-leveled vision' between both the 'visible

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[317] Tom Flynn, and T. Barringer, (ed.) *Colonialism and the Object: Empire, Material Culture and the Museum*. Routledge, 1998, p. 190.

[318] Declaration. See the Appendix C.

[319] Tom Flynn. *The Universal Museum: A Valid Model for the 21st Century?* (Available through Lulu), 2004, p. 30.

and the invisible' in Foucauldian terms. How much that double-leveled vision can justifies today's museums in the post-Enlightenment world, continue to advocate for universality, especially a universality now conceived not as a metaphor for an unknown world but as a model for claiming possessions and mastership of the ever-increasing material culture in the world? Also, how relevant and applicable are such materialistic tendencies in a post-colonial 21st century? Charlie Gere highlighted the Otletian thinking for the 21st museum as such:

> 'In a world of transnational media and global communications networks new models of the museum are necessary, that are appropriate for an age of networks, of decentered and diffused distribution of knowledge, and of access and reciprocal communication.'[320]

The concept of universality could be related to the first public museum. Therefore, a declaration by the world's leading museum directors might have been taken as a commonplace. A fundamental discussion raised concerning the role of the museums in the 21st century. The role of encyclopedic museums in multiple times of social change must be redefined in the 21st century. Expanding the idea of 'universal museum' is much more related to the 'accessibility of knowledge' that represented within the museum context. Today, the repatriation of cultural heritage can be interpreted as irrelevant because they cannot serve just the citizens of one nation but the people of every nation. In the light of this statement, there is a clash between the preservation of the Enlightenment values in conservative but charitable institutions and the promotion of contemporary political agendas and nationalistic attempts to rewrite the history.

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[320] Charlie Gere. 'Museums, Contact Zones and the Internet,' D. Bearman and J. Trant (ed.), in *Museum Interactive Multimedia 1997: Cultural Heritage Systems Design and Interface*. Pittsburgh, PA: Archives & Museum Informatics, 1997, p. 64.

James Cuno explained the mission of the universal museum in the 21st century, coming from an amalgamation of sources from the definitions of 'universality' from the 16th to 19th century and the cultural heritage discussion. In his article 'View of the Universal Museum,' he stated:

> '…universal museums are dedicated to the proposition that the dissemination of knowledge and learning and the improvement of taste encourages refined and discriminating judgments between what is true and what is false, and the prerequisite for this is access to objects representative of the world's diverse cultures: what I call comparative contextual context, on that, in addition to focusing on the particular allure of a given object, opens a door onto the fact of cultural hybridity by which one culture engages with and influences another. In this respect, universal museums are a force for understanding and tolerance in the world, and the dissipation of ignorance, superstition, and prejudice.'[321]

According to Cuno, the universal museum had a global outlook that was reinforced by the words in the 'Declaration on the Importance and Value of Universal Museums.' Those institutions 'serve not just citizens of one nation but the people of every nation.'[322] The project of these large national museums of Europe focused on 'symbolizing a nation united under supposedly universal values.'[323] The collection was regarded as part of the national heritage and was preserved for all mankind.[324]

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[321] James Cuno. 'View of the Universal Museum,' in *Imperialism, Art, and Restitution*, ed. by John Henry Merryman. New York: Cambridge University Press, 2006, p. 32.

[322] Declaration. See the Appendix C.

[323] Carol Duncan. *Civilizing Rituals: Inside Public Art Museums*. London: Routledge, 1995, p. 47.

[324] James Clifford. *Routes: Travel and Translation in the Late Twentieth Century*. Cambridge, MA: Harvard University Press, 1997, p. 121.

Peter-Klaus Schuster, General Director of the State Museums, explained that the museum represented and strengthened the concept of world heritage by accumulating of information source from around the world. He continued that these objects had often become known since they had been exhibited to a broad audience for hundred years in the universal museums.[325] Neil MacGregor, Director of the British Museum, expanded the discussion that the displaying of these objects in universal museums that need to see 'things.'

In this century, there are more progressive museum professionals with new visionaries. Tom Flynn puts them in two groups: first of them cultivate a vision of more intelligence, which is founded on collaboration, cooperation, and exchange rather than the encyclopedic collection, confrontation, and ownership. Many of the recent projects of new stress of cultural imperialism, are mobilized by some of the universal museums. Instead of claims for the return of the institutions, museum directors go to urge the developing countries to set up their own universal museums.[326] To this extent, if the museums can contribute to develop and communicate as a 'universal' on cultural values that achieved reliability and currency outside Western cultural elites, they will contribute invaluably to the global humanity.

Due to the uncertain economic conditions and increasing of the state-funded institutions, the future of the 'universal museum' can be changeable. To survive, the universal museum needs to reinvent itself in a rapidly globalizing world to reflect on its changing social function. This change does not mean that the engagement and education, as a primary task of the museum, is dissolved. Instead, the museum may have a new function: using an exchange of cultural material to contribute to the construction of global unity.

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[325] Peter-Klaus Schuster. 'The Treasures of World Culture in the Public Museum,' in *ICOM NEWS*, no. 1, 2004, p. 4.

[326] Flynn. op. cit., p. 40.

Finally, this chapter emphasizes the importance of the relationship between the knowledge classification and museum in architecture as a creative tool to reveal the position in the architectural discourse. In the 21st century, it could be interpreted that there are no utter and complete classification methods nor are museums bound by a single name unalterably. The contemporary museums are mostly trying to experience with various self-presentation designs, adopting different processes from each other, and the classification classes are being mixed and adapting new identity for altering contexts.

In the light of these shifting circumstances, this study traces the historical sources of Paul Otlet's idea of the 'universal museum' and questioned its relevance for the 21st century in this chapter. The recent statement by the museum directors is to be discussed to highlight the anomalies and ideological contradictions, as well as an alternative philosophical model for future museums, is investigated. This research is aimed at identifying and describing the characteristics of a (re)new museum category called the 'universal museum.' The methodologies used in this study are the document analyses of the Otlet's archive, 'Mundaneum.'

CHAPTER 5

CONCLUSION: THE 'ENCYCLOPEDIC MUSEUM' OF THE 21ST CENTURY

> 'From the Decimal Classification to documentation; from documentation to the organization of intellectual work; from intellectual work to universal civilization. To realize these: …committees, and institutions, and Bibliographical Repertory, and Mundaneum, and World Constitutions, and a new League of Nations and a World City.'[327]
>
> Paul Otlet

As stated above, Paul Otlet describes all the components of his concept of knowledge classification and conceives the act of documentation as a whole intellectual world that would integrate all branches of information, and uses the term 'universality' purposely as it relates to the accessibility of information without exception beyond to regionalism, nationalism, and internationalism. This thesis evaluates all the components of Otlet's archive in the architectural scope and the methods used in this archive to classify knowledge, mainly based on the analysis of architectural knowledge within the museum space. Otlet states that documentation is also suitable for communication, transmission, scientific evidence, and information advancement. Thus, documents of any type composed of texts or images shape the graphics memory of humanity, the written expression of civilization and the physical body of our knowledge. Presenting a unique classification system introduces documentation as a

[327] Letter from Paul Otlet to Donker Duvyis. Mundaneum Archive, Mons, Belgium, 3 April 1936.

systematic organization for all branches and all types of materials. This system classifies all types of human knowledge as a coherent scheme in which knowledge areas are interrelated and interconnected. In the context of knowledge classification, this scheme is interpreted as a groundbreaking system that allows for very extensive content indexing and information retrieval in comprehensive collections. To this extent, the concept of 'universality' includes everything in the world that is reflected in Otlet's thinking. To embody his organizational network, an extensive and comprehensive catalog produced on index cards is based on the complete information of the world.

The Universal Bibliographic Repertory is presented the 'Mundaneum' as a tool for the materialization of synthesis of ideas, universality of representation, and an ultimate space for education, and a microcosm of information. In Otletian thinking, the 'Mundaneum' is designed as both a physical archive and an intellectual process of the organization. That suggests architectural integrity, 'a unique entity,' which this dissertation proposes an in-depth analysis of its 'architecture.' In this context, the Mundaneum has been analyzed in different perspectives such as an architectural metaphor for organizing and disseminating global knowledge, a network, both a material and a virtual model for museum production. The Mundaneum has placed forward the representation of a concept, an idea, a method, a network, and an institution. Moreover, Otlet's vision has been used as a basis for developing, designing, and constructing a world city that included the creation of the world's knowledge network and human communities. The architecture of that network mainly helps to disseminate knowledge that is conventionally collected and displayed in the archive. Otlet proposes an architectural methodology for the classification of knowledge in different scales. Starting from index cards and evolving into museological institutions, he enables architects and urban planners to design a universal city. This thesis has explored the boundaries and the definitions of these institutions and the 'World City' designed by Modern Architects and Urban Planners. Thus, it is claimed in this study that its representations have highly related to the

globalization, colonization, internationalization, Modern Urban Architecture, urbanization, and, in particular, Modern Architecture.

The World City planning analyses are indicated to understand both the differences and typical characteristics of the utopian cities and their ideal architectural organizations. Therefore, these analytical projects demonstrate the uniqueness and powerful connection within the urban scale of knowledge classification. As a result of this examination, the discussion of the term 'centrality' of the early 20th century and its various implications have been developed. The purpose of the discussion of these applications is to display 'universality, globalism and internationality' as the ultimate hermeneutic tools for urban planning claim a task to become the center of 'memory and decision-making.' They were not precisely utopian futuristic projects, and they were 'memory collectors.' Ayşen Savaş mentions that while the early 20th centuries Modern Architects were preparing their projects 'towards a new architecture,' Otlet was designing a city to retrieve the 'memory' of all historical productions.[328] Therefore, it is not a coincidence, but an insightful interpretation to link Otlet's ideas to flexibility, internationalism, planning, zoning, rationality, and abstraction are read to highlight the primary principles of the CIAM meetings, and subsequently on the doctrines of Modern Architecture.

Furthermore, the use of several common concepts such as plan, analysis, classification, abstraction, standardization, and also synthesis outline the powerful relationships and interactions between architecture, its organization and its associated organization of knowledge. These relations are also crucial to understand the context of the 20th century and the correlation between architecture and scientific developments in infrastructural technology. Again, it is important the underline the fact that Otlet proposed an infrastructural system for the dissemination of information, but also public transportation experienced by the tram production enterprise of his father.

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[328] This idea emerged during the discussion with Ayşen Savaş.

Before the Modern Architects of the 20th century, he suggested a 'new' transport system for cities. Besides the design of the transportation infrastructure, he is mainly interested in architecture, in particular, Modern Architecture.

Acknowledging the visionary organizational imagination of Otlet, which makes him a unique figure, understanding the classification of any knowledge with its social, cultural, informational, political, economic and architectural dimensions, and constructing epistemological and methodological strategies are linked to architecture. His expression of the organization is found itself in applied projects, in many creative sketches and schemas, and his vision of a global network of knowledge institutions are centralized around the Mundaneum and the World City.

Within the research areas of documentation and information studies moving around the 'monde' of economy, industry, society, culture, science, architecture, and urban planning; the reality of knowledge classification has been extensively and severely criticized. These criticisms are useful for the historical assessment generated in this thesis to the extent that they introduce a framework within which it becomes possible to (re)consider the critical aspects of classification.

The significance of the 'idea' denoted by the classification of knowledge has altered throughout history for multiple purposes and under different circumstance, so this dissertation seeks to contribute to the historiography of this idea by investigating what it involves for Otlet, as he deals with the issue of classification in his work throughout his career. Although he is conscious of the ongoing significance of these previous types of organizations, Otlet's classification involves all types of knowledge without exception. He proposes an 'architectural complex' and all these processes for developing new concepts, ideas, and ambitions to design cities assist Otlet to discover an architectural definition for the term 'documentation' and the classification of architectural knowledge.

This study claims that the evaluations of Otlet's theoretical and practical framework are crucial in order to understand their artistic value in a particular architectural discourse. The informative tools of this dissertation are his substantive collection of documents, as well as his books, and articles collected in the Mundaneum. In particular, the use of visual language and concepts help him to reveal his 'utopic' ideas, which were embedded in the reality of their time and coincide with the dreams of a specific moment. These visual representations, in particular, are rendered Otlet's work as an interesting entry into the history of architectural utopias. That is why Otlet's World City constitutes the main body of this thesis to trace the history of universalism at the beginning of the 20th century. It has explored the differences and continuities between his universalist vision of the 20th century and the universalistic tendencies of the 21st century. To understand the limits, dimensions, and necessities of the universality, Otlet gives privilege to three related museological institutions: the museum, the library, and the university. In this sense, this thesis focuses on the universal idea of the 21st century to understand the current approaches in architecture, especially in museography.

In this thesis, the main focus is to appreciate the museum as an institution, as an archive of the objects and as a space for the documentation of knowledge. The Mundaneum provides an understanding to set the boundaries of an architectural 'archive.' As Michel Foucault states, an archive is neither the sum of all the texts preserved by culture nor the institutions that permit the preservation of the record. Instead, the architectural archive is a 'system of statements' that depicts the 'rules of practice' that shapes the specific regularities of what can and cannot be said.[329] Thus, the archive of Otlet helps to comprehend the classification practice by shaping the particular regularities of an era. This dissertation reconstructs the classification of

[329] Foucault. op. cit., p. 134.

knowledge framework developed by Otlet for the examination of its architecture and the method of the evaluation, particularly applicable for/in the museum architecture.

Otlet's archive has been interpreted as a representation of an encyclopedic museum which reveals the significance of 'object as document' in the knowledge organization and its historical legacy. To this extent, K. Michael Buckland's 'information-as-thing' is used as a tool for challenging the dialectical relationship between the museum objects and their information characteristics. This dissertation asserts that the 'museum as a document' combines the concepts of 'object as document' and 'information-as-thing.'

Due to its significance in the dissemination of knowledge, the museum has been understood as a document throughout this research. Thus, universal knowledge of the museum is claimed to have a great dialectical relationship with documentation and classification, especially, the classification of the museum itself. This vital interrelationship is necessary to understand the boundaries, definitions, spatial characteristics of the encyclopedic museum as well as the classification of knowledge.

Therefore, one of the outcomes of this study is an introduction to another type of museum into the already established museological classifications. In Otletian terms, the 'encyclopedic museum' as an old/new type requires to be reintegrated into the epistemological discourse of museology. In the 21st century, the encyclopedic museum has to be unveiled. The expansion of the idea of 'encyclopedic museum' has much more to do with the accessibility of knowledge represented within the museum context. Today, the patriation of cultural heritage can be interpreted as irrelevant because it cannot serve only the citizens of one nation, but the individuals of each nation. There is a conflict between preserving Enlightenment values in conservative but worthy institutions and promoting contemporary political agendas and nationalistic efforts to rewrite history in the light of the 'Declaration on the Importance and Value of Universal Museums.'

The encyclopedic museum is a modern institution, originating from early Modern Europe's intellectual ferment. The creators of this institution were Enlightenment figures, interested in the promise rational investigation, and strongly skeptical of truths that have been obtained and unverified. The early version of this museum had been interpreted as a multicultural urban center with a varied and rapidly growing population and disputed culture of discussion and written debate, contrary to bias and dogmas suspect of received truths and the knowledge specialization, assured in the commitment of research, particularly, the collecting, classifying and cataloging the world. This museum was an institution of Enlightenment in every aspect, like the encyclopedia itself dedicated to collecting the many natural specimens and the cultures of the world for both skeptical and scientific.

The encyclopedic museum constructs its collections to represent the cultural heritage of the world and provides adequately comprehensive information groups to deduce truths. This museum holds to the concept of universal access to information, and it is assumed that knowledge will change. It is the unique representation of knowledge since different visitors ask various questions of the same objects in its collections. By doing so, it helps to promote investigation and tolerance of difference itself. As a public space, this institution exhibits an encyclopedic collection that contributes to the formation of a shared civic identity among multiethnic population. It opens one up to a higher appreciation of an anticipated unity among the world's different cultures and peoples. Thus, it displays representative examples of the world's culture, promotes tolerance, encourages understanding of difference, enables communication with others, maintains a shared history, and recognizes that a shared future is at risk.

In reality, the encyclopedic museum is not a state instrument, but rather an assertion against an essential, state-derived cultural heritage in favor of a universal one that recognizes and proves the reality of society. This museum has never acknowledged political boundaries, but it has always been hybrid and dynamic, formed through interaction, communication, exchange, and connection between different nationalities,

cultures, groups, and races. It has to be democratic, multicultural and multiethnic institutions, and it must encourage identification with others in the world, a collective sense of being human, have a shared history, with a shared future, in an age of nationalism resurgence and sectarian violence.

The aim of the Encyclopedic Museum is to collect, identify, classify, catalog and display facts about the universe; to investigate unverified truths and rejects biases and dogmas; to retain belief in individual agencies; to maintain links between arts and sciences so as to be 'objective' and 'scientific' by definition; and to be confident in the promise of intellectual analysis to contribute to the truths about the universe for the benefit of humankind. Furthermore, this institution supports the visitor's agency, allowing the visitor to ask his/her interests and be questioned, surprised and motivated by what captures his/her eye and encourages the visitor to ask about a specific work of 'thing' — why it looks like it does, how it could have been done, where and who, moreover, what objective, it could have also had significance for the first individuals who saw it, and for all those who eventually got in touch with it when they entered the museum's collection.

The encyclopedic museum is a non-national institution dedicated to the idea that, by collecting and displaying the representative examples of the various cultural societies of the world within the same architectural space, it functions to the disappearance of the superstition and ignorance of the world; and encourages the appreciation of differences themselves. Therefore, it offers the most significant opportunity to consider the relationship between cultural artifacts and thus maintains promise as a way to complicate simplistic concepts of social and cultural essentialism.

In the 21st century, the idea of being encyclopedic museum has four common characteristics: the first is related with diverse and universal knowledge which means that it comes from every region of the world, in every form, size, and shape. The meaning of the encyclopedic order cannot be restricted by place, nation, language, or

time. The second is that knowledge of this museum must be systematically organized and represented, which is quite contrary to the old cabinets of curiosity. The third is public access without exception since these institutions transcend national boundaries and represent a non-national state. The last one concerns the education of all those who have joined this institution.

In this century, the encyclopedic museum has been designed to allow visitors to adapt different interpretive systems to the objects and to encourage the idea that they can be associated with a multiplicity of comprehensible conceptual and educational schemes. This characteristic is undoubtedly one of the reasons behind the recreation of architectural space of the Enlightenment; the encyclopedic museum encourages visitors to relate the objects to various classifications which are relevant for themselves, and not only to the organization suggested by the museum.

In conclusion, this thesis intends to motivate more profound and critically concerned architectural studies in the design of the city to comprehend the classification of knowledge within the architectural domain in the development of the 'World City.' A particular merit of this thesis is the representation of how acclaimed architects and urban planners deal with the issue of classification of knowledge, when given the same context, and how they define their understanding of classification within the framework of the city, especially on the scale of the museum.

Concerning these arguments regarding the museum as an institution, the conclusions can be reached: it has continuously redefined both the objects as well as the museum itself as a source of classification of knowledge. Accordingly, universal knowledge has a great dialectical relationship with its documentation and classification, primarily the encyclopedic museum itself as a separate category of the museum in 'alphabetic order.' In Otletian term, it is a representation of the documentary encyclopedia in a spatial layout. As an architectural entity, its objective is to frame our understanding of the role of museum architecture and its related classification of knowledge.

The aim of this thesis, however, is not to legitimize the existence of the patriation of cultural heritage since the objects of these museums cannot represent just one nation's citizens, but every other nation's individuals. These spatialized and also specialized institutions are capable of providing a universal knowledge for all humanity since no culture of any consequence is free of influences from other cultures and societies; thus, it is not separable. Therefore, the encyclopedic museum unifies knowledge of our shared past, so the future should accept the growth of these museums all over the world. This museum, acting as a mediator, has the ability to promote knowledge and its classification that integrates its practical and theoretical dimensions.

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APPENDICES

A. The Architectural Organization of the 'Palais Mondial'

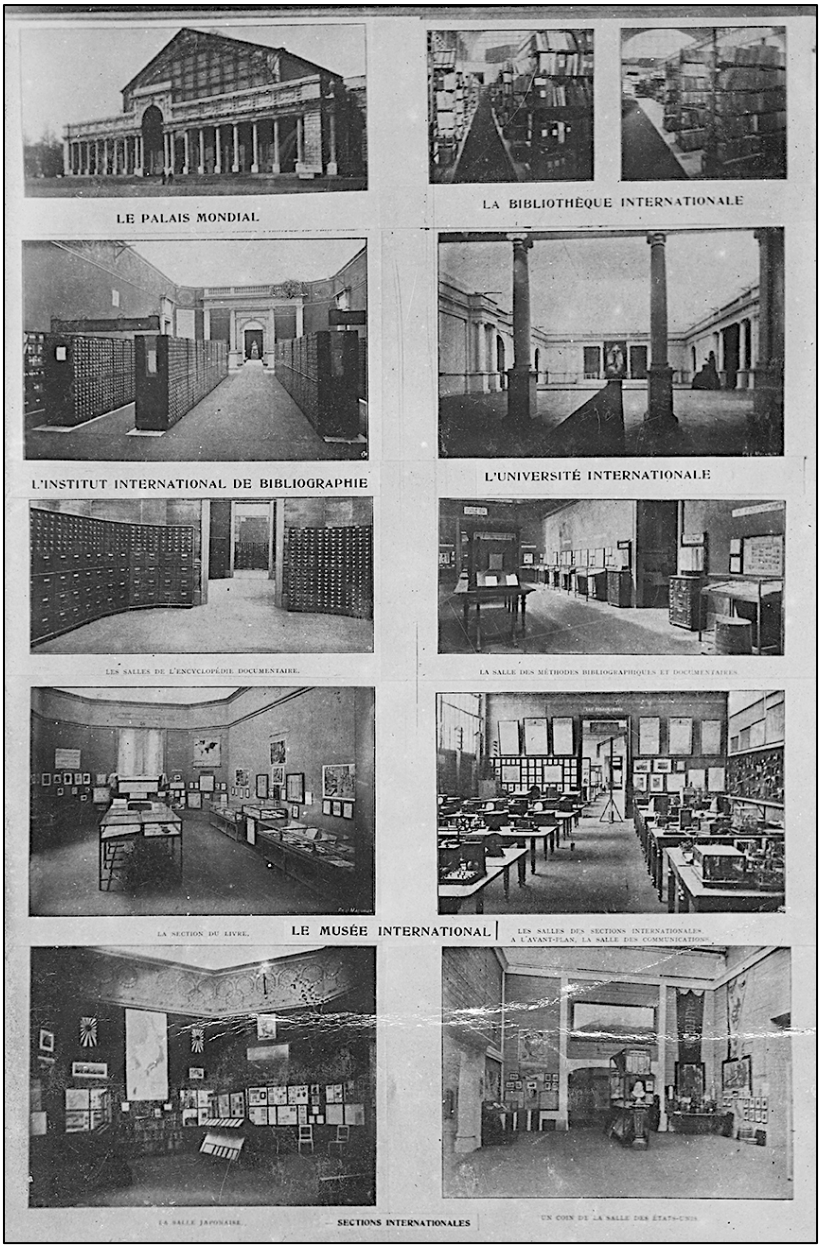

Figure A The Architectural Organization of the 'Palais Mondial'[330]

[330] Mundaneum, October, 2017, Paul Otlet's personal archive in Mundaneum, Mons, Belgium.

B. A Letter from Paul Otlet to Le Corbusier about The Program of The Congress at La Sarraz (CIAM)

My dear friend,

I congratulate you on your Congress for Modern Architecture. I have just read the brochure. It is profound, simple, clear, broadly linked to the international social movement.

Here and there, I should like to see certain theories completed and 'elevated.' For it is a good idea to formulate in this way, by connecting and grouping distinct points, the overall complex of facts and ideas which should be at the foundation of a movement, an organization, an action: the theories.

(Question 6). I should like to see it entitled: 'Relations between Society, Public Authorities and, Architecture.' Society is the ensemble, both official and unofficial. One of the great problems today is to set forth and define the role of free social agencies, distinct from both individuals and the authorities.

What you say under Question 1,6 on architecture, should be stated more prominently, not as an argument but as a principle.

Every modern construction is based on a framework (iron or concrete) which, being independent and static, allows the standardization of its elements (industrialization) and, being independent of the floor plan of the building, leaves that plan entirely free and classifies the successive steps in the building's construction.

Now we need two things:

1. A rational arrangement of all available space.

2. A perceptible harmonization of all that is visible. Upon whom is this double task incumbent?

Upon architecture. Since it has already raised itself spontaneously to the level of 'City Planning,' let it prepare to accept this double mission. For the need is there, and no one claims to satisfy it completely.

Space on this planet is becoming scarce: it cannot be wasted. Space is not only geometrical: every point in space exercises a multiple influence, for it is or is not occupied by something which does have physical, biological, human properties. Space saving (an indirectly active element, and not by any means a passive or a neutral one) is thus of the utmost importance, both quantitatively and qualitatively.

From now on architecture has two sides: interior (living, place of work, room inside, even the clothes closet and the piece of furniture) and exterior (the street, the city). The common principle of architecture, which in no way limits it, must be made clear: to be the organization of space.

And through an ordered space, the supreme mission of architecture is to watch over all visible ensembles, whatever they may be.

Go down the list of those who could assume these two functions. There is no one. Neither the engineer, specialized in the technique of using energies and transforming matter; nor the artists of color, line and form, who have a particular and individualized goal and not a complex, general one: art is subordinated, then, to architecture.

The word economy can be taken in its narrow sense, synonymous with economics; and in its broad sense, synonymous with organization. This second sense must be reaffirmed everywhere, in everything.

The body of executive workers must be organized and all the intellectual branches of technique, but also the goals (or works, or functions).

What goals, what works?

A: Architecture is not fulfilling its mission as long as it has not provided a roof (tectum) for all that should be sheltered: men, things, actions. In this sense it should concern itself with collective services, with the agglomerations.

You complain rightly, that 'clients generally express their wishes very badly.' This statement itself is incomplete (Question 5). Who, in society, should be concerned with and responsible for providing the ‘tectum’? Private individuals, associations, public authorities. But there should be one main authority to formulate and maintain, demand and recommend the social plan in this field. And that is architecture.

First there must be a statement of the minimum of tectum per individual and per household, in terms of: a) the present degree of culture of the population in the twentieth century and its rational and legitimate needs; b) then, the degree of technical possibilities of the most advanced technique; c) finally, the degree of economic possibilities (power of consumption, potentiality of consumption).

B: Next, the minimum number of urbs must be determined (Question 4). Agglomerations, products of chance, should be transformed into urban centers, products of conscious and rational will. Architecture should determine the minimum of city planning: relations between built-up and free areas and volumes, between areas and volumes reserved to private individuals, to groups, to official departments; enumeration of the services, edifices and roads constituting a minimum. The whole calculable, in terms of balance sheet and profit, hence responsible terms; concrete points toward which particular progress and progress in general will tend, with coefficients that should be modified to correlate with progress itself; architecture (organized on a world-wide basis and possessing comparative data on tendencies and latent potential) periodically revising the terms. Architecture 'Guardian of Progress' in this field.

Very good. Bravo to what you say.

Stress it still more. Genuine organization of intellectual labor should go right to the heart of the question. All that the Institut de Paris (Coopération Intellectuelle) has done so far is on the surface.

Every science should have its own international association, and it is up to this association, as you maintain, to organize that science.

A distinction must be made between the interests of science and, next to them, those of the social function and, thirdly, those of men who teach a profession (protection, rights, economic and union defense).

These three orders of interest have been confused; they must be made distinct, equipped with distinct agencies; then they must be brought to cooperate in a single organization.

Now, in every field, the organization of science should be thorough: the data should include 'research and inventions,' synthesis and systematic arrangement, documentation (registration, preservation), dissemination (publication, demonstration), teaching, methods, villages and townships- (unification), etc. All this is what the ' Associations Internationales' have done or should do, their relations with a Center of Centers, the Mundaneum.

Excellent theories. Let us broaden them by the idea that adults need a systematic initiation. I am sending you my reports on Universalist teaching and the didactic material. There should be an 'Architecture' section in the general encyclopedia.

I have let myself go presenting these few remarks to you informally. Your subject is enthralling. Since you are going to found something, do not hesitate to lay the foundations for something huge, no matter how huge your first plan may already be.

'Architecture is the basis of social equilibrium,' you say.

Yes; and what is more:

The twentieth century is called upon to build a whole new civilization. From efficiency to efficiency, from rationalization to rationalization, it must so raise itself that it reaches total efficiency and total rationalization. The question is not so much to balance what is, as to construct what is called upon to be. Architecture is one of the bases not only of reconstruction (the deforming and skimpy name given to the whole of postwar activities) but of the intellectual and social construction to which our era should dare to lay claim.

With my best wishes,

Paul OTLET.

C. The Declaration on The Importance and Value of Universal Museums

The international museum community shares the conviction that illegal traffic in archaeological, artistic, and ethnic objects must be firmly discouraged. We should, however, recognize that objects acquired in earlier times must be viewed in the light of different sensitivities and values, reflective of that earlier era. The objects and monumental works that were installed decades and even centuries ago in museums throughout Europe and America were acquired under conditions that are not comparable with current ones.

Over time, objects so acquired - whether by purchase, gift, or partage -have become part of the museums that have cared for them, and by extension part of the heritage of the nations which house them. Today we are especially sensitive to the subject of a work's original context, but we should not lose sight of the fact that museums too provide a valid and valuable context for objects that were long ago displaced from their original source.

The universal admiration for ancient civilizations would not be so deeply established today were it not for the influence exercised by the artifacts of these cultures, widely available to an international public in major museums. Indeed, the sculpture of classical Greece, to take but one example, is an excellent illustration of this point and of the importance of public collecting. The centuries-long history of appreciation of Greek art began in antiquity, was renewed in Renaissance Italy, and subsequently spread through the rest of Europe and to the Americas. Its accession into the collections of public museums throughout the world marked the significance of Greek sculpture for mankind as a whole and its enduring value for the contemporary world. Moreover, the distinctly Greek aesthetic of these works appears all the more strongly as the result of their being seen and studied in direct proximity to products of other great civilizations.

Calls to repatriate objects that have belonged to museum collections for many years have become an important issue for museums. Although each case has to be judged individually, we should acknowledge that museums serve not just the citizens of one nation but the people of every nation. Museums are agents in the development of culture, whose mission is to foster knowledge by a continuous process of reinterpretation. Each object contributes to that process. To narrow the focus of museums whose collections are diverse and multifaceted would therefore be a disservice to all visitors.

Signed by the Directors of:

The Art Institute of Chicago; Bavarian State Museum, Munich (Alte Pinakothek, Neue Pinakothek); State Museums, Berlin; Cleveland Museum of Art; J. Paul Getty Museum, Los Angeles; Solomon R. Guggenheim Museum, New York; Los Angeles County Museum of Art; Louvre Museum, Paris; The Metropolitan Museum of Art, New York; The Museum of Fine Arts, Boston; The Museum of Modern Art, New York; Opificio delle Pietre Dure, Florence; Philadelphia Museum of Art; Prado Museum, Madrid; Rijksmuseum, Amsterdam; State Hermitage Museum, St. Petersburg; Thyssen-Bornemisza Museum, Madrid; Whitney Museum of American Art, New York; The British Museum.

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Thesis

July 2019	Tunçbilek, Gonca Z. 'A Spatial Encyclopedia: The Architecture of Paul Otlet's Archive,' Unpublished Ph.D. Thesis, METU, 2019. Supervisor: Prof. Dr. Ayşen Savaş
September 2013	Tunçbilek, Gonca Z. 'Temporary Architecture: The Serpentine Gallery Pavilions,' Unpublished Master Thesis, METU, 2013. Supervisor: Prof. Dr. Ayşen Savaş

Chapter in a Book

2012	'Leke (Stain)', Ankara.Kent.Atlası (Ankara.City.Atlas), Ed. G. A. Sargın. Ankara: TMMOB Mimarlar Odası Ankara Şubesi. pp. 38-63.

Full Paper in Conference Proceedings

2014	'Temporary Architecture,' Conference Presentation and Proceedings, the 2nd ICAUD International Conference in Architecture and Urban Design by Epoka University, Albenia.
2016	'Transformation of Exposition Space at an Urban Scale,' The 17th International Planning History Society Conference (IPHS), TU Delft, Netherland.
2018	'Experimentation in Architecture: Pavilion Design,' ATINER 8th Annual International Conference on Architecture, Athens, Greece.

Projects

2011	'Smart-stitching,' METU Architectural Design Studios 2010-2011, pp. 178-179. (M. Arch-group project with M. Al, S. Binboğa, E. Coşkun, B. Erdal, F. Kimya, M. Pak, E. Balkanay)

RESEARCH INTERESTS

Experimentation in Architecture, Pavilion Design, Exposition, Exhibition, Display, Museology, Museum Architecture, Classification in Architecture, Archive Architecture.

HOBBIES

Pilates, Oil-painting, Music.