



# *World Brain and Mundaneum:* the ideas of Wells and Otlet concerning universal access

Georgina Araceli Torres-Vargas

*University Centre for Library Research,*

*National Autonomous University of Mexico, Mexico City, Mexico*

## Abstract

**Purpose** – The purpose of this paper is to discuss the characteristics of Wells' ideas and their differing from those of Otlet, starting from the premise that Otlet was a social scientist with a well-defined ideological perspective and that Wells was a writer who was recognised first and foremost for his science fiction novels, but who worked in a scientific context that provided him with a greater knowledge of the scientific innovations and expectations of his time, as demonstrated in his books.

**Design/methodology/approach** – The methodology that was used was the comparative and the hermeneutic methods. These ideas are compared in a context where the need to offer universal access to information is more and more frequently discussed. This paper is based on the idea that the works of Wells were independent and different from those of Otlet.

**Findings** – This analysis concludes that Wells's offers are different from those of Otlet.

**Originality/value** – This article highlights Wells's contributions for the conformation of a universal access to the digital information.

**Keywords** Knowledge management, Knowledge sharing, Information facilities, Innovation

**Paper type** Research paper

## Introduction

Universal access to information is a subject that has been approached by a range of authors from different perspectives, largely as a result of the prevailing social and political contexts in different periods.

With regard to attempts to put universal access into practice, one of the most classic examples was the library at Alexandria, which contained one of the largest collections of its time and whose achievements have yet to be equalled.

In the Middle Ages texts were deliberately kept out of the reach of most people, either through the restrictions placed on consulting the collections of that period or as a result of widespread illiteracy. During the Renaissance and the Enlightenment the view was taken that, although it was an impossible goal to make all written and printed material available to the scholar, it was feasible to provide access to the knowledge in these texts through bibliographies, especially universal bibliographies.

In our time, due to the appearance of modern information and communications technologies, universal access has begun to seem like a realisable goal; it has become common to reread the proposals of Otlet, who is considered a key author in order to understand this movement and to establish guidelines, including the documentation and science of information, to allow a more important role for the members of these disciplines (Rayward, 1999). Sadly, scant attention has been paid to other ideas that may have a closer link to present-day phenomena such as the digital library; one



author who is infrequently discussed in our circles is H. G. Wells and his *World Brain* project.

For these reasons, this paper will discuss the characteristics of Wells' ideas and their differences with those of Otlet, starting from the premise that Otlet was a social scientist with a well-defined ideological perspective and that Wells was a writer who was recognised first and foremost for his science fiction novels, but who worked in a scientific context that provided him with a greater knowledge of the scientific innovations and expectations of his time, as demonstrated in his books. These ideas are compared in a context where the need to offer universal access to information is more and more frequently discussed.

A first step toward analyzing the subject of *World Brain* and Otlet's *Mundaneum* was taken by Rayward although, as he himself recognises, his basic premise was that Otlet had influenced Wells' ideas. This paper is based on the idea that the works of Wells were independent and different from those of Otlet.

### **1. The ideas of H.G. Wells: the *World Brain* and the World Encyclopaedia**

Herbert George Wells (1866-1946) was an English writer. He studied biology at London University, and graduated in 1890. His scientific knowledge gave rise to the fantasies that he narrates in his numerous science fiction books, such as *The Time Machine* (1895), *The Invisible Man* (1897) and *The War of the Worlds* (1898).

In 1920 he attempted to record the history of the world in the book *Outline of History*. His article "The idea of a permanent world encyclopaedia" (1937) was published in the *Encyclopédie Française* and in the compilation entitled *World Brain*, where he also included other essays on education and information retrieval. These are, in general terms, some of the most relevant details of Wells' life.

In his book *World Brain*, first edited in 1938, Wells presented a compilation of five essays and five articles, which together put forward a method for reconciling liberties and sustainable initiatives with sophisticated social organisation. For the author, this reconciliation could be achieved by implementing a mechanism that would allow for a more effective use of the human intelligence generated around the world (Wells, 1999, p. xv). He relates his theories to biology, specifically to the matter of the adaptation of living beings.

One of Wells' preoccupations was that despite the fact that man is gifted with the ability to learn from the experience of previous generations, he often makes decisions as if it were the first time that a similar situation were being faced, without taking into consideration the events on previous occasions. This was due, in his opinion, to the need for an organisation that would bring together the range of human intelligence that was spread out around the globe. In order to construct his *World Brain* he established a series of ideas and tasks, including the creation of a world encyclopaedia.

#### *World Encyclopaedia*

Wells tried to establish the ideal scheme for the reorganisation and reorientation of education and information around the world. On this basis, he proposed what he called the World Encyclopaedia (Wells, 1999, p. 19).

For him, the World Encyclopaedia could help – at school or in the library – to clarify language, search for data, provide us with social rules and concepts and show us particular aspects of all fields of knowledge accurately and in detail. It would also

present a general history of the world and would constitute a complete reference system for the primary sources of knowledge.

In order to achieve this, he was of the opinion that the modern encyclopaedia should be composed of selections, extracts and notes chosen by the authorities in each field, which should be appropriately arranged and critically presented. The encyclopaedia should not be a mere miscellany, but a concentration, clarification and synthesis of knowledge. Consequently, the World Encyclopaedia should be a summary of all the human knowledge in the world (Wells, 1999, p. 20), which would be subject to continual revision, elaboration and modification by the most important thinkers. As a result, research institutions would play a central role.

Collaboration between such institutions could give way to the organisation of a range of departments or groups of authorities specialising in each field, to reflect the body of knowledge in their respective areas of expertise. Wells considered the feasibility of creating a kind of specialised bibliography. The following step would then have been to bring these bibliographies together in order to edit the World Encyclopaedia.

The different documents relating to each field of knowledge could be organised in a way similar to a nervous system, as a network created by all the most celebrated intellectuals with the common goal of constructing a far-reaching means of information (Wells, 1999, p. 33).

Up to this point, Wells had envisaged processes that, while complex, could be achieved with good organisation. The thorniest issues were who would edit this enormous reference work and what language it would be published in. One of the risks identified by Wells was the publication of the World Encyclopaedia by a commercial publisher, with overriding financial interests.

For Wells (1999, pp. 26-7), the creation of a world encyclopaedia would essentially require collaboration between universities, educational organisations and other institutions dedicated to the pursuit of knowledge, which in turn would lead to the creation of a world brain.

### World Brain

Wells based his notions on the assumption that universities are at the heart of constant, momentous changes that often have social and political implications for nations. He also recognised that these nations sometimes kept information to themselves, as this gave them advantages or power over others.

Wells' concept of encyclopaedism was that it was an organism that should constantly be recreated and would allow the development of effective intellectual cooperation and productivity, which could have repercussions on the development of nations. In his opinion, a worldwide network of universities that fostered human intelligence would contribute to the advancement of humanity as a whole.

Wells claimed that the encyclopaedia should be organised in such a way that it did not depend on a single location, but was a kind of network. It could be mentally centralised, but not physically, and could therefore be duplicated. It would constitute a true world brain. There would be a need for two types of organisation within the world encyclopaedia: one dedicated to compiling information and another to distributing it.

The distribution side would be responsible for making human memory accessible to all of mankind (Wells, 1999, p. 87). One of the characteristics of the encyclopaedia was that it should be reproduced identically in Peru, China or anywhere else in the world.

## 2. The ideas of Paul Otlet: the *Mundaneum*

Paul Otlet is considered a paradigmatic author; nowadays, many of his ideas are taken as a starting point in order to understand the development of the notion of universal access in the twentieth century.

Otlet was born in Brussels on the 23 August 1868 (Arnau, 1995, p. 153). He was an advocate of the principles of positivism and evolution (Arnau, 1995, p. 154), and believed in the relativism of knowledge and the historical formation of concepts.

For many years he worked in collaboration with Henri La Fontaine, born in 1853 in Brussels. Together in 1893 they created the International Institute of Sociological Bibliography, which in 1894 changed its name to the International Office of Sociological Bibliography, Social Economy and Statistical Legislation. In 1895 it changed once again to the International Office of Bibliography (IOB) and at the same time the International Institute of Bibliography (IIB) was established; these institutions came to be identified and associated with one another, and were often confused.

In addition to his efforts to create bibliographical institutions like those mentioned above, Otlet also wrote such important works as his *Traité de Documentation*, the masterpiece he published in 1934, which has been described by Rayward (1990) as a masterly exercise in synthesis, the first modern, systematic discussion of the general problems of organising information and one of the first manuals of information science.

This essay formally coined the term “documentation” to refer to the discipline involving the storage and retrieval of information.

The *Treatise on Documentation* represents the culmination of a lifetime of analysis, begun by Otlet 40 years previously with *Something about Bibliography* where he discussed the problems inherent in creating new systems, and improvising with existing ones, to organise human knowledge.

Paul Otlet died in 1944, one year after Henri La Fontaine, leaving behind him a valuable legacy that is still relevant to this day in the field of documentation; it is indisputable that Otlet, in the ideas he developed, created an important body of knowledge that reflects a series of notions relating to the universality of information. One of his most considerable contributions is the *Mundaneum*.

### Mundaneum

In 1924 Otlet put forward his most ambitious project. He called it the *Mundaneum*, and it was a materialisation of synthesis, universality and education, or a microcosm of knowledge (Rayward, 1990, p. 162). According to Otlet, a concept of internationalism such as that postulated after the First World War needed a rationally organised international centre; that was the mission of the *Mundaneum*, an architectural project conceived by Otlet and designed by Le Corbusier.

To study the structure of the *Mundaneum* is to study how Otlet perceived the centralism and monumentalism of his international information organisation. However, despite the fact that Otlet continues to exert an influence on the development of an international perspective in the fields of documentation and information science, historical events have created new ways of organising the international arena, which currently resemble the international network envisaged by Otlet in his monumental *Mundaneum*. In an environment of virtual networks the international arena is increasingly intangible, but at that time there was still a long way to go for this environment to come into being and the notions of monumental centralised structures and an international network were closely linked. It is for this

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reason that it is necessary to analyse Otlet within his historical context, to see how he relates his internationalist worldview with his monumental project (RiOUSsette, 1997, p. 301).

According to Otlet, human beings had reached a state of international interdependence (RiOUSsette, 1997, p. 303). That idea arose from a kind of sociological determinism[1], because, like many researchers of his time, he envisioned the different sectors of society as if they were parts of a biological body. He considered solidarity among nations as essential, as he took the catastrophic view that international interdependence was leading to chaos, and it was therefore necessary to organise it rationally, with an emphasis on information; in order to achieve this, international coordination was needed at several levels, with a firm basis in civil society. Consequently, it was necessary to try to prepare the masses and to convert them into active organs within a body of opinion, where they would cease to be passive. To this end, a worldwide information organisation was needed, and this formed the basis for the concept of the *Mundaneum*.

As part of this internationalisation, it was not sufficient merely to have international public opinion; another requirement was an international civil society, structured as a body of opinion, and for this reason an international documentation organisation was indispensable. If information was not organised in this way, international cooperation could not be effective (RiOUSsette, 1997, p. 302), and consequently centralism was a constant component in Otlet's scheme. He never saw this as a potential danger, as according to his vision all of the elements of human knowledge should be stored in a single place called the *Mundaneum*.

As soon as international associations converged at the *Mundaneum*, they would distribute their universal knowledge from this centre to affiliated peripheral subgroups at a regional or national level. Thanks to the centralised structure international associations would achieve greater spiritual power, and consequently the *Mundaneum* should strengthen its centralised nature. Significantly, Otlet does not mention intellectual or cultural power; he symbolically identifies the sphere of knowledge with spiritual power, perhaps – as suggested by C. Courtiau – due to his possible links with the freemasons[2]. This is also evident in the Otlet's enthusiasm for architectural structures that embody symbolic spiritual values, such as the project for an International Communication Centre edited by Andersen and Hebrard (RiOUSsette, 1997, p. 303).

According to C. Courtai, the pyramid structure of the International Museum designed by Le Corbusier is related to the religious architecture of the Mesopotamian Ziggurats, as depicted in the book by Andersen and Hebrard, which Otlet presented to Le Corbusier when he explained how he had conceived the *Mundaneum* project.

In Otlet's scheme, centralism and monumentalism were closely related, in that to attract all of the peripheral depositaries of knowledge, the centre should have a monumental architectural design. Otlet's ideas concerning the prestige of monuments as a means of enforcing spiritual authority over people are indisputable. Whereas in the Mesopotamian legend the Tower of Babel constitutes the first evidence of the sacred value of architecture, as it symbolises unity among human beings, in Otlet's scheme the common struggle of human beings towards universal knowledge is the sacred value that the architectural design must embody. His enormous building could be a cathedral, a pyramid or a tower; the important point was that spiritual edification should be based on a monumental architectural building.

In Otlet's project, the conquest of universal knowledge was the spiritual goal and the *Mundaneum* and the International City were the architectural monuments required to achieve that objective. Otlet describes his International City, his *Bibliopolis*, as a colossal book in which the architectural arrangements of buildings should be read in the same way that people read the stones of cathedrals in the Middle Ages.

In order to become a real focal point, the International City had to store all knowledge within a monumental architectural structure.

Paul Otlet conceived his Universal Bibliographic Repertoire (*Répertoire Bibliographique Universel* or RBU) as the ideal means to record everything that was produced around the world. In his view, the Universal Bibliographic Repertoire should constitute an inventory, classified according to subject and author, of all books and publications from all countries, from all periods and concerning all topics (RiOUSsette, 1997, p. 159).

The Repertoire was envisaged as a catalogue that would record and classify all intellectual output in such a way that it would include all works and all authors from all periods and all countries, of all types and from all subjects (Otlet, 1996, p. 405).

Otlet thought of the RBU as the sum of all personal bibliographies, and activities should therefore be divided into two levels: one national and the other international. National libraries would be responsible for drawing up a catalogue of the works of each country, and specialist international associations would assume the task of inputting information from the periodical publications pertaining to their field of specialisation. Thus, the bibliography, whose aim was to assist in identifying and organising source material, represented the first step towards a more general system of what could be referred to as document processing.

According to Otlet's plans, the first stage of the RBU would consist of the catalogues of works. However, he hoped that subsequently analytical notes could be appended to each entry. Simultaneously, he was also considering how it would possible to create, maintain and modify the institutional structure in order to compile, store, preserve, organise, retrieve and disseminate all the information recorded that was necessary for society.

Through the *Mundaneum*, Otlet longed to realise the dream of creating a world library which, according to him, would have:

- (1) *A symbolic value*. In that it would constitute a monument to books; in it, humanity would pay collective homage to the written word.
- (2) *A practical use*. Over the years it would become a centre of literature for research and investigation, and it would also safeguard copies of all the books in the world, in the single location around the globe that was most protected against war and revolution.
- (3) *The constitution of the world library*. The library would receive:
  - all official publications from all States and their governments;
  - all publications from scientific, educational and social bodies;
  - journals; and
  - the main newspapers.



### 3. Universal access

After examining the ideas of Otlet and Wells, it is necessary to take an overview of the context that surrounds universal access at the present time.

Universal access is one of the characteristics acquired by digital libraries as a result of ideas concerning the importance of extensive, unrestricted access, which gained strength following the advent of modern information and communications technologies. It could be said that the ultimate dream of the universality of information, which has been with us for centuries, has been taken up once more in today's more promising context.

Nonetheless, despite the prevailing technological environment, the goal of universality is still conceived in the specialist literature on digital resources as a single, huge library, such as the one established at Alexandria. This fails to recognise that in the context of the digital library, universal access cannot be envisaged in this way.

In the digital medium, universality is provided by networks of digital libraries around the world that are interconnected. These networks are formed by libraries which have very similar characteristics and objectives. The digital library is based on systems theory; it must not be forgotten that the idea of the digital library arose after the appearance of networks such as the internet, and these resources are therefore designed to be accessed using tools such as this. It is therefore logical to think that digital libraries have a systemic basis.

This notion is supported by authors such as Chen (1998, p. 19), who maintains that digital libraries should be information network systems that provide access to remotely located repositories of information.

The digital or virtual library is a network of technological tools, contents and services that may be located anywhere in the world. The accessibility that it offers depends on connections to computer networks, the availability of content and the computer programmes available on the market.

Content must also be digital, and a direct relationship is therefore established with digital publication and the factors associated with it[3]. As García Camarero and García Melero (2001) point out, the resources of the digital library will be collections of digitally stored publications, some created as digital documents and others converted to this format from printed texts.

For these reasons, in order to gain access to the collections of the digital library the user must have the appropriate technology at his or her disposal and must know how to use it, and the content (texts, images, data, etc.) must be accessible. The digital library is therefore susceptible to criticism from an economic standpoint, since in order to have all the necessary equipment, programmes and documents, the user is forced to enter into a technological market dynamic that is susceptible to certain factors of its own.

To return to the concept of universality, there is also a paradox evident in the notion of the digital library as a repository of all the documents ever produced, when a great deal of non-digital material, particularly printed, has yet to be included in this medium.

For this reason, since 1997-1998 some authors have been suggesting the idea of a so-called hybrid library, now also referred to as a complex library (Rowlands, 1999, p. 199). Its complexity is due to the fact that such a resource would be made up of materials of different natures grouped into little islands of meaning (Kruur, 1999, p. 139); consequently each group of materials would be represented according to its specific characteristics, but the relationships between groups would not be lost.

Given this situation, it can also be seen how the idea of the disappearance of printed texts, which was described in previous decades as an imminent scenario, has now been discarded. On the contrary, the increasing production of digital documents may give rise to a new environment where they coexist with printed texts.

As a consequence of the above, the digital library may be considered a medium for universal access to the digital documents published on the internet, but not for access to all publications. It must be recognised that in many of the projects currently under way a degree of universality is claimed as documents may be identified in public, online catalogues. This is another of the ideas translated into the modern context from a long time ago: the creation of universal repertoires as means of access, even if it is not possible to retrieve the complete text. The creation of online catalogues, therefore, does not imply universal access.

#### **4. Wells and Otlet on universal access**

There were many factors that conditioned the respective notions of Wells and Otlet in this regard. The idea of the *Mundaneum* was conceived in a Belgium that was the meeting point for a series of utopian social ideals whose aim was human progress, with the support of science. The World Brain, conversely, was situated in a more pragmatic context.

On the one hand is the English empiricist tradition, and on the other is the notion that the individual is a piece in the machine of humanity. Consequently, although technology makes society advance, individuals do not necessarily receive its benefits; a clear example of this is the harsh inequality created by the industrial revolution.

The schooling of the authors also affected their ideas. Otlet was educated as a lawyer, and his initial contact with bibliographies resulted from his need for information. It was not until later on that he perceived the need to create a cultural project that was more closely related to institutions like the British Museum.

Although Wells is better known for his literary works, his training as a biologist provided him with a vision that tended more towards teamwork, as well as affording him a special viewpoint on the constant development of science. As a result of this, his notion of the World Brain is more closely related to the concepts of electronic networks, digital documents and digital libraries.

The idea of the establishment of a universal bibliography is just one means to achieve the ultimate goal: the *Mundaneum*. The centralisation of knowledge in a monumental project was Otlet's principal objective – the *Mundaneum*: the image of a universal library that physically contains everything ever published throughout the entire world. This vast collection would be represented in the RBU, the enormous catalogue that would allow identification but not access.

In turn, the World Brain is conceived as a network where centralism is impossible. Collaboration is the key to integrating extracts from all the most representative documents (not of everything ever published), but also to access; considerable importance is given in this scheme to the fact that the distribution of the data collected in this world brain is via cooperation between several bodies, where universities play a fundamental role. This mirrors current trends in the creation of digital libraries, in that more and more academic digital libraries appear all the time (Rossman, 1993, p. 61).

The statement made is categorical: the World Brain should not be centralised. It is possible to centralise it “mentally”, but not physically. Although at the time Wells was alive the technologies that we have today did not exist, there is an approximation



between his ideas and the notion of a network like the internet. Perhaps today it would be possible to achieve “mental” centralisation using computer and telecommunications networks.

However, although his idea is an interesting one, at the present time the biggest limitation on Wells’ information system is still technology itself. Garfield (1984, p. 547) is of the opinion that a network like the one conceived by Wells would be ideal for creating the bibliographies, thesauruses and all other reference tools that require multiple, constant data updates.

As can be seen, the basis for Otlet’s system was documents, which would be physically obtained and stored in the *Mundaneum* for use by the researcher, whereas for Wells it was information intended for the researcher, to support investigative teamwork activities. The citations, extracts and the selection of the best works from each field would therefore offer a detailed panorama to the researcher, which would allow him or her to establish relationships when carrying out studies.

### Conclusions

Some of the correlations between both the World Brain and the *Mundaneum*, on the one hand, and the present-day concept of universal access, on the other, can be mentioned:

- Wells’ objective is not centralisation, but the extensive distribution of information. In addition, his ideas are not based on physical possession of documents, and it can therefore be observed that the World Brain is closely related to the universal access conceived today with the use of networks and other information and communications technologies.
- The *Mundaneum* relates to universal access from a more traditional perspective. Its goal of physically obtaining documents and preserving them in a single repository resembles projects that are as ancient as that of the library at Alexandria. In addition, the creation of a Universal Bibliographical Repertoire reflects the age-old dream of recording everything that has ever been published anywhere in the world.
- For Wells, both the World Encyclopaedia and the World Brain should remain in the hands of academics in each field, and as a result universities would be the perfect means to create them. Therefore, for the first time Wells placed emphasis on what we now refer to as academic networks. These networks play a leading role in the creation of digital libraries.
- When he claimed that the encyclopaedia organisation should not be tied to a single location but should be a type of network, Wells was close to the concept of the digital library where technology plays an important part. Consequently, the World Encyclopaedia is similar to a digital world encyclopaedia, which, among other things, may be constantly reconstituted.
- Finally it may be observed that although Otlet is one of the authors that is most frequently mentioned in connection with technological developments concerning information and communications (such as networks, digital libraries and digital documents, among others), there are also authors such as Wells who have been neglected despite the fact that their ideas are closely linked to current developments in the field of information.

## Notes

1. Sociological determinism prevailed among the first people to study society. This school of thought attempted to analyse society according to the precepts of the so-called hard sciences.
2. The beliefs of the masons were fashionable in French Intellectual circles, especially during the eighteenth and nineteenth centuries. It is therefore logical to assume that the work of Paul Otlet was influenced by these beliefs.
3. Including in particular commercialisation mechanisms.

## References

- Arnau, P. (1995), "Trascendencia de la vida y obra de Paul Otlet", *Revista General de Información y Documentación*, Vol. 5 No. 2.
- Chen, S.-S. (1998), *Digital Libraries: The Life Cycle of Information*, Better Earth, Columbia, SC.
- García Camarero, E. and García Melero, L.A. (2001), *La Biblioteca Digital*, Arcos, Madrid.
- Garfield, E. (1984), "'World Brain' or 'MEMEX'? Mechanical and intellectual requirements for universal bibliographic control", *Reprinted in Essays of an Information Scientist*, Vol. 6, ISI Press, Philadelphia, PA, pp. 540-7.
- Krur, M. (1999), "The internet and the revival of the myth of the universal library", *The Australian Library Journal*, Vol. 48 No. 2, pp. 137-47.
- Otlet, P. (1996), *Tratado de Documentación: el Libro Sobre el Libro*, trans. by Ayuso García, M.D., Universidad de Murcia, Murcia.
- Rayward, W.B. (1990), *International Organisation and Dissemination of Knowledge: Selected Essays of Paul Otlet*, translated and edited with an introduction by W.B. Rayward, Elsevier, Amsterdam.
- Rayward, W.B. (1999), "H.G. Wells's idea of a World Brain: a critical re-assessment", *Journal of the American Society for Information Science*, Vol. 50, May 15, pp. 557-79, available at: [www.lis.uiuc.edu/~rayward/Wells\\_Idea\\_of-World\\_Brain.htm](http://www.lis.uiuc.edu/~rayward/Wells_Idea_of-World_Brain.htm)
- Riousseau, I.P. (1997), "Otlet's *Mundaneum* and the international perspective in the history of documentation and information science", *Journal of the American Society for Information Science*, Vol. 48 No. 4.
- Rossmann, P. (1993), *The Emerging World-wide Electronic University: Information Age Global Higher Education*, Praeger, Westport, CT.
- Rowlands, I. (1999), "Digital libraries: a conceptual framework", *Libri*, Vol. 49 No. 4, pp. 192-202.
- Wells, H.G. (1999), *World Brain*, Ayer Company Publishers, North Stratford.