Paul Otlet, Le Centre Mondial (1913)
Archives Mundaneum (MDN),
Funds Encyclopaedia Universalis
Mundaneum [EUM]
Universalism as Utopia

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Abstract

On the basis of a case study – the utopia of a Universal Network of Documentation as conceived by the bibliographer and internationalist Paul Otlet (Brussels 1868-Brussels 1944) – this paper focuses on the spatial contradiction inherent in the claim of the universality of scientific knowledge which was common in the beginning of the twentieth century. Through an analysis of the spatial schemas drawn by Otlet in which he envisions a new system for the dissemination and organization of knowledge, this article aims to show the complex spatial nature of the epistemological claim of universalism in his time, which in current localist views on science tends to be excessively simplified.

Keywords: Universalism, Documentation, Paul Otlet, Network, Internationalism, Information

Introduction

‘[…] universal [is] that which is spread all over the world after having its origin in a particular place.’ [Otlet 1916, 156]

Within the field of science studies, the (historical) reality of scientific universalism has been firmly rejected. According to Sandra Harding, universalism within the field of science studies has become totally ‘dysfunctional’. [Harding 2003] The claim of science to universality can no longer be supported unless significant relativist, multiculturalist or contextualist insights on a scientific, epistemological or political level are abandoned. The attack on universalism has been long under way. Already in the 1960s, Brigitte Schröder-Gudehus showed the nationalist attitude of scientists in times of crisis, and not much later Jean-Jacques Salomon argued that science is circumscribed in political decisions and cannot escape national interests. [Schröder-Gudehus 1966] As Salomon puts it: ‘The universality of science appeals to the universal in humanity: science transcends the frontier created by historical accidents; it cannot associate itself with church or state since both of these incarnate the particularisms and divisions brought about by historical accident. Science, however, has become associated with the state, both because science needed the state and because the state could draw advantages from science.’ [Salomon 1971, 25]

Furthermore, in the 1970s, following the work of Ludwig Fleck, Michael Polanyi and Thomas Kuhn [Fleck et al. 1979], several studies showed that scientific truths could not be claimed to be universal, because they are relative to historical and local contingencies. [Barnes 1974; Bloor 1976; Shapin 1979] Since the 1980s many studies inspired by the sociology of scientific knowledge have given great attention to the places where science is practiced, and consequently these studies have dismissed the long-standing notion of science as inherently universal. [Latour and Woolgar 1979; Knorr-Cetina and Harré 1981; Hacking 1983; Cartwright 1983; Gilbert, and Mulkay 1984; Latour 1987; Callon and Latour 1991] In the anthology Science as Practice and Culture, Andrew Pickering, for example, stressed the move toward studying the acts of making that scientists perform and the field of resources that they draw upon in their work. [Pickering 1992] By focusing on labor processes (skills and social relations), material practices (machines and instruments), and the institutional framework, the universalism claim has been unmasked and instead science has been revealed to be a construction of localized assemblages of actors, human interests, instruments, things and social relations. [Rouse 1996]

More specifically, a so-called geographical turn in science studies has emerged which brought forth a series of studies that have addressed how knowledge is made in and transferred between specific places. By doing so these studies aimed to dismantle the universalist claim of science and to reveal instead its local situatedness. [Powell 2007] According to Steven Shapin, the geographical turn has made us understand that: ‘Science is indelibly marked by the local and the spatial circumstances of its making; that scientific knowledge is embodied, residing in people and in such material objects as books and instruments, and nowhere else; and, finally, that scientific knowledge is made by and through mundane – and locally varying – modes of social and cultural interaction. [Shapin 1998, 6]

In his book Putting Science in its Place, the ‘geographer of science’ David Livingstone studied how science is embodied in spatial location and how these locations enable and constrain the generation of
reaction against the once dominant claim that science is universal. In this discourse about the locus of scientific practice, universalism or the conviction that science is independent of the place where it is practiced, has become discredited. Nevertheless, there is no denial in these studies that universalism was once a powerful and influential rhetoric, especially in the field of scientific internationalism. Although the common view nowadays is that science is not universal in itself, there is little doubt that scientists in the past effectively considered their activities as universal.

Several studies exist that have addressed how scientists have viewed scientific universalism in particular periods and contexts. [Widmalm 1995] But what seems to be lacking within these studies is a perspective that shows how these idealist scientists or intellectuals imagined that their claim to universality would function spatially.

The case of Paul Otlet is particularly valuable for this purpose. Paul Otlet (Brussels 1868-Brussels 1944) was a Belgian intellectual, utopian internationalist and visionary theorist about knowledge organization. He conceived a complete utopia in which he imagined how an international and universal system of knowledge organization would function spatially. In a series of schemas he constructed universalism as a spatial system. On the basis of these visualizations, this paper analyzes Otlet’s dream of a Universal Network of Documentation and concurrently the spatial contradiction between universalism and internationalism.

Paul Otlet

Otlet started his career in 1890 after his law studies in the office of ‘le maître des maîtres’ Edmond Picard (1836-1924). Picard requested Otlet to undertake a bibliography of jurisprudence. Otlet collaborated for this purpose, with amongst others, Henri La Fontaine (1854-1943). La Fontaine was a Belgian senator, president of the International Peace Bureau (1907-43) and winner of the Nobel Prize for Peace in 1913. Otlet and La Fontaine would become lifelong colleagues and friends. In 1895 they founded their Office international de Bibliographie (OIB) and Institut International de Bibliographie (IIB). Through the OIB and IIB they made intensive propaganda for their Universal Decimal Classification or UDC-system for bibliography and documentation, and for the adoption of the standard American index card (7.5 x 12.5 cm) in libraries all over Europe. On the occasion of a world congress in 1910 in Brussels, Otlet, La Fontaine and Cyrille Van Overbergh founded the Union of International Associa-

tions (UIA). The UIA posed the problem of the international coordination of intellectual work and as such was one of the first platforms in history for discussing the politics of science on an international scale. In 1913 a second world congress of the UIA was held in Brussels and Ghent. During the same year, Otlet, Emile Vinck (1870-1950) and Paul Sainteny (1862-1952) founded the Union Internationale des Villes (International Union of Local Authorities). Otlet and La Fontaine were also influential in the movement that led to the creation of the League of Nations. In the field of architecture Otlet is especially known for his collaboration with Le Corbusier in creating plans for a Mundaneum, an international center for information, education and science in Geneva.

Today, Otlet is a well-known figure in the history of information science and has frequently been made trendy by journalists who depict him in contemporary terms as the forgotten forefather of search engines such as Google or of the World Wide Web. ‘Le Mundaneum. Google de Papier’ by Jean-Michel Dijan or ‘The Web Time Forgot’ by Alex Wright are two examples of recent articles that mythologize Otlet in this sense. [Djian 2009; Wright 2008] The information network he imagined, however, unlike the WWW, was centralized in a huge centre, which he called the Mundaneum, a sort of huge ‘database’ where all knowledge would be assembled, processed and distributed. An extension of his belief in universalism, Otlet believed that the distribution of universal knowledge would generate a universal civilization.

The Universal Bibliographic Repertory

From the beginnings of his career, when Otlet was chiefly occupied with the Universal Bibliographic Repertory (RBU), the relativity between the vision of an abstract space of universals on the one hand, and the concrete realization of an international cooperation between particular initiatives on the other hand, was present and would remain continuous. The RBU, as its name indicates, aspired to be universal, and to found its claim to universality, a massive operation was carried out on the basis of a standardized bibliographic method. Within the bibliographic method as outlined by the IIB, the application of the codes of the UDC system and the use of the standardized index card (including the furniture made to size) were of crucial importance. The UDC system was of crucial importance to Otlet and La Fontaine because, as a numeric system, it guaranteed the universal character of their bibliographic undertaking. Otlet and La Fontaine had agreed upon expanding and adapting the Dewey Decimal Classification (DDC) to the purpose of the RBU, because the DDC as a numeric system was universal, in the sense that it was independent of
particular linguistic determinations. As militant internationalists, they were keen on the metric system, a paragon of standardization and international cooperation. ‘The CGS system (centimeter, gram, second) continues on its way to universalization. The building of the exact sciences is based on the coordination of the measures of the three elements which constitute this system.’ [Otlet 1914, 7] Like the ‘CGS system’ the UDC would expedite universalization. ‘[The Decimal Classification] actually constitutes an international scientific language, a complete system for representing science which perhaps may bring help to intellectual workers analogous to that which they received from Latin in the Middle Ages and during the modern period.’ [Rayward 1990, 34]

On the basis of the standardization of classification codes, it became possible to standardize the procedure of classification carried out by the people contributing to the RBU. The bibliographers at work on the centralized catalogue in the offices of the OIB/IIB in Brussels carried with them the bible of bibliography, the Manual of the RBU (1905), which ensured that the RBU was constructed consistently. The Manual of the RBU also enabled scholars to conduct comprehensive bibliographical searches not only in Brussels, but by mailing their query in much the same manner that people today resort to online search engines of a distant bibliographic database. The bibliographic index cards of the RBU, falling under the particular reference that was asked for, would be copied and sent by post to the inquirer for 10 centimes a copy without postage being due. In its turn, the standardized bibliographic method enabled the exchange of bibliographic references between several collaborating bibliographic offices. The standardization enabled the OIB in Brussels to exchange bibliographic references with, for example the Bureau Bibliographique de Paris and the Concilium Bibliographicum in Zurich. The standardized units of the UDC and the systematic manipulation of the cards were thus not only a prerequisite for a stabilized execution of a bibliography but also for keeping the references fixed over long distances of travel, and for reassembling them successfully in another bibliographic office.

The Universal Bibliographic Repertory of Otlet and La Fontaine succeeded to be universal within a network, in the same way that the measurement of air temperature, for example, is able to travel from a distant weather station to a national meteorological station on the basis of the standardization of measurement units, instruments and methodical procedures of notation in tables. [Otlet 1934, 172-173] In this sense, the standardization of bibliographic classification was indeed an extension of the success of metrology during the nineteenth century. Metrology, which is the scientific organization of stable measurement and standards, actually achieved universality. However, it was not just the invention of the metric system for measurement that made it universal. Rather, these standards became ‘universal’ through the obligatory replacement of local ways of measuring by international standards, on the basis of economic, political and scientific interests. Similarly, the attempt to get the UDC accepted as widely as possible was a struggle from the time of its creation. Here, I refer only to the two major cases within this struggle at the moment of its origin:

First, nationally, the initiative by Otlet and La Fontaine acted counter to the proposition by Ferdinand Van der Haeghen (1830-1913) to create a Catalogue des catalogues. Van der Haeghen’s catalogue would be a union catalogue on cards, containing all catalogues of the main European libraries and gathered in one central Bureau international de bibliographie [International bureau of bibliography]. The collision between the initiative of Van der Haeghen and that of Otlet and La Fontaine, would be battled out in 1893 within and between the section of the Humanities and the Science section of the Royal Academy of Belgium – a discussion that was related to the different needs and priorities of both sections. [Schneiders 1982, 49] Van der Haeghen lost that battle and would continue to despise Otlet’s UDC system which he described as the ‘ridiculous decimal classification system that should not have passed the American border.’ [Uyttenhove and Van Peteghem 2008, 99] Second, internationally, the IIB clashed with the plan of the Royal Society in London to create an international bibliography for the pure and applied sciences. This prestigious bibliographic project was called the International Catalogue of Scientific Literature (ICSL) (1901-14) and would be based on international cooperation between national scientific institutions.

The struggle to get the UDC internationally accepted has remained an issue since its creation; for example, Henry Evelyn Bliss (1870-1955), trying to push forward his own classification system – still developed today as the BC2 – and to discredit the UDC, wrote some forty years after the creation of the UDC that: ‘The International Institute’s adoption of the Decimal Classification some 35 years ago, for the spurious reason that no better system was then available and because the decimal notation seemed very international, was the most discreditible event in “the historical situation” in which this problem has been immersed. There was nothing else international about the Dewey classification. It was intensely American, and it has remained so. Yet on this basis the International Institute [in Brussels] has elaborated an immense bibliographic undertaking, which would arrogate to be “standard” and “universal.”’ [Bliss 1935, 102]
Despite Bliss’s critique that the UDC was a particular cross-Atlantic initiative, the standardization of the UDC did achieve universality within its own communication network. The universalization of the UDC amounted to a defeat of one set of local practices by another, of forming alliances and winning battles in the international competition.

The Universal Network of Documentation

Gradually, Otlet made explicit the coupling of an abstract space of the UDC codes as universals on the one hand and the concrete space of an internal network of cooperation, in his utopian reflections about a Universal Network of Documentation. That utopia emerged and developed in parallel to his practice, notably in parallel to the institutional evolution and expansion of the International Institute of Bibliography (IIB) – since 1895 as a social network of members and institutions supporting the project of the RBU – into the International Federation of Documentation (FID) – an international organization representing documentalists and the discipline of documentation (founded in 1937). With the foundation of several new branches of the IIB (notably Dutch, British and German sections), the idea emerged of founding a federation of documentation centres.

Already in 1903, Otlet described how in every country a central library – imagined as a ‘universal library’ having the RBU as its catalogue – would function as a central ‘Institute of Documentation’ and how such central libraries would cooperate with the local and special libraries for the provision and circulation of ‘documents between the principal centre and all of the secondary centres no matter how far away they are.’ [Otlet 1903 as quoted in Rayward 1990, 80-82] The secondary centres would then become more and more ‘places for reading and consultation; though physically distant from the centre, they are organizationally a part of the central library.’ [Otlet 1903 as quoted in Rayward 1990, 82] Gradually, Otlet redefined his utopia and in 1925 he began to speak about a Universal Network of Documentation. Otlet often depicted the Universal Network of Documentation as a group of bars symbolizing the documentation centres, positioned on a series of concentric circles indicating the different scales on which the network was operative.

The Universal Network of Documentation was conceived by Otlet as a network of communication, of cooperation and of exchange between all kinds of documentation centres and libraries – university libraries, special libraries, or public libraries. It would connect the collections of all these libraries and documentation centres into one network which would facilitate a better provision of documents.

In the image Le catalogue collectif des bibliothèques (Figure 2) Otlet shows how difficult it often is for a person to find a book in the local bookstore or in the libraries nearby. Consequently, he had to consult piles of printed catalogues to find the reference and then contact (by telephone) several libraries far off – local, regional or national – to ask if they have the book he was looking for. To avoid those long and tiring journeys, Otlet proposed that each country should dispose of a national center which would keep ‘a general collective catalogue of libraries’, combining a bibliographic repertory and a national collective catalogue. [Otlet 1903 as quoted in Rayward 1990, 80] By contacting such a national center, the seeker would immediately be informed about the bibliographic references and where he could find the books themselves. Furthermore, Otlet envisioned a Universal Network of Documentation that in a first phase would connect all national centers to each other and in a second phase, by means of an international center, would fuse all national repertories and those of other ‘stations’ in a consultable international catalogue.

But the Universal Network of Documentation would be more than a world catalogue or a universal search engine. It would manage the transportation of the documents themselves, functioning as an intermediary between authors and readers. In the image Réseau universel de la documentation, Otlet draws an author who adds another book to the ‘enormous bowl of documentation.’ (Figure 3) Index cards sprout from the bottom of the bowl, registering the bibliographic references to the books that are being dropped in the bowl. Subsequently, the books and bibliographic references are disseminated through the ‘channels of distribution’, to the stations of the Universal Network of Documentation which are depicted as pyramids positioned on a floating spheroid cut in half. In a close-up of the interior of such a station of the network, Otlet shows us how the librarian retrieves the document in the documentary archives or the library, and delivers it to the reader seated at the table. As Otlet explains in the Traité de Documentation, those ‘stations’ of the Universal Network of Documentation could be libraries or documentation offices, but also bookshops. ‘In the conception of a universal Network of Documentation, each bookshop is integrated as a station linked permanently to the national centers and the World Centre of the Network. The bookshop, like the library, is the point of contact with the reader, with the public.’ [Otlet 1934, 278]

Otlet conceived the realization of such a Universal Network of Documentation in analogy with the networks of the post, railways and the press. According to Otlet, the communication between the different stations of the Universal Network of Documentation would be similar to ‘those three essential organs of modern life.
Otlet’s consideration about knitting together the local and the global through an institutional infrastructure, calls up Bruno Latour’s characterization of communication networks as ‘relative universals.’ Comparing communication networks to railway networks, Latour concludes that they are both at the same time local and global: ‘Is a railroad local or global? Neither. It is local at all points, since you always find sleepers and railroad workers, and you have stations and automatic ticket machines scattered along the way. Yet it is global, since it takes you from Madrid to Berlin or from Brest to Vladivostok. However, it is not universal enough to be able to take you just anywhere.’ [Latour and Porter 1993, 117]

Despite the fact that Otlet’s utopia overwhelms all relativism by an absolute universalism, it does expose that Universalism is a conquest of the particular imagined as a material and embodied endeavour. Like a network of railway lines, the Universal Network of Documentation would enable scientific data to travel across the world. Having in mind a total conquest of the Earth by the organizers of science, Otlet also evoked more futuristic means of communication. In the image Documentation et Télécommunication, a telephone, radio, record, film and television are listed as the instruments of telecommunication, opening up new paths for the field of documentation. (Figure 5)

Otlet puts these instruments in a whirligig, and asks himself which combinations would become imaginable in the near future. At the bottom, he thinks of a lecture or a conference recorded by a microphone, transmitted through the agency of a central broadcasting station to a certain number of listeners who have subscribed to telephone. But instead of one-way traffic, the technology of the telephone could also be deployed to organize meetings of a national or international character by long-distance calls. As Otlet shows in Documentation et Télécommunication (suite), members of such an assembly could talk and listen to each other by telephone, through a connecting device operated by a central office. (Figure 6) A more extreme situation even becomes imaginable (frame III) in which a congress is held for example in Brussels, while another group of members who are situated in Paris and in The Hague are able to follow the presentation of the lecturer on a wide-screen television.

At the bottom (frame VI) of the image, Otlet shows how he thought this new technology could be deployed for the use of the organization and dissemination of information. The central broadcasting station is replaced by the Mundaneum as the center of the Universal Network of Documentation. The Mundaneum is represented by an elongated warehouse containing all documentation ‘in a universal state’: the catalogues and the collections (books, films, discs, and objects). The collection is put on the operating table and undergoes two operations executed by machines operated by specialists. First the collection goes through an analysis by a cutting machine which resembles at the same time an automatic loom, operated by two men on the side. Second, during an operation of synthesis, brackets are placed by men working in the collection, and the original collection is reduced upwards in several steps to an ever smaller size. Once a request comes in at the Mundaneum, the files asked for are mechanically pulled out of the warehouse and delivered to the transmitter. A photographic projector converts the file into electric signals and launches them into the Universal Network. At the end of the wire, stations receive and reconvert the signals into information through a sort of television set. A graphic document, such as a book, would be ‘trans-televised’ to the inquirer (frame IV); an audible document, such as a record or film, ‘telephoned’ or broadcasted through radio [radio-fusée] (frame V).

Conclusion

The essence of the network was, according to Otlet, that each station of a network accepts its ‘regulations, standards, forms of cooperation and recommendations’. [Otlet 1934, 279] As in the case of the Universal Network of Documentation where all stations would be required to use and respect the universal language of the UDC, as Otlet explains, all networks should function on the basis of universals:

‘It is characteristic of a network to find the essential elements in all of its stations. Suppose that our great networks of railway lines would oblige its passengers to study the arrangement of each railway station before they could make an appeal to its services; what a complexity and what a loss of time. Suppose that the services of navigation, post, gas, electricity would do the same. The rhythm of our civilisation would be totally different and each new invention would make life more complex instead of simplifying it.’ [Otlet 1934, 278]

The network permeates concrete space, gathers the particular spots of participation, and introduces those regulations, standards and strategies that realize a condition of universality within the network. In reality, such a network distributes a multitude of inventions and strategies that make ‘intellectual work’ – a term Otlet uses as a broadening of science – more mobile; strategies such as the replication of equipment, the training of its users, the circulating of routine practices, and the standardization of methods and language. Scientific facts are turned into what Latour would call, ‘immutable mobiles’ that can be compared and com-
bined on a place far removed from that of the original observation; [Latour 1990] or as David Livingstone puts it, these networks of scientific communication enable scientists to gather information on distant shores and to transfer this information across the oceans to the home base [Livingstone 2003, 14]. As Otlet shows in his drawings, he can only imagine the worldwide dissemination of information through a ponderous, and therefore centralized, infrastructure and a coordination of human practices, in order to realize what Michel Serres has described as ‘pantopia’: the dream of having all the places of the world in one place or each place in all places. [Serres 1996, 130]

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