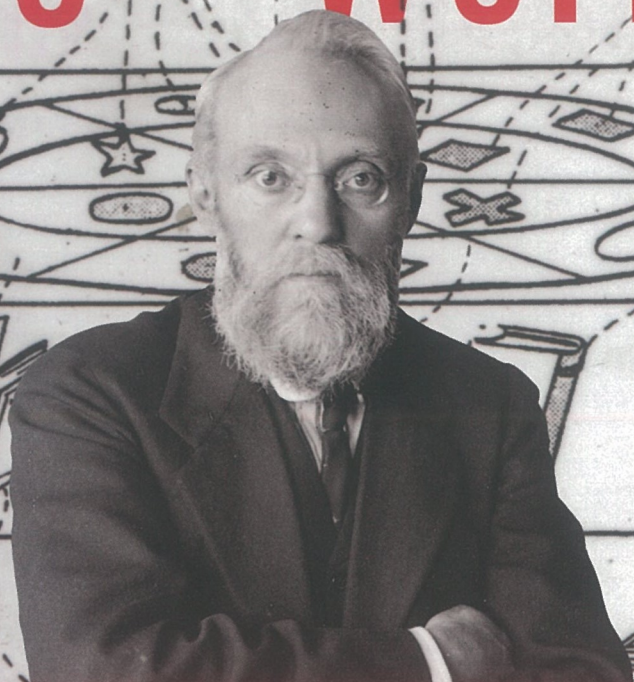# Cataloging
the World

Paul Otlet and the Birth of
the Information Age

Alex Wright

THE DREAM OF CAPTURING AND ORGANIZING KNOWLEDGE IS AS OLD AS HISTORY.

From the archives of ancient Sumeria and the Library of Alexandria to the Library of Congress and Wikipedia, humanity has wrestled with the problem of harnessing its intellectual output. The timeless quest for wisdom has been as much about information storage and retrieval as creative genius.

In *Cataloging the World*, Alex Wright introduces us to a figure who stands out in the long line of thinkers and idealists who devoted themselves to the task. Beginning in the late nineteenth century, Paul Otlet, a librarian by training, worked at expanding the potential of the catalog card, the world's first information chip. From there followed universal libraries and museums, connecting his native Belgium to the world by means of a vast intellectual enterprise that attempted to organize and code everything ever published. Forty years before the first personal computer and fifty years before the first browser, Otlet envisioned a network of "electric telescopes" that would allow people everywhere to search through books, newspapers, photographs, and recordings, all linked together in what he termed, in 1934, a *réseau mondial*—essentially, a worldwide web.

Otlet's life achievement was the construction of the Mundaneum—a mechanical collective brain that would house and disseminate everything ever committed to paper. Filled with analog machines such as telegraphs and sorters, the Mundaneum—what some have called a "Steampunk version of hypertext"—was the embodiment of Otlet's ambitions. It was also short-lived. By the time the Nazis, who were pilfering libraries across Europe to

CATALOGING THE WORLD

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To Maaike

*Arriving at each new city, the traveler finds again a past
of his that he did not know he had.*

—Italo Calvino

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CATALOGING THE WORLD

Introduction

When the Nazi library chief Hugo Krüss paid a visit to the Palais Mondial in Brussels's Parc du Cinquantenaire on December 4, 1940, he met a white-haired and frail-looking old man. The man's cheeks were hollowed, and his body seemed shrouded with age, but Krüss recognized him immediately as Paul Otlet.

The two men had met three years earlier, in Paris, at a scholarly conference. Then, they had come together as peers—Krüss, the powerful head of the Prussian State Library; and Otlet, the aging but still visionary information theorist and founder of the institute that organized the conference, where a parade of notable speakers (including Otlet, Krüss, and H.G. Wells) shared lofty visions of organizing the world's information.[1] Now, things had changed.

Krüss knew that Otlet had once been feted as a great man, keeping company with world leaders, Nobel laureates, and famous intellectuals. By 1940, however, he had lived long enough to see his fondest dreams undone, his reputation faded, and the country he loved conquered—twice. Now, he contented himself mostly with staying home, caring for his wife, remembering past glories, and nursing ancient vendettas. Nonetheless, faced with the representative of this second conquest, his views on certain subjects remained undimmed.

"He is a very old man with whom you can't talk about politics," wrote an unnamed Nazi apparatchik after an earlier meeting with Otlet on October 31, 1940. "He has peculiar fantasies about world peace."[2]

World peace was a distant dream. Europe was at war. Four months earlier, shortly after conquering Belgium on his way to France, Hitler had authorized a cultural task force to fan out across the occupied countries. Headed by his confidant Alfred Rosenberg—the recently appointed culture czar and author of a great deal of seminal and toxic Nazi philosophy—the group operated under orders to seize any and all valuable books, works of art, or religious objects from museums, libraries, and universities, as well as from private Jewish and Masonic collections. Drawing on this vast library of impounded books, Hitler hoped to build a new university worthy of the Third Reich, to be called the *Hohe Schule.*

As the long-serving head of Germany's greatest library, Krüss had risen to prominence in the Nazi political apparatus, earning the Führer's trust when he emerged as a highly visible apologist for the infamous Nazi book-burnings of 1933. By 1940 he had attained the rank of director general, and now served on Hitler's Privy Council. He had assumed a key role with the Rosenberg panel as one of its top three officials, and the leading authority on matters related to books, determining which titles to retain and which to discard from thousands of newly conquered libraries across Europe.[3] The commission would ultimately confiscate millions of volumes— including prized first editions, rare illuminated manuscripts, and countless other, more prosaic works on every topic imaginable—as well as paintings, religious objects, and innumerable other cultural artifacts. For all their rapaciousness, however, Krüss and his staff proved quite discriminating in choosing which books to keep. Most were destroyed or discarded. At one point the German army paved

the muddy streets of Ukraine with thousands of seized books to speed the passage of their military vehicles. The Nazis had little use for novels, poetry, or devotional texts, but they were keenly interested in books containing practical scientific and technical information, as well as books about Judaism and Freemasonry.[4]

Those topics and many more they found amply represented in the Palais Mondial. For almost fifty years, Paul Otlet had worked tirelessly to build his Universal Bibliography, a vast index of published works that attempted to catalog every book, magazine, newspaper, and other significant piece of intellectual property ever created. At its peak, it numbered more than 15 million entries, all recorded on individual index cards and stored in a vast grid of wooden filing cabinets. In addition to the massive card catalog, the collection included more than 70,000 cardboard boxes' worth of documents, photographs, posters, pamphlets, and other documentary material, as well as a huge collection of museum pieces that had at various times filled up to 150 rooms in the Palais du Cinquantenaire (commissioned in 1880 by King Leopold II to celebrate Belgium's fiftieth anniversary of independence). As the collection grew, Otlet had developed a series of progressively more ambitious schemes to organize the collection and to promote universal access to human knowledge through a global information network that he dubbed the "Mundaneum." Now, the Nazis would determine the fate of his life's work.

The Rosenberg Commission's campaign of literary plunder, appalling as it was, hardly marked the first time a conquering nation had instituted a program of violent cultural appropriation. When King Ashurbanipal consolidated power over the Sumerian Empire in the seventh century BCE, he impounded every book in the kingdom to fill his royal library. Four hundred years later, the Egyptian pharaoh

Ptolemy I ordered his armed forces to search every incoming ship at the port of Alexandria and seize any books held onboard, thus populating the greatest library the world would know for another 2,000 years.

At other times, nations have simply chosen to destroy the intellectual heritage of the people they conquered. When Emperor Shi Huangdi consolidated power over the Chinese Empire in 213 BC, he commanded the destruction of every book in the kingdom to make way for a new library that better reflected his tastes. And when the Spanish conquistadors arrived in the Aztec kingdom in the fifteenth century, they promptly burned nearly all of the Aztecs' glyph-laden deerskin books—including treatises on law, mathematics, and herbalism (this destruction likely came as no great surprise to the Aztecs, who themselves had destroyed all the books of a previous conquered regime just a century earlier).

The fortunes of the great European powers have also ebbed and flowed along with their libraries. In 781, Charlemagne built a library at his court in Aachen, largely with books acquired from the Imperial Library at Constantinople. In the centuries that followed, generations of powerful popes would shore up the Vatican Library as they consolidated power across all of Christendom. More recent European empires—British, French, and Prussian among them—also erected enormous libraries commensurate with their imperial ambitions.[5]

A similar dream of cultural supremacy had led Krüss and his delegation to Paul Otlet. When they arrived at the Palais Mondial, they surveyed the collection that Otlet had assembled over the course of nearly half a century. In addition to the Universal Bibliography, there were exhibits on topics ranging from astronomy to paleontology to the history of Spain—encompassing works of art, photographs, textiles, and other material, much of it accompanied by explanatory diagrams and dioramas—as well as a seemingly endless parade of

ephemera: old Belgian election posters, glass-plate photos of Egyptian archaeological digs, and instructions on how to make spectacles. As disparate as the collection might seem, it employed an extremely precise classification scheme known as the Universal Decimal Classification. Otlet had spent decades thinking about how to organize the descriptions and analyses of these items, and particularly how to synthesize and distribute them to a broader public. But the delegation saw little value in the apparent hodgepodge before them.

"The upper galleries . . . are one big pile of rubbish," one inspector noted in his report. "It is an impossible mess, and high time for this all to be cleared away." The Nazis evidently struggled to make sense of the curious spectacle before them. "The institute and its goals cannot be clearly defined. It is some sort of . . . 'museum for the whole world,' displayed through the most embarrassing and cheap and primitive methods." Nonetheless, the inspectors saw at least one thing of value in the collection: "The library is cobbled together and contains, besides a lot of waste, some things we can use. The card catalog might prove rather useful."⁶

Otlet interested the commission for another reason as well: his numerous foreign contacts. Over the years, he had formed a large network of friends and associates across the occupied nations, many of whom had similarly devoted themselves to the cause of world peace. The most prominent and long-standing of them was Henri La Fontaine, the Belgian politician, pacifist, and socialist who had won the Nobel Peace Prize in 1913. After World War I, the two men had even played a role in the formation of the League of Nations. That organization had failed to live up to Otlet's dreams as an international peacekeeping organization, however, failing utterly to prevent the German rise to power that now threatened to extinguish his most cherished dream.

What the Nazis saw as a "pile of rubbish," Otlet saw as the foundation for a global network that, one day, would make knowledge freely available to people all over the world. In 1934, he described his vision for a system of networked computers—"electric telescopes,"[7] he called them—that would allow people to search through millions of interlinked documents, images, and audio and video files. He imagined that individuals would have desktop workstations—each equipped with a viewing screen and multiple movable surfaces—connected to a central repository that would provide access to a wide range of resources on whatever topics might interest them. As the network spread, it would unite individuals and institutions of all stripes—from local bookstores and classrooms to universities and governments. The system would also feature so-called selection machines capable of pinpointing a particular passage or individual fact in a document stored on microfilm, retrieved via a mechanical indexing and retrieval tool.[8] He dubbed the whole thing a *réseau mondial*: a "worldwide network" or, as the scholar Charles van den Heuvel puts it, an "analog World Wide Web."[9]

Twenty-five years before the first microchip, forty years before the first personal computer, and fifty years before the first Web browser, Paul Otlet had envisioned something very much like today's Internet. In one remarkably prescient passage, he wrote:

> Everything in the universe, and everything of man, would be registered at a distance as it was produced. In this way a moving image of the world will be established, a true mirror of his memory. From a distance, everyone will be able to read text, enlarged and limited to the desired subject, projected on an individual screen. In this way, everyone from his armchair will be able to contemplate creation, in whole or in certain parts.[10]

Even more startling, Otlet also imagined that individuals would be able to upload files to central servers and communicate via wireless networks, anticipated the development of speech recognition tools, and described technologies for transmitting sense perceptions like taste and smell. He foresaw the possibilities of social networks, of letting users "participate, applaud, give ovations, sing in the chorus." And while he likely would have been flummoxed by the chaotic mesh of present-day social media outlets like Facebook and Twitter, nonetheless he saw the possibilities of constructing a social space around individual pieces of media, and allowing a network of contributors to create links from one to another, much the way hyperlinks work on today's Web.

The Mundaneum was to be more than just a networked library, however; Otlet envisioned it as a central component of a much vaster scheme to build a utopian World City. That city would sit at the center of a new world government, a transnational organization consisting of an international congress, judiciary, university, and a sprawling network of affiliated institutions and associations. An ardent "internationalist," Otlet believed in the inevitable progress of humanity toward a peaceful new future, in which the free flow of information over a distributed network would render traditional institutions—like state governments—anachronistic. Instead, he envisioned a dawning age of social progress, scientific achievement, and collective spiritual enlightenment. At the center of it all would stand the Mundaneum, a bulwark and beacon of truth for the whole world.

Otlet's expansive vision stood in stark contrast to the broken reality Hugo Krüss encountered that day in 1940. Compared with the stately museums and lavish art collections that he and the other inspectors were accustomed to looting, the Mundaneum must have seemed puzzling: less an august cultural institution than the clutter

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and sprawl of an eccentric old man. The collection had sat largely dormant for several years, ever since the Belgian government had withdrawn its funding for the project. But Otlet had soldiered on, curating the collection in private and writing about his dreams of a utopian, networked world.

Soon after the war started with the invasion of Poland in September 1939 and the subsequent British and French declarations of war, Otlet contemplated the looming terror that seemed to be unfolding. "This is the hour of great anguish. The two sides are almost upon each other," he wrote. "The hour when all of little Belgium may be for the second time embroiled in a war which is not its own. Horrors!"[11] Twenty-five years earlier, Otlet had lost his youngest son, Jean, at the Battle of Yser. Now, he faced the grim prospect of another German army massing across the eastern border.

On the eve of invasion, Otlet had sent a desperate telegram to President Franklin Roosevelt, imploring him to save the Mundaneum and offering the United States the entire collection "as nucleus of a great World Institution for World Peace and Progress with a seat in America."[12] The telegram even appeared in the Belgian press. Roosevelt sent no reply. After the invasion, he sent another telegram to Roosevelt but again received no response. Finally, in an apparent fit of desperation, he had even written a letter to Adolf Hitler, beseeching him to protect the Mundaneum.[13] He was prepared, it seemed, to try anything to save the project into which he had poured most of his life. Now, he threw himself on the mercy of the German inspectors. At the end of the visit, the inspector recounted that "Mr. Otlet made an appeal on behalf of humanity," pleading with the German delegation to preserve the collection he had spent the better part of five decades trying to assemble.

The Germans were not persuaded. Any such decision would have to be made by the Führer himself, they informed him. "Councilor

Krüss saw no chance of taking any immediate action, unless doing so would create space for defense or manufacturing purposes," wrote the official who chronicled the meeting.[14] Within a few days, a troop of German soldiers arrived and proceeded to clear out the contents of the Palais Mondial, eventually destroying sixty-three tons of books, journals, posters, pamphlets, and other documentary material that made up the core collection. Later that year, Nazi officials used the space formerly occupied by the Palais Mondial to host an exhibition of Third Reich art.

After the Nazis removed his material from the Palais Mondial, Otlet moved what remained of his collection to an unheated building near the Parc Léopold, where he continued to work quietly, tending to the surviving remnants of his collection. In the years that followed, he continued to work quietly in occupied Belgium, tending the dying embers of his dream, though still surfacing now and then to give an occasional lecture. He continued to develop his ideas about a global information network in private but increasingly found himself watching from a distance the machinations of a world that had already largely forgotten him.

On December 10, 1944, three months after the liberation of Brussels, Paul Otlet died. A few months later, on April 28, 1945, Hugo Krüss—recognizing the imminent German defeat—committed suicide in the basement of the Prussian State Library.

Over the years that followed, what remained of the Palais Mondial collection was gradually scattered around Brussels. Some boxes sat in an abandoned building in the Parc Léopold, eventually getting shunted around to other storage locations in the Chaussée de Louvain and later the Avenue Rogier.[15] At one point a large chunk of material found its way into an unlocked chamber adjacent to a Brussels subway station, where passers-by could reach in and help

themselves to a stray book, journal, pamphlet, or photograph (the curators of the present-day Otlet archives occasionally have visitors stop in to return material they plucked from the subway years ago).[16]

The dismantling of the World Palace by the Nazis all but guaranteed the Mundaneum's plunge into historical obscurity. In the years following the war, most Belgians turned their attention to rebuilding their country and securing a better future. Outside the rarefied world of library and information science, almost no one in Belgium—or anywhere else, for that matter—had much cause to remember Paul Otlet. A small band of former disciples, the Friends of the World Palace ("Les Amis du Palais Mondial"), met annually to commemorate his work and lay garlands on a bust of him, commissioned after his death.[17]

In 1968, a young University of Chicago graduate student named Boyd Rayward made his way to Brussels to write a dissertation about Otlet, whose work he had encountered while pursuing his doctorate in library science. Following a few references in obscure library journals to Otlet's work, Rayward found himself increasingly entranced by the man, his work, and, as he later put it, "the riddles he presented."[18] At the time, Otlet seemed interesting primarily as an overlooked contributor to the practice of library cataloging; the World Wide Web was still more than twenty years away.

In that pre-digital era, conducting this kind of research required painstaking hours sifting through bibliographic references in musty journals—without the benefit of keyword searches—and combing the library stacks. Rayward's research eventually took him to Brussels, where he tracked down what remained of Otlet's collection in an abandoned office in the Parc Léopold, littered with books and manuscripts. The room he discovered was musty and strewn with cobwebs, with rainwater dripping from a leak in the ceiling. There

was a faded garland wreath wrapped around his bust, placed long ago by the last gathering of the Friends.

It was something of a miracle that the cards and books—the remnants of Otlet's dream—had survived at all. In the years since World War II, very little effort had been made to reconstruct Otlet's collection, most of which had been scattered in 1940 by the Rosenberg Commission. The office was strewn with literary flotsam that appeared not to have been touched in decades: books, papers, manuscripts, and letters. Here Rayward discovered an old diary Otlet had kept dating back to his adolescence, as well as a large collection of archival papers and a few scribbled pages that Otlet had written to his second wife. But Rayward's time was limited; he had to fly back to Chicago soon, and he worried that if he didn't get what he needed on this trip, the deteriorating documents might not survive much longer (he was right; many of Otlet's diaries have since been lost).

As Rayward picked through the mounds of debris, he couldn't help but marvel at his subject's sheer determination and doggedness. In addition to the piles of notes and manuscripts, Otlet had amassed an enormous collection of newspapers, posters, postcards, photos, books, drawings, brochures, pamphlets, and all manner of other ephemera. The bookshelves groaned with cardboard file holders that looked ready to burst, their seams fraying with age. For all the seeming clutter, however, every item had its place. It seemed like the incarnation of Jorge Luis Borges's fictional Library of Babel, a theoretically infinite archive containing every possible combination of letters and numbers: "illuminated, solitary, infinite, perfectly motionless, equipped with precious volumes, useless, incorruptible, secret."[19]

In the decades that Otlet's papers had sat gathering dust, his dream of a universal knowledge network had found new expression across the

Atlantic, where a group of engineers and computer scientists laid the groundwork for what would eventually become the Internet. Beginning during the Cold War, the United States poured money into a series of advanced research projects that would eventually lead to the creation of the technologies underpinning the present-day Internet. In the 1990s, the World Wide Web appeared and quickly attracted a widespread audience, eventually establishing itself as the foundation of a global knowledge-sharing network much like the one that Otlet envisioned.

Today, the emergence of that network has triggered a series of dramatic—perhaps even "axial"[20]—transformations. In 2011, the world's population generated more than 1.8 zettabytes (1,800,000,000,000,000,000,000 bytes, or 1.8 trillion gigabytes) of data, including documents, images, phone calls, and radio and television signals.[21] More than a billion people now use Web browsers, and that number will almost certainly increase for years to come. In an era when almost anyone with a mobile phone can press a few keys to search the contents of the world's libraries, when millions of people negotiate their personal relationships via online social networks, and when institutions of all stripes find their operations disrupted by the sometimes wrenching effects of networks, it scarcely seems like hyperbole—and has even become cliché—to suggest that the advent of the Internet ranks as an event of epochal significance.

While Otlet did not by any stretch of the imagination "invent" the Internet—working as he did in an age before digital computers, magnetic storage, or packet-switching networks—nonetheless his vision looks nothing short of prophetic. In Otlet's day, microfilm may have qualified as the most advanced information storage technology, and the closest thing anyone had ever seen to a database was a drawer full of index cards. Yet despite these analog limitations, he

envisioned a global network of interconnected institutions that would alter the flow of information around the world, and in the process lead to profound social, cultural, and political transformations.

By today's standards, Otlet's proto-Web was a clumsy affair, relying on a patchwork system of index cards, file cabinets, telegraph machines, and a small army of clerical workers. But in his writing he looked far ahead to a future in which networks circled the globe and data could travel freely. Moreover, he imagined a wide range of expression taking shape across the network: distributed encyclopedias, virtual classrooms, three-dimensional information spaces, social networks, and other forms of knowledge that anticipated the hyperlinked structure of today's Web. He saw these developments as fundamentally connected to a larger utopian project that would bring the world closer to a state of permanent and lasting peace and toward a state of collective spiritual enlightenment.

The conventional history of the Internet traces its roots through an Anglo-American lineage of early computer scientists like Charles Babbage, Ada Lovelace, and Alan Turing; networking visionaries like Vinton G. Cerf and Robert E. Kahn; as well as hypertext seers like Vannevar Bush, J. C. R. Licklider, Douglas Engelbart, Ted Nelson, and of course Tim Berners-Lee and Robert Cailliau, who in 1991 released their first version of the World Wide Web. The dominant influence of the modern computer industry has placed computer science at the center of this story.

Nonetheless Otlet's work, grounded in an age before microchips and semiconductors, opened the door to an alternative stream of thought, one undergirding our present-day information age even though it has little to do with the history of digital computing. Well before the first Web servers started sending data packets across the Internet, a number of other early twentieth-century figures were pondering the possibility of a new, networked society: H. G. Wells,

the English science fiction writer and social activist, who dreamed of building a World Brain; Emanuel Goldberg, a Russian Jew who invented a fully functional mechanical search engine in 1930s Germany before fleeing the Nazis; Scotland's Patrick Geddes and Austria's Otto Neurath, who both explored new kinds of highly designed, propagandistic museum exhibits designed to foster social change; Germany's Wilhelm Ostwald, the Nobel Prize–winning chemist who aspired to build a vast new "brain of humanity"; the sculptor Hendrik Andersen and the architect Le Corbusier, both of whom dreamed of designing a World City to house a new, one-world government with a networked information repository at its epicenter. Each shared a commitment to social transformation through the use of available technologies. They also each shared a direct connection to Paul Otlet, who seems to connect a series of major turning points in the history of the early twentieth-century information age, synthesizing and incorporating their ideas along with his own, and ultimately coming tantalizingly close to building a fully integrated global information network.

Despite the occasional newspaper article about Otlet's work as a conceptual forerunner to the Web,[22] the larger contours of his story remain little known outside of specialized academic circles. For anyone who follows the technology industry, this should come as no surprise. Computer scientists often show little enough interest in their own history, let alone the contributions of a group of long-dead Europeans (none of them programmers), most of whom never published in English. As a result, their story has remained relegated to the historical margins.

Otlet not only invites study as an early avatar of the networked age. His life and work also shed light on the deeper causes and conditions of the information age in which we now live. While the proliferation of computers in recent years has certainly contributed to the

much-chronicled problem of information overload, the first rumblings of our present-day data deluge really started during the second Industrial Revolution of the late nineteenth and early twentieth centuries, when the citizens of Europe and North America experienced a series of unprecedented technological transformations. In the span of just a few decades, an enormous number of innovations were unleashed: automobiles, airplanes, radio, telegraphs, typewriters, punch cards, microfilm, vaccines, and mechanical weapons. Taken together, these rapid advances created a state of technological culture shock. People and nations that had once lived in relative isolation quickly found themselves intertwined in a mesh of complex networks. Telegraphs, telephones, railways, post offices, and expanding road systems allowed people, goods, and money to move across national borders more easily than ever before. As a result, ideas started moving more freely as well, triggering an explosion of published information. The resulting intellectual, commercial, and political entanglements gave rise to whole new industries, professions, and modes of thought, as well as to new opportunities for conflict—reaching the horrific crescendo of World War I. This gave rise to a new "internationalist" consciousness that inspired some to imagine fundamentally new modes of living in a global, networked society.

Otlet embraced the new internationalism and emerged as one of its most prominent apostles in Europe in the early twentieth century. In his work we can see many of these trends intersecting—the rise of industrial technologies, the problem of managing humanity's growing intellectual output, and the birth of a new internationalism. To sustain it Otlet tried to assemble a great catalog of the world's published information, create an encyclopedic atlas of human knowledge, build a network of federated museums and other cultural institutions, and establish a World City that would serve as the headquarters for a new world government. For Otlet these were not

disconnected activities but part of a larger vision of worldwide harmony. In his later years he started to describe the Mundaneum in transcendental terms, envisioning his global knowledge network as something akin to a universal consciousness and as a gateway to collective enlightenment.

The Mundaneum was to be more than just an information-retrieval tool. It would form an essential component of a much larger scheme to unite the world's nations under a new form of government, leading to a new age of peace and understanding, one in which the traditional warring factions of nation-states and calcifying political structures would give way to a networked world. In such an environment, he believed, humanity could finally reach its true spiritual potential.

By the time of the Nazi occupation of Belgium, however, such visions seemed quaintly passé. By the end of the 1930s he already seemed a relic from an earlier era—an era when Europeans dreamed of harmony during the belle epoque, when the wonders of industrial technology and the flourishing of published knowledge seemed to hold enormous potential. Those dreams of technological progress were blunted by the brutal reality of mechanized warfare during World War I. And now, on the eve of the second World War, the dark side of technological progress was coming horrifically into focus. The information technologies that would follow in the wake of the war—including modern computers and the Internet—were developed not out of spiritual idealism but largely at the behest of military institutions. But the vision of Otlet and others created an intellectual and—not to be too metaphysical—spiritual context in which these inventions could take shape.

Much of the techno-dystopian rhetoric that has surrounded the rise of the Web over the past few years seems predicated on the notion that we are living through a unique period of technological

disruption. But some, such as the historian Peter Watson, have argued that compared to the late nineteenth century we may actually be living through a period of relative technological calm. This is not to diminish the importance or usefulness of our digital-age inventions; it is rather to put them in context of a period of even more fundamental technological disruption stretching back well into the late nineteenth century. While Paul Otlet and his contemporaries—artists, writers, engineers, dreamers—may not have played a direct role in the development of the Internet, their work illuminates the deeper historical forces behind it. They open a window into the early twentieth century, helping us understand the social, economic, and technological forces that gave rise to the networked society in which we all live.

During its brief heyday, Otlet's Mundaneum was also a window onto the world ahead: a vision of a networked information system spanning the globe. Today's Internet represents both a manifestation of Otlet's dream and also, arguably, the realization of his worst fears. For the system he imagined differed in crucial ways from the global computer network that would ultimately take shape during the Cold War. He must have sensed that his dream was over when he confronted Krüss and the Nazi delegation on that day in 1940. But before we can fully grasp the importance of Otlet's vision, we need to look further back, to where it all began.