

## CHAPTER 4

## Science the Unifier

The co-operation of different nations in the joint investigation of the constitution of the terrestrial globe, of the phenomena which take place at its surface and of the celestial bodies which shine equally upon all, directs attention to our common interests and exposes the artificial nature of political boundaries. The meetings in common discussion of earnest workers in the fields of knowledge tend to obliterate the superficial distinctions of manner and outward bearing which so often get exaggerated until they are mistaken for deep-seated national characteristics. . . . I do not wish to exaggerate the civilizing value of scientific investigation, but the great problems of creation link all humanity together, and it may yet come to pass that when diplomacy fails—and it often comes perilously near failure—it will fall to the men of science and learning to preserve the peace of the world.

—Arthur Schuster, "International Science" (1906)<sup>1</sup>

THE CONCERT OF EUROPE had no bureaucracy of its own, no headquarters, and no secretariat. As for its radical critics, they generally thought little about creating permanent institutions either, since they saw the passage to universal peace in such spontaneous forces as

the unfolding of human reason or of God's will, in tendencies within capitalism or through the emergence of public opinion. All of them were better at sketching out the contours of the coming utopia than at specifying the agencies through which it would be brought into being. If the story of international cooperation were confined to the Concert and its initial opponents, therefore, there would be next to no international *organizations* to talk about at all.

To understand how the latter emerged and then became an established feature of the modern political landscape, we have to look elsewhere—to the authority of mid-nineteenth-century science and technology and scientific visions of an internationally organized world. Across a range of new professions—statistics, engineering, geography, bibliography, public health—men emerged who did not want to do away with the state but to take it over, to replace aristocracy with a professionalized meritocracy, to push aside the well-connected amateurs and bring in new cadres of educated and rational elites. In their minds the fundamental unity of the world was a scientific fact. What was needed to improve the condition of humanity was to unite Christian compassion with education, the pursuit of truth, and the systematic organization of professional life. From this perspective, the international lawyers were a special instance of a larger phenomenon.

That society itself was an organic entity organized on the basis of natural laws was fundamental to their view of government. A leading Victorian statistician, speaking to the 1860 International Statistical Congress in London, reminded his audience of "the necessity under which all Governments are rapidly finding themselves placed, of understanding as clearly and fully as possible the composition of the social forces which, so far, Governments have been assumed to control but which now, most men, agree really control Governments."<sup>2</sup> Social science was *the* critical new instrument for doing this, and it was supposed to promote international cooperation too since this new professional class generally assumed that reason and science **would show men what** they shared and help to set aside prejudices. What internationalism offered in particular was the possibility of

carving out a politics-free zone where men of science could meet, setting aside the factionalism of nations and treating the world and its peoples as the whole they really were.

Europe's pioneer theorist of the scientific organization of society was the restless French aristocrat the Comte de Saint-Simon (1760–1825), who fought on the American side with George Washington against the British, proposed constructing a canal at Panama when he was scarcely twenty, and combined fervor for the French Revolution with prophetic zeal for the coming age of industry. Never short of self-belief—he once tried to woo Madame de Staël by describing himself as “the most extraordinary man in Europe”—Saint-Simon was a thinker on the grand scale, and it is in his work that for the first time the idea of *organization* is elevated into a principle of international government.

In 1814—the year that the Concert of Europe emerged—he proposed a radical alternative to the work of the diplomats: the federation of the entire continent, with a single monarch and single parliament to bind “all the European peoples into a single political organization.” European federation was not, he believed, immediately practicable, and it certainly would not come about through the usual diplomatic procedures. But the key was to create the appropriate organization.<sup>3</sup>

Assemble congress after congress, multiply treaties, conventions, arrangements and all that you will do will still end only in war. . . . In all reunions of peoples, you must have common institutions, an organization.<sup>4</sup>

In the twentieth century, many political theorists saw Saint-Simon as the man who had anticipated the birth of the League of Nations and later the UN. Although this stretches things, he certainly did popularize the need for supranational organization very effectively. One reason he could do so was that in the early nineteenth century the idea of organization had a far more vibrant and energizing meaning than it does today. We have to think ourselves back past the Cold

War, before classics like *The Organization Man* turned the term into a synonym for 1950s conformity. For social theorists in the era of early Romanticism, it was a positive concept drawn from the study of living organisms and from biology in particular. Societies, they believed, were organisms much like plants that grew metabolically and in systems of increasing complexity and range. Machines formed part of this animate world as well and reflected the same life forces. Long before the age of robots armed with ethical cognitive capabilities, they even regarded automata as elements of the natural world. Saint-Simon's gaze was firmly fixed on the goal of peace and the fostering of brotherly love, but industry and mechanization provided the means to get there.<sup>5</sup>

After his death, his disciples propagated his ideas around the world. The ultimate goal, according to an exposition of his work that appeared in 1828, was radically internationalist: “*universal association*, which is to say, the association of all men on the entire surface of the globe in all spheres of their relationships . . . *universal association* can be understood only through the combination of all human forces into a peaceful direction.” Saint-Simonians valued the coming together of men in “associations” as the best way of overcoming the enmities of the past; moreover, they imagined this process occurring not merely within streets, villages, or towns, but in a series of concentric circles the largest of which would ultimately envelope the globe and encompass all mankind.<sup>6</sup> Eventually one would see “unity of doctrine and action” in “the entire world”:

Until the day when this great concept . . . can become the direct object of the endeavors of the human spirit, all previous social progress must be considered as preparatory, all attempts at organization as partial and successive initiations to the cult of unity and to the reign of order over the entire globe, the territorial possession of the great human family.<sup>7</sup>

This fantastic blend of reveries of cosmic harmony, praise for the virtues of manual labor, and hard-nosed appreciation of the impor-

tance of capitalism's new technologies was promoted by the eccentric figure who led Saint-Simon's disciples in the 1830s, Père L'Enfantin. The self-proclaimed "High Priest" of what amounted to a new religion, L'Enfantin preached free love and the unity of East and West, and after a brief stint in a French jail on account of his scandalous ideas about sexual equality, his desire to help consummate this marriage of the world's two halves took him and some other Saint-Simonians to Egypt. In the era of the French conquest of Algeria, they were ardent believers in bringing together the peoples of the Mediterranean, and more broadly still of global reconciliation. They dreamed of turning Paris into "the new Mecca," drew up maps of a Europe covered with railway lines, and had a network of devotees that extended from the Levant to South America. In France their ranks included influential bankers, engineers, and scholars, men who were instrumental in persuading the erstwhile revolutionary Louis Napoleon to turn the 1850s and 1860s into an epoch of reform of both government and capitalism. Michel Chevalier, who had been jailed alongside L'Enfantin, was better known to history as the French senator who in respectable old age arranged perhaps the single most important free trade agreement of the century with Britain's Richard Cobden in 1860. The engineer Ferdinand de Lesseps, a former North Africa hand, achieved glory as the constructor of the Suez Canal, a typical Saint-Simonian project that encapsulated their blend of engineering and world harmony.<sup>8</sup>

For all the sectlike oddities of Saint-Simonianism, the creed articulated ideas that would become commonplace by the end of the century. One was the concept of the engineer as laborer for mankind, the technician as harmonizer of peoples. Another was the quasi-evolutionary rationale for the principle of international organization, connecting life's origins in small, simple biological microorganisms along a great chain of being to its ultimate flowering in complex social international structures. An early form of technocracy, this idea of an engineered world society prided itself on its rationalism while simultaneously resting on a deep, almost mystical faith in the perfectibility

of man. The idea that nature itself was moving inevitably toward world harmony was taken up by many prominent internationalists, especially after Darwin. South African statesman Jan Smuts, a key figure in the founding of the British Commonwealth and the League of Nations, was a serious botanist and a philosopher whose personal doctrine of "holism" provided an evolutionary argument for international association very similar to Saint-Simon's. Woodrow Wilson too justified the need for a League of Nations on the grounds that it represented the culmination of nature's love of association. Men like Smuts and Wilson were politicians and administrators, not revolutionaries. They believed in reform, and in scientific and technical expertise being brought to bear on society by the emergence of a new leadership class. Nothing could be done without institutions, but they had to be placed in the right hands.

The elitism implicit in this approach was beautifully articulated in the work of Darwin's cousin Francis Galton. Traveling in Egypt, he met some of the Saint-Simonians and was impressed by their fervor. Having lost faith in the Church of England, he was already dreaming of becoming the citizen "of some state, modeled after Plato's scheme." For Galton, there was no social issue that could not be definitively resolved through the application of the scientific method, in a famous article, he even deployed statistics in order to estimate "the efficacy of prayer." And he founded his own very successful social science—eugenics—through which he hoped for the "establishment of a sort of scientific priesthood throughout the kingdom" to oversee health and social progress. (Later on, men such as British biologist Julian Huxley would attempt to internationalize the Galtonian vision through the United Nations.)

But the real Plato of this vision of disinterested social rule led by elites of the mind was Saint-Simon's former secretary and disciple, Auguste Comte. Peace and prosperity would be assured, Comte wrote in his 1822 *Plan of Scientific Studies Necessary for the Reorganization of Society*, through the systematic application of a scientific approach to matters of public administration. The world was entering

what Comte saw as the last of three stages—the Scientific—after the passing of the Theological and the Metaphysical, and his new science of society, better known as “sociology,” was designed to provide the toolkit for rational social management. For Comte this was primarily a national project, but he would scarcely have been true to his Saint-Simonian origins had he not been aware of the international implications. Comte believed—writing before the Scramble for Africa—that the age of colonialism was over and with it the cause of wars. Since militarism was on the wane, no political move toward confederation was necessary. Rather, all nationalities should meet “under the direction of a homogeneous speculative class,” a supranational “spiritual power” rather than a “sterile cosmopolitanism.” This spiritual power was, of course, Science, and more particularly the study of the laws that guided men in the aggregate.<sup>9</sup>

Such reasoning made statistics the key to good government, as they had been for Bentham earlier, because it was only through quantifiable data and statistical research that one could uncover the laws of progress, in society as well as in nature. As one popular scientist put it, “Man is seen to be an enigma only as an individual; in mass, he is a mathematical problem.” If numbers cannot lie, how can policy do without them? Statisticians are thus more than the marshallers of facts. Knowing how to categorize them allows them to tell governments when their legislation would be effective, and to counsel them on the forces affecting policy outcomes. Indeed, according to the father of modern social scientific statistics, Lambert-Adolphe-Jacques Quetelet, that society was governed by statistical laws necessarily relegated politicians to a secondary role: the business of governing amounted to nothing more than adjusting policy to smooth the operation of these laws and to avoid disturbances. To do this, the politician obviously needed the statistician’s guidance. Writing to his former pupil, Queen Victoria’s consort, Prince Albert, in 1858, Quetelet described statistics as “that particularly governmental science.”<sup>10</sup>

The prince consort himself did his best to publicize the statisticians’ humanizing mission. In the last speech he made before his

death, he congratulated the delegates to the 1860 International Statistical Congress on laboring for the universal happiness of mankind. At the time statistics as a discipline was still subject to “prejudice, reproach, and attack”: Dickens, for instance, liked to parody the self-important claims of statisticians in the British Association for the Advancement of Science. But they soon shook off their early radical associations and demonstrated their utility—to insurers, doctors, and engineers among others. They held out the possibility of making generalizations about human affairs across national borders and between societies, and thus ultimately, in the Benthamite version, in legislating wisely for the world as a whole.

In order to do this effectively, it was not enough to gather data and statistics. One had to be sure that the accumulated information was categorized and made available in a standardized form, for without this, comparison and aggregation was impossible. Long before the era of global warming and the regulation of complex internationally traded financial instruments, comparison of data across countries and societies required prior agreement as to how data should be presented and how events and things were to be classified. It required, in short, an international effort at codification and standardization. Codification—the very term was another Bentham coinage—became the rallying cry of the professionals, and the mid-nineteenth century thus saw the inauguration of an intense effort to measure, collate, and categorize events, objects, and institutions.

If this effort helped to create new scientific communities across the world, generating new professional fora and bodies, it was chiefly around the task of developing generally agreed standards of measurement and value. In this era talk of standards came easily. The gold standard was an ideal of monetary internationalism, while the “standard of civilization,” as we have seen, provided a template for mapping the world’s peoples in terms of their fitness to be treated by international law. Most standards, though, were less glamorous and dirtier and more technological. Prince Albert’s 1851 Great Exhibition had highlighted the development of precision engineering and led

the British Association for the Encouragement of Arts, Commerce and Manufactures to propose the "adoption of a uniform system [of measurement] throughout the world." At the same time, statisticians tried to promote international agreement on medical nomenclature to facilitate the comparison of cross-country mortality data.<sup>11</sup>

The revolutionary social impact of standardization was nowhere more evident than in the case of the telegraph. The International Telegraph Union—the world's first public international union—was created very early, in 1865, in order to overcome the delays that had been caused by the need to print out telegraph messages on one side of the border and walk them across to the other side. The ITU got its members to accept all international messages, linked their systems into a single network, standardized rates for sending telegrams, and used the ITU as a clearinghouse for their accounts. As traffic soared and rates fell, the ITU was hailed as a model of international cooperation. No one could be made to join it. Yet the benefits of membership, or at least of behaving as though one were a member (as the British and Americans did), were self-evident. In similar fashion, the Universal Postal Union was formed in 1874, and within a decade commentators were presenting these institutions as the seeds of a future world government.<sup>12</sup>

There was at the same time a much more general drive to unify systems of weights and measures. In 1875 an international conference was held in Paris, and use of the French metric system spread rapidly. British engineers worried about the size of screws and bolts laid the foundations for the present-day International Standards Organization, perhaps *the* most influential private organization in the contemporary world, with a vast and largely invisible influence over most aspects of how we live, from the shape of our household appliances to the colors and smells that surround us. And the desire to standardize the measurement of time (facilitated by the emergence of radiotelegraphy) led eventually, over some four decades—there was a lot of inbuilt resistance among international meteorologists to this—to the establishment of a permanent International Time Bureau in Paris.

But confidence in the capacity of experts to harmonize across national borders was not confined to technical matters; it extended to questions of social and economic policy too. Penal policy—an area Bentham himself took a great interest in—was only one of the areas of social reform where the standardizers were also active; public health was another.<sup>13</sup>

The result was an explosion of meetings, conferences, and international networking. Saint-Simon's prophecy of the power of association through technology seemed to be coming true, and observers on the eve of the First World War discerned in such developments "an immense impetus" to "the organization of the world." In 1913 the first dissertation on internationalism was written: it talked about a "modern social phenomenon" of the preceding half century that had emerged, visible chiefly through "international diplomatic conferences, unofficial congresses, associations, bureaus and other organizations." While the number of states in the international system roughly doubled over the century after the Congress of Vienna, international governmental organizations shot up from single figures to about fifty, most of these founded after 1875. At least seventeen of these had permanent headquarters and an official staff.<sup>14</sup> They helped run rail and river networks, standardized property rights and units of measurement, and unified public health policies. Unofficial international bodies were even more numerous; a mere twenty-five in the early 1870s, they grew so fast that one specialist counted more than six hundred by the early twentieth century, half of them only a few years old.

The end of the nineteenth century thus saw the emergence of an entirely new kind of institutional presence in international life. Even Europe's monarchs patronized these organizations in order to associate themselves with their forward-looking spirit. Prince Albert and the Emperor Louis Napoleon were the earliest and most important of these, but other rulers followed their lead. The present-day Food and Agriculture Organization, for instance, would not exist without the **king** of Italy's sponsorship of its precursor, the International Institute

of Agriculture—a body intended, in the words of Italian financial expert and politician Luigi Luzzatti, “to hasten the solution of problems which can be solved only through the association of scientific knowledge with legislative power.” For Luzzatti, later prime minister of Italy, there was almost no limit to the good such an institute could do: it could improve conditions among the majority of the world’s inhabitants who worked the land, thus warding off the spread of socialism, and it could protect those millions forced to emigrate around the world. Above all, it could encourage more new international bodies to be created. “On what a splendid network of new institutions the Twentieth Century might set her seal!” he exclaimed in excited anticipation.<sup>15</sup>

### OTLET’S MUNDANEUM

Nowhere was such a prospect more fervently embraced than in King Leopold’s Belgium, the center of fin-de-siècle internationalist life. Leopold’s first venture into internationalism had been his horrible neofeudal experiment in the Congo Free State. By the time his egregious mismanagement and murderous treatment of the Congolese—millions are estimated to have died—forced the Belgian state to take it over from him in 1908, Leopold had already turned to other, worthier and less lucrative internationalist projects. In urgent need of positive publicity, he worked hard to turn Brussels into the world headquarters of the spirit of *internationalité*. By 1910 the Belgian capital had become the busiest host of international events anywhere, hosting more events than Paris and twice as many as London, with Berlin (the Prussians were deeply unenthusiastic internationalists) hosting barely a tenth the number.<sup>16</sup>

In 1907, a small group of Belgian internationalists sought Leopold’s backing to set up a Central Office of International Institutions. Planned as a future organization of organizations, the new Central Office was intended to stand at the apex of the rapidly emerging

worldwide system of formalized scientific and intergovernmental cooperation. The product of a desire to simultaneously collate data and promote world peace, it was the brainchild of one of the most remarkable figures in the story of fin-de-siècle internationalism—Paul Otlet, the founder of modern information science and bibliographer extraordinary, the forerunner of our contemporary Silicon Valley heroes of data collection.<sup>17</sup>

Born in Belgium in 1868, Otlet came from a prosperous family. His father had made his money selling trams around the world. Otlet was thus a scion of the new globalizing industrial bourgeoisie of the mid-nineteenth century. And of European diplomacy too. For there was a reason why tiny Belgium became such a hotbed of scientific internationalists besides Leopold’s need for good public relations. A country split then and now between French and Flemish speakers, its very existence represented a triumph of optimism over the realities of European nationalism. Created in 1830 by the Concert of Europe, which had been typically sanguine about the dangers of linguistic separatism, its own internal unity could never be taken for granted. It was thus naturally an environment conducive to internationalist initiatives.

It was in this context that Otlet proposed a Central Office of International Institutions to coordinate and share information among the twenty or more bodies that had established permanent offices in the Belgian capital. Like many others, he had been disappointed by the outcome of the second Peace Conference that had met at The Hague earlier in 1907; in his view its noble aim of bringing peace to the world had been supplanted by the much more limited and questionable matter of how to make war bearable. He believed this was a defeat for the spirit of cooperation between nations, and that the reason for the defeat was that the forces of genuine internationalism—including pacifists, jurists, parliamentarians, socialists, and intellectuals—had been insufficiently coordinated. But Otlet was optimistic because he discerned a global trend to ever more intense internationalism that needed only to be made more effective

in the face of resistance from traditional diplomats and the forces of militarism. Belgium in short was in his mind ideally positioned to lead the fight for humanity and world peace against the spirit of Vienna, the Concert, and its degenerate offspring, the European alliance system.

His primary weapon in this struggle was data, and it is not surprising therefore that the first task of his new Central Office of International Institutions was to compile an Annual of "International Life." Revamping an older and less ambitious series, the 1909 Annual weighed in at over fifteen hundred pages, and its editors and readers alike hailed the evidence of "the richness and fecundity of international life." But Otlet's idea of coordination went much further. The following year Brussels hosted not only the 1910 Universal Exposition but a World Congress of International Associations that discussed issues of legal status, and the standardization of scientific terms and weights and measures. One of its results was the emergence of a Union of International Associations, based in Brussels, at Otlet's Central Office.

"International congresses are the outcome of modern civilization," a Victorian geographer had noted approvingly in 1885. The next thirty years were perhaps the apogee of technical and scientific internationalism. An average of one or two international scientific conferences had taken place annually in the 1850s, but this had risen to twelve per year in the 1870s, and thirty in the last decade of the century.<sup>18</sup> Dozens of scientific associations banded together in their own professional bodies. Not far behind were hoteliers, architects, engineers, bankers, actuaries, and stenographers—all of whom began meeting internationally at the end of the nineteenth century. The growing authority of expert specialization spoke to an idealized vision of science and technical knowledge as a creed without borders. The scientific division of labor among the "best men" of different countries was not only the shortest route to truth but an example to the politicians of the payoff from international cooperation. Some participants of course devoted themselves to their work alone or de-

fining their politics exclusively in national terms. But many others saw their scholarship and the needs of the human community as intimately connected, and tight networks of personal and professional connections bound them as scientists, activists, and public men.

Otlet himself worried, however, that specialization was driving men—and knowledge—apart instead of bringing them together. Facts were multiplying at dizzying speed with the progress of scientific inquiry, but mankind had failed to devise rational and efficient means of accessing them. The pros and cons of specialization itself were part of a fairly new debate—after all, the word "specialist" itself had only been around since the 1860s—but Otlet felt that coordination was essential if expert knowledge was to advance unimpeded without getting lost from sight or becoming useless. Aiming at the ultimate goal of producing a "Universal Book" in whose ever-revised pages all useful knowledge would be found, Otlet developed a conception of "documentation" that promised to systematize the extraction of facts from chunks of information. Long before the Internet, Otlet believed that getting knowledge to those who needed it meant turning old-fashioned libraries into information hubs. Like some Borgesian hero, he made a start by putting together a bibliographic database of information about sources of information, and his Universal Bibliographic Repertory, painstakingly transcribed onto individual cards, numbered some 400,000 entries in 1895, three million in 1903, and eleven million when the First World War broke out. This was a laborious enterprise but it was not an entirely quixotic one. In developing his own means of organizing this quantity of information, Otlet created the Universal Decimal Classification, a system still in use in many countries, and he also established an International Institute of Bibliography, which having gone through several face-lifts continues to function to this day.

But Otlet's vision went much further than bibliography. He wanted to turn Belgium into a kind of global data central: his Union of International Associations, with official Belgian backing, would become the coordinator of a new form of world organization, an

agency that would exploit the increasing interdependence of material and moral life for "the general welfare of men." He dreamed of a World Palace—a Mundaneum—and used the UIA to set up an International Library, Museum, and University. These were to function as the organs of a new World City, of which the Mundaneum would be the brain. After the First World War, Le Corbusier was invited to submit proposals for the planning of such a city, part of a stream of suggestions to rationalize and consolidate the role of Brussels, alongside The Hague and Geneva, as cities devoted to world peace.<sup>19</sup>

Like many internationalists, Otlet regarded the outbreak of the First World War not so much as a refutation of his ideas but rather as confirmation of their necessity. To the national plight of Belgium was added personal tragedy when one of his sons died in combat in October 1914: Otlet himself is said to have searched the battlefield for his body. His means of coping was immediately to propagandize for a sweeping reorganization of international life after the war. Fertile in devising new institutions, he drew up plans for a Society of Nations that looked rather different from what was to emerge at Versailles. States in Otlet's highly centralized blueprint were to be brought together under a single sovereign supranational authority with its own parliament, judiciary, and executive—"an International Diplomatic Council authorized to direct and administer world interests"—backed by its own international army. This new body would "act throughout the whole world" in conformity with a founding World-Charter to be drawn up by a Congress of "all the Powers." It was a technocrat's dream.

Such an entity Otlet saw as the final stage in the political evolution of mankind. This had progressively governed itself in ever larger structures—the city, county, the duchy, and then the national state. Why, Otlet asked, should the state be considered as final? "On the contrary, the possibility of an organized community involving the higher national and human interests is now being explored by the best minds." A century after Saint-Simon, the idea that the evolution of nature would lead through nations to a world government was now a staple of internationalism. The business of peace was too im-

portant to be left to statesmen alone, Otlet concluded: "The spirit of diplomacy should not rule supreme. Politicians, jurists, scholars and businessmen must also introduce their points of view."<sup>20</sup>

Before 1914 such thoughts had been commonplace. After the war, however, the mood changed, and in Geneva there arose an actual League of Nations against which to compare these earlier dreams. Even at Versailles, Otlet's marginalization of national sovereignty and preference for rule through experts found little favor among the Great Powers, or indeed among the independent new states they helped set up in eastern Europe. Eventually, the Belgian government withdrew its funding for his work, and the Mundaneum closed its doors in 1934. Its contents were shunted from building to building, finding temporary lodgings in university offices. Otlet's calls for a transformation in world consciousness through a "rational and peaceful revolution" sounded increasingly plaintive, his demand for a World Police Force, a World Constitution, Government—and ultimately a World Plan to "prevent the nations exhausting themselves by pulling in different directions while thinking they are working toward the local good"—tired and out of touch. "What must be done, O World?" he asked in 1931 of behalf of "little Belgium." No one, it seemed, was listening: his was a voice from another era.<sup>21</sup> When Otlet's devoted biographer tracked down his papers after the Second World War (Otlet himself had died in the winter of 1944, shortly before the war's end), he found a scene of delapidation: piles of moldering papers, books, and files filled workrooms and stairwells. Many were housed in a former dissecting theater whose roof let in pigeons and rain. Faded wreaths garlanded Otlet's bust.

## THE LIMITS OF INTERNATIONAL EXPERTISE

Why did Otlet's grandiose schemes wither away? After all, his scientific rationalism was widely shared before and even after the First World War, and H. G. Wells, another man with a strong interest in international documentation, was writing about the need for a



"World Brain" in the 1930s in terms that looked remarkably like Otlet's idea of a universally accessible storehouse of knowledge. The huge interwar market for works of scientific popularization showed that this idea had a wide appeal among readers. Yet by then some of the problems with his approach, and with the drive for scientific internationalism generally, had already emerged.

In the first place, scientific cooperation was often hostage to larger political considerations. It did not help that the French were especially ardent promoters of the standardization cause, old memories of Napoleonic efforts to codify Europe and suspicion of their motives were often enough to block their initiatives. The metric movement swept most of Europe by the 1880s, and looked poised for a moment to become the universal system many internationalists had called for, but then in Britain and the United States there was a backlash. "It is written in the stars that in the future this is to be an Anglo-American world," wrote Frederick Halsey, author of *The Metric Fallacy*. "Let us make it Anglo-American in its weights and measures." If the metric cause in both countries by 1950 was far weaker than it had been a century earlier, it is hard not to see political forces as responsible.<sup>22</sup>

Public health reform suffered for similar reasons even though there were increasingly obvious costs to failing to cooperate. After the Napoleonic Wars, the need to protect populations from contagious diseases brought in from abroad led most European governments to tighten up their quarantine regimes, and in 1851 the French foreign ministry held the first ever International Sanitary Conference, which produced an agreement designed to ensure that all signatories standardized their entry regulations. Yet such agreements meant little unless the signatories chose to implement and enforce them, as many international organizations would learn to their cost a century later. Little was done in this direction, even though cholera was a real threat for most of the century. In 1874, two years after some sixty thousand people had died in an outbreak, the French proposed setting up an international epidemics agency, but because the issue got bound up with rival imperial claims in the Levant and North

Africa this was not carried through either. There was still no agreement when over 100,000 people died in the great cholera epidemic of 1883—and at least as many in 1892. (Among the scientists arguing over the etiology of the disease was the French expert Adrien Proust, author of *La défense de l'Europe contre le cholera* and better known to posterity as the father of Marcel, who immortalized his father's concern with disease and cleanliness in his novels.) These endless conferences eventually gave birth to a bureaucratic mouse in the form of an International Office of Public Health, with its own small permanent secretariat, in Paris, that was staffed by health professionals from member states. Its chief role was informational not educative, it had little scope for active health promotion of its own, and it remained concerned with diseases emanating from the Levant. Then as now with global warming, the existence of a commonly acknowledged problem was not enough to generate an effective bureaucratic response.<sup>23</sup>

Historians have also now amply demonstrated that political differences often divided the scientists themselves, even when they considered themselves to be internationalists. The idea that science has no homeland certainly did not reflect the experience of nineteenth-century science, and it became even clearer after 1918 when German scientists were ostracized from many international fora. Otlet was characteristic of the older generation of scientific internationalists in simply ignoring all this. He was largely uninterested in problems of political implementation—the virtue and value of what he did was simply obvious to him. The idea that his ideas were in some way peculiarly Belgian—in that they spoke to that very unique country's medicament—he never bothered to address, perhaps because it would have been too damaging to his universalist posture.

Money tended increasingly to tie scientists to the state's apron strings. Much scientific research was not cheap, and the age of the independent man of science was passing rapidly. Otlet had money of his own—before it ran out—and could thus, at least before the First World War, conduct his own research on his own terms. But not even

the private wealth accumulated by a successful Belgian industrialist like his father was enough for the grand schemes he dreamed of. It was all very well to stand at one remove from the state and politicians, but the result was constant shortage of funds. Many professional associations were therefore very constrained in what they could actually do, especially at the international level, and ended up serving as clearinghouses for information rather than as active educational agents in their own right. When the state did get behind science—as it did increasingly in the mid-twentieth century—scientists reaped the financial benefits but often faced an awkward choice between harnessing their energies to the national interest and remaining faithful to the older ecumenical vision. Science's militarization made this problem worse: the imposition of secrecy upon basic laboratory research in the era of chemical and nuclear weapons pushed scientists further and further away from the path of Otlet's internationalism.<sup>24</sup>

## UNIVERSAL LANGUAGE

The most fundamental, though, of all the obstacles holding back the scientific universalists from carrying through their transformation of international life was the scientists' own frequent internal disunity. The unity of science was an inspiring rallying cry and a creed, but in reality science was a messy business. Establishing the truth of things was not quite as straightforward as Saint-Simon and Comte implied, and in the laboratory scientific discord was as important as scientific unanimity; and sometimes drowned it out. Thus scientists might share a pretension to universalism, but once one digs down into the professional pages of science journals themselves, one finds—as is to be expected—not only argumentativeness but often very divergent views about how to reach that goal.

One area where the experts' inability to agree seemed particularly revealing was in the search for a universal language, a search characteristic of late-nineteenth-century confidence in the potential of in-

ternationalism. While philosophers and linguistics sought to uncover the underlying structures and forms common to all languages—or all truth-bearing sentences—in mathematics or semiotic systems, others called for the creation of a single new language that would be available for world use. In 1870, a French botanist named Alphonse de Candolle (creator of the current international code of plant names) published an exposition of the "Advantage for Science of a Dominant Language," and looked forward to English serving this role in the coming century. Others felt that inventing an artificial language would be better. More than a dozen were devised in the run-up to the First World War but by far the best known of these was Esperanto.

Brainchild of a Russian Jewish linguist named Ludwig Zamenhof, a typically polyglot product of the tsarist Pale, Esperanto might be seen as an abstraction of the realities of life in the late-nineteenth-century east European imperial borderlands just as much as Otlet's projects reflected the situation of Belgium. In 1887, under the pseudonym Dr. Esperanto (Hopeful), the young Zamenhof published a guide to a universal language, a task that had obsessed him since high school. A decade earlier, he had celebrated his nineteenth birthday by singing a hymn to internationalism in his own new language:

*Malamikete de las nacjes,  
Cadó, cadó, jam temp' está;  
La tot' homoze in familje  
Konunigare so debá.*

*(Enmity of the nations,  
Fall, fall, it is already time;  
All mankind in [one] family  
Must unite itself.)<sup>25</sup>*

As this suggests, linguistics was for Zamenhof about more than simply communication: it was about fostering peace, a view that

made eminent sense in an age of growing nationalism—above all for the Jews of eastern Europe. In 1905, the first international Esperanto congress took place at the French resort of Boulogne-sur-Mer, where delegates wearing the movement's symbol, the green five-pointed star, sang first the rather martial "Marseillaise" and then their own hymn ("on the foundation of a neutral language / people understanding each other / will agree to form one great family circle"). Zamenhof himself prayed for world peace and a new future. Unfortunately, despite attracting some eminent supporters, his movement quickly got bogged down in an unpleasant argument after some serious-minded Esperanto supporters broke away and developed their own supposedly improved alternative called Ido. Tempers quickly frayed in the Ido-Esperanto schism. In 1908, one of Zamenhof's men wrote a "Raporto de la Prezidanto de la Lingva Komitato al la Universala Kongreso de Esperanto" that gives a sense of the bitter passions this quixotic venture aroused and that makes it clear that even the search for a common tongue provoked bitter arguments within the ranks of its most ardent supporters.<sup>26</sup>

Within the ranks of the much more specialized research field of fin-de-siècle seismology, another disagreement raised what was in some ways the most fundamental question of all. The point at issue was whether data could be said to present themselves naturally from the observation of phenomena or required organizing in what were intrinsically arbitrary schemes of classification. In short, was the classification of data dictated by the very structure of the world or was it in fact a matter of pragmatic choices, dictated by the purposes for which data were collected and the kinds of models that were generated by scientists themselves? Earthquake science tended to internationalism because of the need to share and pool data. Yet Europe's leading experts in the subject simply could not agree over how best to collect and present the data that would allow them to clarify the pattern of earthquake activity across space and time. International comparisons of tremors over space seemed to require different kinds of information than historical comparisons in a single locale over

time. Setting standards, seismology suggested, was becoming ubiquitous, but who set which standards was not always clear. As incompatible visions of what a particular science was for came into conflict, the world's silent drift toward standardization enveloped often acrimonious battles over which standards to adopt.<sup>27</sup>

FOR ALL THESE REASONS AND MORE there was to be no World City and the drive to universal standardization turned out to have limits. Even today, inches still contend with meters, and travelers pack a universal adapter—"one world, one plug"—to cope with the several electrical systems in use globally. But just because scientific internationalism did not sweep everything before it does not mean it was a failure; it simply means that the expectations of its most ardent followers were exaggerated. In fact, it turned out to be an extraordinarily potent institution-creating force in itself, and many of the specific international specialized agencies Otlet and others created survive into the present. The effort to coordinate food policy and production internationally led to the founding of the Food and Agriculture Organization by the United Nations. The drive to standardize time finally resulted in the International Meteorological Organization's designating Greenwich mean time as the universal standard in 1946; the same year saw the replacement of relatively small interwar bodies with very powerful successors like the World Health Organization. Because of its relative invisibility and supposedly noncontentious character, the nongovernmental International Standards Organization has been perhaps the most powerful of all. Such bodies still embody the old nineteenth-century idea—with all its inbuilt presuppositions and blind spots—that policy is best left to technical experts who know no nationality but that of humanity.