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The Forgotten Meta-Realities of Modernism: Die Uebersinnliche Welt and the International Cultures of Science and Occultism

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Richard Sheppard, writing in his otherwise excellent essay “The Problematics of European Modernism” in 1993, posited a “meta-world which was not describable in Newtonian terms” as central to modernists’ conceptions of reality¹. Although Sheppard does include a few references to science before 1920, such as the Futurist F. T. Marinetti’s interest in Brownian movement, the scientists he cites are Einstein and the quantum physicists Louis de Broglie, Erwin Schrödinger, and Paul Dirac, whose works had their cultural impact only in the 1920s and beyond. This view has been very common in discussions of modernism’s scientific context, beginning in the 1940s, when the myth of a connection between Cubism and Relativity Theory arose, and continuing through much of the century². Even as questions were raised about the timing of Einstein’s major public impact, which occurred only after the November 1919 announcement of an eclipse expedition’s confirmation of one of his postulates, there was nothing yet to fill this gap³. The late Victorian ether physics that actually dominated the layperson’s understanding of reality in this period, including the central concept of the ether of space, had itself been so totally eclipsed in cultural histories (and even in the history of science) that it was largely overlooked by scholars.

Yet the notion of an invisible “meta-world” or meta-reality suggested by Sheppard was correct and absolutely central to the worldviews of educated laypersons, including artists, in this period. That new conception of reality emerged gradually as a result of a series of widely popularized scientific discoveries in the 1890s that pointed to the existence of a

range of invisible phenomena beyond the reach of human vision⁴. X-rays, discovered by Roentgen in 1895, made solid matter transparent and raised fundamental questions about the adequacy of the eye as a sensing instrument. Further challenges to the solidity of matter followed with Becquerel's discovery of radioactivity in 1896, J. J. Thomson's identification of the electron in 1897, and, especially, the subsequent work of the Curies and Ernest Rutherford on radioactivity. Popular science writers regularly suggested that all matter might be radioactive, offering the image of objects endlessly emitting particles into the surrounding ether, a view widely promulgated by French author Gustave Le Bon in bestselling books such as *L'Evolution de la matière* of 1905. At the same time, the prominent physicist Sir Oliver Lodge argued that the ether itself might be the source of matter in his "electric theory of matter," a concept cited by both Expressionist Wassily Kandinsky and Italian Futurist Umberto Boccioni in their writings⁵.

Together with X-rays, the development of wireless telegraphy in the later 1890s, based on Hertz's earlier confirmation of the existence of electromagnetic waves, focused attention on the ether of space as filled with waves vibrating at various frequencies beyond visible light, such as X-rays and Hertzian waves. Understood to suffuse all space without a gap in its "infinite continuity," as James Clerk Maxwell declared, the ether—in conjunction with radioactivity and the writings of Lodge, Le Bon, and others—offered a model of continuous cohesion and diffusion of matter⁶. And as additional functions for the ether were proposed by scientists in the later nineteenth century, the concept suggested great potential: "Ether vibrations have powers and attributes equal to any demand—even to the transmission of thought," Sir William Crookes declared in his 1898 British Association for the Advancement of Science Presidential Address⁷.



Figure 1: Die Uebersinnliche Welt (Berlin), vol. 8 (January 1900)

In recent years there has been a growing scholarly recognition of the continued centrality of the ether by certain historians of science as well as of art and of occultism⁸. Rather than Einstein, the prominent scientists known to the public in the early years of the century were figures such as the physicist Sir Oliver Lodge (the ether's great champion), the chemist Crookes, and the astronomer Camille Flammarion as well as radioactivity researchers Pierre and Marie Curie. Moreover, in this era the boundary between science and occultism generally acknowledged today was not at all clear cut. Lodge, Crookes, and Flammarion were all interested in various aspects of occultism, from spiritualism to telepathy, subjects of investigation for the Society for Psychical Research of which they and many other prominent figures, such as philosopher William James, were members. At the same time, occultists such as Madame Helena Blavatsky, cofounder of the Theosophical Society in 1875, along with her successors as representatives of the movement, Annie Besant and C. W. Leadbeater, closely followed contemporary developments in science, finding there support for their arguments against materialism.

Although Besant succeeded Blavatsky as president of the Theosophical Society in 1907, it was Leadbeater who mostly directly engaged the new developments in physics and wrote prolifically about them. The themes of the ether, vibration, and the popular notion of a higher fourth dimension of space featured prominently in his writings, such as *The Astral Plane* (1895) and *Clairvoyance* (1899), which were translated almost immediately into French and German⁹. Rudolf Steiner, who in 1902 became the head of the German branch of the Theosophical Society and in 1912 inspired the establishment of its Christian-oriented offshoot, Anthroposophy, likewise drew on the newest science for his system of “occult science.”¹⁰

The writings of Theosophists thus served as key vehicles for disseminating new scientific discoveries through the international network of Theosophical Society branches, which sponsored lectures, published journals, and encouraged book translations. We have been less aware, however, of the role that the equally prominent international network of spiritualist organizations and publications played in this promulgation of scientific ideas and occult responses to them. Just as the Theosophists drew on the new scientific discoveries, spiritualists likewise embraced in the X-ray’s demonstration of ranges of waves beyond sense perception that could be captured on a sensitive photographic plate (akin to spirit photography), the dematerialization of matter suggested by radioactivity, and the potential for materialization of forms from the ether¹¹. This was an exhilarating moment for anyone interested in invisible phenomena, from occultists to laypersons encountering the ubiquitous discussions of the subject in popular scientific journals to artists who found themselves liberated from the focus on visible light and shade that had dominated the *métier* of painting for hundreds of years¹².

In his 1994 book *Downcast Eyes: The Denigration of Vision in Twentieth-Century Thought*, historian Martin Jay quotes and extends T. J. Clark’s discussion of the later nineteenth-century painting of Paul Cézanne. According to Clark, “Doubts about vision became doubts about almost everything involved in the act of painting; and in time the uncertainty became a value in its own right: we could say it became an aesthetic.” Jay continues, “That aesthetic was what we call modernism, which is such movements as Cubism, Futurism, and Vorticism further explored Cézanne’s demolition of the received visual order.”¹³ Yet, if Cézanne’s was largely an individual painter’s pursuit, artists from the 1890s through the 1910s had increasing stimulation from their cultural milieu to distrust sight and to seek to represent in some way reality beyond vision. Just as Jonathan

Crary in his *Techniques of the Observer* (1990) has argued for an episteme of “normative vision” in the nineteenth century, we should recognize an episteme of “non-vision” in the later nineteenth and early twentieth century that focused on invisible meta-realities¹⁴. In 2002 I introduced the term “vibratory modernism” to describe this overlooked aspect of modernism so evident in the writings and images of many modern artists. Yet, at that time, it was not clear how this shared culture was established internationally, apart from popular science writing. How was it, for example, that both Kandinsky in Munich and Boccioni in Milan cite the electric theory of matter as a central support for their new styles? Now, however, it can be demonstrated that there was an international culture of occultism as well as of science, which readily transcended national borders. Like the internet today, these ideas travelled rapidly on networks formed by monthly occult journals reporting on developments from all over Europe and America and even further destinations (India, particularly, for the Theosophists).

The remainder of this essay focuses on an example of that kind of cross-cultural diffusion of information, both scientific and occult—in this case, the monthly German spiritualist periodical *Die Uebersinnliche Welt*, published in Berlin from 1893 to 1922¹⁵. The journal’s title declared its particular focus—the world beyond the senses, making it a timely index of the preoccupation with the invisible discussed above. Although the journal featured a more conventional, Egyptian-themed cover design for the years 1898-1901 and 1906-1913 (Figure 1), the remarkable cover for the years 1902-1905 (Figure 2) gives striking visual form to the invisible vibratory energies that were the focus of so much of the writing in the journal by this time¹⁶. The cover design by the prominent painter and graphic artist Fidus (Hugo Höppener) features a simplified landscape centered on the sun emitting radiations and clouds filled with signs of pulsating energy. Framed by an ouroboros, which had been subtly present at the center bottom of the earlier cover illustration, the central image points up the abstract potential invisible vibrations could suggest to artists—from the painter Edvard Munch in Berlin in the mid-1890s in a spiritualist-oriented circle to Kandinsky, whose archive contains several issues of the journal¹⁷.

Both the ouroboros and the six-pointed star above it were also elements of the emblem of the Theosophical Society, and the designer Fidus was himself a Theosophist, so the cover effectively registers the complexity of German occultism at this moment. The Berlin spiritualist organization that published the journal, the Wissenschaftlichen Vereinigung “Sphinx,” would increasingly seek to distinguish their approach from that of Theosophy by the years 1904-1905, as we shall see. The return of the earlier cover in 1906

restored the five-pointed star and the topic of Theosophy virtually disappeared from the journal's pages, even though the name of the London Theosophical Publishing Society, first listed in 1901 as a collaborator, continued to appear on the cover through summer 1914¹⁸. In the 1890s and early years of the century, however, the two groups' shared an interest in the newest science made certain Theosophical writings useful for their purposes.

Historian Corinna Treitel in her 2004 book *A Science for the Soul: Occultism and the Genesis of the German Modern* provides a superb study of the role of occultism in all its varieties in German culture in the late nineteenth and early twentieth centuries. As she explains,

*Occultists saw themselves as part of a counterculture, locked in battle against a dominant materialist tendency of the age, and this self-understanding gave their movement its dynamism and appeal. They aspired to use occult phenomena to establish new truths about the human soul and the world it inhabited, to construct on this basis a new worldview that would make materialism obsolete.*¹⁹

Treitel also discusses the situation in which spiritualists found themselves—not only in competition with Theosophy but also challenged by the rising field of experimental psychology and differing positions within that developing field.

Carl du Prel, the influential, Munich-based author of *Die Philosophie der Mystik* of 1885 and a committed spiritualist by 1880, was a key inspiration for the founders of *Die Uebersinnliche Welt*, and his writings figured prominently in its issues²⁰. Du Prel had developed a form of “transcendental psychology,” which argued for the existence of a “transcendental subject” independent of the physical body and for a moving “threshold of sensibility” that would increasingly open up realms previously inaccessible to human consciousness.²¹ Following Treitel, Heather Wolfram and Andreas Sommer have tracked the split in the early 1890s within the German psychological community between du Prel's faction and that of his colleagues who were increasingly focused on experimental forms of psychical research, including hypnotism²². Wolfram chronicles the 1889 departure of du Prel and his followers from the Psychologische Gesellschaft in Munich and quotes the 1891 statement published in the journal *Sphinx* by the remaining researchers, including Albert Schrenk-Notzing, who had joined their Berlin counterparts in the Gesellschaft für Psychologische Forschung:

*The group of scholars who branched off [i.e., Du Prel and others—LDH] emphasize more the transcendental-psychological phenomena of the abnormal mental life in the real sense (that is spiritualism, examination of Od and related areas) and go their own way undisturbed. The Psychologische Gesellschaft, however, stands on the positive ground of normal psychology and seeks in close connection with official science to expand the inductive method to anormal psychological phenomena.*²³

Du Prel and his colleagues formed the Gesellschaft für Wissenschaftliche Psychologie, and, although he died in 1899, *Die Uebersinnliche Welt* in 1901 added to the cover page that Munich group as cosponsor and foregrounded the subtitle of the journal as “Monatsschrift für Okkultistische Forschung” [Monthly for Occult Research], emphasizing its research orientation. The journal’s goal, like du Prel’s was a *wissenschaftlich* (scientific) occultism. In contrast to the experimental psychologists, however, the science that interested them was not the “official science” of psychology cited above, but the newest physics that was revealing invisible realities and casting light on older concepts such as the “Od” or “Odic force” of Austrian Baron Karl von Reichenbach. In the mid-nineteenth century Reichenbach had connected his “Od” to the fluid of animal magnetism, and the concept remained of considerable interest in the later years of the century in the context of ether and electromagnetism, including in the work of occultists Albert de Rochas and Hippolyte Baraduc in Paris²⁴. As du Prel had declared in 1893, “Occultism is only unknown science. It will be proven through the science of the future.”²⁵

Although Theosophists and spiritualists differed on what occurred during a séance—spiritualists believed that a medium communicated with actual spirits who were present, while Theosophists understood the medium to be accessing a higher level of the self that made information accessible—they were equally interested in the justification the new developments in science could provide for their ideas. Both groups drew on the work of Lodge, Crookes, and Flammarion, along with myriad others such as Baraduc, who was carrying out experiments in Paris in the photography of thought and emotion via ether vibrations. Indeed, the “transcendental photography” of Baraduc and others, such as Commandant Darget with his “V Rays,” was a prominent theme in *Die Uebersinnliche Welt* and was of particular interest to Kandinsky²⁶. Besant and Leadbeater specifically cited Baraduc as their scientific counterpart in presenting patterns of thought in their 1905 book *Thought-Forms* and drew directly on Lodge’s latest ideas on the ether in the appendix to their 1908 *Occult Chemistry*²⁷. Beginning in the 1890s, the editors of *Die Uebersinnliche Welt* reproduced major lectures of and letters by Lodge and Crookes as well as the writings of Flammarion, among many others.

While Theosophists had the ubiquitous books on their doctrines being produced by the leaders of the organization, spiritualists were far more dependent on confirmations to be found in successful demonstrations of the powers of spirit mediums as well as the contemporary science that might help explain the phenomena. Texts by figures like du Prel and others appeared regularly in *Die Uebersinnliche Welt*, but crucial to the journal's *wissenschaftlich* spiritualism were the international reports of the latest séance phenomena not only in Germany but especially in Paris, London, and Milan, as well as outside Europe. Here is where the journal actually functioned as an internet-like communications network before the fact. An event occurring at a séance in Milan, for example, would be reported immediately in the following month's issue. Multilingual associates of the journal scoured international spiritualist publications and then translated relevant texts for the journal's readers. (The international "Adresse Almanach" compiled by editor Max Rahn in the later-1890s issues documents the hundred-plus spiritualist organizations around the world at the turn-of-the-century.) The Berlin group was particularly close to occultists in Paris and regularly translated articles from the *Annales des sciences psychiques* by sympathetic researchers such as Julian Ochorowicz or Rochas, who had actually cited Lodge's work on electromagnetism in one of the appendices to his *Extériorisation de la sensibilité* of 1895²⁸. Both Rochas and Lodge, along with many other prominent scientists, such as French physiologist Charles Richet and Italian criminologist Cesare Lombroso, had participated in séances with the medium Eusapia Palladino, whose varying fortunes *Die Uebersinnliche Welt* followed closely²⁹. For the early years of the journal, through the period of its theosophically oriented Fidus cover (1902-1905), writings by Theosophists offered highly accessible responses to the implications of the latest scientific discoveries, such as the X-ray. Indeed, the two groups at that point were not mutually exclusive, and the journal published a series of articles by its own H. Strebels, "Kraft und Stoff in 'Astralen,'" during 1899 and 1900, with extensive discussion of Od and ether vibrations on the astral plane³⁰. Strebels himself was drawing in part on the writings of Leadbeater, whose *The Astral Plane: Its Scene, Inhabitants and Phenomena* (1895) had appeared in German in 1896. The discovery of the X-ray gave Leadbeater as well as the spiritualists a new touchstone to argue for the limited nature of perception on the physical plane³⁰. In its August and September 1903 issues *Die Uebersinnliche Welt* published a summary of Leadbeater's 1901 Chicago lecture on "The Unseen World," which had appeared in that city's spiritualist newspaper *The Progressive*

Thinker and then in *The Theosophist*³¹. An editorial note explained that while the journal did not agree with Leadbeater's Theosophical views, the editors believed that the lecture raised important issues from contemporary science relevant to their readers.

The Chicago and Berlin editors were apologizing for the specific Theosophical content in Leadbeater's text—particularly this argument for the higher and successively refined planes of existence Theosophists posited as continuous with the physical world. These included the astral and mental planes, with “etheric matter” as the first step (still on the physical plane) toward the “finer subdivisions of matter,” including a Heaven-World he identified with the mental plane³². Although Leadbeater presented the ether as a “state of matter beyond solid, liquid, and gas” and a step toward the astral plane, his language in fact paralleled contemporary discussions in physics, so that many of his ideas would have seemed somewhat familiar to his listeners. “We never see the ether which carries the vibrations of light though we may demonstrate its necessity as a hypothesis to explain what we find,” he asserts³³. Or, “All sensation is a matter of vibration” and “the whole secret of the Roentgen rays, or the X-ray [,] is simply bringing within the capacity of your eye ... a few more rays, a few of the finer rates of vibration”³⁴ According to Leadbeater, while these finer vibrations escape most people, there are objects around us that “do reflect these other rates of vibration which we do not see” and “some of such things can be photographed.”³⁵ To illustrate that point he discusses Baraduc, recounting his personal experience of his work “when I was last there” and asserting that the Frenchman had “experimented in a regular scientific way” and had “succeeded in photographing the invisible.”³⁶ Continuing his focus on the invisible, Leadbeater explains, “The etheric sight ... is simply an added power of responding to vibrations in the same manner as the Roentgen ray scheme; and you will find that much of the clairvoyance on a small scale, which is done by spirits at séances is just exactly that type.”³⁷

For the spiritualists at *Die Uebersinnliche Welt*, who laid claim to a scientific approach, Leadbeater's arguments for Theosophy's validity at the end of his lecture would have been troubling. Could Theosophy really be, as he asserted, absolutely “scientific,” the “apotheosis of common sense,” and the “Wisdom-Religion of all time”³⁸? Indeed, when the second installation of Leadbeater's text appeared the next month, September 1903, it was preceded by an article by Dr. Franz Freudenberg, a regular contributor, titled “Ein interessantes Kapitel aus Flammarion's 'L'Inconnu.’” Introduced by Freudenberg, the excerpt from Flammarion's *L'Inconnu* included the “table of vibrations” Crookes had first set forth in his Presidential Address before the Society for Psychical Research in 1897 in

an argument about the relativity of knowledge³⁹. This was a rudimentary form of the developing electromagnetic spectrum (with sound vibrations incorporated), emphasizing the “Unknown” ranges inserted between the then-identified X-rays, “Light” (“luminous rays, caloric and chemical rays, spectra of the infra-red to the ultra-violet spectrum”), and “Electricity,” which was widely reproduced in English-language literature in this period as well as in the *Revue Scientifique*⁴⁰. Crookes’s table of vibrations had clearly been a source for Leadbeater, and the inclusion of the excerpt from the spiritualist Flammarion made clear that non-Theosophists had also drawn important conclusions from it. Crookes himself was a crucial touchstone for the journal, and in July 1903—even before the Leadbeater articles appeared—prominent contributor Professor Karl Obertimpfler had reported on “Sir William Crookes in Berlin.” Crookes was in the city for an international chemistry congress, and Obertimpfler recounts his personal meeting with Crookes who gave there his lecture “Modern Views of Matter.”⁴¹ Obertimpfler summarized aspects of Crookes’s talk on the newest ideas about the nature of matter, including Thomson’s identification of the electron and the current research by the Curies. This was a critical moment for the journal’s future, because the popularization of radioactivity would provide spiritualists new scientific sources that would take them into territory clearly separate from Theosophy. For Theosophists, the understanding of the atom would still be dominated by Besant and Leadbeater’s clairvoyant “Occult Chemistry,” on which they had begun to publish in 1895 and which they would publish in book form in 1908⁴². Although the *Die Uebersinnliche Welt* cover design would remain the same through 1905, the journal’s discussion of the newest aspects of physics and chemistry would become increasingly prominent. In his subsequent new year’s essay, “Zum Jahreswechsel 1904,” Obertimpfler would celebrate the newest developments in radium research, including its transformation into helium in the work of William Ramsay and the implications of this “transmutation” for spiritualists. “Occultism is the father of the science of the future,” he concluded, just as du Prel had asserted, “Occultism is only unknown science” that “will be proven through the science of the future.”⁴³ In his “Zum Jahreswechsel 1905” text a year later, Obertimpfler concluded confidently, “Ours is the future!”⁴⁴



Figure 2: Die Uebersinnliche Welt (Berlin), vol. 10 (January 1902). Design by Fidus (Hugo Höpperner)

In July 1904 *Die Uebersinnliche Welt* began publishing articles focused specifically on science by a new contributor, Robert Blum, and the journal now truly became a source of current scientific information with bearing on the case for the validity of spiritualism. Typically, the ether and the names of figures like Lodge and Crookes remained prominent, at the same time that new figures such as the Frenchman Le Bon became relevant to the spiritualist interest in themes such as materialization and dematerialization⁴⁵. In 1906 Blum published a book drawing on his writing for the journal on science and occultism, which he titled, somewhat curiously, *The Fourth Dimension*. Even though the book had little to do with that subject specifically, it was a term strongly associated with spiritualism because of the activities of Leipzig astronomer J.C.F. Zöllner and the medium Henry Slade in the 1870s⁴⁶. Most interestingly, however, is the second section of Blum's three-part book, titled "Die Irrtümer moderner Theosophie" [The Errors of Modern Theosophy]⁴⁷. This was the same year *Die Uebersinnliche Welt* reverted to its earlier cover design, despite the fact that Fidus's

imagery suggested so effectively the very energies that were now even more central to the journal's scientific interests. The tolerance for Theosophy was gone, and the names of Theosophists would subsequently appear only occasionally in the announcements of newly published books.

Seven issues of *Die Uebersinnliche Welt* from 1904, 1906, and 1908 are preserved in the Kandinsky-Gabriele Münter library at the Lenbachhaus in Munich, along with a number of other spiritualist sources in addition to his other books. One of these issues (January 1908) features an article on the “transcendental photography” that so interested the artist, including the work of Baraduc and Darget⁴⁸. Commandant Darget, whose book on photographing “V-rays” Kandinsky acquired in its French edition, would work closely with the journal's editors in subsequent years, and they even published a German translation of his book⁴⁹. It is a reminder that despite Kandinsky's growing allegiance to Rudolf Steiner, he was operating in a milieu in which various strands of occultism (some competing) intermingled⁵⁰. In *On the Spiritual in Art*, published in late 1911, the artist notes “Dr. Steiner” and mentions Blavatsky briefly in his text (reflecting back on Theosophy), but he then lists in a footnote “Zöllner, Wagner, Butlerov, Crookes, Ch. Richet, C. Flammarion,” as well as “C. Lombroso,” all of whom were associated with both science and spiritualism⁵¹. Kandinsky was also interested in the work of Albert de Rochas, another close associate of *Die Uebersinnliche Welt*⁵². With his references to the “further division of the atom” and to the “electric theory of matter,” Kandinsky had clearly absorbed a variety of intellectual stimuli as he developed his artistic theory and pioneering style of abstract painting⁵³. And based on spiritualism, Theosophy, and the thought transfer embodied “transcendental photography,” he had good reason to believe his paintings could set up vibrations in the soul of a viewer⁵⁴.

Contemporary science, centered on ether physics, was the grounding on which both Theosophists and spiritualists were drawing heavily, and, as we have seen, occult journals like *Die Uebersinnliche Welt* served as critical vehicles for the international transmission of the newest scientific ideas and the varying occult responses to them. It is little wonder that the Futurist Boccioni—interested in spiritualism and, briefly, Theosophy in Italy—would share Kandinsky's scientific interests, including the “electric theory of matter”; journals such as *Ultra: Rivista Teosofica di Roma* were publishing much of the same type of content. This is true, too, of the situation in Paris, where an artist like Kupka (himself a spiritualist also interested in Theosophy) could read much of the same kind of information in the Parisian journal *La Vie Mystérieuse*, whose editorial board included associates of the Salon Cubist circle, poet Alexander Mercereau and publisher

Eugène Figuière⁵⁵. With its Paris counterpart—first the *Librarie Spiritualiste* and then Hector Durville’s *Librairie du Magnétisme*—as well as its links to figures like Rochas and Darget as well as the *Annales des sciences psychiques*, *Die Uebersinnliche Welt* was closely connected to activities in Paris—a bond that only the coming of World War I could break. It is clearly time to explore this long forgotten underpinning of modernism in the international cultures of science and occultism and the stimulating focus on invisible meta-realities to which they gave rise.

Footnotes

1. Richard Sheppard. “The Problematics of European Modernism.” *Theorizing Modernism*. Ed. Steve Giles. London: Routledge, 1993. 14. Print.
2. See Linda Dalrymple Henderson. “Four-Dimensional Space or Space-Time?: The Emergence of the Cubism-Relativity Myth in New York in the 1940s.” *The Visual Mind II*. Ed. Michele Emmer. Cambridge: MIT Press, 2005. 349-97. Print. See also Henderson, *The Fourth Dimension and Non-Euclidean Geometry in Modern Art* (1983). Rev. ed. Cambridge, MA: The MIT Press, 2013. Appendix A. Print.
3. On Einstein’s theories and their reception, see, e.g., Helge Kragh. *Quantum Generations: A History of Physics in the Twentieth Century*. Princeton: Princeton University Press, 1999. 90-104. Print.
4. On these discoveries, see, e.g., L. D. Henderson, “Editor’s Introduction: I. Writing Modern Art and Science—An Overview; II. Cubism, Futurism, and Ether Physics in the Early Twentieth Century.” *Science in Context* 17 (Winter 2004): 423-66. Print.
5. See Sir Oliver Lodge. “Electric Theory of Matter.” *Harper’s Monthly Magazine* 109 (Aug. 1904): 383-89. Print. See also Kandinsky. “On the Spiritual in Art.” *Kandinsky: Complete Writings on Art*. Eds. Kenneth C. Lindsay and Peter Vergo. New York: Da Capo, 1994. 142. Print. And Umberto Boccioni. *Pittura scultura futuriste (dinamismo plastico)*. Milan: Edizioni Futuriste di “Poesia,” 1914. 105. Print.
6. Maxwell, as quoted by Sir Oliver Lodge in *The Ether of Space*. New York and London: Harper & Brothers, 1909. 114. Print. On the history of the ether, see, e.g., G. N. Cantor and M. J. S. Hodge. *Conceptions of Ether: A Study in the History of Ether Theories 1740-1900*. Cambridge: Cambridge University Press, 1981.
7. “Address by Sir William Crookes, President.” *Report of the Sixty-Eighth Meeting of the British Association for the Advancement of Science* (1898). London: John Murray, 1899. 31. Print. Crookes’s text was reproduced in part in *Die Uebersinnliche Welt* 2 (Feb. 1899): 57-61. Print.
8. See, e.g., L. D. Henderson. “Vibratory Modernism: Boccioni, Kupka, and the Ether of Space.” *From Energy to Information: Representation in Science and Technology, Art, and Literature*. Eds. Henderson and Bruce Clarke. Stanford: Stanford University Press, 2002. 126-49. Print; Courtney Grean Raia. “From Ether Theory to Ether Theology: Oliver Lodge and the Physics of Immortality.”

Journal of the History of the Behavioral Sciences 43 (Winter 2007): 19-43. Print; Richard Noakes. "The 'World of the Infinitely Little': Connecting Physical and Psychical Realities Circa 1900." *Studies in the History and Philosophy of Science* 39 (2008): 323-34. Print; Egil Asprem. "Pondering Imponderables: Occultism in the Mirror of Late Classical Physics." *ARIES* 11/2 (2011): 129-65. Print; and Asprem. *The Problem of Disenchantment: Scientific Naturalism and Esoteric Discourse 1900-1939*. Leiden: Brill, 2014. Print.

9. For the interest in science by Blavatsky and other occultists, see Henderson. "Vibratory Modernism." Op. cit. On the popularization of interest in a possible fourth dimension of space via Leadbeater's writings, see Henderson. *Fourth Dimension and Non-Euclidean Geometry in Modern Art*. Op. cit. Chap. 1. Print.

10. On Steiner, see, e.g., Helmut Zander. *Rudolf Steiner: Die Biographie*. Munich: Piper, 2011. Print. Steiner was virtually ignored by the editors of *Die Uebersinnliche Welt* as he rose to prominence in the context of German occultism.

11. For some time, a number of German scholars have been actively exploring spiritualism and its cultural impact as part of an interest in media history and technology. Wolfgang Hagen's essay "Der Okkultismus des Avantgarde um 1900" [in *Konfigurationen: Zwischen Kunst und Medien*. Eds. Sigrid Schade and Georg Christoph Tholen. Munich: Fink, 1999. Print.] exemplifies this scholarship, as does Stefan Andriopoulos's book *Ghostly Apparitions: German Idealism, the Gothic Novel, and Optical Media* [New York: Zone Books, 2013. Print.]. Such authors find in spiritualism (and related occult concerns in France) a prototype for the emergence of the technology of telegraphy as well as an important stimulus for modernist creation. Corinna Treitel's book *A Science for the Soul: Occultism and the Genesis of the German Modern* [Baltimore: Johns Hopkins Press, 2004. Print.] is the first book-length study in English of the important role of occultism, including spiritualism, in the emergence of modern culture in Germany in the late nineteenth and early twentieth centuries. On spiritualism and Anglo-American modern literature, see Tim Armstrong. *Modernism: A Cultural History*. Cambridge: Polity Press, 2005. Chap. 6: "The Vibrating World: Science, Spiritualism, Technology." Print.

12. The vast amount of popular literature on these subjects can be sampled readily through periodical indices such as *The Reader's Guide to Periodical Literature* (now digitized); for a sampling of this literature in France, see, e.g., the bibliography by topic in L. D. Henderson. *Duchamp in Context: Science and Technology in the Large Glass and Related Works*. Princeton: Princeton University Press. 1998. Print.

13. See Martin Jay. *Downcast Eyes: The Denigration of Vision in Twentieth-Century Thought*. Berkeley: University of California Press, 1994. 159. Print.

14. See Jonathan Crary. *Techniques of the Observer: On Vision and Modernity*. Cambridge: The MIT Press, 1990. 16. Print, where he builds on the theories of Michel Foucault.

15. The founding editor in of *Die Uebersinnliche Welt* [henceforth, DUW] in 1893 was Max Rahn. Ulrich Linse describes the journal as "one of the highest quality German publications," in a brief discussion in "Der Spiritismus in Deutschland um 1900." *Mystique, mysticisme et modernité en Allemagne autour de 1900*. Strasbourg: Presses Universitaires de Strasbourg, 1998. 101. Print.

16. With the outbreak of war in August 1914, the journal changed to German script and never returned to its original cover after the war. For a group so international in its orientation and so close to their French associates, the war was a wrenching shock.
17. On the artist Fidus, see, e.g., Janos Frecot, Johann Freidrich Geist, and Diethart Kerbs. *Fidus, 1868-1948: Zur ästhetischen Praxis bürgerlicher Fluchtbewegunen*. Munich: Rogner & Bernhard, 1972. Print. On Munch, spiritualism, and the new science, see, e.g., Pascal Rousseau. "Radiation: Metabolising the 'new rays.'" *Edvard Munch: The Modern Eye*. Exh. cat. London: Tate Publishing, 2012. 160-69. Print. For Kandinsky's issues, see note 48 below.
18. Theosophists' names would appear only occasionally in the book review section of the journal. From 1902 to 1905, while the cover bore the six-pointed star design by Fidus, the group maintained a line drawing of a sphinx in profile against a five-pointed star (introduced in 1893) at the top of the initial page of text in each issue.
19. Treitel. *Op. cit.* 16
20. On du Prel, see Thomas P. Weber. "Carl du Prel (1839-1899): Explorer of Dreams, the Soul, and the Cosmos." *Studies in the History and Philosophy of Science* 38 (2007): 593-604. Print. Weber cites an August 1880 letter from du Prel to J.C.F. Zöllner, documenting his having become a spiritualist (597).
21. See Carl du Prel. *The Philosophy of Mysticism*. Trans. C. C. Massey. London: George Redway, 1889. Vol. 2. 130-65: "The Transcendental Subject." Print. For moving "threshold of sensibility," see 129ff. In his chapter on "Psychic Television," Andriopoulos includes a discussion of du Prel's interest in "television" in relation to wave-borne thought transfer; see Chap. 5: "Ghostly Apparitions."
22. See Treitel. *Op. cit.* Chap. 2; Wolfram. *The Stepchildren: Psychological Research and Parapsychology in Germany, c. 1870-1939*. Amsterdam: Rodopi, 2009. Print; and Andreas Sommer. "Normalizing the Supernormal: The Formation of the 'Gesellschaft für Psychologische Forschung' ('Society for Psychological Research'), c. 1886-1890." *Journal of the History of the History of the Behavioral Sciences* 49 (Winter 2013): 18-44: Print.
23. M. Offner. "Die deutsche Gesellschaft für psychologische Forschung." *Sphinx* 18/66 (1891): 334 (1). Print. Quoted in Wolfram. *Op. cit.* 70. Although du Prel had been closely involved with the journal *Sphinx* from its founding in 1886, it increasingly focused on empirical psychical research (Sommer, "Normalizing the Supernormal"); ultimately, however, in 1892 editor Wilhelm Hübbe-Schleiden, a Theosophist, redirected the journal's focus to Theosophy.
24. On Reichenbach, Rochas, and Baraduc, see, e.g., Rolf. H. Krauss. *Beyond Light and Shadow: The Role of Photography in Certain Paranormal Phenomena: An Historical Survey*. Trans. Timothy Bell and John Gledhill. Munich: Nazraeli Press, 1995. Print. Krauss also addresses the thought photographer Louis Darget (discussed further below). On Rochas and Baraduc, see Henderson. "Vibratory Modernism." *Op. cit.*
25. Carl du Prel. *Spiritismus*. Leipzig: P. Reclam, 1893. 15. Print. Quoted in Eberhard Bauer. "Spiritismus und Okkultismus." *Okkultismus und Avant-garde: Von Munch bis Mondrian 1900-1915*. Ed. Veit Loers. Exh. cat. Frankfurt: Schirn Kunsthalle, 1996. 60. Print.

26. On Darget, see the sources cited in note 24 as well as the discussion of Kandinsky's interest in Baraduc and Darget in note 48.

27. See Annie Besant and C. W. Leadbeater. *Thought-Forms*. London: Theosophical Publishing Society, 1905. 12-14. Print; and Besant and Leadbeater. *Occult Chemistry: A Series of Clairvoyant Observations on the Chemical Elements*. London: Theosophical Publishing Society, 1908. Appendix: "The Aether of Space." Print.

28. See Henderson. "Vibratory Modernism." Op. cit. 141.

29. See, e.g., "Prof. Oliver Lodge's Bericht über Eusapia Paladino [sic]." *DUW* 3/3 (March 1895): 45-50. Print. On Lodge and Eusapia, see Richard Noakes. "Haunted Thoughts of the Careful Experimentalist: Psychical Research and the Troubles of Experimental Physics." *Studies in History and Philosophy of Biological and Biomedical Sciences* 48 (2014): 46-56. Print.

30. H. Strebel's "Kraft und Stoff in 'Astralen'" appeared monthly in the issues for March-May 1899 (vol. 7, nos. 3-5) and for March-September and then December 1900 (vol. 8, nos. 3-8/9 and 12). Print. Strebel's commitment to Theosophy was clear in his intervening two-part article "Ein Lanze für indische Psychologie under Theosophie." *DUW*, 8/10 (Oct. 1900): 370-79; and 8/11 (Nov. 1900): 410-28. Print.

31. See "Die Welt, die wir nicht sehen" [excerpt by Gunther Wagner]. *DUW*, 9/8 (Aug. 1903): 315-20; and *DUW*, 9/9 (Sept. 1903): 336-40. Print. The citation provided in *DUW* is to C. W. Leadbeater. "The Unseen World." *The Theosophist* (Adyar, Madras) 22/8 (May 1901): 458-65; and 22/9 (June 1901): 520-27. Print. In the summary below, I provide page references to both sources, using Leadbeater's original English.

32. Leadbeater. "Unseen World." *Theosophist* 22/8 (May 1901): 462; 22/9 (June 1901): 524; and "Die Welt." *DUW* 9/8 (Aug. 1903): 318; 9/9 (Sept. 1903): 340. Print.

33. Leadbeater. "Unseen World." *Theosophist*, 22/8, 462; and "Die Welt." *DUW* 9/8. 318. Print.

34. For "all sensation," see Leadbeater. "Unseen World." *Theosophist* 22/8: 464; "Die Welt." *DUW* 9/8: 320; for "whole secret," see Leadbeater. "Unseen World." *Theosophist* 22/8: 465; "Die Welt." *DUW* 9/9: 336.

35. Leadbeater. "Unseen World." *Theosophist* 22/8: 465; "Die Welt." *DUW* 9/9: 336.

36. Leadbeater. "Unseen World." *Theosophist* 22/9: 520; "Die Welt." *DUW* 9/9: 336-37.

37. Leadbeater. "Unseen World." *Theosophist* 22/9: 521; "Die Welt." *DUW* 9/9: 337.

38. Leadbeater. "Unseen World." *Theosophist* 22/9: 527; "Die Welt." *DUW* 9/9: 340.

39. See "Ein Interessantes Kapitel aus Flammarion's 'L'Inconnu'" [reported by Dr. Franz Freudenberg]. *DUW* 9/9 (Sept. 1903): 330-36. Print. See Camille Flammarion. *The Unknown*. New York and London: Harper & Brothers, 1900. 12. Print. For Crookes's original lecture, see "Sir William Crookes on Psychical Research." *Annual Report of the Smithsonian Institution*, 1899. Washington, D. C.: Government Printing Office, 1901. 185-205. Print.

40. See William Crookes. "De la relativité des connaissances humaines." *Revue Scientifique* 4th ser. 7 (May 15, 1897): 609-13. Print.

41. See Prof. Carl Obertimpfler. "Sir William Crookes in Berlin." *DUW* 11/7 (July 1903): 269-73.

42. See note 27.

43. Prof. Carl Obertimpfler. "Zum Jahreswechsel 1904." *DUW* 12/1 (Jan. 1904): 3, 5. Print; for du Prel's statement, see note 25.
44. Prof. Carl Obertimpfler. Op. cit. 3.
45. See R.B. [Robert Blum]. "Grundgesetze des 'Okkultismus.'" *DUW* 12/7 (July 1904): 252-64. Print, in which Blum mentions Lodge and Crookes, along with Heinrich Hertz.
46. On Zöllner, see Treitel. Op. cit. Chap. 1; and Henderson. *Fourth Dimension and Non-Euclidean Geometry in Modern Art*. Op. cit. Chap. 1.
47. See Robert Blum. *Die Vierte Dimension*. Stuttgart: Verlag Altmann, 1906. Print.
48. See J. Peter. "Transcendental-Photographie." *DUW* 16/1 (Jan. 1908): 4-18. The library is held by the Gabriele Münter und Johannes Eichner Stiftung, which is located at the Lenbachhaus. Sixten Ringbom was the first scholar to discuss Kandinsky's interest in Baraduc, Darget, and Rochas, based on this archive; see Ringbom. *The Sounding Cosmos: A Study in the Spiritualism of Kandinsky and the Genesis of Abstract Painting*. Åbo, Åbo Akademi, 1970. 53-55. Print; on Rochas, see 122-23. On the photographers, see again note 24.
49. See Commandant Darget. *Exposé des différentes méthodes pour l'obtention de photographies fluïdo-magnétiques et spirites: rayons V (vitaux)*. Paris: Edition de l'Initiation, 1909. Print.
50. On Kandinsky's art and theory, see, e.g., L. D. Henderson. "Abstraction, the Ether, and the Fourth Dimension: Kandinsky, Mondrian, and Malevich in Context." *Kandinsky, Malewitsch, Mondrian: Der Weisse Abgrund Unendlichkeit/The Infinite White Abyss*. Eds. Marian Ackermann and Isabelle Malz. Exh. cat. Düsseldorf: Kunstsammlung Nordrhein-Westfalen, 2014. 37-55 (German). 233-44 (English). Print.
51. See Kandinsky. "On the Spiritual in Art." In *Complete Writings*. Eds. Lindsay and Vergo. Op. cit. 143, 45; Kandinsky also mentions Palladino in relation to Lombroso [143]. While Ringbom discussed the various figures in Kandinsky's list in *The Sounding Cosmos* [Op. cit. 50-52], he dismissed spiritualism as a relevant source for Kandinsky [56].
52. See Ringbom. Op. cit. 122-23.
53. See again note 5. See also Kandinsky. "Reminiscences/Three Pictures" (1913). In *Complete Writings*. Eds. Lindsay and Vergo. Op. cit. 364.
54. See, e.g., Kandinsky. "On the Spiritual in Art." In *Ibid.* 157-60.
55. On Boccioni and Kupka, see Henderson. "Vibratory Modernism." Op. cit. Along with Kandinsky, they are both part of a current book project: *The Energies of Modernism: Art, Science, and Occultism in the Early 20th Century*. For *La Vie Mystérieuse* and a sampling of occultism in Paris, see L. D. Henderson. "Mysticism, Romanticism, and the Fourth Dimension." *The Spiritual in Art: Abstract Painting 1890-1985*. Exh. cat. Los Angeles: Los Angeles County Museum of Art, 1986. 227-28. Print.

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