

Pondering Imponderables: Occultism in the Mirror of Late Classical Physics

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Abstract

On a souvent caractérisé le fait d'établir une ligne de partage entre la physique «classique» et la physique «moderne» comme une manière de rompre avec une conception mécaniste, matérialiste et réductionniste du monde, pour se tourner vers une autre, ouverte et fondamentalement incertaine. Selon tant des porte-parole de l'ésotérisme moderne que certains «scholars», cette rupture aurait, en outre, rendu la science davantage susceptible d'accueillir favorablement la spéculation ésotérique. Comme d'ordinaire, les choses ont pu se présenter de façon un peu plus complexe. Le présent article, qui repose sur l'historiographie récente des sciences physiques, montre que ce ne fut pas seulement après Bohr, Heisenberg, Pauli, et al., que des ésotéristes se sont montrés capables d'établir un dialogue serré et semi-convaincant avec la physique de pointe. Contrairement à l'idée reçue, la vision «mécaniste-matérialiste» de la physique du XIX^e siècle peut n'avoir pas été aussi fermée à la spéculation métaphysique que sa réputation le laisse entendre. En mettant en particulier l'accent sur le développement de modèles d'éther optique et électro-magnétique, l'article soutient l'idée que la physique représenta, aux plans conceptuel et culturel, une ressource importante pour les ésotéristes à l'apogée de sa période «classique», et il présente un choix de problèmes à propos desquels des penseurs tant scientifiques qu'ésotériques pouvaient converger. Un discours spécifique de la «métaphysique de l'éther» est mis ici en évidence, dont on identifie un aspect cosmologique et un aspect anthropologique. En traitant de cas tirés de l'occultisme et de la recherche psychique, l'article illustre la manière dont la physique classique tardive a constitué, en matière d'innovations doctrinales de l'ésotérisme moderne, un contexte crucial quoique peu exploré.

Keywords

esotericism and science; ether physics; subtle bodies; metaphysics; occultism; psychical research

Introduction: Esoteric Discourse between Scientific Cultures

The appeal to scientific concepts and theories has been a resilient feature of post-Enlightenment esoteric discourse.¹ While this is well recognized in the scholarly literature, the exact relation between esoteric discourses and contemporaneous scientific cultures is less documented for some periods than for others. For instance, Olav Hammer has noted that ‘the mesmerist use of the vocabulary and theories of physics’ and the abundance of references to quantum mechanics and relativity theory in New Age discourse are quite well documented trends, while ‘[t]he history of the intermediate period ... is an under-explored theme’.² This gap, which also spans the ‘intermediate period’ between “classical” and “modern” physics, is certainly conspicuous, for it is a period which spawned some syntheses of esoteric and scientific discourse that have been highly influential in modern esotericism. Hammer concerns himself mainly with writers in the neo- and post-Theosophy movements, especially Charles W. Leadbeater (1854–1934), Alice Bailey (1880–1949), and Edgar Cayce (1877–1945). However, one could easily expand the list, first by including associated figures such as Annie Besant (1847–1933) and Rudolf Steiner (1861–1925), then by going backwards in history to the classical Theosophy of Blavatsky, Olcott, Sinnett and others, and lastly by looking at neighbouring discourses such as spiritualism and psychical research.³

¹ See especially Wouter J. Hanegraaff, *New Age Religion and Western Culture*; idem, ‘The New Age Movement and the Esoteric Tradition’; Olav Hammer, *Claiming Knowledge*; Egil Asprem, ‘Magic Naturalized?’.

² Hammer, *Claiming Knowledge*, 268. The background of mesmerism in 18th-century speculations on electricity is well known, as is the relation to *Naturphilosophie* and the so-called “theology of electricity” originating with Swabian pietist thinkers. See, e.g., Ernst Benz, *The Theology of Electricity*; Robert Michael Brain, Robert S. Cohen and Ole Knudsen (eds.), *Hans Christian Ørsted and the Romantic Legacy in Science*; Nicholas Goodrick-Clarke, ‘The Esoteric Uses of Electricity’. For studies of science in the New Age movement, see Hanegraaff, *New Age Religion and Western Culture*, 62–76; David J. Hess, *Science in the New Age*; Hammer, *Claiming Knowledge*, 201–330.

³ Scholarship on the scientific context is much stronger when it comes to psychical research, which is a topic that has interested at least a few historians of science. See especially the articles by Richard Noakes, ‘Telegraphy is an Occult Art’; idem, “‘The Bridge Which Is between Physical and Psychical Research’”; idem, ‘Spiritualism, Science and the Supernatural in mid-Victorian Britain’; idem, ‘The ‘World of the Infinitely Little’’. See also Courtenay Grean Raia, ‘From Ether Theory to Ether Theology’; idem, *The Substance of Things Hoped For*; Heather Wolfram, ‘Supernormal Biology’; Roger Luckhurst, *The Invention*

Hammer spends a little over three pages trying to remedy some of the neglect, by calling attention to what he terms ‘atomic metaphysics’.⁴ Briefly put, atomic metaphysics here refers to the attempt by writers like Leadbeater and especially Bailey to ponder the structure and scientific understanding of atoms, further pushing on to give esoteric speculations on the ultimate nature of matter and the physically tangible cosmos, a nature beyond the physical senses. Hammer elucidates this largely under-researched current by looking particularly at Alice Bailey’s *The Consciousness of the Atom* (1922), written as a series of lectures for her schismatic Arcane School in 1921–1922, and relating it to the original Theosophy of Blavatsky and the neo-Theosophy of Leadbeater *et al.* What remains missing from the analysis, however, is a deeper engagement with the actual scientific context in relation to which these authors were positioning themselves. Providing scientific context for this “intermediary age” is the main objective of the current article. First, however, we should take a closer look at the “atomic metaphysics” observed by Hammer.

In *The Consciousness of the Atom* Bailey considers some of the scientific developments in descriptions of the atom, which, at the time of writing, was being subdivided into the constituent parts of electrons and nucleus, and she makes an effort to harmonise these models with her take on Theosophical cosmology.⁵ In the process she quotes several 19th-century physicists. Indeed, Hammer observes that Bailey’s esoteric exegesis of atomic physics rests on two central ideas, which later enjoyed very different fates in esoteric discourse: ‘the concept of the aether as the primeval stuff of the cosmos’ on the one hand, and ‘the belief that the concept of matter itself is being superseded by the concepts of force and energy’ on the other.⁶ Following her neo-Theosophical predecessors, Bailey interpreted the physical atom as being ultimately a manifestation of a more fundamental etheric substance, a substance which was the intermediary seat of all the energy in the universe.⁷ As Hammer rightly notes, the reference

of *Telepathy*. For classic studies of psychological research, see Alan Gauld, *The Founders of Psychological Research*; Frank M. Turner, *Between Science and Religion*; Janet Oppenheim, *The Other World*; Bertrand Méheust, *Somnambulisme et médiumnité*, vol. II: *Le choc des sciences psychiques*.

⁴ Hammer, *Claiming Knowledge*, 268–270.

⁵ Bailey, *Consciousness of the Atom*, 17.

⁶ Hammer, *Claiming Knowledge*, 269.

⁷ Compare this view with the cosmology laid out in, e.g., Annie Besant, ‘Occult Chemistry’; Besant and C.W. Leadbeater, *Occult Chemistry*; also cf. the synthesis in Arthur E. Powell, *The Etheric Double and Allied Phenomena*.

to ether would soon be on its way out of esoteric speculation, just as it was on its way out of scientific discourse. Meanwhile the concept of “energy” (and its corresponding plural) would reach inflationary levels in New Age and related discourses.

Hammer goes on to comment about Bailey’s interpretations of matter that ‘[i]t is as if a linguistic revision of the term “matter” would exorcise materialism’.⁸ At this point, a couple of objections arise. As I will demonstrate in the present article, the revisions are not really novel to Bailey, not even to Theosophists or other occultists; rather, the redefinition of matter in terms of more fundamental substances or processes arose within physics proper. From this it also follows that the revisions were not *merely* linguistic tricks. In the context of physics, attempts to understand matter in terms of ether or even electromagnetism resulted from physical models based on mathematical formalisations, theory-building, and the challenge of puzzling experimental data. During the decades before the establishment of the relativity theories and quantum mechanics, several research programmes existed which tried to reduce matter to more fundamental processes. In the English-speaking world, ether physics was a strong and highly successful programme, ultimately giving rise to Maxwell’s equations and the foundation of classical electrodynamics. Towards the end of the 19th century and well into the 20th various attempts were made by continental physicists to get rid of the primacy not only of *matter* but also *mechanics*, by developing a worldview in which matter was reducible to purely electromagnetic phenomena. Furthermore, it is important to note that ideas like these were closer to the “centre” than the “margin” of scientific discourse;⁹ Lord Kelvin (William Thomson; 1824–1907) was a central reference point for ether models of matter, while Hendrik A. Lorentz (1853–1928) promoted the electromagnetic worldview.¹⁰

This, of course, does not mean that Theosophists were inscribed in the same programme as these esteemed scientists. The goals, methods, and modes of reasoning were clearly different. Hammer is entirely correct in noting the

⁸) Hammer, *Claiming Knowledge*, 269.

⁹) A good discussion of the centre/margin distinction in 19th-century science is available in Alex Warwick, ‘Margins and Centres’. Cf. other contributions to the same volume.

¹⁰) For theories of matter in British ether physics, see, e.g., Bruce J. Hunt, *The Maxwellians*, 73–107. For Lorentz and the electromagnetic worldview, see Russell McCormmach, ‘H.A. Lorentz and the Electromagnetic View of Nature’. For overviews, see, e.g., Helge Kragh, *Quantum Generations*, 3–12, 44–57, 105–119.

tendency among esoteric writers to start from the scientists' *metaphorical* descriptions of, for instance, the energy, momentum and movement of atoms, and then to wander off into speculative realms where these descriptions are taken to *literally* imply vitality, teleology or even consciousness.¹¹ However, I do suggest that a more thorough understanding of the sciences of the day leads to a reconsideration of the *degree* to which various occult systems were scientifically marginal—this is an empirical matter which can only be appreciated by bracketing present scientific intuitions and plunging into the often strange and unfamiliar worldviews of past scientific cultures. To do this, we need to merge the literature on esotericism with the history of modern science. The present article is a contribution to this wider project.

In part one I will describe the birth and development of Victorian ether physics, leading up to the many puzzling discoveries in late-classical physics around the turn of the century. In this discussion, I will particularly look at the relation between three conceptual developments, namely ether, matter and the emerging concept of electromagnetism—which itself subsumed the three concepts of electricity, magnetism, and light. As was already signalled, the development of these concepts in late-classical physics is a largely overlooked context for esoteric thought in the 19th and early 20th centuries. Part two moves on to connect the scientific and esoteric discourses, by focusing particularly on the concept of ether. The concept of ether and the various theories of its relation to matter and electromagnetism in late-classical physics provided an entry point for occultists, spiritualists and (especially) psychical researchers at the end of the 19th century. In the third part this focus continues by looking in more detail at a specific blending of scientific and esoteric discourse, namely the development of the concept of “etheric bodies”. While coming out of an esoteric discourse on subtle bodies with ancient roots, the concept of the etheric body made use of specifically 19th-century scientific discourses on matter, ether and electromagnetism, even profiting from the occasional direct cooperation of some distinguished physicists.

¹¹ Hammer, *Claiming Knowledge*, 269. The confusion of analogy and identity is, arguably, a trait of occult thought which goes back to early and pre-modern times. See, e.g., Brian Vickers, ‘Analogy versus Identity’; idem, ‘On the Function of Analogy in the Occult’. Cf. the recent criticisms in Christopher Lehrich, *The Occult Mind*, 101–131; Hanegraaff, *Esotericism and the Academy*, chapter three.

1. Ether and Matter in Victorian Physics

The Birth of Ether Physics: A Short Overview

It has been argued that the word “ether” sums up all that physics was about in Britain during the second half of the 19th century.¹² Ether had been rehabilitated by natural philosophers to support the wave theory of light, which gained the upper hand on the corpuscular models around 1830. Luminiferous ether, the purported medium of light, was thought to extend everywhere in the universe, undetectable and subtle, yet mechanically active. Its supposed spatial omnipresence soon made it attractive as a heuristic entity to other disciplines than optics. Over the course of the century, the ether concept came to permeate various theories of matter, electricity, and magnetism as well.

The concept of ether has a long and varied history, stretching back to Greek antiquity.¹³ Aristotle conceived of the substance of the supra-lunar world in terms of *aithér*, understood as the “first body” and the *quinta essentia*, a kind of perfect *Urstoff*. From antiquity throughout the Middle Ages, into the Renaissance and the Early Modern periods, different kinds of ethers were invented and invoked to perform a great variety of cosmological and physical functions. Here we should restrict ourselves to the immediate backgrounds for the 19th-century debates.

Newton’s works at the close of the 17th century are generally considered the culmination of the Scientific Revolution and the settlement of classical physics. Although Newton’s natural philosophy gave models that were far more complete than their predecessors, there were still some significant gaps. Even despite his famous claim to “feign no hypotheses” (*hypotheses non fingo*), Newton’s *Opticks* (1704), especially in queries added to the 1717 edition, had

¹² See Goldberg, ‘In Defense of Ether’, 99. For discussions on the scientific theories of ether in the 19th century and its many possible functions, see Daniel M. Siegel, ‘Thomson, Maxwell, and the Universal Ether in Victorian Physics’; P.M. Harman, ‘Energy, Force, and Matter’; Hunt, *The Maxwellians*. The standard historical study of scientific ether theories generally remains Edmund T. Whittaker, *A History of the Theories of Aether and Electricity* (two volumes), but should be supplemented by the essays in G.N. Cantor & M.J.S. Hodge (eds.), *Conceptions of Ether*. In addition a number of articles discussing the wider cultural significance of Victorian ether theories have cropped up in recent years. See especially Noakes, ‘Ethers, Religion and Politics in Late-Victorian Physics’; idem, ‘The World of the Infinitely Little’; Grean Raia, ‘From Ether Theory to Ether Theology’.

¹³ For a concise discussion of the history of ether theories, including the antique context, see Cantor & Hodge’s elaborate ‘Introduction’ to *Conceptions of Ether*.

left natural philosophers with several underdeveloped ether theories to explain the reflection and refraction of light, even attempts at a theory of gravity using ether as the sustaining concept.¹⁴ During the following century, theories on various “subtle fluids” flowered. Benjamin Franklin (1706–1790) postulated an elastic ether to account for electricity, while George Le Sage’s (1724–1803) kinematic ether was offered as explanation for a wide range of phenomena, from gravity and weight to chemical affinity. The result was a tapestry of ethers, performing a range of different and poorly understood functions.¹⁵

Despite all these attempts it was only in the early decades of the 19th century that a more consistent and, with time, unified research programme of ether physics started to take shape. As mentioned, this development was intimately connected with the re-emergence of the wave theory of light, sparked by the work of Augustin-Jean Fresnel (1788–1827), Siméon Denis Poisson (1781–1840) and Thomas Young (1773–1829).¹⁶ While wave theories had been proposed earlier, notably by Christian Huygens (1629–1695) and Leonard Euler (1707–1783), until now the Newtonian corpuscular model had enjoyed the favour of natural philosophers in the field of optics. By the 1830s, however, proponents of the wave model could claim new experimental data to back up their views, namely Young’s celebrated 1801 double-slit experiment, which had successfully produced an interference pattern between two beams of light.

Common sense dictates that any wave needs a medium, and the establishment of the wave theory came with the philosophical problem of explaining how waves of light may propagate through seemingly empty space. To solve this problem it became increasingly attractive to infer the hypothesis of a “luminiferous ether”, an unseen, subtle optical medium through which light waves travel. The scientific legitimacy of ether was thus reinforced by a process of hypothetical inference and deduction, rather than direct observation.

While it arose as a supporting hypothesis for optics, the ether soon attracted additional significance. The development of electromagnetic theory around the middle of the century greatly expanded ether physics’ area of application. During the first half of the 19th century researchers in a number of countries were experimenting with electricity and magnetism, pushing towards a unified

¹⁴ See, e.g., P.M. Heimann, ‘Ether and Imponderables’, 64.

¹⁵ For overviews, Cantor & Hodge, ‘Introduction: Major themes in the development of ether theories from the ancients to 1900’. For the relation between the many proposed ether theories and a growing acceptance of the “method of hypothesis” in the sciences, see Laudan, ‘The medium and its message’. See also Laudan, *Science and Hypothesis*.

¹⁶ Laudan, *Science and Hypothesis*, 130.

theory of electricity, optics, and magnetism. Faraday's experiments with electromagnetism were of great importance in this development, but the real breakthrough came with James Clerk Maxwell's (1831–1879) suggestion that light waves were reducible to electromagnetic activity.¹⁷ With the unification of optics and electromagnetism, Maxwell's programme could assign new functions to the luminiferous ether: the ether now became the seat of all electric and magnetic activity, most fundamentally the phenomena of the electromagnetic field. After 1850, physicists were using the ether to rethink the whole range of basic physical concepts, including matter, energy and force.¹⁸

The Maxwellians and the Heyday of Mechanistic Ether Models

The Maxwellian research programme facilitated new and sophisticated models of how the ether worked.¹⁹ Some of the key figures of Maxwellian physics, notably George Francis FitzGerald (1851–1901) and Oliver Lodge (1851–1940), were dissatisfied with the mathematical austerity that characterised the work of their colleagues on the continent. Calculus and differential equations were not enough for them; they wanted physical analogies, images, and models that revealed the tangible *mechanism* of the ether and the workings of the electromagnetic field, making it possible to form a clear mental picture.²⁰ The result was models presenting the ether variously as a system of spinning cogwheels, or wheels connected by rubber bands.²¹ The French physicist Pierre Duhem (1861–1916) famously stated that the reader felt like he had entered a factory: 'In [Lodge's textbook on electricity] there are nothing but strings which move around pulleys, which roll around drums, which go through pearl beads, which carry heavy weights; and tubes which pump water while others swell and contract; toothed wheels which are geared to one another and engage hooks'.²²

¹⁷ For a detailed discussion of Maxwell's ideas and their implications as explored by his followers, see Hunt, *The Maxwellians*.

¹⁸ See Siegel, 'Thomson, Maxwell, and the Universal Ether in Victorian Physics'; Wise, 'German Concepts of Force, Energy, and the Electromagnetic Ether'; Howard Stein, '“Subtler forms of Matter” in the Period following Maxwell'.

¹⁹ Cf. Hunt, *The Maxwellians*, 73–107.

²⁰ Lodge complained about the lack of emphasis on imagery during his entire career, advancing it as an argument against the “new physics” of quantum mechanics and relativity theory in his 1933 exposition, *My Philosophy*.

²¹ See, e.g., Hunt, *The Maxwellians*, 78–84, 87–95.

²² Duhem's review of Lodge's *Modern Views of Electricity*, as cited in Hunt, *The Maxwellians*, 87.

Although Duhem complained that the ‘ordered abode of reason’ could be so vulgarly industrialised, it is important to understand the rationale behind the British physicists’ approach. While Duhem may have seen the Englishmen’s representations as naïve and clumsy, the English found the mathematical formalism of the French to be cold, unimaginative, and lacking in any real explanatory power.²³ The ether mechanists wanted to go beyond naked equations and show, by visual and mechanical representations, *why* it was that electricity behaved the way it did.²⁴

At this point we should pause to make the important point that the mechanistic worldview of the physicists must not be confused with philosophical *materialism*. Although popular even with some historians, sharp distinctions between 19th-century “classical” physics and the late modern physics of quantum mechanics where the former is portrayed as cold, mechanistic and materialistic, while the latter supposedly has “loosened up” the scientific worldview, is in large part an anachronistic construction which stems in part from a segment of science’s 20th-century discontents.²⁵ In reality, 19th-century physicists, especially in the British Isles, were to a considerable extent opposed to the crude materialism propagated by hardliners among the “scientific naturalists”. Although there were physicists (notably John Tyndall) among the naturalists who launched attacks on the authority and validity of religion, largely for the sake of establishing legitimacy for the newly-created scientific profession, their mainstay was the life sciences.²⁶ Overall, the physics community seemed more sympathetic to the strong British tradition of natural theology, as developed

²³ For this and other conflicts about representations and models in modern science, see Mary Hesse’s classic study, *Models and Analogies in Science*.

²⁴ Hunt, *The Maxwellians*, 97–98.

²⁵ Including New Age science books, like Fritjof Capra’s best-selling *Tao of Physics*, and his follow-up, *The Turning Point*. These argue that modern science was now coming to (non-deterministic and holistic) conclusions about the ultimate nature of reality that were similar to notions held in Indian religion and philosophy. The strict distinction also seems to be due to the philosophical and ideological leanings of some of modern physics’ founders, especially in the Copenhagen school of quantum mechanics. For this point, see Forman, ‘Weimar Culture, Causality, and Quantum Theory’; idem, ‘Kausalität, Anschaulichkeit, and Individualität’. For historical criticisms of the distinction, see, e.g., Noakes, ‘The “World of the Infinitely Little”’, 333; and J. Brooke & G. Cantor, *Reconstructing Nature*, 74–94. Also cf. Richard Staley, ‘Worldviews and Physicists’ Experience of Disciplinary Change’.

²⁶ See for example Bowler, *Reconciling Science and Religion*, 99–100; Ruth Barton, ‘Huxley, Habbcock, and Half a Dozen Others’; Richard G. Olson, *Science and Scientism in Nineteenth-Century Europe*, 240–243.

in the 18th century by people such as William Paley (1743–1805).²⁷ In this project, practising physics remained a way to ponder the Creator, in the mechanistic equivalent to how the early modern natural philosopher would attempt to decipher that divine revelation which was the Book of Nature.

The mechanistic assumption shared by 19th-century physicists was, in itself, ontologically neutral. While Cartesian mechanism had posited that the external world could be accounted for by pondering pieces of extended matter in motion, the Victorian physicists typically concentrated on motion alone. Rather than assuming matter to be a fundamental substance, there was much discussion as to what was the substance which constituted matter itself. The ether mechanists tended to prioritise the all-pervading ether of space; particularly, matter could be accounted for by various kinds of motion in the ether. The assumption that Victorian physicists were not only mechanists, but also materialists, is therefore fundamentally flawed.

With a philosophical nuance, we could say that they were all *physicalists*, but not necessarily of the materialistic type. While everything is *physical*, much of what is physical is not *material*.²⁸ In fact, many notable Victorian physicists also manifested a certain impetus from *idealism*.²⁹ The most notable connection between idealism and ether mechanics is found in the case of Irish physicist George Johnston Stoney (1862–1911), FitzGerald's uncle. Stoney guarded against materialism and atheism by grounding his physical theories in an idiosyncratic version of George Berkeley's subjective idealism. The position was taken up by his nephew FitzGerald.³⁰ Their argument for linking idealism and mechanics starts with a consideration of motion. As mentioned, the classical mechanics of Descartes and Newton had been based on two basic prin-

²⁷⁾ E.g., Paley, *Natural Theology*.

²⁸⁾ In modern physics, for example, gravity is a physical effect, but it is not material. Instead it is a geometrical property of the curvature of spacetime. Spacetime certainly includes matter, but is not itself material. Similarly, the ether had physical properties (e.g. mechanical agency, in some models elasticity), which ultimately "caused" matter. Note that physicalism has been defined in many ways in modern philosophy, e.g. the idea that "everything supervenes on the physical", or the principle of "causal closure". The latter principle, which implies that every event has a physical cause, is almost indistinguishable from the mechanistic philosophy which most Victorian physicists held very dearly. For a philosophical overview and discussion of what physicalism may imply, including what distinguishes it from materialism, see Stoljar, 'Physicalism'.

²⁹⁾ Hunt, *The Maxwellians*, 98–100; cf. Frank Miller Turner, 'Victorian Scientific Naturalism and Thomas Carlyle'.

³⁰⁾ Hunt, *The Maxwellians*, 98–99.

ciples, namely motion and matter. In Stoney's mechanistic account, however, only motion is fundamental; it is stated that ultimately, all phenomena, from electromagnetic and optical phenomena to the material objects themselves, can be accounted for by variances in motion. This leaves one tricky question: what is really moving? At this point, Stoney and FitzGerald appealed to thought and consciousness. According to the two physicists, the only place we can even figure out the 'inner aspect of motion' is 'in our brains'.³¹ Furthermore, in our consciousness it is clear that thought is the internal aspect of motion. 'Can we resist the conclusion that all motion is thought?', FitzGerald asked.³² In other words, could it be that the phenomenal world is produced by motions in the great universal "Mind of God"? Or, as FitzGerald put it, 'that all Nature is the language of One in whom we live, and move, and have our being'?³³

This idealistic background encouraged looking for models where matter itself was explained by the motion of something more fundamental. Stoney found the most primary physical phenomenon to be the 'elemental ether', which he considered to be 'space itself regarded as movable'.³⁴ In other words, space was seen differently from both the empty void of the atomists and the *a priori* category of Kant, considered rather as a kind of liquid plenum: the ether.³⁵

Even besides Stoney and FitzGerald's idealist projects, a promising aspect of ether mechanics was its prospect of developing a "unified field theory" encompassing matter, electromagnetism, and light, which could replace the idea of material atoms clashing like billiard balls in a void.³⁶ Models attempting to explain matter as essentially an epiphenomenon of ether go back to the 1860s, when William Thomson (later Lord Kelvin) enunciated his vortex theory of the atom.³⁷ Kelvin's "vortex theory of matter" sparked a current of theorising among physicists, spawning several related models, including by FitzGerald and Lodge, picturing atoms as vortices with rotational force in a subtle fluid

³¹) FitzGerald quoted in Hunt, *The Maxwellians*, 99.

³²) Ibid.

³³) Ibid., 99.

³⁴) Stoney quoted in Hunt, *The Maxwellians*, 100.

³⁵) For a tidy (philosophical) introduction to the changing philosophical and scientific notions on space and time, see Kennedy, *Time, Space, and Einstein*.

³⁶) E.g., B.G. Doran, 'Field Theory in Nineteenth-Century Britain'.

³⁷) Doran, 'Field Theory in Nineteenth-Century Britain', 150; Grean Raia, 'From Ether Theory to Ether Theology', 25. For a biography of Kelvin, see Matthew Norton Wise, *Energy and Empire*. See also David B. Wilson, *Kelvin and Stokes: A Comparative Study in Victorian Physics*.

ether. The phenomena of electricity, magnetism and thermodynamics (Kelvin's main field) would arise mechanically from the strain produced by such vortices, all expressible through established hydrodynamic models. The ponderable matter of the visible universe arose from the arrangement and play of singularities in the non-material, non-visible ether. Lodge later held Kelvin's vortex model to be such a 'highly beautiful' theory that 'one may almost dare to say that it deserves to be true'.³⁸

The vortex model of matter was highly influential on Lodge and the Maxwellians, including FitzGerald and Oliver Heaviside, but also on other prominent physicists who touched on the question of the nature of matter. One example is (the young) J.J. Thomson, who promoted something akin to a theory of everything based on dynamic fluctuations in the ether in his celebrated 1882 Adams prize essay. Later attempts in the same vein are found in the work of William Hicks, not to mention the curious "ether squirt" theory of Karl Pearson.³⁹ The latter postulated that atoms were singularities in the ether similar to those proposed by Kelvin, but added that they squirted new ether, continuously flowing in all directions of space. Interestingly, in light of more recent cosmology, Pearson's theory balanced out the squirting points with "ether sinks", a kind of negative matter which eliminated ordinary matter.⁴⁰

The highly successful research programme of the Maxwellians engaged younger scientists to venture into new and uncharted territories at the turn of the century. The invention and discovery of the electron, a term introduced by Stoney in 1891, and used by Joseph Larmor (1857–1942) in his attempts to develop yet another alternative ether model in 1894,⁴¹ suggested new directions for electromagnetic theory and particle physics. During the 1890s a remarkable array of strange discoveries were claimed; some of them, like x-rays, radioactivity, and electrons would become accepted parts of physics, while effects such as N-rays and "black light" would turn out to be premature or spurious.⁴²

³⁸) Lodge quoted in Hunt, *The Maxwellians*, 103.

³⁹) For a brief overview and discussion of all these theories, see Helge Kragh, *Quantum Generations*, 5–7.

⁴⁰) The notion of matter and antimatter in contemporary physics is to a point analogous; however, whereas matter and antimatter are asymmetrically distributed in our universe, according to present cosmology, Pearson's "ether sinks" were thought to keep the balance.

⁴¹) Hunt, *The Maxwellians*, 210–228; Kragh, *Quantum Generations*, 38–39.

⁴²) Kragh, *Quantum Generations*, 37; cf. Nye, 'N-Rays'.

These discoveries and expansions also led to a new wave of speculation on the nature of matter, informed by electron theory.⁴³ As was mentioned earlier, a physical world-picture where matter was reduced to electromagnetic activities in the ether was proposed and advocated by people like the eminent Dutch physicist Hendrik A. Lorentz.⁴⁴ The ensuing quest for understanding the structure of atoms and elementary particles, undertaken by people like Thomson, Lorentz, Max Planck, Einstein, Ernest Rutherford, Niels Bohr, Werner Heisenberg, Wolfgang Pauli, and many others, sent physics straight into its “modern” phase.⁴⁵ Eventually, these lines of inquiry would lead to the downfall of ether theory as well as the continental electromagnetic worldview. Nevertheless, the ether was a resilient idea which, despite the common notion that Einstein’s special relativity exorcised it as early as 1905, survived the emergence of “modern physics” for several decades.⁴⁶

2. The Esoteric Edge of Ether Physics: Occultism, Spiritualism, Psychical Research

So far we have seen that the 19th-century physicists were not afraid of making hypotheses and conjectures concerning imponderables. We have also seen that, despite its reputation, “materialistic” is precisely what 19th-century physics was not. Instead of taking matter to be the fundamental stuff that the world is made of, physicists were driven by an attempt to find out what matter itself *really was*. In their search for the ultimate physical entities of matter—or what the chemist-physicist Sir William Crookes (1832–1919) termed “protyles”—physicists were led to theorise that matter might be but an epiphenomenon of etheric motion, the more fanciful even allowing for the possibility that such motion consists of thoughts in the mind of God. In short, physicists readily

⁴³ For some examples, see, e.g., Lodge, *Modern Views on Matter*; Fournier d’Albe, *The Electron Theory*; cf. McCormmach, ‘H.A. Lorentz and the Electromagnetic View of Nature’.

⁴⁴ McCormmach, ‘H.A. Lorentz and the Electromagnetic View of Nature’.

⁴⁵ For a good overview of the scientific development, see Kragh, *Quantum Generations*, 44–73.

⁴⁶ Especially in the British Isles and in the US. An indispensable overview of the regional differences in the reception of special relativity and the status of ether theory is available in Stanley Goldberg, ‘In Defense of Ether’. Oliver Lodge, perhaps the most ardent supporter of ether theory, defended a complex system of ether physics which intruded into the realms of philosophy and theology, as late as 1933. See Lodge, *My Philosophy*—a book which one scholar described as ‘a Victorian work in the midst of the twentieth century’ (see David B. Wilson, ‘The Thought of Late Victorian Physicists’, 33).

lent the ether to philosophical and theological speculation, providing a basis for a continuation of the British tradition of natural theology in physics.⁴⁷

In another vein, the controversial *Unseen Universe*, published anonymously in 1875 by physicists Balfour Stewart and Peter Guthrie Taite, used the ether to defend the existence of vast realms beyond this world, sustaining Christian notions of deity, the spiritual body, and an afterlife, even attempting to make supernaturalism consistent with thermodynamics. Such ideas were stretched further by the leading Maxwellian theoriser Oliver Lodge, who would later describe the ether as ‘the living garment of God’.⁴⁸

The idea of an all-pervading, universal, invisible substance, linking all the universe, soon became a powerful conceptual resource for esoteric thinkers. In the following I give a (necessarily brief) summary of the introduction and importance of the ether in occultism, spiritualism and psychical research in the second half of the 19th century, and indicate the connections with the physics of the day.

The Ether in Occultism

The Theosophical Society (founded 1875) was one of the most important laboratories for refining the ether to suit esoteric purposes. H.P. Blavatsky (1831–1891) dwelled extensively on the theme in *Isis Unveiled* (1877), which carried a critique and synthesis of science and religion. Chapter five of the book bears the title ‘The Ether, or “Astral Light”’. The term astral light had been introduced by Eliphas Lévi in his seminal *Dogme et rituel de la haute magie* (1856), where it signified the subtle “magical agent” permeating nature, which the magician and the mesmerist tapped into and directed through exertions of will. Blavatsky’s overall argument was to indicate that this magical agent, which became fundamental to 19th-century occultism both in France and abroad, was really a form of etheric force. In the process of making this point, the chapter demonstrates the syncretistic, synonymising tendency of theosophical speculation, e.g., in the search for, and *de facto creation of*, concordances between disparate religious, esoteric, and scientific knowledge systems.⁴⁹

⁴⁷ See, e.g., Cantor, ‘The Theological Significance of Ethers’; cf. Noakes, ‘Ethers, Religion and Politics in Late-Victorian Physics’.

⁴⁸ Lodge, *Ether & Reality*, 179.

⁴⁹ Cf. Asprem, ‘Kabbalah Recreata’.

The chapter starts by stating that ‘[t]here has been an infinite confusion of names to express one and the same thing’.⁵⁰ The chaos of the ancients, the Zoroastrian fire, the pentecostal fire-tongues, the akasha of the Hindus, and the Astral Light of Eliphas Levi were all manifestations of one and the same thing. These esoteric concepts were furthermore brought together with the many new force phenomena uncovered by contemporary physics: Blavatsky could cite Faraday, Edison, Graham Bell, Crookes, and even Tyndall as witnesses for other etheric effects like magnetism, electricity, telegraphy and telephony. In light of such discoveries and innovations, Edward Bulwer-Lytton’s fictional *vril* force, described in *The Coming Race* (1871), was also mentioned as something not altogether unfeasible. Furthermore, Crookes, himself dedicated to spiritualism, and a pioneer of the British psychical research tradition, had recently postulated a “psychic force” to account for the physical phenomena of spiritualist medium Daniel Dunglas Home.⁵¹ These may in turn have been influenced by the occult forces posited by mesmerists and post-mesmerists, from animal magnetism to the “od force” of industrial chemist Karl von Reichenbach.⁵²

Blavatsky’s base argument was that perennial esoteric philosophy had always known what science was just now beginning to discover:

Ether, with all its mysterious and occult properties, containing in itself the germs of universal creation; Ether, the celestial virgin, the spiritual mother of every existing form and being, from whose bosom as soon as “incubated” by the Divine Spirit, are called into existence Matter and Life, Force and Action. Electricity, magnetism, heat, light, and chemical action are so little understood even now that fresh facts are constantly widening the range of our knowledge. Who knows where ends the power of this protean giant—Ether; or whence its mysterious origin?—Who, we mean, that denies the spirit that works in it and evolves out of it all visible forms?⁵³

Bringing together Indian thought, Lévi’s idea of magical agency, and the science of ether, she could triumphantly state that ‘Akasa is the mysterious fluid termed by scholastic science, “the all-pervading ether”; it enters into all the magical operations of nature, and produces mesmeric, magnetic, and spiritual

⁵⁰ Blavatsky, *Isis Unveiled*, Vol. 1, 125.

⁵¹ See Crookes, *Researches into the Phenomena of Spiritualism*.

⁵² See von Reichenbach, *Odisch-magnetische Briefe*; cf. The discussion in Webb, *The Occult Underground*, 229–230. For a brief discussion of the background for, and relation between, various conceptions of “occult force”, see Hanegraaff, ‘Occult/Occultism’, 884–887.

⁵³ Blavatsky, *Isis Unveiled*, Vol. 1, p. 134. Also see Goodrick-Clarke, ‘The Esoteric Uses of Electricity’, 74–78. Goodrick-Clark also discusses the influence of these ideas on later developments, particularly in German Ariosophy.

phenomena'.⁵⁴ In Blavatsky's Theosophical speculations, the ether enters into a broad range of characteristics typically associated with esoteric discourse: ether is the soul of living nature, the mediating principle, and the agent of transmutations. Furthermore, it is brought into concordance with a wide range of disparate knowledge systems, presenting it as the core subject of an alleged perennial philosophy.⁵⁵

While her synthesis is obviously speculative and, in all its expansionist vigour, questionable from the scientific point of view, it is nevertheless worth pointing out that Blavatsky's use of scientific references does not amount to simple cherry-picking. Even if the fictional *vril* force and Crookes' psychic force were marginal, they existed within a realm of speculation where the possibility of discovering such exotic effects remained at least plausible in principle. The subsequent discoveries of x-rays and nuclear radiation suggest this very point.⁵⁶ In general, the effects and speculations Blavatsky referred to were at the heart of mainstream physics, and indeed she could have found even stronger corroborative statements had she been aware of the thoroughly idealist position of someone like Stoney or FitzGerald.

As I shall show in more detail in part three, Blavatsky's successors would take the alignment of Theosophy and ether physics even further in the 1890s. The success of Maxwellian electromagnetic theory, the breakthrough in discoveries of yet new wave and ray phenomena, and continued speculations about the ultimate nature of matter provided post-Blavatskian Theosophists like Annie Besant and Charles Webster Leadbeater with important resources for updating the metaphors, models and analogies of Theosophy. These developments lead straight up to the "atomic metaphysics" noted by Hammer.

Spiritualism and Psychical Research

Spiritualism and psychical research also benefited from a close connection with Victorian physics. Spiritualists had attempted to claim scientific validation for their belief-system more or less from the first rap in the 1840s. Broadly speaking, however, the legitimation they had sought in science was not so

⁵⁴ Blavatsky, *Isis Unveiled*, Vol. 1, 140 (footnote).

⁵⁵ Cf. Faivre, *Access to Western Esotericism*, 14. For an analysis of the systematic trend to syncretise knowledge in occultism, see Asprem, 'Kabbalah Recreata'.

⁵⁶ For an analysis of the feeling of possibilities in physics in the 1890s, see especially Noakes, 'The "World of the Infinitely Little"'. Cf. Nye, 'N-Rays'.

much theoretical and conceptual as experimental and empirical.⁵⁷ Relying on assumptions loaned from positivistic empiricism, the whole range of *séance* phenomena (including rappings, trance-utterances, levitations and the sort) were claimed as simple verifications of the hypothesis that our personality survives this life and that there is constant interaction between this world and the next. With psychical research the interaction with the sciences, and particularly physics, became more profound. The historian of science Richard Noakes goes so far as to suggest that psychical research may be considered ‘an episode in late-classical physics’ in its own right.⁵⁸

With the rise of organised psychical research, physicists themselves did much to enhance the scientific legitimacy of at least some of the claims surrounding spiritualism. William Crookes was an early example, applying pressure gauges to D.D. Home in 1871 to measure the exact amount of “psychic force” expended by his body during the *séance*.⁵⁹ When the Society for Psychical Research (SPR) formed in 1882, it was with an impressive number of prestigious physicists on board: William Barrett and Oliver Lodge assumed important functions in the Society, and later Nobel laureates J.J. Thomson and Lord Rayleigh were listed as members. Even though the latter two were largely sceptical of the claimed phenomena, their names provided the membership list of the Society with extra scientific prestige.

While psychical researchers were largely prepared to take spiritualism seriously from a scientific point of view, this does not mean that they were willing to certify the truth of whatever spiritualists claimed. Especially during the early decades of the SPR, the explanatory models proposed by physicists and other theorists in the Society were at odds with those of the spiritualists’ own. While spiritualists were eager to demonstrate the survival of the soul, psychical researchers largely concentrated on various forms of extra-sensory perception (telepathy and clairvoyance in particular), and advanced these as alternative models for explaining the apparently privileged information uttered by mediums in “trance”.⁶⁰ Lodge, an expert of electromagnetism and ether physics, and a pioneer of radio technology, played a leading role in enunciating telepathy as

⁵⁷ Note, however, the use of *analogies* to concepts popularised from science. E.g., Oppenheim, *The Other World*; Noakes, ‘Spiritualism, Science, and the Supernatural in Mid-Victorian Britain’.

⁵⁸ Noakes, ‘The “World of the Infinitely Little”’, 326.

⁵⁹ Crookes, *Researches into the Phenomena of Spiritualism*; cf. Medhurst, ed., *Crookes and the Spirit World*.

⁶⁰ The classic example of this sort of explanation is in Gurney et al, *Phantoms of the Living*.

a form of anomalous cognition supervening on a mechanical physical foundation. He offered a suggestive analogy in response to telepathy tests reported in the SPR journal of 1884:

Just as the energy of an electric charge, though apparently on the conductor, is not on the conductor, but in all the space round it; just as the energy of an electric current, though apparently in the copper wire, is certainly not all in the copper wire, and possibly not any of it; so it may be that the sensory consciousness of a person, though apparently located in the brain, may be conceived of as also existing like a faint echo in space, or in other brains, though these are ordinarily too busy and pre-occupied to notice it.⁶¹

This is essentially an application of Maxwellian field theory to telepathy. Lodge thought mind-to-mind communication to be possible in principle, apparently viewing “consciousness” as a function of the electromagnetic field, with thoughts identified with waves in the ether—‘faint echoes in space’. The pansychist implications of this thesis were not worked out, however.

This line of theorisation became increasingly popular in the 1880s and 1890s, borrowing from the persuasiveness of new technologies of radio wave transmissions and wireless telegraphy. Although it did suggest that mediums were extraordinarily gifted “super-psychics”, and that there could be spontaneous entanglements of two minds at a distance (as with the apparition of dying loved ones), the telepathic theory could not by itself validate post-mortem survival. Interestingly, this started to change at the beginning of the 20th century. The reasons were twofold: on the one hand, the demise of the sceptically-minded leader of the SPR, Henry Sidgwick, and others of his generation who had become increasingly disenchanted with fraudulent mediums; on the other hand, an experimental anomaly in the mechanistic models of telepathy brought the survival hypothesis into the game again. On top of this, of course, one should mention the pivotal importance of the Great War, which brought a general revival of spiritualism lasting well into the 1920s and beyond.⁶²

The experimental anomaly was that the mechanical electromagnetic theory of telepathy required the effect to obey the inverse square law, as any other physical effect: for example, if telepathy supervened on mechanical principles, one would expect it to diminish with distance. This, however, did not seem to

⁶¹) Lodge 1884, ‘Experiments in Thought Transference’, 191.

⁶²) E.g., Jenny Hazelgrove, *Spiritualism and British Society between the Wars*.

obtain. At the dawn of the new century, therefore, the failure of the mechanistic theory of telepathy prompted individuals like Lodge, acting then as president of the SPR (between 1901–1903), to reconsider the thesis of survival. But he would still insist on staying within the realm of physics. The contours of an astonishing theory were expressed in Lodge's presidential address to the SPR in 1902. Here he suggested that the extraordinary features of the medium might be due to the possession and control of an "ether body", and even speculated that completely disincorporate, ethereal beings might exist in multitudes, parallel to our ordinary visible existence.

This model would be a great step in the direction of validating the spiritualist hypothesis: spirit manifestations during séances, even spirit photographs, might be due to partial "materialisations" of the etheric bodies of deceased persons. Nevertheless, Lodge remained quite open about the origin of etheric beings; they could equally well be discarnate, "extraspacial" beings, or even extraterrestrials from far off inhabited planets!⁶³ At any rate, both Lodge and the physicist who succeeded him as the SPR's president, William Barrett, seemed to agree that the brain-wave model had failed, that mediumistic phenomena were likely to be purely 'spiritual and psychological events',⁶⁴ and that thought possibly 'transcends both matter and space, and has no relation to either'.⁶⁵

In the decades to come, Lodge assumed the role of triune prophet of spiritualism, liberal Christianity, and ether physics.⁶⁶ The concept of the ether body would play an increasingly central part in the campaign: in this concept, all three discourses were knitted together, as a knot of threads that most would have preferred to keep apart. Here, ether physics finally forms a complete circle with esoteric thought. Where the imponderables of physics had provided conundrums fit for esoteric speculation, the physicist Lodge now adopted what was essentially an esoteric concept vested with scientific language, and attempted to claim it back on behalf of an increasingly metaphysical ether physics.

⁶³) Lodge, 'Presidential Address', 50.

⁶⁴) Lodge, 'Presidential Address (1903)', 19.

⁶⁵) Barrett, 'Presidential Address (1904)', 333.

⁶⁶) See, e.g., Jolly, *Sir Oliver Lodge*; cf. Bowler, *Reconciling Science and Religion*, 89–101.

3. Etheric Bodies: Self, Soul, and Cognition in the Mirror of Esoteric Ether Physics

Esotericism and the Metaphysics of Ether: Some Distinctions

Theories of ether have served as a connecting point between physical and psychical science on the one hand, and various modern esoteric systems on the other. With the background firmly in mind, we should now briefly revisit the “atomic metaphysics” which Hammer observed in the writings of Alice Bailey in the 1920s. Following the argument of this article, I suggest that Bailey is really writing within a current of esoteric *ether metaphysics*, a discourse which has deep roots in 19th-century Theosophy and its relation to spiritualism, physics and psychical research. As will be shown more clearly in this chapter, the main spokespersons of the Theosophical segment of this discourse were second generation Theosophists, particularly Annie Besant and Charles W. Leadbeater. Broadly considered, however, ether metaphysics stretches much further, and encompasses non-Theosophists, including (as suggested already) non-esoteric spokespersons in the physics community, adherents of natural theology and promulgators of liberal Christianity writing on the conflict between religion and science.⁶⁷ In the present chapter I shall particularly look at the esoteric metaphysics of ether as found in second generation Theosophy, and in the physics-oriented segment of psychical research.

Just as ether was made to perform a vast range of tasks in 19th-century thought, the esoteric metaphysics of ether also has different facets. We may broadly differentiate between a *cosmological* and an *anthropological* strand. In the cosmological sense, esoteric spokespersons depart from the physical speculations of the relation between ether, matter, and energy in order to argue an esoteric worldview, typically amounting to some sort of idealism, panpsychism or vitalism. The ether may be seen as the world soul, the mind of God, or an impersonal, all-permeating life force. Cosmological ether metaphysics connects to questions asked in physics, chemistry, and (occasionally) biology, as well as to other esoteric systems, as is clearly the case in Blavatsky. I suggest it was this cosmological side of ether metaphysics that Hammer observed in Bailey’s speculations on the ultimate nature of atoms, describing them as in some sense “etherial”, as was a common notion among late-Victorian ether physicists.

⁶⁷ See, e.g., Bowler, *Reconciling Science and Religion*, 87–121.

Considerations of the role of ether in the cosmos almost inevitably led to a consideration of the role of ether in the constitution of man. It may start from questions of psychology or biology, but will often end up encompassing questions of a more philosophical, religious or esoteric form, pondering man's hidden nature, faculties, and subtle bodies. The concept of the "ether body" is thus the centrepiece of the anthropological side of esoteric ether metaphysics, and is heavily informed by long-standing esoteric, religious and philosophical discourses on subtle bodies. I shall suggest that we may distinguish these speculations into three main areas, considering questions of the soul, the self, and cognition.

As we have already seen, the ether body has performed an important function for spiritualists and psychical researchers in shedding light on the age-old question of the existence and nature of the human soul and its (im)mortality. The perhaps most sophisticated and consistent example of this type, connecting the ether of physics to the soul, is found in the late oeuvre of Oliver Lodge.⁶⁸ But discourses of subtle bodies, including those of the etheric type, may also have ramifications for conceptions of the self, and particularly its extension and boundaries. Thus the doctrines of subtle selves suggest that human existence extends in a continuum from the gross and physical to the increasingly more subtle, and even divine. This continuous existence furthermore asks questions of subjectivity and intersubjectivity, as well as of humanity's connection to the cosmos at large.⁶⁹ Finally, the discourse on subtle bodies has repercussions in the fields of cognition and epistemology. Here we find connections with all the typical denominators of models of esotericism, e.g., esoteric claims to higher knowledge, forms of thought, intuitive gnosis, mediation, etc. In the period we are looking at here, we should mention such claimed faculties as clairvoyance, astral travel, and telepathy. In the jargon of psychical research, subtle bodies will have a bearing on various types of "anomalous cognition".

⁶⁸ E.g., Lodge, 'Ether, Matter, and the Soul'; idem, *My Philosophy*; cf. Grean Raia, 'From Ether Theory to Ether Theology'. Note, however, that history had at this point run away from Lodge in many ways; his increasingly speculative and expansive use of ether physics were uttered at a time in which new generations of physicists were concentrating on new cosmological models, based on the relativity theories and quantum mechanics.

⁶⁹ Similar topics were recently explored in Jay Johnston, *Angels of Desire*, but through the conceptual machinery of Irigaray, Deleuze, and Derrida. See also Alex Owen, *Place of Enchantment*, 114–147.

In the following I shall lay out a historical and thematic overview of the development of the etheric body as a specific type of subtle body, borrowing from physics. During this final section we shall see that all the above three areas enter into the discourse on the subtle ether body.

Occultism and Subtle Bodies

When Eliphas Lévi set forth the doctrines and rituals of “high magic” and sparked the modern occultist reception of ritual magic in the middle of the 19th century, it came with a full theory of the “sidereal body” and its many functions. The basic theory tallies for the most part with the Neoplatonic tripartition, known from Proclus, Iamblichus, Plotinus, Porphyry and others, where the subtle body—whether called “astral”, “ethereal”, or “sidereal”—is primarily the envelope of the divine soul, or *augoeides*.⁷⁰ In this position it is responsible for mediating the animating powers of the soul to the organs of the body.⁷¹ This idea seems to have reached Lévi through the “occult sciences” of the Renaissance; he particularly references to Paracelsus as a proponent of the model.⁷² Similar to some (but not all) of the Neoplatonic models, Lévi’s astral body was a perishable entity: it was forged when the soul entered this world, but would be cast away on reascending to the heavenly abodes.⁷³

But the astral body also caused such varied phenomena as hauntings, polyappearances, werewolves, and the apparitions conjured up by necromancy. It was connected with apparitions of the dead because of its semi-materiality. Lévi explains that the astral body evaporates instantly after death if a man has lived a virtuous life; but if he has lived in sin, the astral body will continue to be tied to his passions and desires, and continually “haunt” the objects of unful-

⁷⁰ See E.R. Dodds, ‘The Astral Body in Neoplatonism’.

⁷¹ Lévi, *Transcendental Magic*, 246.

⁷² *Ibid.*, 87. For an accessible discussion of the concepts of “body” and “matter” in Paracelsus, see Dane T. Daniel, ‘Invisible Wombs’.

⁷³ Lévi, *Transcendental Magic*, 120. Dodds notes that there were two parallel theories of the astral body in Neoplatonism: one in which it was permanently attached to the soul (the opinion of Iamblichus and others), and another where it was thought to be acquired during the descent of the soul to earthly existence (due to attraction of moisture and matter), and discarded at its ascent. The latter model was held by Plotinus, Porphyry, and the *Chaldean Oracles*, and it is this that we see replicated in occultism through Lévi’s interpretation. See Dodds, ‘The Astral Body in Neoplatonism’, 319–320. It is also to be noted that Dodds himself spends some time in the opening of his article to combat the theosophical doctrine of subtle bodies.

filled desire: ‘It torments the dreams of young girls, bathes in the stream of spilt blood and floats about the places where the pleasures of its life elapsed’.⁷⁴ The divine soul is trapped and tormented in the astral body, sometimes for decades or centuries, until it finally dies a second time. Furthermore, Lévi explains the polyappearance stories connected to Alphonse Ligouri (1696–1787) and Francis Xavier (1506–1552) in terms of the projection and apparition of the astral body during ecstatic prayer.⁷⁵ Similarly, werewolves, whose existence Lévi considered well documented, were caused by the unrestrained dwelling of the astral body during sleep, undergoing transmutations into animal forms made possible by the creative powers of the “magical agent” which Lévi termed the “Astral Light”.⁷⁶ Lévi also produces explanations of mesmerism with reference to the controlled exertion of Astral Light through the astral body, thus inscribing himself in the post-Enlightenment discourse on subtle and occult forces operating from “the night side of nature”.⁷⁷

Lévi’s work was immensely influential on later developments in occultism, both on the continent and in Britain.⁷⁸ This goes for the ritual magical current, represented by such groups as the Hermetic Brotherhood of Luxor and the Hermetic Order of the Golden Dawn, as well as for the theosophical current sparked by Blavatsky and Olcott’s Theosophical Society. Meanwhile, fictional accounts of astral travel fuelled an ever richer and accessible mythology of subtle bodies: Edward Bulwer-Lytton’s *A Strange Story* (1862) and Emma Hardinge Britten’s *Ghost Land* and *Art Magic* (both 1876) were particularly influential examples.⁷⁹

The Theosophical Society presented ‘a mission to correct the misapprehensions of spiritualism, to expand the horizons of science, and to oppose dogmatic Christianity’.⁸⁰ All this it wanted to achieve by providing a forum for studying Hermeticism and Western esoteric doctrines, but also by promoting Blavatsky’s position on occultism, posed as a challenge to, and reinterpretation of, spiritualism.⁸¹ In this latter project, Lévi’s ideas on the astral body became

⁷⁴) Lévi, *Transcendental Magic*, 120.

⁷⁵) *Ibid.*, 128–129.

⁷⁶) *Ibid.*, 128–134.

⁷⁷) *Ibid.*, 246–248.

⁷⁸) E.g., McIntosh, *Eliphas Lévi and the French Occult Revival*.

⁷⁹) For the importance of fiction in the development of occultism, see especially Faivre, ‘Borrowings and Misreadings’. The other articles in the same volume of *Aries* address similar cases.

⁸⁰) Joscelyn Godwin, *The Theosophical Enlightenment*, 307.

⁸¹) Cf. *ibid.*, 277–306.

valuable resources, explaining the manifestation of spirits in terms of assembling the “astral remains” of the deceased, or otherwise as manifestation of quite different orders of entities, such as elementals or possibly even demons.

In *Isis Unveiled* (1877), which, despite plenty of references to yogis and Vedantic wisdom, still retains a fairly “Western” focus, the Neoplatonic model of the sidereal body mediating between the physical body and the *augoeides* is explicitly mentioned.⁸² Two years after its publication, in 1879, the Theosophical Society relocated to Adyar on the outskirts of Madras (present-day Chennai), and Theosophy performed a distinct “turn to the East”. With this move, the concept of subtle bodies likewise expanded in various new directions.

The first clear example is found in an 1881 article in *The Theosophist*, written by A.O. Hume (1829–1912).⁸³ Purportedly based on esoteric knowledge imparted by Blavatsky’s “spiritual master”, Koot Hoomi, the article proposed a sevenfold structure for human subtle bodies.⁸⁴ This skeletal form was elaborated further by Alfred Sinnett (1840–1921) a few years later, in his tellingly entitled book *Esoteric Buddhism* (1883). The book argued that the key to the universal, esoteric doctrine underlying all exoteric religion is most accessible through the author’s detraditionalised conception of Buddhism. A practical result is the incorporation of Sanskrit terminology and reinterpretation of previous doctrines in light of the models found in Buddhist cosmologies and anthropologies. Thus, through sections on ‘The Constitution of Man’ and ‘The Astral Shell’ we learn more about how human beings possess seven bodies, instead of the Neoplatonic three.⁸⁵ The physical body has two parts: the *rupa*, or ordinary material body, and the *prana* or *jiva* body, which is the vital body mediating vital force to living things. These are joined by more subtle bodies: the astral (*linga sharira*), *kama*, *manas*, and *buddhi* bodies, crowned by the *atma*, or pure spirit.⁸⁶ This sevenfold reorientation became the esoteric currency of Theosophical discourse on subtle bodies, as canonised in Blavatsky’s 1888 magnum opus, *The Secret Doctrine*.⁸⁷

⁸²) Blavatsky, *Isis Unveiled*, Vol. I, 12–13.

⁸³) Hume, ‘Fragments of Occult Truth’.

⁸⁴) For an analysis of the development of the so-called *Saptaparīā*, see Julie Hall, ‘The Saptaparīā: The Meaning and Origins of the Theosophical Septenary Constitution of Man’.

⁸⁵) Sinnett, *Esoteric Buddhism*, 60–75.

⁸⁶) All these terms are capitalised in the original, but have been simplified in the present notation.

⁸⁷) For a detailed discussion, see Hall, ‘The Saptaparīā’.

It was only in the neo-Theosophical phase after Blavatsky's demise that a conceptual shift would fully take place, which aligned the theosophical doctrine of subtle bodies more firmly with ether physics and science. After the schisms of the mid 1890s between the "original" Adyar society, led by Olcott until his death in 1907, and the American faction headed by William Q. Judge, Annie Besant emerged as a key figure in the development of Theosophical doctrine. She would eventually succeed Olcott as president of the society; but in the meanwhile, Besant served as chief editor of the Theosophical journal *Lucifer*, with G.R.S. Mead as co-editor from 1895.

From this influential position Besant assumed centre stage in what is sometimes termed the "Neo-Theosophy" of the Adyar society.⁸⁸ As editor of *Lucifer* she started a publication campaign that updated the strategic alignment of Theosophy with modern science. Through her column "On the Watch-Tower" Besant discussed recent events and debates, including discoveries and advances in the world of science, usually cast as confirmations of Theosophical doctrine. Also during the 1890s, Besant teamed up with the self-professed clairvoyant Charles W. Leadbeater, whom she first met in London in 1894, and embarked upon the curious Theosophical research project known as "occult chemistry": the attempt to investigate the structure and make-up of molecules, atoms, and ether by way of clairvoyant perception.⁸⁹ I shall have more to say about this in a moment.

Besant's readings of an ether physics that was at its peak of respectability prompted her to attempt a synonymisation of the Theosophical subtle bodies with the theories of the subtle substance of ether. Here, too, she was followed by Leadbeater; together they reinvented the Theosophical discourse on the subtle body, preparing its cultural diffusion in the process. When Arthur E. Powell wrote a compilation of what had been said about the *Etheric Double* in 1925 he could cite no fewer than 40 works, the bulk of which were written after the year 1900.⁹⁰ Five of these were by physical researchers (W.J. Crawford, W.J. Kilner, and Baron von Schrenck-Notzing), while the rest were by Theosophical authors, particularly Besant and Leadbeater. Their influence in creating this particular discourse cannot be underestimated.

⁸⁸) For standard biographies of Besant, see Arthur H. Nethercot, *The First Five Lives of Annie Besant*; idem, *The Last Four Lives of Annie Besant*; cf. the more recent Ann Taylor, *Annie Besant*.

⁸⁹) Besant, 'Occult Chemistry'; cf. Morrisson, *Modern Alchemy*, 65–96. For a biography of Leadbeater, see Gregory Tillet, *The Elder Brother*.

⁹⁰) Powell, *The Etheric Double*, ix.

“Occult Chemistry”: Experiments in Cosmological and Anthropological Ether Metaphysics

The writings of Besant and Leadbeater in the 1890s and early 1900s constitute a programme of occult science that runs parallel to Maxwellian ether physics and a chemistry in rapid transition. The programme of occult chemistry, with its theoretical foundations and links to other parts of the theosophical system, constitutes a clear case of the interconnections of the various types of esoteric ether metaphysics, as described above. In important ways the programme was presented as a system of knowledge, and a method of *acquiring* knowledge, which complemented and fulfilled current physical science. At the same time, the main project remained to continue and update a line of Theosophical speculation on higher realities and hidden aspects of man that had already been initiated by the early society.

The project of occult chemistry was first signalled in an article in *Lucifer* in November 1895.⁹¹ The article, written by Besant, embarked by observing quite rightly that physicists were spending much time speculating on the nature of the chemical elements and the existence of the ether.⁹² But the physicists could indeed only speculate; the very existence of the ether was nothing more than an inference to the best explanation. Their instruments could not detect ether directly; in fact, a series of advanced experiments had been performed since the 1880s that had attempted to isolate effects which could solely be due to ether, of which the Michelson-Morley experiment of 1887 remains the most famous.⁹³ These had met with little success, causing much confusion in the physics community. To theosophists, however, ether was not only a hypothetical imponderable entity, postulated by reason and wanting in verification; it was a quite real and even *observable* substance. As Besant put it, to ‘astral vision ether is a

⁹¹) For a recent scholarly examination of Besant and Leadbeater’s occult chemistry, see Morrison, *Modern Alchemy*, 65–96.

⁹²) Besant, ‘Occult Chemistry’, 211.

⁹³) The experiment tried to measure variances in the speed of light depending on the relative motion of bodies in the supposedly stationary ether. It is sometimes described as the most famous failed experiment in history, marking the start of the decline of ether physics. Oliver Lodge was actually responsible for conducting follow-up experiments on his own, trying to verify another hypothesised etheric effect which would explain away the failure of the Michelson-Morley experiment, namely “ether drag”—that heavy bodies drag some of the surrounding ether with it. This too failed, however, but would inspire one of the other strange concepts later incorporated and sublimated by Einsteinian relativity, namely “length contraction”.

visible thing, and is seen permeating all substances and encircling every particle'.⁹⁴ What 'Western' scientists can only assume by inferences, 'Eastern science asserts as a verifiable observation, for as a matter of fact ether is as visible as a chair or a table, only a sight different from the physical is needed to see it'.⁹⁵ Science is essentially correct, but it remains speculative. The Theosophical research programme of occult chemistry, on the other hand, sets forth to provide direct empirical and positive proof of entities invisible to the physical eye. Here, what I have called the *cognitive* features of an esoteric anthropology based on subtle bodies and ether metaphysics become visible. As Mark Morrisson has argued, the epistemological possibility of perceiving an invisible world aligned occult chemistry with the contemporaneous attempts to make systems for visualising atomic level physical processes.⁹⁶ However, it did so by reformulating a discourse on supernormal vision and cognitive abilities in the context of an esoteric anthropology based on ether metaphysics.

To begin with, Besant and Leadbeater put their clairvoyant skills to the task of analysing the chemical structure of hydrogen, oxygen, and nitrogen. In the first published "pilot study" of 1895 they showed how the three ordinary physical states of matter (solid, liquid and gaseous) were complemented by four different types of etheric states, named E 1, E 2, E 3, and E 4, significantly (in the context of Theosophical number symbolism) adding up to seven.⁹⁷ Their investigations attempted to "split" the molecules of the three elements into their constituents on the four "etheric subplanes", and trace their increasingly complex chemical makeup down to the "ultimate physical atom" on the most subtle "Ether 1" plane. If one continued to split the atom from E 1, Besant explained, one was left with a set of yet finer constituents of "astral matter", now entirely beyond the ordinarily ponderable physical world.⁹⁸ This is cosmological ether metaphysics, "discovered" by the special cognitive powers of "astral vision".⁹⁹

⁹⁴) Besant, 'Occult Chemistry', 212 (my emphasis).

⁹⁵) Besant, 'Man and His Bodies', 498.

⁹⁶) Morrisson, *Modern Alchemy*, 66–69.

⁹⁷) Besant, 'Occult Chemistry', 212–213.

⁹⁸) Besant, 'Occult Chemistry', 214.

⁹⁹) It should be noted that this ether metaphysics only forms a part of the total (neo-)Theosophical cosmology. The new details inspired by ether physics mainly concern the intermediary place between higher and lower worlds in the total Theosophical "chain of being". An overview of the Theosophical scheme of cosmology, which particularly focuses on the role and position of ether, is available in Powell, *The Etheric Double*.

In February 1896, Besant published the first in a series of articles in *Lucifer* on ‘Man and His Bodies’, republished as a book later that year.¹⁰⁰ This took up the corresponding anthropology of the ether metaphysical research programme, namely the exploration and reinterpretation of the subtle bodies postulated by Theosophy. Broadly speaking, Besant followed the “Oriental” arrangement of her predecessors, by postulating a total of seven bodies. However, she was also prepared to do some conceptual changes and metaphorical updates, especially regarding the lower bodies. While the Sanskrit terminology was largely retained for describing the higher parts of man, the lower ones were fashioned anew by realigning them with occult chemistry and its appropriation of ether physics. Besant’s description of these lower bodies deserves closer attention.

We already saw Besant and Leadbeater attributing seven states to matter: the three ordinary states recognised by science at the time, with four “etheric” states added. This arrangement is applied to the constitution of man as well. Man has, in fact, two physical bodies: one is a mixture of solids, fluids, and gases, and is called the “gross body”. The other is composed of the four states of ether, and is known as the etheric double. Besant explains that in the Theosophical literature these two lower bodies of man used to go under the names *sthūla sharīra* and *linga sharīra*; however, now she argues that it is time to stop referring to the double by this latter term. As Besant explains, the word *linga sharīra* has been used ‘since time immemorial’ by Hindus in a different sense; additionally ‘it is better to have English names for the subdivisions of the human constitution, and thus remove from our elementary literature the stumbling-block to beginners of a Sanskrit terminology’.¹⁰¹

But apart from issues of respectfulness to the Hindus and accessibility to new students, Besant had more profound reasons why a change in terminology was apt:

the name etheric double *exactly expresses the nature and constitution* of the subtler portion of the physical body, and is thus significant and therefore easy to remember, as every name should be; it is “etheric,” because made of ether, “double” because an exact duplicate of the gross body—its shadow, as it were.¹⁰²

¹⁰⁰ Besant, *Man and His Bodies*.

¹⁰¹ Besant, ‘Man and His Bodies’, 390.

¹⁰² Besant, ‘Man and His Bodies’, 390–391 (my emphasis).

This paragraph is important because it clarifies that the term “etheric” is not merely a convention or a metaphor: the double is *really* made of the same stuff that physics talks about. The attempt at synonymy is emphasised when Besant exhibits a fair command of the reasoning of late Victorian ether physics to corroborate the existence of the ether body: ‘Modern physical science’ holds that all bodily changes in the muscles, cells and nerves are accompanied by electrical action, she states, before making an appeal to the conception in Maxwellian physics that electrical activity has its seat in the ether. In Besant’s words, ‘[w]henver electric action occurs ether must be present, so that the presence of the current is proof of the presence of the ether, which interpenetrates all, surrounds all’.¹⁰³ Therefore, too, it is legitimate to speculate about an etheric counterpart to the “gross body” where this vital, electrically charged nerve activity takes place.

The main function of the etheric double in the neo-Theosophical system was however to carry a more profound type of energy: *prâna*, or the “life force”. The etheric body is often spoken of as the ‘vehicle of Prâna’, Besant explains.¹⁰⁴ The ether is thus not only associated with electricity, but also inscribed in a *vitalist* discourse.¹⁰⁵

The connection of the ether body to vitalism makes Besant’s reflections on its role in death unsurprising. She notes that during sleep the “Ego” slips out of both physical bodies and roams around in the realm of the astral (which is the third body Besant attributes to man, connected with sensation and perception). This happens during death as well, the only difference being that the Ego (or the totality of the higher subtle bodies, including that which brings consciousness of self) takes the etheric body with it. When the etheric and the gross body are thus separated, the supply of vital effluvia is cut off, and the organism dies.¹⁰⁶ The ether body here plays a role almost identical to Lévi’s astral body: The Ego and the etheric body may travel around for some time together after death, but will always stay close to the gross body. This activity, Besant entrusts her readers, is responsible for the apparition of the newly dead to mourning relatives, or even for wandering ‘churchyard ghosts’.¹⁰⁷

¹⁰³ Besant, ‘Man and His Bodies (*continued*)’, 499.

¹⁰⁴ Besant, ‘Man and His Bodies (*continued*)’, 499.

¹⁰⁵ Oliver Lodge would argue a very similar point a couple of decades later, this time further allied with the early 20th-century neo-vitalist discourse. E.g., Lodge, ‘Ether, Matter, and the Soul’.

¹⁰⁶ Besant, ‘Man and His Bodies (*continued*)’, 500.

¹⁰⁷ Besant, ‘Man and His Bodies (*continued*)’, 500.

After a while the Ego will cast off the etheric body as well before departing to higher regions in the astral plane, where the ether body is too coarse to travel.

Following up the theosophical tradition of reinterpreting spiritualism, Besant goes on to produce an explanation of mediumistic phenomena, notably the most exceptional cases of “physical mediumship”, with reference to the etheric body. Since it is so closely connected with the vital functions of the organism it is not normally possible for people to separate the etheric from the gross body while alive. But there are some especially gifted persons who can stretch it a bit, so that it may perform functions at a slight distance. This is what Besant recognises in some materialisation phenomena, where the etheric body of the exceptionally gifted medium is extended to produce visible effects. It is made possible by the extended notion of self that comes with the concept of subtle bodies; with the physical but non-material etheric counterpart, this takes on a peculiarly concrete form. Extending the etheric body from the material in this way remains a dangerous practice, Besant warns, and may lead to nervous trouble, lethargy, and, if strained too much, death.¹⁰⁸

The ideas connected to the ether body are, as we have seen, far from new. The notion of subtle bodies is an inheritance that has gone through numerous permutations, and the specific phenomena connected to them seem rather commonplace in occultism long before Besant’s active days. But the etheric body as it emerged on the pages of *Lucifer* in the 1890s did add a scientific credibility of another order than previous attempts, allying the speculations with exciting frontline reports from the contemporary physics of ether and electromagnetism, as well as new physical theories on the nature of matter. In the ether body the various threads of an esoteric anthropology are tied together and brought into alignment with the most speculative branch of late-classical physics. Etheric existence is brought to bear on the spiritualist question of survival, but it also implies an extension of the self: spatially and semi-materially, as in the case of the explanation of the physical mediums, but also epistemologically or cognitively. Besant and Leadbeater’s occult chemistry rested on an epistemological foundation built on “micro-clairvoyance”, or the direct perception of sub-microscopic entities. Through a conspicuously recursive logic, this very faculty is explained by reference to the ether, while it is also *through* this faculty that ether itself is, supposedly, directly observed.¹⁰⁹

¹⁰⁸) Besant, ‘Man and His Bodies (*continued*)’, 500–501.

¹⁰⁹) It is notable that the programme of occult chemistry never really died out. Not only did the Science Group of the Theosophical Society publish a follow-up in 1934 by the title *The*

Concluding Remarks

The cosmology and anthropology of late nineteenth- and early twentieth-century esoteric systems bear the mark of a scientific culture which has now passed into oblivion to all but the historian of science. As this article has aimed to demonstrate, the late nineteenth-century physics of ether provided invaluable resources for esoteric spokespersons. The physicists themselves, despite a later reputation of having been staunch materialists, were in reality producing a number of different theories which sought to reduce matter to other, more subtle substances or processes, sometimes even offering these models as parts of an idealistic cosmology. Viewed in this light, the metaphysical ambitions of theosophists and other occultists seem less alien, less heterodox, and their appeal to educated men and women, including professional scientists, more easily understandable.

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Field of Occult Chemistry print a large new edition with important updates in 1951; in later years, new generations have taken up the methods of clairvoyantly scrying microphysical particles. See, e.g., Besant, Leadbeater, and Jinarayadasa, *Occult Chemistry*; Lester E. Smith, *Occult Chemistry Re-Evaluated*; Stephen M. Phillips, *Extra-Sensory Perception of Quarks*; idem, *ESP of Quarks and Superstrings*.

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