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Occult Spheres, Planes, and Dimensions: Geometric Terminology and Analogy in Modern Esoteric Discourse

This is an article on the history of religion and mathematics, which explores the origins and uses of geometric terminology in late-nineteenth- and early-twentieth-century esoteric discourses, and inquires as to whether or not such adaptations are instances of the discursive strategy identified by Olav Hammer as terminological scientism. For the situation regarding spheric terminology, I argue that the context is not scientistic, being rather an example of the decontextualised modern appropriation of antique terminologies. In the case of planar terminology, I conclude that while its origin with Emanuel Swedenborg as an adaption of anatomical vocabulary does indeed fit Hammer's definition of scientism, modern usage stripped the term of Swedenborg's scientific rationale — making the scientific designation something of a vestigial atavism. In dealing with dimensional terminology, my conclusion is that from Johann Zöllner's initial formulation to the broader Spiritualistic and Theosophical applications, it exemplifies terminological scientism through and through.

Introduction

Throughout the writings of Spiritualists¹ and Theosophists² in the late nineteenth and early twentieth centuries, there emerged a cluster of discursive transfers in which the geometric terms “plane” and “dimension” were used to describe the various regions and stratifications of their hierarchically ordered esoteric cosmologies. As such terms were all but absent in the corpora of the

1. Here, “Spiritualism” (and “Spiritualist”) refers to the discursive complex surrounding the mediums and séances on either side of the turn of the century. For a thorough treatment of the origins and history of the movement, see J. Oppenheim, *The Other World: Spiritualism and Psychical Research in England, 1850–1914* (Cambridge: Cambridge University Press, 1985); Alex Owen, *The Darkened Room: Women, Power, and Spiritualism in Late Victorian England* (Chicago: University of Chicago Press, 1989). It is worth noting that, in this sense, “Spiritualism” is to be distinguished from the (largely Kardecian) use of the term “Spiritism” within the American Hispanosphere — especially within the particular contexts of the Hispanophone Caribbean, Central America, and South America. For more on Spiritism and its role and effect on socio-cultural discourses within these contexts, see T. Hedrick, “Neoliberalism and Orientalism in Puerto Rico: Walter Mercado's Queer Spiritual Capital,” *Centro Journal* 25, no. 1 (2013): 2–31.

2. When using the term “theosophy,” throughout the article I follow Joscelyn Godwin's use, exclusively using “Theosophy” (and “Theosophist”) to refer to the discursive complex within which the Theosophical Society and its offshoots exist; whereas, the term “theosophy” (and “theosopher”)

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intellectual heirs of the Spiritualist and Theosophical currents,³ their inclusion in the turn-of-the-century lexicon raises serious questions. What meanings did these terms acquire when transferred from mathematical to metaphysical contexts? Were they thought of as literal or metaphorical descriptors? What were the reasons for their adaptations? What appears to be the case is that these adaptations of geometric terminology constitute an example of the discursive strategy Olav Hammer refers to as “terminological scientism.”⁴ My purpose in writing this article is threefold: (1) to chart the history of the entrance of these terms into modern esoteric discourse;⁵ (2) to inquire as to whether these metaphysical adaptations of geometric terms were strictly matters of linguistic convention, or if the linguistic shifts were accompanied by corresponding doctrinal changes; and (3) to address the question of whether or not these terminological novelties comport to the discursive strategy identified by Olav Hammer as terminological scientism.

Before delving into the specific issues proper to planar and dimensional terminologies, it will be helpful first to explore Hammer’s terminological scientism, so that our investigation can be framed within the context of the discursive strategy. Hammer defines terminological scientism as

the active positioning of one’s own claims in relation to the manifestations of any academic scientific discipline, including, but not limited to, the use of technical devices,

to refer more generally to the discursive complex embodied in the “tradition of religious illumination exemplified by Jacob Boehme and his followers,” J. Godwin, *The Theosophical Enlightenment*, SUNY Series in Western Esoteric Traditions (Albany: State University of New York Press, 1994), xii. For general treatments of theosophy, see Godwin’s work as well as A. Faivre, *Theosophy: Imagination, Tradition: Studies in Western Esotericism*, trans. Christine Rhone, SUNY Series in Western Esoteric Traditions (Albany: State University of New York Press, 2000). For a general history of the Theosophical current, see B. Campbell, *Ancient Wisdom Revived: A History of the Theosophical Movement* (Berkeley: University of California Press, 1980). Thorough surveys of Theosophical doctrines can be found in: W. J. Hanegraaff, *New Age Religion and Western Culture: Esotericism in the Mirror of Secular Thought*, SUNY Series in Western Esoteric Traditions (Albany: State University of New York Press, 1998); O. Hammer, *Claiming Knowledge: Strategies of Epistemology from Theosophy to the New Age*, Numen Book Series: Studies in the History of Religions 40 (Leiden: Brill, 2004).

3. Throughout this article, I follow Kennet Granholm’s lead in that “esoteric currents can be analyzed as ‘discursive complexes,’ i.e. collections of distinct discourses in specific combinations,” K. Granholm, *Dark Enlightenment: The Historical, Sociological, and Discursive Contexts of Contemporary Esoteric Magic*, Aries Book Series: Texts and Studies in Western Esotericism 18 (Leiden: Brill, 2014), 36. For more on this, see K. Granholm, “Esoteric Currents as Discursive Complexes,” *Religion* 43, no. 1 (2013): 46–69.

4. Hammer, *Claiming Knowledge*, 36–7. Here, Hammer notes the term “dimension” as an example of terminological scientism, but does not mention other geometric terminologies such as “plane” or “sphere.” And, as he spends only a brief paragraph examining dimensional terminology in within a strictly Theosophical context, the broader questions posed in this article are not included in Hammer’s analysis.

5. Throughout this article, the term “esoteric discourse” is used in preference to that of “Western esotericism.” In this way, “the esoteric” is conceptualised as a discourse in European (and American) religion in which claims of higher knowledge are characterised by a dialectic of revelation and concealment. For more on “esoteric discourse” as a theoretical alternative to “Western esotericism,” see K. von Stuckrad, *Locations of Knowledge in Medieval and Early Modern Europe: Esoteric Discourse and Western Identities*, Brill’s Studies in Intellectual History 186 (Leiden: Brill, 2010), 43–66; K. von Stuckrad, *The Scientification of Religion: An Historical Study of Discursive Change, 1800–2000* (Berlin: Walter de Gruyter), 152–58; Granholm, *Dark Enlightenment*, 28–29; E. Asprem, *The Problem of Disenchantment: Scientific Naturalism and Esoteric Discourse, 1900–1939*, Numen Book Series: Studies in the History of Religions 147 (Leiden: Brill, 2014), 546–51.

scientific terminology, mathematical calculations, theories, references and stylistic feature — without, however, the use of the methods generally approved within the scientific community, and without subsequent social acceptance of these mainstream of the scientific community.⁶

Although, Hammer clearly notes that one of the issues in defining scientism is that there is a “knotty problem” determining exactly where science leaves off and scientism begins, and that the issue must essentially be bracketed by “heuristically treating the boundary between science and scientism as a socially constructed, fluid and contested border.”⁷ Without using Hammer’s term “scientism,” Mark S. Morrison similarly notes the use of discursive strategies to “legitimate Theosophy as a science” by “frequently citing scientific works and adopting scientific terms” outside of the methodological framework of science.⁸ This assessment of the Theosophical Society’s purposeful scientific misapplication of “both the vocabulary and authority of science,” resulting in a “confusion of theological speculation and scientific concepts,” is further shared by Oppenheim.⁹ More broadly, Kocku von Stuckrad has proposed a model of what he terms the “scientification of religion,” wherein “the discursive organization of knowledge around religion in secular environments” becomes entangled with scientific discourses¹⁰ — with Theosophy in particular being “instrumental in establishing new meanings of religion and science in the twentieth century.”¹¹

None of this is to say that all discursive transfers from scientific to religious contexts are necessarily scientific, but rather that scientism is an accurate description of the results of such transfers which occur outside of the context of the scientific method.¹² Scientific usage can be distinguished as making use of the trappings of scientific discourses in the absence of the methodological core that truly defines science. This is, Hammer notes, intrinsically tied to the way in which those discourses participating in scientism define “science,” treating the term as identical with the statements, terminologies, and technical applications rather than a method of inquiry.¹³ In this way, “science” came to be understood by Spiritualists and Theosophists as “just another belief system,” making what etic analysis designates as scientism emically understood as a negotiation with an alien belief system no different from any other.¹⁴ There is a difference in

6. Hammer, *Claiming Knowledge*, 206.

7. Hammer, *Claiming Knowledge*, 206–7.

8. M. S. Morrison, “Occult Chemistry and the Theosophical Aesthetics of the Subatomic World,” *Raciar* 34, no. 1 (2009): 88.

9. Oppenheim, *The Other World*, 196.

10. Von Stuckrad, *The Scientification of Religion*, 180.

11. Von Stuckrad, *The Scientification of Religion*, 112.

12. For concise overviews of the emergence of the scientific method, see A. G. Debus, *Man and Nature in the Renaissance*, Cambridge History of Science Series (Cambridge: Cambridge University Press); R. S. Westfall, *The Construction of Modern Science: Mechanisms and Mechanics*, Cambridge History of Science Series (Cambridge: Cambridge University Press, 1971).

13. Hammer, *Claiming Knowledge*, 204.

14. Hammer, *Claiming Knowledge*, 204. Hammer also states that in terms of esoteric discourse, science is often portrayed in a negative light while at the same time being used positively to provide prominent structural elements within esoteric discourse. In this way, he states, “a recurrent theme within the Esoteric Tradition is the tenet that the opposition between religion and science has been, or soon will be, overcome” (204–5).

the approaches taken by Hammer and von Stuckrad in that where Hammer's terminological scientism operates as a unidirectional discursive transfer of scientific terminologies into esoteric lexica, von Stuckrad's scientification is multidirectional, proposing that the entangled scientific and esoteric discourses influence one another.¹⁵ This latter approach to the question of the discursive transfers between science and the esoteric is also advocated by Egil Asprem, whose recent works argue against the unidirectional models in favour of more complex and co-dependent networks of entangled discourses — particularly during the modern and contemporary periods.¹⁶ And, while it is potentially the case that the discursive transfers involving the mathematical terms in question were *ultimately* multidirectional, with esoteric transformations themselves being transferred into scientific contexts, such questions are beyond the scope of this article — my present aim being strictly to chart the genealogies of the transfers of these terms from their original contexts into esoteric discourses, and to then analyse the specific character of these transfers. For a project so defined, the theoretical demarcations of Hammer's terminological scientism are better equipped than those of von Stuckrad or Asprem's multidirectional models.

While the early Spiritualism of the 1850s relied principally on the appeal to experience as a discursive strategy, the *fin de siècle* intersection between Spiritualism and Theosophy saw the marked emergence of scientism, both in the treatment of hierophanic experience as "scientific" data as well as the more general praxis of scientism defined above.¹⁷ In this way, we may view the Theosophical Society's founding as the "apogee of nineteenth century scientism"¹⁸ — with the society's founder, Helena Petrovna Blavatsky (1831–1891), as one of the period's primary exponents of scientism.¹⁹ Indeed, von Stuckrad describes her as something of a "discursive hub," within whose works we find "entangled all relevant discourse strands that make up the knot of" the societal organisations of knowledge on science, religion, and occultism.²⁰ In considering the terminological scientism with which we are

15. For an example of this multidirectional mode of discursive entanglement illustrated, see especially: Von Stuckrad, *The Scientification of Religion*, 80–93.

16. E. Asprem, "Dis/unity of Knowledge: Models for the Study of Esotericism and Science" *Numen* 62, no. 5–6 (forthcoming); E. Asprem, "How Schrödinger's Cat Became a Zombie: On the Epidemiology of Science-Based Representations in Popular and Religious Contexts," *Method & Theory in the Study of Religion* (forthcoming).

17. E. Asprem, "Magic Naturalized? Negotiating Science and Occult Experience in Aleister Crowley's Scientific Illuminism," *Aries* 8 (2008): 143. A key example of the scientised parsing of hierophanic data can be seen in: A. Besant and C. W. Leadbeater, *Occult Chemistry: Clairvoyant Observations on the Chemical Elements*, rev. ed., ed. A. P. Sinnett (London: Theosophical Publishing House, 1919). Morrison ("Occult Chemistry," 89) characterises this work as "a significant shift from revelation to experimentation as a source for the scientific basis of Theosophy — a move intended to garner for Theosophy the validation of scientific method and the prestige of experimental science in that period."

18. Hammer, *Claiming Knowledge*, 218.

19. Asprem, "Magic Naturalized?," 44. Hammer, (*Claiming Knowledge*, 219–20) describes three modes of scientism in Blavatsky's work: first, the idea that a "genuine or spiritual science" would account for the whole range of mediumistic and magical phenomena (e.g. levitation, psychic healing, etc.); second, that theosophical doctrines were currently being — or would soon be — vindicated by science; third, that she continually insisted that the knowledge of ancient esotericists and modern scientists were terminological variants of the same ideas, and that modern scientists know *less* about the world than ancient esotericists.

20. Von Stuckrad, *The Scientification of Religion*, 98.

concerned here, it is apparent that there are tendencies among Theosophists both to use concrete scientific terms in a metaphorical sense (thus making the scientific uses considerably more vague),²¹ and conversely to take a term which was metaphorically used by a scientist and to spring-board off of that “into speculative realms where these descriptions are taken to literally imply” the metaphor.²² While the scientific “theories” and “experiments” developed out of this particular type of practice did not gain wide currency among mainstream scientists during the modern period in question,²³ the resulting discursive entanglements have left an indelible mark on all three terms — with their entangled esoteric and scientific contexts making a genealogical analysis all the more necessary.

Planes and Dimensions in Antiquity

Derived from the Latin *planum*, the word “plane” entered the English language in the seventeenth century to describe a flat, two-dimensional surface; however, in the metaphysical sense denoting a level of existence, the earliest attested instance occurs in Lydia Maria Child’s (1802–1880) *Philothea* in 1836.²⁴ *Philothea*, which has been described as an exposition of Swedenborgian “mystical philosophy,”²⁵ speaks both of “lower planes of existence” as well as man’s ability to “be elevated to a higher plane,” within the context of a description of Platonic idealism.²⁶ Child’s usage soon proved to be unexceptional with attestations becoming plentiful as early as the 1840s, particularly among Swedenborgian Christians. It was, however, with the emergence of the Theosophical current in the 1870s, and its subsequent literary explosion in the 1880s, that use of the term in this context reached its zenith. Despite this ubiquity of planar terminology during the *fin de siècle*, it is of interest that the application of this specific type of geometrical language to the various stratifications of esoteric cosmologies is largely without precedent prior to the mid-nineteenth century.

As it is customary for Theosophists to claim a strong degree of continuity between their ideology and the Middle and Late Platonic philosophies of antiquity,²⁷ it would be expected for their supporters to claim an antique origin of planar terminology. In this, we are not disappointed, with Johannes Jacobus

21. Hammer, *Claiming Knowledge*, 236–37, 239.

22. E. Asprey, “Pondering Imponderables: Occultism in the Mirror of Late Classical Physics,” *Aries* 11, no. 2 (2011): 129–65.

23. Morrison, “Occult Chemistry,” 95; D. C. Rawson, “Mendeleev and the Scientific Claims of Spiritualism,” *Proceedings of the American Philosophical Society* 122, no. 1 (1978): 1–8. Rawson’s paper, in particular, is illuminating in that it explores the specific objections to Spiritualistic scientism by a noted scientist of the day, Dmitri Mendeleev (1834–1907), the creator of the periodic table: “to Mendeleev spiritualism was but an imitation of science. Its proponents spoke in scientific terms, but as far as he was concerned they practiced intellectual deception” (7).

24. OED Online, Oxford University Press (December 2012) <http://www.oed.com> (accessed 3 March 2013), s.v. “plane.”

25. C. L. Karcher, *A Lydia Maria Child Reader* (Durham, NC: Duke University Press, 1997), 416.

26. L. M. Child, *Philothea: A Grecian Romance*, corr. ed. (New York: C.S. Francis & Co, 1848), 147.

27. For a characteristic example, see H. P. Blavatsky, *Isis Unveiled: A Master-Key to the Mysteries of Ancient and Modern Science and Theology*, 2 vols. (Pasadena: Theosophical University Press, 1998), 1:vii–xii.

Poortman (1896–1970) drawing a direct connection between the Theosophical “astral plane” and Proclus’ (CE 412–485) term, “ψυχικὸν πλάτος.”²⁸ And, while Poortman is correct in noting Proclus’ use of πλάτος (plane), in a metaphysical sense — referring both to the “νοητὸν πλάτος” (noetic plane)²⁹ and the “ψυχικὸν πλάτος” (psychic plane)³⁰ — this usage is all but unique to Proclus. Indeed, the Liddell and Scott *Greek–English Lexicon* notes the standard, mathematical meanings of πλάτος — exemplified in Aristotle (384–322 BCE), who both describes μήκος (length), πλάτος (breadth), and βάθος (depth) as the dimensions which define all bodies,³¹ and specifically uses πλάτος to refer to a two-dimensional plane³² — but the metaphysical sense it distinctly attributed to Proclus, with no other instances given.³³

The reason for the general absence of planar and dimensional terminology among esoteric discourses of antiquity is, I believe, two-fold. The first point to consider is that the reification of immaterial emanations from τὸ ἓν (the One) as τόποι (places) was specifically argued against by early Neoplatonists. Porphyry (CE 234–c. 305), in particular, argued very strongly against this practice. The whole thrust of his *Sententiae ad intelligibilia ducentes* is centred on an opening argument that τόπος (place) is an intrinsic characteristic of all σώματα (bodies), but that ἀσώματος (incorporeal) beings necessarily do not participate in τόπος.³⁴ In stressing the disjunction between the idea of location and the incorporeal emanations, Porphyry specifically notes that all three of the principal emanations — θεός (God), νοῦς (Mind), and ψυχή (Soul) — are described as both οὐδαμοῦ (nowhere) and πανταχοῦ (everywhere) because of the intrinsic ontological posteriority of “whereness” to that which is hypercosmic.³⁵ It is for this reason that the higher emanations were most commonly referred to by the early Neoplatonists without locational modifiers. The exception to this was the addition of the term κόσμος, which was used, particularly in conjunction with νοητός, to mean “world.” We see some variation of this phrase, νοητὸς κόσμος (noetic world), appears sporadically in the works of Middle Platonists such as Philo Judaeus (c. 20 BCE–CE 50),³⁶ Clemens Alexandrinus (c. CE 150–215),³⁷ Origen (c. 184–c. 253 CE),³⁸ and the *Corpus Hermeticum*.³⁹ And, in the works

28. J. J. Poortman, *Vehicles of Consciousness: The Concept of Hylic Pluralism (Ochēma)*, 4 vols., trans. N. D. Smith (Utrecht: Theosophical Publishing House, 1978), 2:54.

29. Proclus, *In Platonis Timaeum commentaria* 1.232.31–233.4, 2.131.27–30.

30. Proclus, *In Platonis Timaeum commentaria* 2.1.8–9.

31. Aristotle, *Physica* 209^a5.

32. Aristotle, *De caelo* 299^b26.

33. H. G. Liddell and R. Scott, *A Greek–English Lexicon*, rev. ed. H. S. Jones and R. McKenzie (Oxford: Clarendon Press, 1996), s.v. “πλάτος.”

34. Porphyry, *Sententiae ad intelligibilia ducentes* 1.1.

35. Porphyry, *Sententiae ad intelligibilia ducentes* 31.1–2.

36. Philo Judaeus, *Quaestiones in Genisum* 4.8b.4: “ἀσώματος καὶ νοητὸς κόσμος” (incorporeal and noetic world).

37. Clemens Alexandrinus, *Stromata* 5.6.36.3.4: “ὀγδοὰς καὶ ὁ νοητὸς κόσμος” (the ogdoad and the noetic world).

38. Origen, *Commentarii in evangelium Joannis* 19.146.4: “κόσμος ὁράτος, κόσμος οὐ βλέπόμενος, καὶ νοητὸς κόσμος” (the invisible world, the visible world, and the noetic world).

39. *Corpus Hermeticum* 16.12.2: “νοητὸς κόσμος τὸν αἰσθητὸν κόσμον περιέχων” (the noetic world that encompasses the sensible world); *Corpus Hermeticum* 16.17.1: “ἡρτηται οὖν ὁ νοητὸς κόσμος τοῦ θεοῦ, ὁ δὲ αἰσθητὸς τοῦ νοητοῦ” (the noetic world depends on god, and the sensible world on the noetic).

of Plotinus,⁴⁰ Proclus⁴¹ and later Athenian Neoplatonists like Damascius (c. CE 458–c. 538),⁴² κόσμος νοητός appears frequently as an hypostasis of νοῦς. However, as κόσμος is, in this sense a very general term that serves simply to partition the emanation for ease of discussion, the Porphyrian critiques about treating hypercosmic emanations as τόποι would not apply, accounting for the large number of attestations.

The second point to consider is that, in stark contrast to the ideas of higher emanations being described in terms of higher dimensionality that typify nineteenth- and twentieth-century adaptations of dimensional and planar terminology within esoteric discourses, early metaphysical ideas of dimensionality conceived of the numbers of dimensions *decreasing* as one proceeds up the emanative chain. A case in point of this dimensional disjunction between antiquity and modernity is Iamblichus' (c. 245–c. 325 CE) *Theologumena arithmeticae*. Therein, Iamblichus begins by stating that the μονάς (monad) — which, in this Neopythagorean ontology, is the source from which all else emanates — is “θέσιν μὴ ἔχουσα” (non-positional).⁴³ This is to say that the monad is a zero-dimensional mathematical point existing in its pure, isolated state — prior to its being located within the spatial dimensions of length, width, and breadth. From this, emanates the δυάδος (dyad), which is identified as “μήκος” (length), making it the one-dimensional, lineal extension of the monad.⁴⁴ From this dyad emanates the τριάς (triad), which Iamblichus identifies as the ideal ἐπίπεδος (plane) through which all geometric planes are instantiated.⁴⁵ The third emanation from the monad is, unsurprisingly, the three-dimensional extension of the two-dimensional plane represented by the triad. This τετράδος (tetrad), as Iamblichus calls it, is the ideal solid form, characterised by “σωμάτωσιν” (corporeality) and having “τρία διάστασιν” (three dimensions).⁴⁶ In this way, what we see when examining the metaphysical system in antiquity that made the most extensive use of dimensional terms in its understanding of the phases of the emanative hierarchy is that the descent from the One is characterised by a progressive increase in dimensionality. This is, as we shall see, precisely the opposite of the Theosophical notion that dimensionality increases as one ascends *towards* the One.

Celestial Spheres

This Porphyrian prohibition against attributing τόπος to cosmological stratifications did *not* hold true at the cosmic tiers. According to Aristotle (384–322 BCE), the idea that the visible heavens consisted of a concentric series of geometric forms — most often σφαῖρας (spheres) or ζώνας (bands) — originated with Plato's (c. 424–348 BCE) student, Eudoxus (c. 410–c. 355

40. Plotinus, *Enneads* 2.4.4.8, 3.4.3.22, 3.7.2.9, 5.1.9.19, 5.3.16.9, 6.2.22.37.

41. Proclus, *In Platonis Timaeum commentaria* 1.230.4, 1.307.28, 1.324.28, 1.429.21, 2.120.10.

42. Damascius, *Successoris dubitationes et solutiones* 1.91.18; 1.235.15.

43. Iamblichus, *Theologumena arithmeticae* 1.4.

44. Iamblichus, *Theologumena arithmeticae* 8.3.

45. Iamblichus, *Theologumena arithmeticae* 18.19–20.

46. Iamblichus, *Theologumena arithmeticae* 20.7–12.

BCE).⁴⁷ As early as Plato's *Timaeus*, these celestial zones were seen as the habitations of the visible gods (e.g. Helios, Selena, etc.),⁴⁸ under whose governance was the sublunar world of generation.⁴⁹ While the idea of the planets as gods who govern the visible order of the cosmos entered Greek thought from late Babylonian astral religion,⁵⁰ the notion that these cosmocrators might be visited in their respective celestial domains by an ascending soul appears to be Greco-Roman.⁵¹ Early, allegorical descriptions of the soul ascending through the celestial spheres and meeting there with their denizens can be seen in Plato's tale of Er from the *Republic*,⁵² and Marcus Tullius Cicero's *Somnium Scipionis*.⁵³ Within, what John Dillon terms the "Platonic underworld,"⁵⁴ these allegories were taken seriously, with the doctrine of ἀναγωγή (ascent)⁵⁵ — i.e. ascent through the cosmic and hypercosmic realms by means of the soul's ὄχημα (vehicle)⁵⁶ — being one of the primary theurgic practices.⁵⁷

From the time of Aristotle to the late Middle Ages, the doctrine of the cosmic spheres was the standard cosmological model. Indeed, it was not until Christoph Rothmann (c. 1555–c. 1600) and Tycho Brahe (1546–1601) that the "dissolution" of the cosmic spheres occurred within scientific discourses.⁵⁸ This cosmology flourished throughout the Middle Ages due largely to the "profound interrelationship between Greek, and especially Aristotelian, thought on the one hand and Christianity on the other."⁵⁹ In this way, through the Aristotelian Christianity of the Middle Ages,⁶⁰ Aristotle's model of the cosmic spheres was merged with biblical exegesis to craft a cosmology that would endure until the Enlightenment. And, in keeping with the tradition of allegorical vision journeys of the soul through the celestial spheres, the medieval

47. Aristotle, *Metaphysica* 1073^a17–20.

48. Plato, *Timaeus* 38c–d.

49. Plato, *Timaeus* 42d–e.

50. H. Lewy, *Chaldaean Oracles and Theurgy: Mysticism, Magic and Platonism in the Later Roman Empire*, 3rd ed., ed. M. Tardieu, Série Antiquité 77 (Paris: Institut d'Études Augustiniennes, 2011), 423.

51. For more on the epiphanies of the cosmocrators in late antiquity, see C. A. Plaisance, "Of Cosmocrators and Cosmic Gods: The Place of the Archons in *De mysteriis*," in *Daimonic Imagination: Uncanny Intelligence*, ed. A. Voss and W. Rowlandson (Newcastle upon Tyne: Cambridge Scholars Publishing, 2013), 64–85.

52. Plato, *Respublica* 614aff.

53. Cicero, *Somnium Scipionis*.

54. J. M. Dillon, *The Middle Platonists: 80 B.C. to A.D. 220*, rev. ed. (Ithaca: Cornell University Press, 1996), 384–96.

55. For general information on ἀναγωγή, see Lewy, *Chaldaean Oracles and Theurgy*, 487–90; R. Majercik, "Introduction," in *The Chaldaean Oracles: Texts, Translation, and Commentary*, ed. and trans. R. Majercik, Studies in Greek and Roman Religion 5 (Leiden: Brill, 1989), 30–45.

56. For general information on the doctrine of the ὄχημα, see R. C. Kissling, "The Ὀχημα-Πνεύμα of the Neo-Platonists and the *De Insomniis* of Synesius of Cyrene," *American Journal of Philology* 43, no. 4 (1922): 318–330; J. F. Finamore, *Iamblichus and the Theory of the Vehicle of the Soul*, American Classical Studies 14 (Chico: Scholars Press, 1985); H.S. Schibli, "Hierocles of Alexandria and the Vehicle of the Soul," *Hermes* 121 (1993): 109–17.

57. For examples of anagogic praxis in antiquity, see *Papyri Graecae magicae* 4.537–57; *Corpus Hermeticum* 1.24–26; *Oracula Chaldaica* fr. 190, Iamblichus, *De mysteriis* 10.6.

58. E. Rosen, "The Dissolution of the Solid Celestial Spheres," *Journal of the History of Ideas* 46, no. 1 (1985): 31; B. R. Goldstein and P. Barker, "The Role of Rothmann in the Dissolution of the Celestial Spheres," *British Journal for the History of Science* 28, no. 4 (1995): 385.

59. E. Grant, "Celestial Orbs in the Latin Middle Ages," *Isis* 78, no. 2 (1987): 159.

60. For a full treatment of medieval views of the celestial orbs, see E. Grant, *Planets, Stars, & Orbs: The Medieval Cosmos, 1200–1687* (Cambridge: Cambridge University Press, 1996).

example *par excellence* is found in Dante Alighieri (c. 1265–1321), whose *Paradiso* follows Plato and Cicero in treating the celestial spheres as spiritual places which could be visited by an ascended soul.⁶¹ And, as in antiquity, praxis followed allegory, with the Renaissance Neoplatonist Marsilio Ficino (1433–1499), maintaining at once the doctrines of the celestial spheres⁶² as well as the doctrine of the *aetherius vehiculum* (ethereal vehicle) or *currus* (chariot) which enabled the soul to ascend through the spheres towards God.⁶³ Furthermore, in Ficino's *Theologia Platonica* (1482) there is a very peculiar passage in which he claims that the *Oracula Chaldaica* present a doctrine describing the soul's vehicle as a geometric plane.⁶⁴ Ficino is referring to fr. 104, the last half of which⁶⁵ Majercik identifies as containing a “geometric term borrowed from Pythagorean speculation” which warns against interpreting incorporeal phenomena in terms of corporeality⁶⁶ — an injunction clearly mirroring Porphyry's injunctions from *Sententiae ad intelligibilia ducentes*. This is not, however, a planar reference which mirrors Proclus or the modern esoteric currents, nor does it appear to have shaped the way later Renaissance Platonists discussed anagogic ascent. For example, moving forward into the sixteenth century, we see that Cornelius Agrippa (1486–1535) followed his Hellenistic sources very closely. Throughout *De occulta philosophia libri tres* (1531–33), Agrippa consistently advocates the cosmological doctrine of the celestial spheres,⁶⁷ and combines this with an anagogic praxis by which the magician's soul might fly forth from the body through the “supercoelestem cohabitationem” (supercelestial cohabitations), becoming receptacle for “diuinorum effecta” (divine effects).⁶⁸

With such a long history of use, spheric terminology persisted *well* after it had been discarded by scientists. In *The Perfected Way*, Anna Kingsford (1846–1888) and Edward Maitland (1824–1897), both members of the Theosophical Society, describe the metaphysical region immediately above the material as “the astral sphere, belt, or circulus,” which hearkens back to classical and medieval conceptions of planetary belts and zones.⁶⁹ This terminological anachronism is particularly interesting in that its use does *not* seem indicate a discursive reversion to the crystalline spheres of Aristotelian cosmology. In other words, there is no indication that Kingsford and Maitland intended to espouse this long-unused theory. Rather, what we see is a discursive

61. Dante Alighieri, *Paradiso*.

62. Ficino, *Theologia Platonica* 5.1.4, 10.2.5.

63. Ficino, *Theologia Platonica* 5.13.14, 9.5.2, 18.10.11. For a full examination of Ficino's doctrine of the soul's vehicle, see A. Corrias, “Imagination and Memory in Marsilio Ficino's Theory of the Vehicle of the Soul,” *The International Journal of the Platonic Tradition* 6 (2012): 81–114.

64. Ficino, *Theologia Platonica* XVIII.4.4: “Spiritus planumque appellat ipsum vehiculum.”

65. Ficino quotes this half of the hexameter verse as “μηδὲ βαθύνῃς τὸ ἐπίπεδον” (Ficino, *Theologia Platonica* 18.4.3), and Majercik presents it as “μηδὲ βαθύνῃς τοῦπίπεδον” (*Oracula Chaldaica* fr. 104) — both of which carry the meaning of not deepening that which is planar.

66. Majercik, “Commentary,” 181.

67. Agrippa, *De occulta philosophia libri tres* 1.8, 1.12, 2.6, 2.11, 2.12, 2.13, 2.28, 2.34, 2.58, 3.16.

68. Agrippa, *De occulta philosophia libri tres* 3.50.

69. A. Kingsford and E. Maitland, *The Perfect Way: Or, the Finding of Christ* (London: Hamilton, Adams, & Co, 1882), 67.

juxtaposition of antique spheric terminology alongside an implicit modern understanding of the heavenly bodies as being material bodies rotating around the sun. This juxtaposition was not a peculiarity of theirs either. In William Q. Judge's (1851–1896) *The Ocean of Theosophy* we see “the astral region penetrating and surrounding the earth,” identified as the “astral sphere intermediate between earthly and heavenly life.”⁷⁰ Similarly, Annie Besant's (1847–1933) *The Ancient Wisdom* describes the region visited by the astral body when it leaves the material vessel as “the astral sphere.”⁷¹ In both cases, what we see are, again, adaptations of previously discarded scientific terms of antiquity and the Middle Ages used metaphorically rather than literally within modern esoteric discourses. These Theosophists are presenting a cosmos in which the “astral sphere” is not some visible region studied by astronomers, but rather an invisible or interior world which is accessible only by means of some esoteric praxis.

Planes from Swedenborg to Leadbeater

With the aforementioned discursive dissolution of the celestial spheres initiated by Rothmann and Brahe that occurred throughout the sixteenth and seventeenth centuries, Early Modern theosophers found different ways to describe the anagogic ascent of the soul. Most pertinent of these to this present discussion is Emanuel Swedenborg (1688–1772), in whose writings the esoteric use of the term *planum* to describe the regions of his metaphysical cosmology, was single-handedly responsible for its transfer from mathematical and scientific into esoteric discourses, and its eventual proliferation among Spiritualists and Theosophists of later years. Swedenborg's esoteric adaption of *planum* is quite interesting, because rather than drawing from the astronomical lexica, his use seems to derive from the biological and botanical sciences. In purely metaphysical instances, Swedenborg speaks of the “planum interium” (internal plane) and “planum exterium” (external plane) as varying levels of consciousness.⁷² The interior plane serves as the “pro plano spiritualibus et caelestibus” (plane for spiritual and celestial things),⁷³ which he identifies both as the “sphaera interiorum” (internal sphere) and the “spirituali mundo” (spiritual world)⁷⁴ — bridging the discursive gap between the heavenly spheres of the Renaissance and the spiritual planes of the Theosophists. And, much like his Neoplatonic predecessors, Swedenborg saw the soul's elevation to the interior plane as the means by which man is divinised.⁷⁵

This manner of use, however, is done alongside more traditional eighteenth-century anatomical uses, in which *planum* simply refers to any flat surface

70. W. Q. Judge, *The Ocean of Theosophy*, 2nd ed. (New York: Theosophical Publishing Society, 1893), 100.

71. A. Besant, *The Ancient Way: An Outline of Theosophical Teachings*, 2nd ed. (London: Theosophical Publishing Society, 1899), 101–2.

72. E. Swedenborg, *Arcana caelestia, quae in scriptura sacra, seu verbo domini sunt, detecta*, 8 vols. (London: John Lewis, 1749–1756), 4167. As a note, both the original Neolatin and English translations of Swedenborg's works have a standardised system of paragraph numbers, which are used in lieu of page numbers.

73. Swedenborg, *Arcana caelestia*, 5079.

74. Swedenborg, *Arcana caelestia*, 6495.

75. Swedenborg, *Arcana caelestia*, 5580, 6845.

within a body. We see this use in the works of Swedenborg's contemporary, and cousin (by marriage),⁷⁶ Carl Linnaeus (1707–1778), who often used such terminology when describing the internal structures of plants and animals.⁷⁷ Such terminology has become a standard feature of modern anatomy, with the three anatomical planes (frontal, sagittal, and transverse) being used to describe bodily motion and movement,⁷⁸ and such imaginary lines as the orbitomeatal plane demarcating regions of the skull.⁷⁹ It is in something of a blend between the anatomical and esoteric uses of the term that we can interpret Swedenborg's reference to the "plano occipitis" (occipital plane)⁸⁰ through which he "percipiebam quod multitudo spirituum" (perceived a multitude of spirits),⁸¹ or the place "supra planum oculi dextri" (above the plane of the right eye) in which God appears as the sun.⁸² Bruce F. Campbell describes this adaptation of scientific terminology towards esoteric ends as indicative of Swedenborg's desire "to put sacred things in scientific form."⁸³ Campbell notes that this assessment was shared by Robert Ellwood, who described Swedenborg as "looking for a language to express relations between the infinite and the finite which would have mathematical and scientific exactness."⁸⁴ This adaptation of anatomical terminology for esoteric ends, done outside the context of the scientific method — and without the acceptance of the scientific community — appears to be a textbook example of the discursive strategy Hammer identifies as terminological scientism.

As Swedenborgianism — alongside Mesmerism, Freemasonry, and Rosicrucianism — was one of the principal currents through which esoteric discourses entered America in the mid-nineteenth century, and it was there that the Swedenborgian church flourished greatest, it should come as no surprise that the earliest esoteric attestations of planar terminology in English sprang forth from Swedenborg's disciples.⁸⁵ As Wouter J. Hanegraaff notes, the popularity of Swedenborgian ideas among Spiritualists "is not surprising," as the former provided the latter with a "convenient theoretical background" for spirit communication.⁸⁶ Although the Church of the New Jerusalem, the official successors of Swedenborg's teaching, strongly denounced Spiritualism⁸⁷ and refused to ally itself with the

76. M. K. Schuchard, *Emanuel Swedenborg, Secret Agent on Earth and in Heaven: Jacobites, Jews, and Freemasons in Early Modern Sweden*, *The Northern World* 55 (Leiden: Brill, 2012), xiv.

77. An example of this use in Linnaeus' work can be seen in his description of the *interius latus planum* (internal side plane) of the *paspalum* grass. C. Linnaeus, *Prælectiones in ordines naturales plantarum* (Hamburg: Benj. Gottl. Horrmanni, 1792), 146.

78. D. Knudson, *Fundamentals of Biomechanics* (New York: Kluwer Academic, 2003), 41.

79. A. Agur and A. F. Dalley, *Grant's Atlas of Anatomy*, 12th ed. (Baltimore: Lippincott, Williams & Wilkins, 2009), 641.

80. The occipital plane is a region of the base of the skull.

81. Swedenborg, *Arcana cælestia*, 6922.

82. Swedenborg, *Arcana cælestia*, 4321.

83. Campbell, *Ancient Wisdom Revived*, 14.

84. R. S. Ellwood, *Alternative Altars: Unconventional and Eastern Spirituality in America* (Chicago: University of Chicago Press, 1979), 87.

85. Campbell, *Ancient Wisdom Revived*, 20; N. Goodrick-Clarke, *The Western Esoteric Traditions: An Historical Introduction* (Oxford: Oxford University Press, 2008), 185.

86. Hanegraaff, *New Age Religion and Western Culture*, 438.

87. Hanegraaff, *New Age Religion and Western Culture*, 438.

movement,⁸⁸ Spiritualism was enthusiastically embraced by many American Swedenborgians, which greatly affected the transmission of Swedenborgian discourses and terminologies into the Spiritualist current⁸⁹ — with the famed Spiritualist Andrew Jackson Davis (1826–1910) being “the most direct link between the teachings of Swedenborg and those of spiritualism.”⁹⁰ In particular, the strong line of continuity is readily demonstrated by the quasi-empirical understanding of hierophanies as scientific data, which the Spiritualists inherited from Swedenborg.⁹¹ Swedenborgianism’s combination of “pseudo-scientific terminology with its mysticism” contributed greatly to “the manipulation and misuse of scientific language for spiritual purposes” that would become so characteristic of Spiritualism and Theosophy’s discursive strategies.⁹² However, despite some similarities between Swedenborg’s role as a visionary and the all-important place of the medium within Spiritualism, what the Spiritualists gleaned from Swedenborgianism was distinctly doctrinal and terminological,⁹³ with their practice owing far more to the techniques of Franz Mesmer (1734–1815) than Swedenborg.⁹⁴

In this cauldron of mid-nineteenth-century scientised esoteric discourses, we begin to see a proliferation of attestations of planar terminology following Child’s *Philothea*. The Swedenborgian New Church leader Richard De Charms (b. 1796) makes a distinction between the “spiritual plane” and the “material plane.”⁹⁵ The anonymous R. D. of the Swedenborgian New Jerusalem Church describes how Swedenborg used his “natural and spiritual eyes” to respectively see into the “natural plane” and the “spiritual plane.”⁹⁶ The similarly anonymous C. D. R. (also of the New Jerusalem Church) wrote of the mystic’s mind opening within the “spiritual plane.”⁹⁷ After this initial entry of planar terminology into the English esoteric discourses through Swedenborgianism, the subsequent two decades saw its expansion into the Unitarian,⁹⁸ Shaker,⁹⁹ and Spiritualist currents.¹⁰⁰

88. R. L. Moore, “Spiritualism and Science: Reflections on the First Decade of Spirit Rappings,” *American Quarterly* 24, no. 4 (1972): 483.

89. Moore, “Spiritualism and Science,” 477, 481.

90. R. L. Moore, *In Search of White Crows: Spiritualism, Parapsychology, and American Culture* (Oxford: Oxford University Press, 1977), 10.

91. Owen, *The Darkened Room*, 13–15, 35, 37.

92. Oppenheim, *The Other World*, 197.

93. R. S. Ellwood, “The American Theosophical Synthesis,” in *The Occult in America: New Historical Perspectives*, ed. H. Kerr and C. L. Crow (Urbana: University of Illinois Press, 1983), 126.

94. Hanegraaff, *New Age Religion and Western Culture*, 438.

95. R. De Charms, *Sermons Illustrating the Doctrine of the Lord: And Other Fundamental Doctrines of the New-Jerusalem Church* (Philadelphia: Brown, Bickling & Guilbert, 1840), 238.

96. R. D., “Swedenborg Not a Visionary: And His Doctrines Not Congenial to a Wonder-Loving Spirit,” *The New Churchman: A Periodical Work Devoted to Disseminating the Doctrines of the New-Jerusalem Church* 1, no. 1 (1841): 34.

97. C. D. R., “Moral Commotion and the Increase of Knowledge,” *The New Jerusalem Magazine* 23, no. 10 (1850): 416.

98. A. Ballou, *Practical Christian Socialism: A Conversational Exposition of the True System of Human Society* (New York: Fowlers and Wells, 1854), 486: “The masses of mankind have ever yet stood on the animal and carnal plane. A few have been elevated to the spiritual plane in all ages.”

99. F. W. Evans, “Address of F.W. Evans,” in *Proceedings of the Free Convention Held at Rutland, Vt., July 25th, 26th, and 27th, 1858*, ed. John Landon and others (Boston: J. B. Yerrinton and Sons, 1858), 154: “The human race is destined to go through four planes of progression: — the physical plane, the moral plane, the intellectual plane, and the spiritual plane.”

100. M. M. King, *The Principles of Nature: As Discovered in the Development and Structure of the Universe* (Saratoga Springs: Andrew J. King 1866), 136: “The spiritual plane, signifies the position occupied by substances too far perfected to be attracted to the physical sphere.”

From this point of current-crossing saturation in the late nineteenth century, planar terminology became entwined with the burgeoning Theosophical discourse of the early 1880s in a big way. In *Isis Unveiled* (1877), Blavatsky sparingly speaks of the “terrestrial plane,”¹⁰¹ “earthly plane,”¹⁰² and “natural plane,”¹⁰³ but does not yet speak of any “higher” planes. In his *Esoteric Buddhism* (1883), the early Theosophical leader Alfred Percy Sinnett (1840–1921) initiated the use of perhaps the most ubiquitous planar term: the “astral plane.”¹⁰⁴ With the 1888 publishing of *The Secret Doctrine*, we see Blavatsky fully embracing planar terminology, discussing the “astral plane,”¹⁰⁵ “etheric plane,”¹⁰⁶ “mental planes,”¹⁰⁷ “spiritual plane,”¹⁰⁸ as well as almost innumerable instances of less systematic planar phrases. This system of lower and higher planes soon proliferated throughout the Theosophical community, becoming deeply entrenched. By the time Charles Webster Leadbeater (1854–1934) published his travelogues, *The Astral Plane* (1895)¹⁰⁹ and *The Devachanic Plane* (1896),¹¹⁰ “plane” had become the standard term to denominate regions of the metaphysical hierarchy within esoteric discourses. One thing that is of particular interest with Leadbeater’s descriptions of the planes that has also become commonplace within Theosophical and the New Age currents, is that although he maintains the Swedenborgian idea of the higher planes as existing “within” man,¹¹¹ he discusses them as places whose “objects and inhabitants ... are as real in exactly the same way as our own bodies, our furniture, our houses or monuments are real”¹¹² — which is a radical and substantial discursive shift from the stark opposition to treating such modes of being as *τόποι* among the Platonists of antiquity. However, by the time we reach the Theosophists of the 1880s and 1890s, Swedenborg’s original scientific connection

101. Blavatsky, *Isis Unveiled*, 1:2.

102. Blavatsky, *Isis Unveiled*, 2:33.

103. Blavatsky, *Isis Unveiled*, 1:318.

104. A. P. Sinnett, *Esoteric Buddhism* (London: Trübner & Co., 1883), 67: “above our own, that is, in the order of spirituality — not above it at all, but in and of it, as regards real locality — the astral plane, or kama loka, according to a very familiar Sanskrit expression.” Sinnett’s equation of the English “plane” to the Sanskrit *loka* is of interest. *Loka* refers to the idea of wide open space, and was used in the earliest instances to refer to open spaces such as clearings in the woods. Eventually, the term took on the meaning of “world” and became a technical term used to designate the individual regions of Indian cosmological hierarchies, M. Monier-Williams, *A Sanskrit–English Dictionary: Etymologically and Philologically Arranged with Specific Reference to Cognate Indo-European Languages*, rev. ed. (Oxford: Oxford University Press, 2000), s.v. “loka.” However, since Sinnett’s equation of the Indian *loka* with the Swedenborgian plane, it has become commonplace even for academic dictionaries of Indian religious philosophy to include “plane” as one of *loka*’s definitions; for an instance of this, see J. Grimes, *A Concise Dictionary of Indian Philosophy: Sanskrit Terms Defined in English*, rev. ed. (Albany: State University of New York Press, 1996), s.v. “loka.”

105. H. P. Blavatsky, *The Secret Doctrine: The Synthesis of Science, Religion, and Philosophy*, 2 vols. (Pasadena: Theosophical University Press, 1999), 1:124, 1:218, 1:644, 2:90, 2:688.

106. Blavatsky, *The Secret Doctrine*, 1:561.

107. Blavatsky, *The Secret Doctrine*, 1:534.

108. Blavatsky, *The Secret Doctrine*, 1:74, 1:153, 1:177, 1:247 2:110, 2:167, 2:631.

109. C. W. Leadbeater, *The Astral Plane: Its Scenery, Inhabitants and Phenomena*, Theosophical Manuals 5 (London: Theosophical Publishing Society, 1896).

110. C. W. Leadbeater, *The Devachanic Plane: Or, the Heaven World, Its Characteristics and Inhabitants*, Theosophical Manuals 6 (New York: Theosophical Publishing Society, 1896).

111. Leadbeater, *The Astral Plane*, 3.

112. Leadbeater, *The Astral Plane*, 2.

between *planum* as an anatomical and esoteric term had been lost through several generations of transmission. While this would tend to discourage the charge of terminological scientism from applying to the Theosophical planes, the relationship between planar and dimensional terminologies must first be examined.

Dimensions: “More Spacious Space”

As mentioned earlier, discussions of materiality in terms of the familiar three dimensions — length, breadth, and depth — stretch back into antiquity. It was not, however, in any of these three that nineteenth-century esoteric discourses located the now familiar higher planes inhabited by spirits and gods; for this, we must look to the fourth dimension. The first instance of the notion of a fourth geometric dimension, and the accompanying terminology, is identified by Florian Cajori as Nicole Orseme’s (c.1320–1382) mention of the “4^{am} dimensionem” (fourth dimension), which was the necessary outcome of the geometric progression of constructing two-dimensional planes from one-dimensional lines, and three-dimensional solids from two-dimensional planes.¹¹³ The further history of the reception of this idea throughout the Renaissance and Enlightenment is quite interesting, but largely irrelevant here.¹¹⁴ For our purposes, the next intellectual landmark of note is the *Enchiridion metaphysicum* (1671) of the Cambridge Platonist Henry More (1614–1687), which is the first instance of theological speculation on the fourth spatial dimension. Here, More theorised that while the body’s “spissitude” (thickness) takes up space in the three familiar dimensions, the spirit’s thickness was extended into a physically unobservable fourth dimension.¹¹⁵ More specifically identifies this “spissitudinem essentialem” (essential thickness) within which spirits is extended as an appellation of “quarta hæc dimensio” (this fourth dimension).¹¹⁶

Following Early Modern speculations on higher spatial dimensions, there emerged in the eighteenth century “the new idea of time as a fourth dimension.”¹¹⁷ The ultimate origin of this line of thinking appears to be the *Encyclopédie* (1751–72) of Denis Diderot (1713–1784) and Jean-Baptiste le Rond d’Alembert (1717–1783), whose fourth volume (1755) contains the suggestion that we regard duration as a fourth dimension (“regarder la durée

113. F. Cajori, “Origins of Fourth Dimensional Concepts,” *American Mathematical Monthly* 33, no. 8 (1926): 397–8. This is to say, for example, that the boundaries of a two-dimensional square are defined by one-dimensional lines, and the boundaries of a three-dimensional cube are defined by two-dimensional squares. Following this progression, it is logical to assume that the boundaries of a four-dimensional “cube” (what mathematicians now term a hypercube) would similarly be defined by three-dimensional cubes.

114. For full documentation, see the remainder of Cajori, “Origins of Fourth Dimensional Concepts.”

115. Cajori, “Origins of Fourth Dimensional Concepts,” 399–400; T. H. Gibbons, “Cubism and ‘The Fourth Dimension’ in the Context of Late Nineteenth-Century and Early Twentieth-Century Revival of Occultism,” *Journal of the Warburg and Courtauld Institutes* 44 (1981): 134; R. von B. Rucker, *The Fourth Dimension: A Guided Tour of the Higher Universes* (Boston: Houghton Mifflin), 52–3.

116. H. More, *Enchiridion metaphysicum: sive, de rebus in corporeis succincta & luculenta dissertatio* (London: Guiljelmum Morden, 1671), 1.28.7.

117. Cajori, “Origins of Fourth Dimensional Concepts,” 402.

comme une quatrième dimension").¹¹⁸ This next century saw the extrapolation of this idea into the four-dimensionalist theory of time and its accompanying construct of the spacetime worm used to explain the persistence of concrete particulars through time. The idea appears to originate in the philosophical musings of the then professor of physics, Gustav Theodor Fechner (1801–1887), whose essay, "Der Raum hat vier Dimensionem" (1846) pioneered the idea that at any single point in time, the ontological status of a person be best described as a three-dimensional cross-section of a four-dimensional being having three spatial dimensions and one temporal dimension.¹¹⁹ At one end of this spacetime worm (as modern theorists describe it) would be the person as a child and at the other, an elderly person. This idea caught on like wildfire in the minds of Anglo-Americans, soon proliferating throughout scientific publications¹²⁰ as well as science fiction novels.¹²¹ Since then, the four-dimensionalist position has become one of the dominant solutions to the problems of temporal ontology in contemporary metaphysics, garnering the support of scientists and philosophers alike.¹²²

While transfers four-dimensional terminology into esoteric discourses largely steered clear from the more scientifically viable notion of temporal four-dimensionalism,¹²³ the dimensional pioneer, Fechner, played a major role in the entrance of dimensional concepts into Spiritualist currents. The point of entry is the relationship between Fechner and the astrophysicist Johann Carl Friedrich Zöllner (1834–1882), both of whom were lecturers at the University of Leipzig.¹²⁴ In the revised 1875 publication of Fechner's "Der Raum hat vier Dimensionem," he included an addendum noting his conversations with Zöllner in which they discussed the possibility of explaining the wonderworking that occurred at Spiritualistic séances by means of the

118. D. Diderot and J. le Rond d'Alembert, *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers, etc.*, University of Chicago: ARTFL Encyclopédie Project (2013) <http://encyclopedia.uchicago.edu> (accessed 3 March 2013), s.v. "dimension."

119. G. Fechner, "Der Raum hat vier Dimensionem," in *Kleine Schriften* (Leipzig: Breitkopf und Härtel, 1875), 266.

120. The first instance of this theory in an English language scientific publication is: S., "Four-Dimensional Space," *Nature* 31, no. 804 (1885): 481. Here, the author proposes both that we "consider Time as a fourth dimension" which forms a part of "a new kind of space for its existence, which we may call time-space," as well as the spacetime worm theory: "we must, therefore, conceive that there is a new three-dimensional space for each successive instant of time; and, by picturing to ourselves the aggregate formed by the successive positions in time-space of a given solid during a given time, we shall get the idea of a four-dimensional solid."

121. H.G. Wells, *The Time Machine: An Invention* (New York: Henry Holt, 1895). Wells (1866–1946) has his inventor say that "Time's only a kind of Space" (4), and that "any real body must have extension in *four* directions: it must have Length, Breadth, Thickness, and — Duration" (7). He further explains that, "there is no difference between Time and any of the three dimensions of Space except that our consciousness moves along it" (8).

122. For a remarkably concise exposition of the current situation surrounding four-dimensionalist theories of time and the spacetime worm as a solution to the problem of concrete particulars persisting through time, see M. J. Loux, *Metaphysics: A Contemporary Introduction*, 3rd ed., Routledge Contemporary Introductions to Philosophy (New York: Routledge, 2006), 205–58.

123. C. W. Leadbeater, *Clairvoyance* (London: Theosophical Publishing Society, 1899), 125: "Time is not in reality the fourth dimension at all."

124. H. G. Fellner and W. F. Lindgren, "Gustav Theodor Fechner: Pioneer of the Fourth Dimension," *The Mathematical Intelligencer* 33, no. 3 (2011): 126; H. Kragh, "Zöllner's Universe," *Physics in Perspective* 14 (2012): 394.

intercession of four-dimensional beings.¹²⁵ In other words, they theorised that the spirits with which Spiritualist mediums interacted were four-dimensional beings. What Fechner and Zöllner concluded was that the best means by which this theory of four-dimensional spirits could be tested would be the rotation of a three-dimensional object in four-dimensional space so that it would be transformed into its mirror image, an idea likely inspired by their Leipzig colleague August Möbius' (1790–1868) 1827 discovery that the transformation of such an object "into its mirror image by a hyperspace rotation" was possible.¹²⁶

This discovery of Möbius combined with the Zöllner's newfound interest in Spiritualism (due to his 1875 trip to England), crystallised into what he deemed the perfect method for proving the existence of four-dimensional spirits.¹²⁷

And, not being an armchair theorist, this is exactly what Zöllner set out to do!

In 1880, Zöllner published *Die transcendente Physik*,¹²⁸ which was followed by a widely disseminated English translation only a year later.¹²⁹

This book chronicled Zöllner's work with the American medium Henry Slade (1835–1905), the two of who carried out a series of "experiments" designed to test Zöllner's hypothesis. One of the early experiments which directly preceded the book's publication was chronicled in his 1878 paper "On Space of Four Dimensions,"¹³⁰ wherein Zöllner describes a séance attended by "several prominent scientists and scholars,"¹³¹ where Slade "demonstrated" the existence of four-dimensional beings by tying and untying knots on a closed piece of cord — an operation which (in the absence of trickery) ought only be possible by means of four-dimensional rotation. In spite of the overwhelmingly negative criticism from the scientific community with which their work was met, Zöllner was convinced of Slade's authenticity.¹³² Despite this, Zöllner and Slade's works were widely regarded among audiences "with a predisposition towards Spiritualism ... as conclusive evidence that science had verified the existence of an occult Fourth Dimension."¹³³ This partnership was indicative of the still nascent professionalisation of the sciences at the time, where the boundaries between "science" and "the esoteric" were less rigidly defined than is the case today. It was a time when scientists and esotericists were concurrently investigating one another's discourses to explore new avenues of approaching their respective issues. This is to say that while a scientist like

125. Fechner, "Der Raum hat vier Dimensionem," 276.

126. Rucker, *The Fourth Dimension*, 53.

127. Rucker, *The Fourth Dimension*, 53.

128. J. C. F. Zöllner, *Die transcendente Physik und die sogenannte Philosophie* (Leipzig: L. Staackmann, 1879).

129. J. C. F. Zöllner, *Transcendental Physics: An Account of Experimental Investigations from the Scientific Treatises*, trans. C. C. Massy (London: W.H. Harrison, 1880).

130. J. C. Zöllner, "On Space of Four Dimensions," *Quarterly Journal of Science* 8 (1878): 227–37.

131. Kragh, "Zöllner's Universe," 407: attendees included "the mathematician Wilhelm Scheibner, the physicist and philosopher Ernst Mach, the physicist Wilhelm Weber, the physiologist Carl Friedrich Wilhelm Ludwig, the psychologist and philosopher Wilhelm Max Wundt, and the psychologist and physicist Gustav Theodor Fechner."

132. Oppenheim, *The Other World*, 22–23. Slade had been convicted previously of fraud in 1876 in connection with Spiritualist experiments, and subsequently served three months hard labour as a result.

133. Gibbons, "Cubism and 'The Fourth Dimension'," 135.

Zöllner might reach out to an esotericist like Slade in order to approach what, for Zöllner, was essentially a scientific issue from an esoteric perspective, an esotericist like Slade might see the situation reversed, reaching out to Zöllner in order to investigate what he deemed an esoteric concern from a scientific perspective.

Following Zollner's experiments, the 1880s proved to be a positively explosive decade for such collaborative works which would fuel the networks of transfers between scientific discourses on a fourth spatial dimension and Spiritualist currents, forming a "common stock of ideas" which would form the foundation of the Theosophical appropriation of the dimensional apparatus.¹³⁴ Drawing on an analogy which appears to have originated with Fechner,¹³⁵ Edwin Abbot's (1838–1926) novel *Flatland* (1884), proved to be the era's masterpiece of clarity in unveiling the idea of four-dimensional hyperspace by means of an analogous meeting between a two-dimensional inhabitant of the planar Flatland and a three-dimensional interloper.¹³⁶ While Abbot himself was not a proponent of Zöllner's theory, this basic message that "spirits live in the fourth dimension," was greatly assisted in its dissemination by *Flatland*.¹³⁷ Soon after the arrival of *Flatland*, the mathematician Charles Howard Hinton (1853–1907), published *A New Era of Thought* (1888), in which he developed a method for visualising four-dimensional figures by means of analogously examining how three-dimensional objects, such as cubes, would appear to two-dimensional planar beings.¹³⁸ Hinton then carries this analogy further to explain the relationship between a four-dimensional hypercube and three-dimensional observers.¹³⁹ These analogies are combined with a technique of rote memorisation of dozens of tables of labels which correspond to the planar and cubic facts of the hypercube being visualised — the memorisation of which Hinton thought would allow the visualiser to grasp the relations between the hyper cube's cubic faces, thus allowing him to progressively build a mental image of the whole. And, while Hinton was clear that this method of four-dimensional visualisation was not designed as a tool for Spiritualists,¹⁴⁰ its relationship with Leadbeater's works which we will examine presently are clear.¹⁴¹

Following the popular scientific expositions of those outside esoteric currents, like Abbot and Hinton, the idea of the fourth dimension soon became a common fixture of esoteric discourses in the late 1880s and 1890s. One of the earliest occurrences of this is in the 1876 publication of *The Unseen Universe*, by the Scottish physicists Peter G. Tait (1831–1901) and Balfour Stewart (1828–1887). This work attempts to join scientific and religious discourses by

134. Gibbons, "Cubism and 'The Fourth Dimension'," 138–39.

135. Fechner, "Der Raum hat vier Dimensionen," 260–61.

136. E. Abbot, *Flatland: A Romance of Many Dimensions* (London: Seely & Co, 1884).

137. Rucker, *The Fourth Dimension*, 56.

138. C. H. Hinton, *A New Era of Thought* (London: Swan Sonnenschein, 1888), 101–17, 149–55.

139. Hinton, *A New Era of Thought*, 130–48, 156–94.

140. Hinton, *A New Era of Thought*, xiv.

141. Gibbons, "Cubism and 'The Fourth Dimension'," 138.

treating “the Unseen” (i.e. the spiritual worlds) as a nested series of worlds of increasing dimensionality.¹⁴² Alfred Taylor Schofield’s (1846–1929) 1888 publication of *Another World* similarly concludes that “a higher world than ours” which is “the spiritual world,” “may be considered as a world of four dimensions.”¹⁴³ Blavatsky’s apprehension of the idea of the fourth dimension is interesting, in that between the 1870s and 1890s, her position undergoes a transformation. In 1878, she displayed a passing acquaintance with Zöllner’s work, noting that his “Vierdimensionale Wesen” (four-dimensional beings)¹⁴⁴ “bear a very strong family resemblance to the now famous Elementaries and Elementals of the Theosophical Society.”¹⁴⁵ In 1886, she seemingly wrote positively of the idea that “sufficiently spiritualized” senses could reach into not only “a four-dimensional but even a fifth or sixth-dimensional world,”¹⁴⁶ but the same year notes that the higher “planes of beings are now confused with the “four-dimensional space”” of Zöllner’s advocates.¹⁴⁷ By 1888, acceptance of the dimensional apparatus remains ambivalent, with further references to the extra-dimensionality of Theosophical “elementals,”¹⁴⁸ alongside an insistence that “inner existence” is “not a geometrical but a metaphysical dimension.”¹⁴⁹ However, one of her latest statements on dimensionality speaks positively of “occult philosophy ... accepting the existence of a seven-dimensional space in co-ordination with the seven states of consciousness.”¹⁵⁰

It is remarkable that the same man, Leadbeater, who we previously saw as the systemiser of planar terminology within Theosophy, would serve a similar function in regard to the reception of dimensional terms. Beginning his dimensional speculations in 1895, Leadbeater had access to the whole preceding wealth of mid-nineteenth-century thought on the topic, and from the beginning makes it clear that the astral plane is identical with the fourth dimension. Throughout *The Astral Plane*, Leadbeater explains that while the Theosophist is on the astral plane, three-dimensional objects are seen “from all sides at once, the inside of a solid being as plainly open to the view as the outside”¹⁵¹ — a perspectival shift which causes him to identify “astral vision” with “sight in the fourth dimension.”¹⁵² This power of clairvoyant sight is worked into a system by Leadbeater, where “etheric sight” bestows non-local three-

142. B. Stewart and P.G. Tait, *The Unseen Universe: Or Physical Speculations on a Future State* (London: Macmillan and Co., 1876), 220.

143. A. T. Schofield, *Another World: Or, the Fourth Dimension*, 3rd ed. (London: Swan Sonnenschein, 1905), 81.

144. The proper spelling of the term is *Vierdimensionale*. However, it is the misspelling, *Vierdimentionale*, which Blavatsky gives.

145. H. P. Blavatsky, *Collected Writings*, 15 vols., ed. B. de Zirkoff (Wheaton: Quest Books, 1966), 1:314.

146. Blavatsky, *Collected Writings*, 7:84.

147. Blavatsky, *Collected Writings*, 7:90.

148. Blavatsky, *Collected Writings*, 9:110.

149. Blavatsky, *The Secret Doctrine*, 1:628.

150. Blavatsky, *Collected Writings*, 12:411.

151. Leadbeater, *The Astral Plane*, 4.

152. Leadbeater, *The Astral Plane*, 9.

dimensional perception,¹⁵³ astral sight is four-dimensional,¹⁵⁴ and the higher modes of sight on the “mental plane” are fifth-dimensional.¹⁵⁵ In reference to Hinton’s visualisation techniques, Leadbeater notes that “short of astral sight,” such methods form the closest approximation of astral vision.¹⁵⁶ Thus, in Leadbeater’s thought, we see the apogee of nineteenth-century appropriations of geometric terminology: he gives us a fluid blend of Swedenborg’s planar apparatus, Zöllner’s four-dimensional spirits, combined with the wealth of nineteenth-century speculations on how four-dimensional space and objects would appear.

Conclusions

The histories and genealogies of the transfers between geometric and esoteric discourses having now been explored, we may now broach the central question of whether or not the modern modes of use discussed fit within Hammer’s rubric of terminological scientism. First, regarding the use of spheric terminology within modern esoteric discourses, although the notion of celestial spheres was most definitely culled from scientific cosmologies of late antiquity and the Middle Ages, the antiquity of this model and the fact that the modern Theosophists who utilised its language did not adhere to it tends to place this outside the scope of terminological scientism. For, even though we are faced with a clear esoteric borrowing of scientific terminology, it was not done in a way that attempted to exploit the common acceptance of a scientific doctrine to bolster esoteric speculation for the very reason that the doctrine of the celestial spheres had long since ceased to be a model taken seriously by scientists or the public. As such, this borrowing would not qualify as an example of terminological scientism under Hammer’s definition. Rather, the continued use of spheric terminology within modern esoteric discourse appears to be an example of one of the many terminological anachronisms resulting from the often decontextualised modern appropriation of antique material by modern esotericists — something which Theosophists have, historically, been particularly prone to do.¹⁵⁷

Second, regarding the planar terminology, while it appears quite clear that Swedenborg’s original usage was terminologically scientific in its appropriation of anatomical language outside of the context of the scientific method and the support of the scientific community, subsequent use among American Swedenborgians and the following generations of Spiritualists and Theosophists is not so clear cut. For, while Swedenborg’s scientific allusions are clear in his work, by the time we reach the nineteenth century such anatomical contexts have been completely forgotten and abandoned. Swedenborg’s scientific

153. Leadbeater, *Clairvoyance*, 32.

154. Leadbeater, *Clairvoyance*, 58.

155. Leadbeater, *Clairvoyance*, 98.

156. C. W. Leadbeater, *The Other Side of Death: Scientifically Examined and Carefully Described* (Chicago: Theosophical Book Concern, 1903), 108.

157. C. A. Plaisance, “The Transvaluation of ‘Soul’ and ‘Spirit,’” *The Pomegranate* 15, nos. 1–2 (2013): 250–72.

use is something of a vestigial atavism that dwells within the Theosophical current's discourse on astral and mental planes, but is clearly not something of which its users seemed to be aware or were consciously alluding to. In this way, is it accurate to describe the planar language of the Spiritualists and Theosophists as terminologically scientific? I do not think so. Had they made use of the term in the same way that Swedenborg likened the *planum interius* to the anatomical *plana* which describe flattened surfaces within plant and animal structures, we would clearly be dealing with terminological scientism. However, since there was no intention by their use to invoke the authority of biology or botany (as there was with Swedenborg), the scientific context of the word's origin seems unexpressed and unrealised enough to say that this is not an instance of terminological scientism. Indeed, the transfer of planar terminology from scientific into esoteric discourses is an interesting example of how a process can begin as terminologically scientific, but eventually lose that characterisation as use of the terms endures.

Third, regarding dimensional terminology, the case is far clearer. All of the instances described above obviously intended to draw on scientific authority adopting the terminological apparatus outside of the methodological and social context of science. Both the early use of Fechner and Zöllner as well as the later uses of Blavatsky and Leadbeater epitomise the types of discursive strategies which fall under Hammer's description of terminological scientism. However, the fact that of the three geometric terms analysed, only one of the three appears — in terms of the initial transfer from scientific into esoteric discourses — to have occurred through Hammer's matrix of terminological scientism, is quite interesting. Indeed, what we have seen is that rather than the issue being a clear-cut case of a cluster of similar terminologies being transferred from one context into another by means of a regular system or rule (i.e. terminological scientism), the reality was more complex and nuanced. The discursive entanglements between science and the esoteric, in terms of geometric terminology, demonstrate a relationship characterised by fluidity and reflexivity — with esoteric adaptations of scientific discourses occurring in ways which include, but are certainly not restricted to, terminological scientism. And, as the scope of this study is limited by the boundaries of modernity, the questions which naturally arise are those of the continued discursive transfers between science and the esoteric in regard to geometric terminology. How have these modern transfers affected uses of these terminologies within contemporary scientific discourses? Have the largely unidirectional vectors which came to prominence with the professionalisation of science once again become multidirectional, as they were previously? How have these transfers shaped uses of these geometrical terms within popular culture — particularly within the domain of science fiction? Hopefully such questions can now be addressed.