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### The problem of disenchantment: scientific naturalism and esoteric discourse, 1900-1939

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## The Problems of a Gnostic Science

### The Case of Theosophy's Occult Chemistry<sup>1</sup>

The Relativist draws down the *Veil of Isis*, and says: this knowledge is for ever hidden from us. The Teachers in the Eastern Schools reverently lift the veil, and say: the solution of even these most inner mysteries, by searching, thou shalt find.

G. E. Sutcliffe, *Studies in Occult Chemistry and Physics* (1923), xv.

#### INTRODUCTION: THE PROBLEMS OF A “GNOSTIC” SCIENCE

Founded in 1875, in the middle of the so-called conflict between science and religion,<sup>2</sup> the Theosophical Society has always exhibited an ambivalent attitude towards science and academic research. Helena Petrovna Blavatsky (1831–1891) and the early Theosophists claimed to seek a critical reconciliation between religion and science, guided by a quest for esoteric “higher truth”. The Theosophists’ goal was, in a sense, a “gnostic” one: the aim was to transcend the limits of reason and faith, and gaze through the veil of Isis to recover hidden, higher truths.<sup>3</sup> As we shall see in the present chapter, this quest made contemporary natural sciences into ambiguous “Others” for Theosophy. The “ascended master” Koot Hoomi succinctly stated the problem in one of the “Mahatma Letters” received by the Theosophist Allan Octavian Hume in 1882: ‘Modern science is our best ally. Yet it is generally that same science which is made the enemy to

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<sup>1</sup> Parts of the present chapter are based on an article published as Aspren, ‘Theosophical Attitudes toward Science’, while other parts are based on a paper given at the 3<sup>rd</sup> international conference of the European Society for the Study of Western Esotericism in Szeged, Hungary, in July 2011.

<sup>2</sup> Cf. F. M. Turner, ‘The Victorian Conflict between Science and Religion’.

<sup>3</sup> I am, of course, referring here to the notion of “gnosis” as discussed at length in the previous chapter, and intend no connection whatsoever to the many sects of late antiquity which has commonly – and problematically – been referred to by the term “gnostic”. For the problematics of the “Gnosticism” category in this latter historical sense, see especially Michael Allen Williams, *Rethinking “Gnosticism”*.

break our heads with'.<sup>4</sup> Since Theosophy claimed to possess eternal truths, shadows of its doctrine ought to be reflected somewhere in the rapidly growing knowledge base of the sciences. Its principles should be strengthened by scientific inquiry. Why, then, the hostility of some contemporary scientists? How to account for the lack of agreement with "materialist science"? The answer was clear enough: natural science is a cumulative and fallible enterprise, and contemporary science remained incomplete. It could be used to "break the heads" of Theosophists only because it still suffered from inaccuracies and false assumptions.<sup>5</sup> Any apparent disagreements between perennial "higher truth" and scientific knowledge could be dismissed as gaps and imperfections in science's present worldview. As science progressed further, however, it was destined to corroborate the deeper truths already revealed by Theosophy.

The Theosophical attitude to science rested on a response to the problem of disenchantment that did not allow for a clear separation between the natural world and higher realms. Possessing higher knowledge was thought to give the necessary authority to pass verdict on the correctness of scientific claims about nature. Scientific knowledge about the world could, *vice versa*, be used to corroborate higher truths – not as mere analogy or Swedenborgian correspondence, but as providing pieces of fact and evidence that were important elements in the greater structure of esoteric knowledge. In short, higher knowledge has empirical consequences, and the expectation was that empirical data will support exalted cosmological visions. This aspect is impossible to miss if one reads Blavatsky's major works, *Isis Unveiled* (1877) and *The Secret Doctrine* (1888). In *The Secret Doctrine*, for example, much time is spent on the notion of spiritual evolution – not, it has to be noted, as *analogical* to biological evolution, but as a fully integrated and essential part of the material development of organisms. With a basis in esoteric knowledge claims Blavatsky not only felt that she was in a position to dismiss Haeckel's version of Darwinism, but also to make a number of claims about such things as the geological development of planet earth, the origin of different biological "races", and the rise and fall of civilisations – including those of the "lost continents" of Atlantis

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<sup>4</sup> Koot Hoomi to A. O. Hume, 'Letter No. 11' (30 June 1882), in A. Trevor Barker (ed.), *The Mahatma Letters to A.P. Sinnett*, 63.

<sup>5</sup> The incompleteness of science is a common theme in Theosophical discourse, and it is made explicit in the same letter quoted from above. E.g., *ibid.*, 60-63.

and Lemuria.<sup>6</sup>

There are, however, certain dangers associated with ignoring the “two worlds” divide of disenchantment in favour of an open-ended naturalism. While it offers the possibility of confirmation and empirical support, it also makes one’s claims vulnerable to disconfirmation and falsification. Moreover, there is an inherent tension between any self-professed “perennial wisdom” and the perennially *contingent* and fluctuating knowledge produced by the sciences. Blavatsky could, for example, criticise professional geologists of the 1880s for leaving gaps in the chronology of geological development, and proceed to *fill* these gaps with her “revealed” higher knowledge of lost continents. A few decades later, however, the theory of plate tectonics was proposed, and the gaps Blavatsky claimed to have filled were covered by less esoteric hypotheses. Eventually, continental drift theory would render sunken continents a theoretical impossibility.<sup>7</sup> Dealing with scientific change is, in short, a considerable challenge for anyone claiming knowledge about science from a transcendent source. What to do if science does *not* “catch up” as it progresses after all, but instead drifts further away from perennial truths?

The Theosophical Society’s strategies towards modern science changed in important respects in the generation following Blavatsky’s death in 1891, but the two above-mentioned problems – the threat of falsification, and the problem with scientific change – did not go away. The most ambitious attempt to align occultism with science in the Theosophical current was in fact still to be launched, in the programme of “occult chemistry”. This Theosophical research programme was initiated by Annie Besant and Charles Webster Leadbeater in the mid-1890s. Continuing through the early decades of the 20<sup>th</sup> century, it ran parallel to the rapid developments in chemistry and physics. Occult chemistry aimed to contribute to those fields of science by using clairvoyant faculties to “scry” the chemical elements, revealing physical structures and properties that were hidden from view for ordinary science. The occult chemists offered their discoveries both as *corroborations* and as *challenges* to “mundane” chemistry, the point being to demonstrate that esoteric ways of gaining knowledge were superior to

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<sup>6</sup> For the criticism of Haeckel’s version of Darwinism, see Blavatsky, *Secret Doctrine*, Volume 2, 197-199; for geological claims about Atlantis and Lemuria, see *passim*, but especially 1-12. The whole volume concerns “anthropogenesis”, and is full of references to the aspects mentioned above.

<sup>7</sup> E.g. Alfred Wegener, *Die Entstehung der Kontinente und Ozeane* (first edition 1919).

ordinary scientific methods. Occultism was thought capable of beating science at its own game. In contrast to the oracular and revelatory style of Blavatsky's early Theosophy, the second-generation occultists focused on *method*. The aim was no longer to propose a convergence simply of doctrine and worldview, but a convergence of *methodology* as well.

Challenging physical science on the level of methodology, however, meant that the inherent epistemic tensions noted above were increased. If methods for obtaining scientific results in a specific field are claimed to be better than the methods of the physical sciences themselves, then the data produced for the fields in question must be held to even higher standards. Through a close analysis of the specific representations of the atomic world produced by occult chemistry, we shall see that the "higher visions" were remarkably consistent with the basic assumptions of late-Victorian ether physics and the chemistry of yesteryear. While physicists and chemists were reinventing the atom to conform with new experiments in radioactivity and the emerging quantum model, the occult chemists produced visions of ether vortices in the style that Kelvin had postulated half a century earlier. Theosophy claimed to possess the wisdom of all ages, but it represented the science of 1884.<sup>8</sup>

The methodological contribution of occult chemistry was nevertheless motivated by a serious, if misguided, engagement with a major epistemological challenge of modern science. There was in this period an emerging epistemological gap between the representation of unobservable entities and the desire for a position of scientific *realism* about entities such as atoms and electrons. Indeed, a debate between realists and anti-realists was increasingly recognised at the beginning of the 20<sup>th</sup> century. We already encountered this debate in the context of the philosophy of quantum mechanics in chapter four; it would become the basis of philosophical debates of unprecedented importance throughout that century. The epistemological gap between representations and the entities represented on the atomic and sub-atomic scale was, for example, a basis for Ernst Mach's phenomenalism, advocating a radical stance of anti-realism about

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<sup>8</sup> As the chemist J. Michael McBride has shown, the atomic weight numbers that the occult chemists were operating with, even as late as 1909, appear to have been culled for the most part from Lothar Meyer's 1884 chemistry textbook, *Die Modernen Theorien der Chemie*. See McBride, 'Serious Scientific Lessons from Direct Observation of Atoms through Clairvoyance', unpaginated. The details will be reviewed later in this chapter.

unobservables.<sup>9</sup> Together with other philosophies that were sceptical of the promise of “metaphysics”, most notably that of Ludwig Wittgenstein’s early phase, Mach’s anti-realism would inspire the Vienna circle’s epistemology of logical positivism.<sup>10</sup> This line of epistemological thinking was, in turn, central to the development of quantum mechanics in the 1920s, and particularly the Copenhagen interpretation associated with Bohr, Heisenberg, Pauli, Jordan, and others. Occult chemistry offered an unusual answer to the epistemological problem of representation in chemistry and microphysics: it promised a method of direct perception, a vision beyond ordinary sight.

I argue that we can best understand Theosophy’s occult chemistry if we place it in the context of representational practices in the physical sciences of the period.<sup>11</sup> Moreover, by taking its claim to offer *direct* representations of atomic realities seriously, recognising that this was indeed what occult chemists such as Besant and Leadbeater claimed to be doing, we stand in a better position to analyse its relation to academic chemistry and physics. A critical analysis of occult chemistry as representational practice forms the centre-piece of the present chapter. As we shall see, this focus also provides us with more detailed insights into the problem modern esoteric discourse has with scientific *change* once a “disenchanted” policy of separation is disregarded. I will end this chapter with a short evaluation of Theosophy’s struggle with that problem more generally, in particular through its difficulties with incorporating the major revolutions in physics. We must, however, begin with a brief discussion of Theosophical attitudes to science in the first generation.

### **1 SCIENCE AND HIGHER KNOWLEDGE IN FIRST-GENERATION THEOSOPHY**

Attitudes to science in the Theosophical first generation were framed by the fight for cultural authority in the middle of the religion-science debates set off by Victorian scientific naturalism, and the parallel “occult revival”. The quarrels between occultists, spiritualists, psychical researchers, and naturalist hardliners over “supernormal phenomena” are particularly illustrative of this context. Theosophical attitudes to science should thus be seen together with the agnosticism controversy and the debate

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<sup>9</sup> For an overview, see e.g. Chalmers, *What Is This Thing Called Science*, 226-246.

<sup>10</sup> See e.g. Martin Puchner, ‘Doing Logic with a Hammer’.

<sup>11</sup> A similar point was made by Mark Morrisson, *Modern Alchemy*, 65-96.

about the reach of naturalism that we have discussed in previous chapters.<sup>12</sup> This context helps us explain the presence of two seemingly opposing tendencies in early Theosophy's science rhetoric: on the one hand, a harsh polemic is employed against "materialistic" and "reductionist" science; on the other, spokespersons are at pains to imitate the outer appearance of "the scientific".<sup>13</sup> These two tendencies are part of a single strategy to maintain both similarity and difference with the cultural system of science, trading on its authority while contesting its worldview implications. This, we have seen, was a pursuit shared by many academics of the late 1800s as well, including a number of self-described naturalists.<sup>14</sup>

The first major work of modern Theosophy, Blavatsky's *Isis Unveiled* (1877), offers particularly apt examples of the ambiguous attitude taken towards the natural sciences. As is well known, the content of this book (as that of Blavatsky's *Secret Doctrine*) was largely plagiarised from various 19<sup>th</sup> century sources, and is thus entirely based on critical stances towards religion and science that were already at hand.<sup>15</sup> As it appears under Blavatsky's author/editorship, the book is divided into two volumes, one dealing with a critical appraisal of science, the other with religion. The first chapter of volume one spells out the perennialist notion that everything that the sciences are now uncovering has already been known for millennia by the ancient esoteric teachings of Egyptian religion, Jewish kabbalah, and the Indian Vedas.<sup>16</sup> Modern science and perennial wisdom traditions are portrayed as talking about the same things, although science is seen as a "shallower" version of the latter, merely scratching the surface of higher truths. Chapter two of the same work looks at the apparent anomalies of modern science, especially as claimed by spiritualists, mesmerists, and psychical researchers. The many claims of "supernormal" phenomena are taken to indicate that the human mind possesses immense latent powers, and are used by Blavatsky to expose the

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<sup>12</sup> See my discussion in chapter seven.

<sup>13</sup> For a detailed discussion of "appeal to science" as discursive strategy in Theosophy, see Olav Hammer, *Claiming Knowledge*, 218-22.

<sup>14</sup> Turner, *Between Science and Religion*.

<sup>15</sup> Blavatsky's plagiarism has been known since 1893. See William Emmette Coleman, 'The Sources of Madame Blavatsky's Writings'. The Society for Psychical Research played an important role in making this knowledge available, by publishing Coleman's exposé as an appendix to the English translation of the critical biography of Blavatsky, Vsevolod Sergyeevich Solovyoff, *A Modern Priestess of Isis* (1895).

<sup>16</sup> Blavatsky, *Isis Unveiled*, volume 1, 1-38.

‘[p]rejudice and bigotry of men of science’ who fail to recognize their existence.<sup>17</sup> This track continues straight into the third chapter, which deals extensively with the English scientific naturalists and the French positivists, all of whom are dismissed as ‘the blind leaders of the blind’.<sup>18</sup> The three opening chapters of *Isis Unveiled* set the tone for the rest of the volume, where Blavatsky goes into specific scientific and occult subjects, with the aim of bringing the two together under the purview of an “occult science”. One particularly noticeable strategy for doing so is the synonymization of various “occult forces” with phenomena understood in terms of contemporary ether physics.<sup>19</sup> For example, Blavatsky posited that Eliphas Lévi’s “Astral Light” was in fact *synonymous* with the luminiferous ether, and that the whole panoply of “psychic” and “magical” forces were thus mediated in *exactly* the same way as better-known phenomena such as electricity, magnetism, and optical light. Blavatsky could thus cite authorities such as Faraday, Edison, Graham Bell, William Crookes, and even John Tyndall, as experts on other “etheric” phenomena and technologies, from magnetism and electricity, to telegraphy and telephony, likening these to what was going on in psychic and occult science. *Isis Unveiled* was thus an important early contribution to the field of speculation that I have previously called “ether metaphysics”.<sup>20</sup>

Proceeding to the life sciences, another central example of Blavatsky’s ambiguous attitude to science is the role of evolution in her *Secret Doctrine*. As Olav Hammer has noted, the lemma “evolution” in the index of *The Secret Doctrine* shows the term to be one of the most frequent ones in the entire work.<sup>21</sup> There is, however, a marked ambivalence in the usage of the term: while evolutionary theory was a heated issue for theists defending their faith, the arguably *panentheistic* worldview on which Blavatsky built her Theosophical doctrines was more than happy to take the basic framework of evolution on board, and integrate it in explanations of how spirit and matter interact in the natural world and beyond. The problem, however, was one of interpretation. The Darwinian concept of natural selection as a completely mechanistic, non-teleological principle accounting for biological diversity and evolutionary change

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<sup>17</sup> *Ibid.*, 40.

<sup>18</sup> *Ibid.*, 74-99.

<sup>19</sup> *Ibid.*, 126-162.

<sup>20</sup> Cf. my discussion in chapter six.

<sup>21</sup> Hammer, *Claiming Knowledge*, 257.

was obviously quite useless from a Theosophical perspective.<sup>22</sup> In Blavatsky's doctrines, evolution is embedded in a much grander cosmological framework, built on a system of divine emanations following cyclical progressive patterns. Where Darwinian evolutionary theory eschews the need for any external force directing the evolution of species, the Theosophical theory presupposes a grand plan leading to an ultimate goal – a kind of “providential evolution”.<sup>23</sup> Blavatsky's providential evolutionism may have been indirectly influenced by German idealism through one of her most frequently plagiarised sources: the English translation of Joseph Ennemoser's *Geschichte der Magie* (1844).<sup>24</sup> Ennemoser (1787–1854) was a Tyrolean physician immersed in German Romanticism, idealism, and Mesmerism, and his historical work contributed greatly to the creation of a narrative where “magic” was understood in terms of Mesmerism.<sup>25</sup> Ennemoser's view of magic also rested on a narrative that, in Hanegraaff's words, tells ‘how, with many twists and turns, the inborn potential of human consciousness slowly but certainly comes to full realization, according to God's providential design’.<sup>26</sup> Romantic evolutionistic thinking clearly prefigures that of later occultist authors, including that of Blavatsky, who wrote in the context of new forms of scientific evolutionism. Clinging to a form of esoteric and romantic providentialism, *The Secret Doctrine* thus contains polemical passages dealing with the views of the most well-known spokesmen for mechanistic evolutionary theories, including Darwin, T. H. Huxley, A. R. Wallace and Haeckel.<sup>27</sup>

Challenging the conceptual structure of Darwinism, the typical response was to judge these modern theories not as entirely wrong, but as incomplete. While evolution might seem to modern biologists as a purely mechanical and unguided process, Blavatsky held the real problem to be that

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<sup>22</sup> Cf. my discussion of evolutionistic theories in chapter five.

<sup>23</sup> For this concept and its background in Anglican natural theology, see Gregory P. Elder, *Chronic Vigour*.

<sup>24</sup> Coleman, ‘The Sources of Madame Blavatsky's Writings’, 356. The English translation by William Howitt was published in 1854 as *The History of Magic* (two volumes), and popularized Ennemoser's influential narrative in the English-speaking world. For Ennemoser's general influence on Blavatsky, see Karl Baier, *Meditation und Moderne*, vol. 1, 258-261.

<sup>25</sup> For an overview, see Hanegraaff, *Esotericism and the Academy*, 266-273.

<sup>26</sup> *Ibid.*, 268.

<sup>27</sup> E.g. Blavatsky, *Secret Doctrine*, volume 2, 197-199, 681-692, and *passim*. Cf. Hammer, *Claiming Knowledge*, 257-9.

the differentiating “causes” known to Modern Science only come into operation after the *physicalization of the primeval animal root-types out of the astral*. Darwinism only meets Evolution at its midway point – that is to say, when astral evolution has given place to the play of the ordinary physical forces with which our present senses acquaint us.<sup>28</sup>

Materialistic mechanism only explains a tiny part of the whole picture. To be complete, it must be supported by a kind of esoteric vitalism, having its seat in the suprasensible realms of the etheric and astral planes. These planes are, however, not really separated from the physical world: to the contrary, Blavatsky’s argument is that, in order to understand form-production in material organisms, one must start by acknowledging the active vital forces present on the astral plane, which *give rise to* the purely material processes that modern biologists recognise. The subtler realities are causally active in the physical world and must be understood to make science complete. Again, Theosophical gnosis is cast as a corrective to scientific reason.

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The cultural impact of the professional sciences in the last quarter of the 19<sup>th</sup> century was largely framed by the polemical conflict with religion and theology. The period was, however, also marked by a range of empirical and technological breakthroughs, particularly in the field of Maxwellian electrodynamics, which opened the borders of physical science to novel alliances. The discovery of cathode rays in the 1860s and 70s, x-rays in 1895, radioactivity in 1896, the discovery of radio waves in the late 1880s and the successful transmission of radio signals by Nikola Tesla in 1891 and Oliver Lodge in 1894 – all of these events seemed to widen the range of possibilities for science and technology in dramatic and unpredictable ways. But in addition to suggesting new directions for physics, these startling new phenomena inspired many scientifically oriented occultists and spiritualists.<sup>29</sup>

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<sup>28</sup> Blavatsky, *Secret Doctrine*, volume 2, 685. Cf. Hammer, *Claiming Knowledge*, 258.

<sup>29</sup> Cf. chapter four on the developments in physics and chemistry, and chapters seven to nine for the relevance to psychical research. On this topic, see also Richard Noakes, “The “World of the Infinitely Little””.

These developments coincided historically with the death of Blavatsky in 1891, and the rise of a new generation of Theosophists who sought to renew the Society's doctrines and strategies. After the schisms that ensued in the mid-1890s between the original Adyar society, led by Henry Steel 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. Besant would eventually succeed Olcott as president of the society; in the meantime, she 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.<sup>30</sup> 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. The journal, which was renamed *The Theosophical Review* in 1897, featured articles with titles such as 'Theosophy, the Religion of Science', and 'Confirmations of Theosophy by Science'.<sup>31</sup> Also during the 1890s, Besant teamed up with the self-professed clairvoyant Charles W. Leadbeater, whom she had first met in London in 1894, and embarked upon the curious Theosophical research project of occult chemistry: the attempt to investigate the structure of molecules, atoms, and ether by way of clairvoyant perception.<sup>32</sup>

Occult chemistry was the most extraordinary and influential outcome of the new generation's involvement with physical science. The program was initiated in the same year as Wilhelm Röntgen accidentally discovered x-rays, and it was aimed at shifting Theosophy's alignment with science by contributing to the *experimental* and *methodological* aspects of physics and chemistry instead of purely doctrinal, theoretical, and factual aspects.<sup>33</sup> This ambitious and innovative move would have a considerable influence on Theosophy's later discourse on science, but it was also a perilous path as

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<sup>30</sup> 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 account by Ann Taylor, *Annie Besant*.

<sup>31</sup> Cf. Morrisson, *Modern Alchemy*, 72.

<sup>32</sup> Besant, 'Occult Chemistry'; cf. Morrisson, *Modern Alchemy*, 65-96. For a biography of Leadbeater, see Gregory Tillett, *The Elder Brother*.

<sup>33</sup> Morrisson, *Modern Alchemy*, 67; cf. Luckhurst, *Invention of Telepathy*, 75-91.

far as cultural credibility and legitimacy is concerned. While the aim was no doubt to build a closer relationship with scientific practice, it also brought the inherent conflicts between esoteric claims to higher knowledge and fallible scientific claims into the open.<sup>34</sup>

## **2 VISIONS BEYOND SIGHT: OCCULT CHEMISTRY AND THE PROBLEM OF REPRESENTATION**

Of late years there has been much discussion among scientific men as to the genesis of the chemical elements, and as to the existence and constitution of the ether. The apparatus which forms the only instrument of research of the scientists cannot even reach the confines of the ether, and they apparently never dream of the possibility of examining their chemical atom. There is in regard to both atom and ether a wealth of speculation but a poverty of observation – for lack, of course, of any means which would render observation possible.<sup>35</sup>

This is Annie Besant's opening statement in the first report on occult chemistry, published in *Lucifer* in 1895. It was a perfectly fair assessment of the situation in physics and chemistry at the time. The 'poverty of observation' that Besant refers to stems from

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<sup>34</sup> It should be noted that my interpretation of occult chemistry and Theosophical science goes in quite an opposite direction from the narrative recently drawn up by Nicholas Goodrick-Clarke in *The Western Esoteric Traditions* (2008). Goodrick-Clarke, who was a noted expert in the field of esotericism and moreover a specialist of Theosophy, ended his book with a chapter on 'Modern Esotericism and New Paradigms' that deals almost exclusively with esotericism and science – in a rather broad understanding of both those terms. Very curiously indeed, Goodrick-Clarke's narrative, which also discusses occult chemistry and more recent attempts to revive it, reads like a strangely Whiggish account of how esoteric knowledge is being "demonstrated" and "confirmed" by scientific "proof". All of those terms are rather strongly abused in the chapter, whether we read about occult chemistry's 'confirmation of superstring theories' (239), clairvoyants' independent confirmation of auras (241), or the 'empirical proof' of homeopathy (242). One is struck by the systematic omission of all critical literature – as an example, the chapter on Theosophy fails to even mention or reference the SPR's work on how Blavatsky forged the Mahatma letters or Coleman's proper demonstration that *Isis Unveiled* was a largely plagiarised work – and one is left with the impression that it is all designed to support the scientific validity of these "esoteric" practices. As I think my discussion of the sources in the present chapter sufficiently demonstrates, such a narrative is unwarranted and highly misleading.

<sup>35</sup> Besant, 'Occult Chemistry', 211.

the fact that the entities postulated by physical science were becoming too small to be seen, even with the best available microscopes. Their observation and demonstration was increasingly dependent on elaborate forms of *instrumentation* and theoretical inferences. This was by no means a new problem. In the canonical tales of the history of science, it was this problem that led certain natural philosophers to distrust the witness of Galileo's telescopes – perhaps even with good reason, given the philosophical context and knowledge of the optics of telescopes at the time.<sup>36</sup>

If the “artificial” use of optical devices such as telescopes has historically been enough to cause concern about the reality of the phenomenon observed by their aid, there is little wonder that notions of an invisible ether that can only be inferred indirectly, or of subatomic particles too small to be seen should also be the objects of controversy. The ether was inferred on the basis of theoretical deduction rather than on empirical induction; to paraphrase Oliver Lodge, its existence was revealed by the power of reason alone.<sup>37</sup> When several attempts at observing the ether indirectly, through a search for even the slightest measurable effects of its presence, had failed, there appeared to be a lack of proportion between the *realism* invested in the concept of ether, represented and visualised in numerous concrete images, and the lack of directly observable evidence of its existence. When Rutherford and Soddy split the atom at the start of the new century, and new subatomic entities increased in number as they decreased in size, the problem of representation was only becoming more acute.<sup>38</sup> Science was confronted by a very real epistemological challenge, which may be described as a crisis of representation.<sup>39</sup> Occult chemistry is a symptom of this crisis. Before we continue to look at the Theosophists' engagement with the crisis of representation, however, we should look briefly at what is meant by “representation” in this context, relating it to the functions of *visualisation* and image-use in scientific practice.

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<sup>36</sup> On this theme, see Paul Feyerabend, *Against Method*, 81-102.

<sup>37</sup> Lodge, *Ether and Reality*, 166.

<sup>38</sup> See Peter Galison, *Image and Logic*. For the proliferation of entities in later particle physics, see Andrew Pickering, *Constructing Quarks*.

<sup>39</sup> This element ties in with the lack of visualisability, or *Anschaulichkeit*, that Paul Forman noted in the case of the inventors of quantum mechanics in Germany. See Forman, '*Kausalität, Anschaulichkeit, and Individualität*'.

## REPRESENTATION, VISUALISATION, AND SCIENTIFIC CHANGE

Images and visualisation play a major role in the production, presentation, and dissemination of scientific knowledge. Typically, the scientific use of images has been connected with a question of *representing* nature: drawings of plants and animals are thought to represent species in botany and zoology, topographical maps correspond to features in the terrain, and series of elliptic models of planets are expected to represent the structure of the solar system.<sup>40</sup> Describing scientific imagery *merely* in terms of representation, however, results in an impoverished and rather naïve understanding of their functions.<sup>41</sup> Images perform many other functions as well, depending on the context they are used in and the audience they address.<sup>42</sup> There is a difference between a model used in a peer-reviewed academic article, for example, and those used in popularizing books, or drawn on blackboards in high schools and undergraduate courses. Scientific images communicate, and serve different purposes relative to the target audiences; they may argue, persuade, or seduce.

On this basis we may distinguish between the *semantic* and *pragmatic* dimensions of image use in scientific practice. Questions about whether a certain model, figure, or image faithfully *represents* an external object, a physical effect, or a theoretical concept properly belong to *semantics*, while the *pragmatic* dimension concerns the effects that an image has on the receiving public, whether this is to communicate an idea to scientific peers, bolster an argument, or to provide heuristics that are easy to grasp for the non-specialist. In their capacity as pragmatic expressions, scientific images are comparable to non-representational, performative speech-acts.<sup>43</sup>

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<sup>40</sup> In this sense, representation is obviously connected to the so-called correspondence theory of truth, which has been dominant in western science and philosophy. See e.g. the classic criticism in Richard Rorty, *Philosophy and the Mirror of Nature*.

<sup>41</sup> It also obscures the historically contingent processes by which certain forms of representations have been constituted as being able to give “objective” testimony in the first place. On this theme, see especially Peter Galison and Lorraine Daston, *Objectivity*.

<sup>42</sup> For an instructive overview, see the essays compiled in Luc Pauwels (ed.), *Visual Cultures of Science*. For contemporary reflections drawing on other disciplines such as art and photography, see James Elkins, *Six Stories from the End of Representation*.

<sup>43</sup> In the sense of John L. Austin and John Searle. E.g. Austin, *How to Do Things with Words*; Searle, *Speech Acts*.

If we decide to look solely at the semantic dimension of representation, we are also forced to distinguish between different types of referents.<sup>44</sup> Some scientific representations are meant to refer to “objects” and “entities”, but this is certainly not the only type of referent that we find in scientific imagery.<sup>45</sup> Images may also refer to explanatory *models* that are of a purely conceptual character rather than directly picturing something in empirical reality. They can refer to hypothetical entities that may or may not exist, or even to simulations of mutually exclusive scenarios. Scientific images may present mental pictures aiding practices of *discovery*, or they may bolster the *justification* of a particular entity in light of broader models and conceptual schemes.

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Representational practices in the sciences change with the formation of new disciplines and new fields of inquiry, but also with the emergence of new frameworks for understanding old ones. In the physical sciences, for example, representations have become increasingly preoccupied with *invisible* and *non-visual* referents. An early paradigmatic example is Descartes’ representation of the magnetic field, which provided a mechanistic model for explaining what had previously been considered an “occult force” (see figure 14 below).<sup>46</sup> By the 19<sup>th</sup> century, the corpuscular theory that had been at the basis of Descartes’ representation had largely been discarded and replaced by theories of ether. From around the 1870s, all the phenomena of optics, electricity and magnetism were being explained and represented by ether models. Thus, the Maxwellian ether physicists G. F. FitzGerald and Oliver Lodge both represented the propagation of an electrical current and the magnetic field surrounding it as the function of mechanical action in the ether (figure 14). The spinning cogwheels in Lodge’s model, for example, represent singularities in the ether that create strains and friction by spinning in a vortex motion, giving rise to the phenomena of electricity, magnetism, light, and even to matter itself. This model was connected with Lord Kelvin’s popular vortex theory of matter.<sup>47</sup> The ultimate structure of matter, electricity

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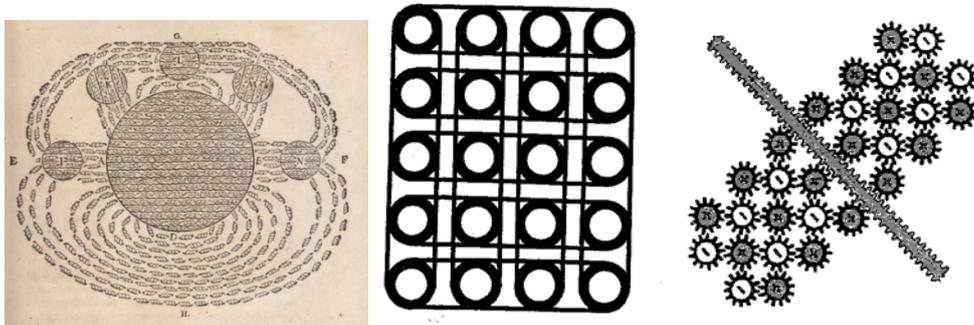
<sup>44</sup> In the following I borrow from Luc Pauwels, ‘A Theoretical Framework for Assessing Visual Representational Practices in Knowledge Building and Science Communications’.

<sup>45</sup> *Ibid.*, 2-4.

<sup>46</sup> Descartes, *Principia philosophiae*, 211.

<sup>47</sup> See Bruce J. Hunt, *The Maxwellians*, 212-216; cf. Asprem, ‘Pondering Imponderables’, 139-141.

and light are other obvious examples of invisible or non-visual referents for science. A series of new such representations would emerge in the early 1900s: J. J. Thomson’s “plum pudding” model of the atom, in which negatively charged “plums” (electrons) were depicted as rotating inside of a positively charged “pudding” (atom), was an early attempt to incorporate the electron into the atomic structure, but it was soon superseded by the planetary models of Ernest Rutherford and Niels Bohr. These developments, which have been discussed at some length in an earlier chapter, show the proliferation of non-visual referents in science at the beginning of the 20<sup>th</sup> century. Increasingly remote from the ordinary lifeworld of human beings and from the realm of everyday perception, they also bear witness to the growing crisis of representation.



**Figure 14:** Representations of non-visual entities in physics. *Left:* Descartes’ representation of the mechanics of magnetic fields. *Middle:* FitzGerlad’s model of elastic strain in the ether. *Right:* Lodge’s mechanical ether model, represented as spinning cogwheels.

#### PROMISES OF A Gnostic SCIENCE: THE CLAIRVOYANT PERCEPTION OF CHEMICAL ELEMENTS

For some, the increasingly indirect and instrumentalised methods by which scientific representations had to be formed were seen as a serious disadvantage and a source of scepticism concerning the ontological status of scientific entities. This was clearly the opinion that informed Besant’s statement quoted above. By launching the programme of occult chemistry, the Theosophical Society set out to exploit this epistemological gap, and to fill it by the use of supernormal perception. In a series of “experiments”, starting in 1895 and continuing through the first decade of the 20<sup>th</sup> century, Besant and the self-proclaimed clairvoyant Charles Webster Leadbeater claimed to psychically perceive, describe, and represent the structure of the chemical elements, in ways that would simply be impossible with ordinary laboratory instruments. The Theosophists’ direct

visions were drawn down in meticulous detail, showing various features and compositions of the elements, and were published first on the pages of *Lucifer* at the end of 1895, and later in expanded form in the 1909 volume entitled *Occult Chemistry*. From the first publication on the subject, there was no doubt about the potential importance of these studies for the fate of Theosophy's credibility. As Besant noted, the aim was to 'suppose hypotheses useful as elucidating some scientific problems' that science was only now about to explore. She added, rather ambitiously, that it would 'be well for the Theosophical Society if the first statement of facts that will then be accepted should have come from members of its body'.<sup>48</sup> The ambitious hope was, in other words, that Theosophy might demonstrate its superiority by creating scientific precedence for new discoveries in physics and chemistry. Not only would such discoveries, if achieved and corroborated, constitute extraordinary evidence of psychic powers, which alone would boost the credibility of the Society's theories and practices, but it would also show that Theosophy could make a significant contribution to the development of scientific methodology. It promised to solve the crisis of representation and save scientific realism through occultism.

In what follows, I will take the publications of occult chemistry seriously as what they claim to be: namely, superior representational practices within the domain of physical science, purportedly representing real physical structures and revealing the nature of the very same entities that physics and chemistry were concerned with. On this assumption, I will assess how occult chemistry *actually* relates to the representational practices of the contemporaneous sciences to which it claimed allegiance. In other words, this is a *semantic* comparison of two representational practices that, on the face of it, claim to speak about the same, "real" entities. In closing the comparison, I will also assess some of the *pragmatic* dimensions of occult chemistry's representational practice. First, however, we should have a closer look at the actual procedures and practices involved in occult chemistry.

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The first experiments in occult chemistry took place in the summer of 1895, when Leadbeater had offered to train Besant's psychic abilities. The two were experimenting

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<sup>48</sup> Besant, 'Occult Chemistry', 211.

with several lines of clairvoyant explorations that summer, which would result in a number of publications.<sup>49</sup> During a weekend retreat in August 1895, Besant and Leadbeater scried the distant past of Atlantis and Lemuria, and explored far off planets – even claiming to have discovered four hitherto unknown ones. They travelled to the higher *devachanic* plane, and revisited their previous incarnations.<sup>50</sup> Besides these exotic adventures, Leadbeater also introduced Besant to the possibility of clairvoyantly perceiving chemical elements. Having been encouraged to make a try for herself, Besant reported seeing certain geometrical shapes and patterns emerge in her mind. Leadbeater, acting as guru, could immediately ensure Besant that what she had seen was the astral form of the element of carbon.<sup>51</sup>

Unfortunately, we do not learn very much about what kinds of techniques were employed and how, exactly, Leadbeater instructed Besant in their use. A few details can be deduced from descriptions of the more important experiments that followed later that summer. These resulted in the first pilot study of occult chemistry in which the elements of hydrogen, oxygen, and nitrogen were subjected to clairvoyant examination and analysis.<sup>52</sup> The setting of these experiments were extremely informal, in stark contrast to the thoroughly controlled atmosphere of contemporary chemistry laboratories. The clairvoyant “experiments” in fact appears to have taken place quite by chance, on a grassy slope by Finchley Road in north London, in response to a question asked by the Theosophist Alfred Sinnett during an afternoon stroll.<sup>53</sup> Sitting down in the grass, surrounded by dignified bearded men and younger students, Besant and Leadbeater practiced the clairvoyant technique of “magnification”. This was described as a “yogic” power focused on making oneself “astrally” small at will, the logic being that tiny object would thus appear correspondingly magnified relative to the observer. Leadbeater later explained this method of observation with reference to the chakra system. The clairvoyant method of observing micro-physical events directly was connected with the *ajna chakra*, a point in the etheric body situated just between the eyebrows:

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<sup>49</sup> E.g. Leadbeater, *The Devachanic Plane*.

<sup>50</sup> Nethercot, *The Last Four Lives of Annie Besant*, 49-50.

<sup>51</sup> *Ibid.*

<sup>52</sup> Besant, ‘Occult Chemistry’ (Published November 1895).

<sup>53</sup> Nethercot, *The Last Four Lives of Annie Besant*, 51.

A tiny flexible tube of etheric matter is projected from the centre of [the ajna chakra], resembling a microscopic snake with something like an eye at the end of it. This is the special organ used in that form of clairvoyance, and the eye at the end of it can be expanded or contracted, the effect being to change the power of magnification according to the size of the object which is being examined. This is what is meant in ancient books when mention is made of the capacity to make oneself large or small at will ...<sup>54</sup>

If this sounded a little too speculative, Besant and Leadbeater could also lean on biological and neurophysiological theories - although these theories were already close to a century old. As can be seen in Leadbeater's little book on *Clairvoyance*, they followed an influential theory developed by German physicians and Mesmerists in the early 19<sup>th</sup> century, which referred to two separate nervous systems: the cerebro-spinal system (connected to the brain and spine) and the ganglionic system (focused on the thick neuron tissue around the solar plexus).<sup>55</sup> This theory had been an influential physiological explanation of Mesmerism, in particular of the many bizarre phenomena associated with artificial somnambulism.<sup>56</sup> As in those earlier interpretations, Besant connected natural clairvoyant capabilities to the lower ganglionic system. However, for Besant this was not the end of the story. In fact, she claimed that the ganglionic "sympathetic" form of clairvoyance only worked as a spontaneous *reflex*, and was particularly associated with animals, the lower human races, and with human beings of lesser intelligence. However, 'at a later stage of evolution psychic sensitiveness reappears, but it is then developed in connection with the cerebro-spinal centres, and is brought under the control of the will'.<sup>57</sup> The willed power of "magnification" through the use of the *ajna chakra* clearly belonged to this "higher" and "cerebro-spinal" form of clairvoyance, making the faculties of occult chemistry stand out not only from the

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<sup>54</sup> Leadbeater, *The Chakras*, 81.

<sup>55</sup> The basic distinction was first made by the physician Johann Christian Reil in 1807 (although he talked about the "cerebral" rather than the "cerebro-spinal" system), and was made a centerpiece of Mesmeric discourse by Carl Alexander Ferdinand Kluge in 1811. See Hanegraaff, *Esotericism and the Academy*, 262-264. On this whole field of speculation, see also Karl Baier, *Meditation und Moderne*, vol. 1, 179-246.

<sup>56</sup> For examples, see e.g. the many anecdotes discussed in Alan Gauld, *A History of Hypnotism*, and Adam Crabtree, *From Mesmer to Freud*. Cf. Henri Ellenberger, *Discovery of the Unconscious*.

<sup>57</sup> Besant quoted in Leadbeater, *Clairvoyance*, 23.

methods of mundane scientists, but from the capricious faculty of less talented and unsophisticated “natural psychics” as well. Here we notice once more the progressive evolutionistic discourse that we saw in Blavatsky’s work, also borrowed from the context of German Romantic Mesmerism through the work of Ennemoser. The focus on reason, will, and control is likely also influenced by Eliphas Lévi’s emphasis on the use of the higher magical “will” to control the potentially dangerous Mesmeric fluids.<sup>58</sup>

However this may be, the occult chemists claimed to be able to perceive otherwise imperceptibly small pieces of matter by reducing the size of the etheric tentacle eye to the scale of molecules and atoms. They also claimed to be able to capture atoms of oxygen, hydrogen and nitrogen in the surrounding atmosphere, to hold them still, and split them by acts of pure will. This splitting of the atom – obviously imagined before Rutherford and Soddy’s famous experiments in Montreal, and in complete ignorance of the theories of radioactive decay<sup>59</sup> – was presented as a method to lay bare the deeper levels of composition of each element. Finally, and possibly in standing with the cerebro-spinal form of clairvoyance, all of this was apparently achieved in a lucidly conscious state; the investigators would not appear to be in any kind of trance or display any other extraordinary behaviour. In fact, the occult chemists on the lawn were able to consciously describe what they were seeing and draw sketches representing their visions.

Complete illustrations and diagrams of the visions were, however, only drawn up later by artists in the Theosophical Society. These drawings pretended to represent the fundamental structure of the elements themselves, and proceeded to picture what each atom looks like when split into its composite parts. The clairvoyant splitting of the atom claimed to reveal the deeper structure of the chemical atom on four subtle “states” of matter: the four “etheric” states referred to as Ether 1, 2, 3, and 4 (see figure 15).<sup>60</sup> On the finest level of Ether 1, all of the chemical elements were revealed to be identical. The occult chemists claimed to have discovered the ‘ultimate physical atom’, the universal building block of all matter. They quickly identified it with the Sanskrit term *anu*, which

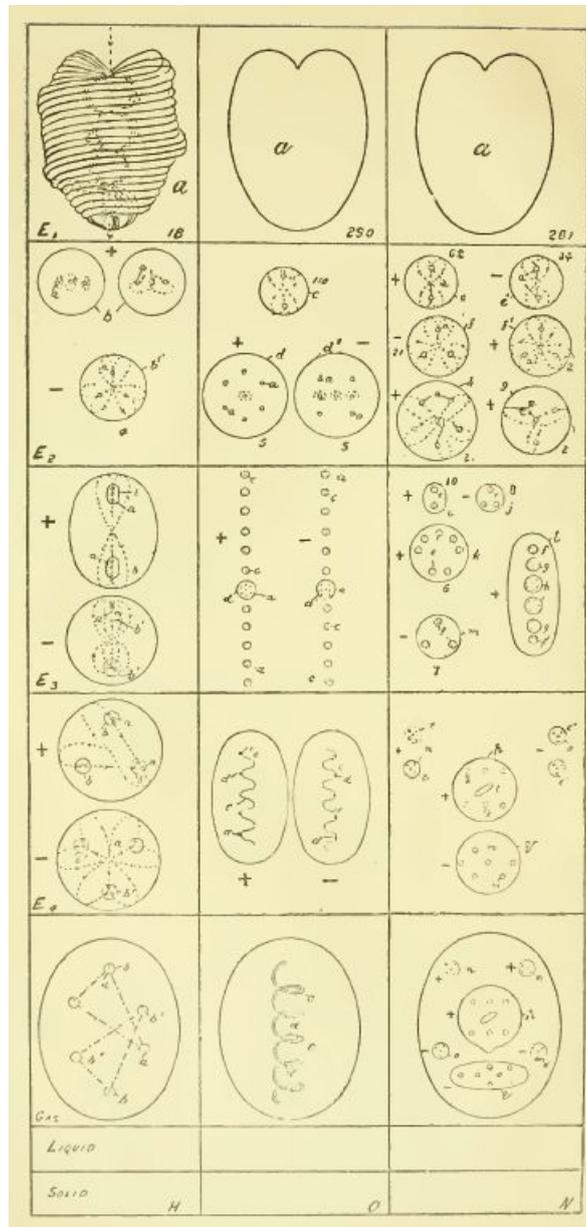
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<sup>58</sup> E.g. Lévi, *Transcendental Magic*, 71-79. Note that Lévi, too, was under the influence of Romantic Mesmerism, and was, furthermore, another of Blavatsky’s frequently plagiarized authors. Coleman, ‘The Sources of Madame Blavatsky’s Writings’, 357.

<sup>59</sup> E.g. Trenn, *The Self-Splitting Atom*. Cf. my discussion in chapter four.

<sup>60</sup> Besant, ‘Occult Chemistry’, 212-213.

has typically been translated with the Greek “atom”. The occult chemists proceeded to count the number of such fundamental particles in each element, claiming that these numbers explained the atomic weight of the elements as recognised by contemporary chemistry.



**Figure 15:** “Occult” representations of hydrogen on five levels of materiality. At the bottom we see an isolated but complete hydrogen atom. Above we see the atom “split” on four successively more “subtle” levels of ether. On the top we see the “ultimate physical atom” itself, considered to be the universal building block of all the elements – comparable to Crooke’s “protoyle”. Reproduced from the 1919 second edition of *Occult Chemistry* (fold-out between pages 6 and 7).

Such was the basic methodology of occult chemistry. After the improvised experiments of 1895, it appears to have been employed again only much later, in 1907, when 59 other elements were observed.<sup>61</sup> William Crookes, himself a celebrated scientist who was now reaching old age, had helped obtaining specimens of several elements, including lithium, chromium, selenium, titanium, vanadium and boron, for use in these experiments.<sup>62</sup> Other elements were observed during a summer holiday in Germany that year, where Leadbeater's young Singhalese protégé Curuppumullage Jinarajadasa (1875–1953) secured samples from a museum in Dresden.<sup>63</sup> Jinarajadasa, who later became president of the Theosophical Society and the editor of the definitive third edition of *Occult Chemistry* (1951), was tasked with compiling the elaborate tables of the structure and weight of the atoms as they were said to have appeared to the occult chemists. He would calculate the number of ultimate physical atoms in each element, and do the important work of establishing correspondence with mainstream chemistry.<sup>64</sup> While Besant and Leadbeater did the “experimental” work, it was Jinarajadasa who did the “theoretical” calculations. This is a significant observation that we will return to shortly.

#### READING REPRESENTATIONS: FROM CHARITY TO SUSPICION

As I hope to have demonstrated, Besant and Leadbeater offered up their results as being *literally* in line with legitimate science. There is no room for interpreting their representations simply as analogies, parallels, or claims about completely distinct “other dimensions” without distorting their own accounts. The occult chemists expected to engage mainstream scientists with their findings, and even sent their first report out to a number of professional chemists. The only person to respond appears to have been their good friend and fellow Theosophist, William Crookes.<sup>65</sup>

The authors considered the many drawings of chemical atoms and their composite parts to represent real entities, too small to be seen by any other known

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<sup>61</sup> Jinarajadasa, ‘Introduction to the Third Edition’, 2.

<sup>62</sup> *Ibid.*

<sup>63</sup> *Ibid.*, 3.

<sup>64</sup> *Ibid.*, 3.

<sup>65</sup> Nethercot, *The Last Four Lives*, 52.

method of observation. If, for the sake of argument, we take a charitable approach to the occult chemists' claims, we are led by their own reasoning to compare their representational practice with those of mainstream chemistry. Doing so, however, reveals some important points of *disagreement* between the two practices. To begin with, the occult chemists reveal a much more *realistic* take on representation than most physicists and chemists were ready to commit themselves to. For the professional scientist, representation is more often offered as a heuristic device, a model that conveniently pictures certain physical features which need accounting for. The visual representation of the atomic models of Rutherford and Bohr, for example, follow mathematical and conceptual constraints, based on a systematisation of experimentally produced data; they do not claim to be descriptions of what atoms "really look like".

The development of the periodic table may serve as an instructive example of this semantic difference. The slow development of the periodic table throughout the 19<sup>th</sup> century was not based on an attempt to *describe* or *depict* the relation between elements as such. Rather it was concerned with accounting for the properties of elements, classifying them and making hypotheses about the mechanisms involved. The Russian chemist who successfully formulated a "periodic law" by which the chemical elements could be arranged, Dmitrii Ivanovich Mendeleev (1834–1907), did so by starting with what is observable and testable, systematising the evidence, and then constructing theories about how different properties may be accounted for and related to one another.<sup>66</sup> Representations of the elements only include what must be inferred in order to systematise and explain the observed behaviour. The occult chemists, quite to the contrary, aimed to create *descriptions*: they estheticize the atomic and sub-atomic world, but add nothing to the explanation of chemical affinities.

What the occult chemists did claim to add, however, was an ability to split the atom and reveal the deeper structure of the elements. But while the number of "ultimate physical atoms" of each element added up in a certain ratio so as to correspond with the atomic weight of the element in question, this did not add anything new in terms of explaining the relation between elements of different atomic weights – it merely repeated what was already known. The clairvoyants claimed to have "predicted" the discovery of new elements, but also the notion of prediction was radically different from

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<sup>66</sup> See the details given in Gordin, *A Well-Ordered Thing*, esp. 15-48.

the common scientific understanding of the word. It was not the kind of theoretical predictions created by empty slots in a matrix explaining other known data, as in the case of Mendeleev's periodic table,<sup>67</sup> but again rather a *description* of something that had been observed. The occult chemists' procedure for discovery was similar to the those of amateur naturalists, lacking knowledge of taxonomy, morphology, or evolution, but reporting observations of things seen. Even on the most charitable interpretation, then, taking the "actors' categories" seriously, the representational practice of occult chemistry differs significantly from ordinary chemistry and physics. The occult chemists are strong (or even naïve) scientific realists: their representations supposedly refer to objects *in themselves*, sometimes described in great detail. Such naïve realism stands in stark contrast to the experimentalism of the early 20<sup>th</sup> century, which in its strongest form went on to say that there could be no meaningful reference beyond the experimental procedure itself: in the lingo of the logical-positivists, the meaning of a (scientific) statement is its method of verification.<sup>68</sup>

What happens if we apply this empiricist criterion of meaning to the representations of occult chemistry? The "method of verification" in occult chemistry is the use of clairvoyance which, so it is claimed, produces mental images of external objects. This means that even if we were, for the sake of argument, to remain overly charitable, the immediate referent of the representations consists in images in the mind of the experimenter rather than in any intersubjectively available object or inscription. We soon run into a problem of intersubjectivity: not only is the source of the alleged visions already extremely problematic – clairvoyance of fantasy? – but we cannot even know if there is any "vision" at all behind the discursive claims about them. Yet another problem is introduced here since the actual representations, as presented in the publications of occult chemistry, were drawn and formed *not* by the would-be clairvoyants themselves, but by artists in the Theosophical Society who were instructed by the occult chemists afterwards. We are, in other words, many steps removed from the "raw" data.

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<sup>67</sup> As with Mendeleev's periodic law, which famously predicted with great detail the discovery of several new elements from the 1870s onward.

<sup>68</sup> For this verificationist theory of meaning, see e.g. Moritz Schlick, 'Positivismus und Realismus'.

There is an undeniable irony in the account presented so far: by starting with a charitable reading of the authors' intentions we are led quite naturally to a position of deep suspicion. We have tried to faithfully reconstruct the occult chemists' procedure, and taken their claim to make a contribution to scientific methodology seriously by juxtaposing them with actual scientific practice. The result is that the rhetorical overlay of similarity and congruence between Theosophical and mainstream science breaks down and shows us how different the two projects are in their very conceptualisation of "science". Moreover, a detailed focus on the actual practice of occult chemistry revealed internal problems that are not resolved: what is the relation between the "clairvoyant visions" and the second-hand artistic representations of them? The relation between the person making a discovery and the person creating a visual representation is unproblematic in mainstream chemistry or physics, as far as it is concerned with making conceptual *models*. It is much more problematic for the occult chemists who claim to depict how subatomic entities look like. At this point we have reached the limit of what a charitable reading can offer. It is time to adopt an explicitly suspicious approach.

If we leave the actors' self-understanding behind us and instead assume (with the backing of our best scientific knowledge on how the world and the human mind actually work) that clairvoyant perception of subatomic particles is *not* possible, and hence that claims built on clairvoyance must be bogus, the representational practices of occult chemistry must be considered as a very different type of image use. We may of course still consider the possibility that the representations refer, indirectly and second-hand, to mental images visualised by the "clairvoyants" and communicated to the artists. The *belief* that such images, created by techniques of visualisation, are expressions of clairvoyant perceptions may be genuine enough. However, we should not feel obliged to rule out other possibilities, including that the representations are crafted from already existing material, perhaps somewhere in between conscious fraud and unconscious make-believe.<sup>69</sup>

There are good reasons to believe that fabrication was, in fact, an important part of producing the representations of occult chemistry. As has been noted already, plagiarism veiled as exalted insight is nothing new in the history of Theosophy:

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<sup>69</sup> This is somewhat similar to an argument advanced by James Justin Sledge concerning the famous scrying sessions of John Dee and Edward Kelley. See Sledge, 'Between Loagaeth and Cosening'.

Blavatsky's work was in its entirety a pastiche created from available scholarly and occult material. We may quote from Coleman's exposé just to give a reminder of the extent of this feature of her work:

Our author [Blavatsky] made great pretensions to Cabbalistic learning; but every quotation from and every allusion to the Cabbala, in *Isis* and all her later works, were copied at second-hand from certain books containing scattered quotations from Cabbalistic writings; among them being Mackenzie's *Masonic Cyclopaedia*, King's *Gnostics*, and the works of S. F. Dunlap, L. Jacolliot, and Eliphas Levi. Not a line of the quotations in *Isis*, from the old-time mystics, Paracelsus, Van Helmont, Cardan, Robert Fludd, Philalethes, Gaffarel, and others, was taken from the original works; the whole of them were copied from other books containing scattered quotations from those writers. The same thing obtains with her quotations from Josephus, Philo, and the Church Fathers, as Justin Martyr, Origen, Clement, Irenaeus, Tertullian, Eusebius, and all the rest. The same holds good with the classical authors, - Homer, Ovid, Horace, Virgil, Plato, Pliny, and many others. The quotations from all these were copied at second-hand from some of the 100 books which were used by the compiler of *Isis*.<sup>70</sup>

Such plagiarism was used not only to fake the appearance of Blavatsky's personal erudition, but was also demonstrably used in the forgery of the so-called "Mahatma letters" – letters that mysteriously "materialised" at a shrine in the Theosophical Society's centre in Adyar, purportedly written by secret Tibetan masters. The psychical researcher Richard Hodgson, who had led the famous investigation of these claims in India in 1884-1885,<sup>71</sup> had let Coleman see some of the Mahatma letters personally. Coleman's conclusion was just as dismissive as it had been about the rest of Blavatsky's work:

I find in them overwhelming evidence that all of them were written by Madame Blavatsky... . In these letters are a number of extracts from Buddhist books, alleged to be translations from the originals by the Mahatmic writers themselves. These letters claim for the adepts a knowledge of Sanskrit, Thibetan, Pali and Chinese. I have traced to its source each quotation

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<sup>70</sup> Coleman, 'The Sources of Madame Blavatsky's Writings', 355.

<sup>71</sup> Hodgson et al., 'Report of the Committee Appointed to Investigate Phenomena Connected with the Theosophical Society'; Hodgson, 'Account of Personal Investigations in India, and Discussion of the Authorship of the "Koot Hoomi" Letters'.

from the Buddhist scriptures in the letters, and they were all copied from current English translations, including even the notes and explanations of the English translators. They were principally copied from Beal's *Catena of Buddhist Scriptures from the Chinese*. In other places where the adept (?) is using his own language in explanation of Buddhistic terms and ideas, I find that his presumed original language was copied nearly word for word from Rhys Davids's *Buddhism*, and other books. I have traced every Buddhistic idea in these letters ... and every Buddhistic term, such as Devachan, Avitchi, etc., to the books whence Helena Petrovna Blavatsky derived them. Although said to be proficient in the knowledge of Thibetan and Sanskrit, the words and terms in these languages in the letters of the adepts were nearly all used in a ludicrously erroneous and absurd manner. The writer of those letters was an ignoramus in Sanskrit and Thibetan ...<sup>72</sup>

It would certainly be unfair to judge Besant and Leadbeater solely by reference to the actions of their predecessor. Nevertheless, the type of religious creativity used by Blavatsky does tell us something about what we can expect of Theosophical authors. It offers a model for how "higher knowledge" may in fact have been constructed: in Blavatsky's case, higher knowledge about eastern religion and philosophy was constructed as a pastiche of elements from the Western scholarly literature that was available to her, and was only portrayed as perennial wisdom by being deceptively attributed to secret Tibetan masters. If we assume that something resembling this model also holds for occult chemistry, we have to ask: what were the *actual* sources used to create the visions of atomic and subatomic realities?

The answer to this question is not so hard to find, and we get good help from the authors themselves. In what reads as an astonishingly naïve statement, Besant and Leadbeater pointed out that there was a likeness between the "ultimate physical atoms" revealed by their investigations, and the depictions of the atom in Edwin Babbitt's (1829–1905) much earlier *Principles of Light and Color* (1878).<sup>73</sup> Babbitt was an American physician and a spiritualist who was deeply involved with developing new medical "cures" based on Mesmerism.<sup>74</sup> The *Principles of Light and Color* is best known for laying the foundation of a form of colour therapy, but it also contains occult revelations of much invisible nature, claiming to fill the gaps of science through

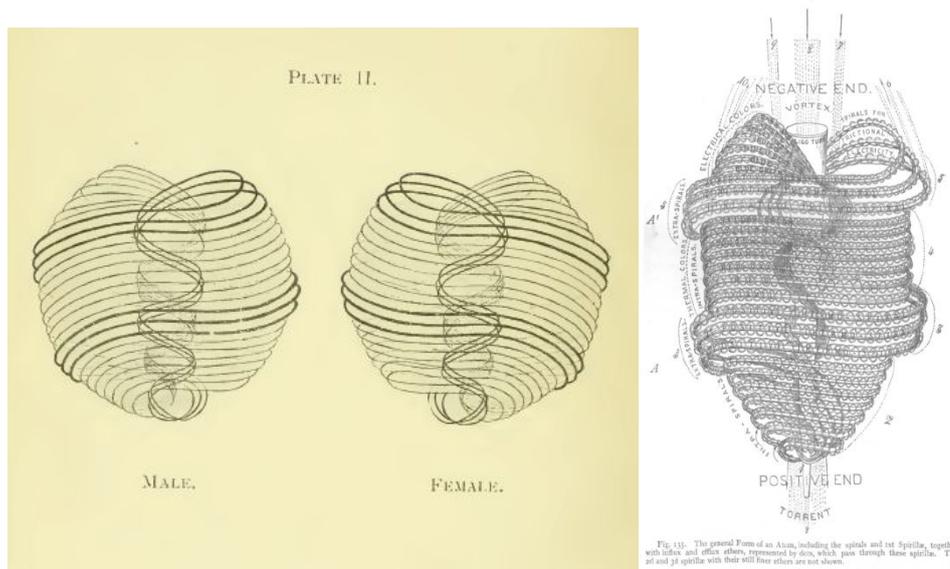
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<sup>72</sup> Coleman, 'The Sources of Madame Blavatsky's Writings', 363.

<sup>73</sup> Besant & Leadbeater, *Occult Chemistry* (second edition), 10.

<sup>74</sup> For Babbitt's context, see Catherine Albanese, *A Republic of Mind and Spirit*, 406, 411.

clairvoyant visions and exalted insights. An extremely charitable interpreter might say that similarities between Babbitt's work and occult chemistry are due to the two sources actually having the same reference – that is, the real structure of atoms revealed independently by two “clairvoyant” observers. This was no doubt what Besant and Leadbeater wanted to suggest to their readers. On the suspicious reading, however, it is impossible to avoid the much more parsimonious hypothesis that Besant and Leadbeater – or their artists – imitated the earlier source, whether knowingly or not.



**Figure 16:** *Left:* the male and female counterparts of the “ultimate physical atom” according to Besant and Leadbeater (1919 edition, plate II, between pages 20 and 21). *Right:* representation of ‘the general form of an Atom’ according to Edwin Babbitt’s *Principles of Light and Color*, 102.

While the aesthetic of the micro world clearly resembled that of Babbitt’s earlier drawings, we still need to account for the claim that the clairvoyant visions could explain the atomic weight of the elements. This was, as we saw, an important claim: the number of “ultimate physical atoms” in each element appeared to correspond with their atomic weight, thus of course insinuating that these fundamental particles give weight to the elements. Moreover, the claim was that these relations only appeared *after* the visions had been made, when going systematically through the representations and analysing their mathematical features.<sup>75</sup> The implication was, once again, that these

<sup>75</sup> Jinarajadasa, ‘Introduction to the Third Edition’, 2.

visions really represented the actual chemical elements – how else could such a convincing correspondence be accounted for?

As before, the answer is found in an apparent imitation of available literature. In this case it is, however, somewhat harder to verify than in the cases of Blavatsky's plagiarism of literary sources, or the imitation of Babbitt's 'general form of an Atom'. The chemist Michael McBride has, however, done the necessary work.<sup>76</sup> Since atomic weights were at the time measured with varying results, and tables would not be in full agreement with each other, it is theoretically possible to isolate the specific source if there was one. By performing a careful quantitative analysis of the data of occult chemistry McBride discovered that the numbers of ultimate physical atoms made an almost perfect fit with atomic weights tabulated in a much-used German chemistry textbook from 1884, written by Lothar Meyer.<sup>77</sup> These lists had already been heavily revised by the early 20<sup>th</sup> century, but the numbers tabulated in the 1909 edition of *Occult Chemistry* correspond suspiciously well with the superseded knowledge of previous decades. Meyer's text-book would have been easily available to Jinarajadasa when he "calculated" the numbers from Leadbeater's clairvoyant visions in Dresden in 1907. As McBride argues, this strongly suggests that the numbers of *anu* "seen" were most likely adjusted or made up entirely during the production phase of the representations.<sup>78</sup> In any case, the clairvoyant representations refer to an 1884 chemistry textbook rather than to the actual structure of elements, just as Blavatsky's Mahatma letters referred not to the perennial wisdom of secret Tibetan masters, but to the translations and secondary literature of British scholars.

#### FROM SEMANTICS TO PRAGMATICS: THE RHETORIC OF REPRESENTATION

The question of representation in occult chemistry largely collapses into pure *pragmatic* concerns. The claims to direct observation of otherwise unobservable entities, and the elaborate representations of them in the form of visual depictions and tables lining up the atomic weight of various elements, are best understood in terms of the rhetorical

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<sup>76</sup> McBride, 'Serious Scientific Lessons from Direct Observation of Atoms through Clairvoyance'.

<sup>77</sup> Lothar Meyer, *Die Modernen Theorien der Chemie*, 140. See McBride, 'Serious Scientific Lessons from Direct Observation of Atoms through Clairvoyance'.

<sup>78</sup> *Ibid.*

effects they were designed to have on various audiences, and the ends one could achieve thereby. It is certainly possible that the occult chemists themselves – and no doubt most Theosophists familiar with the project – sincerely believed that they could deliver the goods. What is certain, however, is that the project as such was part of a discursive strategy of claiming scientific legitimacy for Theosophy.

As mentioned earlier, there is a pragmatic and rhetorical dimension to all scientific representation: any image is intended to produce effects in an audience, whether the audience consists of scientific professionals, students, or laypeople. Occult chemistry largely emulated the rhetorical dimensions of scientific production generally, but also presented the results of an occult methodology as corroborating and extending the scope of scientific representational practices. The results were disseminated to theosophists, educated laypeople, and to scientific professionals. All of this may be seen as special cases of what Olav Hammer has called “scientism” as a discursive strategy:

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, scientific terminology, mathematical calculations, theories, references and stylistic features – without, however, the use of methods generally approved within the scientific community, and without subsequent social acceptance of these manifestations by the mainstream of the scientific community ...<sup>79</sup>

The attempt to make use of the persuasiveness of science was, however, a much less successful strategy than hoped for. An obvious but ironic reason for this was noted earlier: while it was hoped that a focus on methodology would strengthen Theosophy’s case by demonstrating the value of its contributions, it actually ended up underscoring the vast differences between scientific and Theosophical knowledge production. Occult chemistry positioned itself as ambitiously solving the problem of representation in physical science, yet its methodology was strikingly naïve when compared to the practices it set itself up against. A focus on methodology underscored the difference between “scientific” and “scientistic” discourse as defined by Hammer. As Mark Morrisson observes, ‘occult chemistry can never persuade the scientific world, because

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<sup>79</sup> Hammer, *Claiming Knowledge*, 206.

its defense relies entirely upon *resemblance* and *correlation*, not upon the kind of rhetorical persuasion that [is present] in actual reproducible laboratory work'.<sup>80</sup>

There is, however, yet another reason why the rhetoric backfired. The practice of resemblance and correlation to what is already known in science is risky if one also claims to have privileged access to higher knowledge about nature. As we have seen, the clairvoyant visions of the atom were in accordance with the picture of late-Victorian ether physics, and with incomplete models of the periodic table that had even been updated before the occult chemists had published their results. The novel features that the occult chemists pointed to – such as the correspondence between the number of *anu* and the atomic weight of an element – did not contradict present knowledge, but simply attempted to fill gaps in it. However, it would not be long until new branches of physics filled these gaps themselves. By the 1920s, quantum mechanics had succeeded in producing models of the atom, electrons and other subatomic particles that were capable of explaining the periodic table of the elements. The enormous predictive power of these developments would take mundane chemistry and physics to new theoretical and technological grounds that were simply unimaginable even by the most clear-sighted person of the 1890s. Science would soon convey an image of the subatomic world that had very little in common with that of late-19<sup>th</sup> century ether physics and the occult chemistry built on it.<sup>81</sup> Instead of “catching up” with Theosophical higher truth, mainstream science rapidly raced away from it.

### 3 SCIENCE CONTRA GNOSIS:

#### CONCEPTUAL REVOLUTIONS AND THE STAGNATION OF THEOSOPHICAL SCIENCE

How did Theosophy’s distinctly late-Victorian view of physics and chemistry respond to the theoretical upheavals of the early decades of the 20<sup>th</sup> century? In contrast to the intense fascination with the strangeness of relativity and quantum mechanics

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<sup>80</sup> Morrisson, *Modern Alchemy*, 94.

<sup>81</sup> It is quite remarkable to note the attempted revival of “occult chemistry” in the 1980s and 1990s – reinforced first with the notion of quarks in modern particle physics, and, when that didn’t work, with the alternative theory of “superstrings”. See e.g. E. Lester Smith, *Occult Chemistry Re-Evaluated*; Stephen M. Phillips, *Extrasensory Perception of Quarks*; idem, *ESP of Quarks and Superstrings*. For a brief analysis, see Asprem, ‘Theosophical Attitudes to Science’.

characteristic of esoteric attitudes to science in the post-war era, Theosophists were generally reluctant and ambivalent in their treatment of such subjects. The program of occult chemistry continued to take up much space in the Theosophical literature throughout second-generation Theosophy, following the outline established by Besant and Leadbeater. But there were also some attempts at reconciling this program with new directions in physics. In this final section I will look at a couple of works that grappled with the difficult task of harmonising a rapidly changing physics with the revealed higher truths of Theosophy's clairvoyant science.

The first Theosophical work to cover the field of relativity theory in any extent appears to have been the booklet *Studies in Occult Chemistry and Physics*, published by the Theosophist and astronomer G. E. Sutcliffe in 1923. The book aimed to give equal weight to "Eastern" and "Western" science, described as two complementary "schools".<sup>82</sup> Sutcliffe took Einstein's relativity theories as constituting the most important representative of "Western science" at the present time. The "Eastern" school had little to do with the geographical Orient: it was represented by the clairvoyant exploration of occult chemistry, which, as we have seen, was produced by British Theosophists in London and Dresden, rather than by ancient sages of the Orient. Sutcliffe's ambitions were at least as high as those of his forbears. The book's title in fact suggests a *generalisation* of the field of occult chemistry, extending its scope to contemporary advances in theoretical physics.

His solution is illustrative of the problematic compromises that had to be made between prior investments in old conceptual structures, and emerging scientific paradigms that were starting to make the old scientific investments look dated. In his attempt to show that occult investigations could be reconciled with the new theories of relativity, Sutcliffe proposed a brand new theory of gravity. Unlike the account of gravity proposed by Einstein's general relativity, however, Sutcliffe's theory was based on late-Victorian ether physics. His style of reasoning bears the mark of someone who has acquired his knowledge of conventional physics from British research traditions of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries: Sutcliffe's synthesis and reinterpretation of Einstein is in a tradition of British anti-relativism that makes liberal use of the concept of ether.<sup>83</sup>

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<sup>82</sup> Sutcliffe, *Studies in Occult Chemistry and Physics*, v-vi.

<sup>83</sup> Ether physics was a crucial component of physics in Britain, as we have seen, and was part of the curriculum at Trinity College, Cambridge, as late as 1910. See Goldberg, 'In Defense of the Ether', 123.

Thus, when Sutcliffe argued with the relativists over the interpretation of the famous Michelson-Morley experiment, he simply followed an established scientific tradition. The dominant interpretation of this experiment, which had failed to find the predicted effect of a stationary ether on the relative speed of light, was for a long time that the ether was itself dragged along with heavy bodies, making it practically impossible to detect any difference in the velocity of light.<sup>84</sup> Sutcliffe could even paraphrase one of the leading British physicists of the 1920s, James Hopwood Jeans, as saying that ‘each observer must carry a complete ether about with him’.<sup>85</sup> Taking this idea further, Sutcliffe advanced his theory of gravity based on the contraction and expansion of the ether that each body was thought to drag along with it: ‘gravity is one of the effects of an *expanding* sphere of ether, whilst electrical phenomena are functions of a *contracting* sphere’.<sup>86</sup> From there, Sutcliffe the scientist was drawn into a long dialogue with Einstein’s general relativity over the structure of space-time and the role of the ether.<sup>87</sup> The point of all of this was in the end to argue for a privileged frame of reference, based on the concept of ether, and consequently to argue for the superiority of the ether-based metaphysics of occult chemistry – now expanded to the field of modern theoretical physics. The bottom-line of this approach, reminiscent of Blavatsky’s rhetoric, is summarized in Sutcliffe’s formulation in the introduction:

The Relativist draws down the *Veil of Isis*, and says: this knowledge is for ever hidden from us. The Teachers in the Eastern Schools reverently lift the veil, and say: the solution of even these most inner mysteries, by searching, thou shalt find.<sup>88</sup>

When we look at what is actually being unveiled in Sutcliffe’s book, however, we do not find much *new* knowledge. The author relies entirely on the clairvoyant investigations of his Theosophical superiors. For the rest, his exercises are purely theoretical, and aimed rather hopelessly at harmonising old conceptual structures with new emerging ones. All in all, the book makes a contribution to the school of ether metaphysics: it

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<sup>84</sup> Cf. Whittaker, *A History of the Theories of Aether and Electricity*, 411-417.

<sup>85</sup> Sutcliffe, *Studies in Occult Chemistry and Physics*, vi-vii. On Jeans, see chapter six above.

<sup>86</sup> *Ibid.*, xv. Emphases added.

<sup>87</sup> *Ibid.*, 129-174.

<sup>88</sup> *Ibid.*, xv.

grapples with problems that are identical to those we find in other works of this genre, as discussed in a previous chapter.<sup>89</sup>

Another book struggling to incorporate the latest science is found in W. R. C. Coode Adams's *Primer of Occult Physics* (1927). The book follows up on Sutcliffe's project of extending occult chemistry to physics. The author starts on a familiar note when he stats that '[a]ny one keeping abreast of modern science cannot but be struck by the way in which it is passing over into materialism'.<sup>90</sup> This was the common rhetoric of the late Victorian period, as we have seen, but it is slightly ironic to find it reproduced in the same year as "quantum mysticism" was born.<sup>91</sup> 1927 was the year when Heisenberg presented the uncertainty principle that would soon generate countless attempts at idealistic interpretations of physics by authors bordering on the esoteric field. As Arthur Eddington famously contended, although with his tongue firmly placed in cheek, 'religion first became possible for a reasonable scientific man about the year 1927'.<sup>92</sup>

As its title suggests, Coode Adams's book truly reads as a primer, devoting separate chapters to overviews of central physical concepts such as time, space, matter, and energy. One is struck by the way in which the various chapters knit together a set of authorities that hardly go very well together. For example, Coode Adams references Lodge to argue that the ether is the most fundamental substance of reality, quoting his *Ether and Reality*, which was published as late 1925 and had a deep impact on the occult community's (mis-)understanding of contemporary physics.<sup>93</sup> Following Lodge's reasoning, Coode Adams is quickly led to contradict his opening statement about the increasing materialism of science, now writing that '[t]o the older physicist matter was the reality, and ether an inference. We now see that ether is the reality, and matter is entirely an inference drawn from certain of the behaviours of ether'.<sup>94</sup> To make the confusion complete, Einstein and the emerging "new physics" appears side by side with the anti-relativist Lodge in the two chapters dealing with the concepts of time and

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<sup>89</sup> See especially my discussion of the reception of Lodge's *Ether & Reality* (1925) in *The Occult Review*, and the related debate in contributions to the *Journal of the Alchemical Society*. See chapter six above.

<sup>90</sup> Coode Adams, *Primer of Occult Physics*, ix.

<sup>91</sup> Cf. chapters four and six.

<sup>92</sup> Eddington, *The Nature of the Physical World*, 350. For the correct context of this much misused statement, see my discussion of Eddington's philosophical views in chapter six above.

<sup>93</sup> See my discussion of the reception of this book in *The Occult Review*, in chapter six.

<sup>94</sup> Coode Adams, *Primer of Occult Physics*, 53.

space.<sup>95</sup> The chapter on matter predictably revisits the case for occult chemistry, based once again on ether metaphysics.<sup>96</sup>

Despite these idiosyncrasies Coode Adams discusses the implications of the special and general theories of relativity with regards to time with some accuracy. He reveals knowledge of the “block universe” interpretation of the relativistic space-time continuum, according to which space-time is a four-dimensional structure where the relation between all events are fixed once and for all and the passage of time merely an illusion.<sup>97</sup> However, when Coode Adams proceeds to discuss the implications of this interpretation, which is typically seen as *deterministic*, a curious emphasis occurs:

Let us therefore consider the possibilities which this theory opens up to us. First of all we are *relieved from the thralldom of time*. We are not condemned any longer to the rigid materialistic ideas that the past is the past, and that the future is utterly beyond the scope of knowledge of any mind. The possibility of a state of consciousness in which both past and future are open, such as we believe exists in the mind of the Logos and, to a certain extent, in our higher selves, this state of consciousness, which formerly would have been derided at once by the external world as absurd, is now a possible conception.<sup>98</sup>

That the space-time continuum should relieve us ‘from the thralldom of time’ is far from evident. It seems clear that Coode Adams connects this statement with the limitations on knowledge about the past and the future, rather than the question of free will versus determinism. According to Coode Adams, the view that the future is beyond our possibility for knowledge can be dismissed as a ‘rigid materialistic idea’. Strangely, then, the contrary view that definite knowledge of the future *is* possible is portrayed as being freed from the thralldom of time. Others might recognise this peculiar form of freedom by a different name: “determinism”. At the very least, the rhetoric here appears to be the exact opposite of the arguments over physics and determinism that we saw connected with the emerging quantum mechanics, particularly the arguments against Laplacian

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<sup>95</sup> Ibid., 9.

<sup>96</sup> Ibid., 32-44.

<sup>97</sup> For an accessible introduction to interpretations of relativistic space-time, see Kennedy, *Space, Time, and Einstein*.

<sup>98</sup> Coode Adams, *Primer of Occult Physics*, 19.

determinism developed from Heisenberg's uncertainty principle.<sup>99</sup> Moreover, even to the extent that this interpretation of general relativity dismisses the arrow of time (e.g. the distinction between past, present, and future) as illusion, it does certainly not follow that it is possible to achieve 'a state of consciousness in which both past and future are open'. That promise remains just as ephemeral as before. The only implication would be that possessing such knowledge, if it had been possible, would not make any difference what so ever since all events are already eternally fixed.

Continuing on this track, however, Coode Adams implied that there is a 'Supreme First Cause' of the universe, and that this cause possesses a consciousness of its own that can be connected to the Theosophical concept of the "akashic records":

To Him, therefore, the whole plan is seen at once, past and future. There therefore exists a complete map, so to speak, of all events, both past and future, which is simply the fourth dimensional continuum mentioned previously. This might be described as the memory of God and in Theosophy is known as the "Akashic Records".<sup>100</sup>

How far we have come from the Einsteinian conception! Needless to say, even the possibility of a "privileged frame of reference" that would be required to have an absolute knowledge of the sequence of events, is completely contrary to the position of relativity theory.

The eclecticism of Coode Adams' book results in a considerable number of internal inconsistencies and contradictions, which, after all, give an excellent illustration of the difficult situation Theosophy's "gnostic science" found itself in when the conceptual contents of science inevitably changed. Theosophical authors such as Coode Adams and Sutcliffe throw "old" and "new" physics together in order to make a pastiche of physical theory that seems acceptable enough in light of the esoteric doctrines revealed through exalted gnosis.

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The occult science of direct perception continued to generate much enthusiasm in Theosophical circles through the early decades of the 20<sup>th</sup> century, despite the fact that

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<sup>99</sup> Cf. my discussion in chapter four.

<sup>100</sup> Ibid., 21.

the promised corroboration by mainstream physics and chemistry failed to manifest. In a short systematic overview published in 1934 the scientists and science writers E. Lester Smith, V. Wallace Slater and Gerard Reilly still expressed a strong optimism on behalf of occult chemistry. Following up Besant's original ambitions, they focused less on the substantial *discoveries* of the discipline than on its *method*, with all enthusiastic expectations intact:

We believe that in the years to come a new chemistry will arise, built up on a twofold foundation; the clairvoyant technique will then be accepted as a valid and valuable tool, and will be used alongside other methods of research, because in time the inevitable limitations of the latter will be seen, and a new instrument in the search for truth will be welcomed.<sup>101</sup>

The introduction of clairvoyants into chemistry labs remained a pipe dream. There were, however, other professional overlaps of some significance, which were used for all their worth to boost the legitimacy of the occult chemistry program. One episode that deserves to be mentioned briefly concerns the chemist and physicist Francis Aston, and his 1912 discovery of isotopes. Aston was developing a new way to experiment with rare gases at Cambridge when he noticed a strange "shadow element" following atoms of the relatively new and little understood gas neon.<sup>102</sup> Aston first thought he had found a new element, and enthusiastically named it "meta-neon". As he admitted in a footnote to a 1913 paper, where his discovery was first announced, the term meta-neon had been borrowed from Besant and Leadbeater's 1909 publication of *Occult Chemistry*.<sup>103</sup> According to Aston, the "new element" that Besant and Leadbeater had discovered clairvoyantly and given the name meta-neon had been given an atomic weight number that came very close to that of Aston's "mystery element". Aston thus admitted a kind of precedence for occult chemistry, of the type that Besant had explicitly hoped for in her first paper on the subject back in 1895.<sup>104</sup>

With additional discoveries by Frederick Soddy and Niels Bohr in the following

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<sup>101</sup> Lester Smith, Slater, & Reilly, *The Field of Occult Chemistry*, 58.

<sup>102</sup> Cf. Hughes, 'Occultism and the Atom', 31-35.

<sup>103</sup> This paper, which was probably delivered to the British Association meeting in Birmingham in September 1913 was recently discovered among Aston's notes and unpublished papers by the historian Jeff Hughes. See Hughes, 'Occultism and the Atom', 34. Cf. Besant & Leadbeter, *Occult Chemistry*, 84-85.

<sup>104</sup> Cf. Besant, 'Occult Chemistry', 211.

years, the significance of Aston's meta-neon was, however, soon to be reinterpreted by the scientific community. It became clear that what he had seen was not a new element, but rather an isotope of the element neon.<sup>105</sup> Jinarajadasa, who we previously met as Leadbeater's protégé, would later comment on the episode when he was writing in the capacity of editor of the third edition of *Occult Chemistry* (1951) and as the president of the Theosophical Society. Apparently thinking that any corroboration would do, he was ready to discard meta-neon and instead claim the discovery of isotopes for Theosophy. While this was cast as fulfilling the agenda set by Besant more than half a century earlier, there is little wonder that the claim would appear rather unconvincing to chemists.<sup>106</sup> Soddy's 1921 Nobel prize for developing the theory of isotopes was never in any real danger.

### CONCLUSION

This chapter has discussed some general trends in the Theosophical engagement with the natural sciences through its first and second generations. First of all, we have seen that the Theosophical project was formed in a certain cultural climate characterised by public antagonism between "science" and "religion" – an antagonism that Theosophy attempted to replace by reconciliation through a critical engagement with both, viewed through the lenses of higher knowledge. The epistemological foundation on which Theosophical authors built this negotiation was that of an open-ended naturalism. As seen in previous chapters, open-ended naturalism was an important epistemological field for late-Victorian debates about science and religion, and it was generally critical of the kind of two-worlds separation between "natural" and "supernatural" required by disenchantment. This leads to a second point: Theosophy's *rejection* of a dualistic two-world solution gave rise to rather predictable difficulties that have persisted through its history: the threat of empirical disconfirmation, and a problem with scientific change. These problems come to the fore in occult chemistry, and in Theosophical authors' attempts to come to terms with the revolutions in physics of the early 20<sup>th</sup> century.

The two problems have their origin in the peculiar role that strategies for attaining higher knowledge acquire in the context of a broadly naturalistic epistemology. In the context of occult chemistry, and arguably in Theosophy at large,

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<sup>105</sup> Hughes, 'Occultism and the Atom', 34-35. Cf. my discussion in chapter four.

<sup>106</sup> Jinarajadasa, 'Introduction to the Third Edition', 4-5.

strategies for higher knowledge look more like expansions of the sphere of “reason” than as completely personal, experiential, and non-verifiable “gnosis”. The higher visions are clear, distinct, and discursively communicable; they are even communicated to scientists, together with the claim that they faithfully represent the very same entities that ordinary empirical science works with. Such representations give the possibility of empirical predictions and independent scientific corroboration, but also their opposites. When claims are situated inside of the sphere of empirical science, and addressed directly to scientists, one must also be ready to be proved wrong.

The problem with scientific change was already present with Blavatsky, as we saw in the first section. Considered as a perennial system of wisdom, Theosophy must always try to come out on top in comparisons, superior to a modern science that after centuries has only now started to approach the “truth” known to the sages since primordial times. Startling new discoveries are interpreted as approximations to the wisdom of all ages, the general expectation being that science will gradually approach the perennial truths that Theosophy itself already possesses. Such a strategy may seem convincing in any given period – whether the 1880s or the 1930s. However, the approximating scientific truths of one decade can soon become the superseded “pseudoscience” of the next. This creates a fundamental tension for perennialists aligning themselves with science: whereas perennialism demands *stability*, the scientific projects that Theosophy has sought strategic alignments with have remained in a state of continual conceptual change. Thus, while Besant’s alignment of Theosophy with the physics of ether may have been advantageous in the late 19<sup>th</sup> century, it caused serious trouble for the post-relativity generation. The conceptual conservatism inherent in the notion of perennial wisdom accounts for the struggles faced by authors such as Code Adams, but also for the continued presence of talk about ether in Theosophical discourse even today: elevating some exotic scientific concepts of one’s particular historical period to expressions of *unchanging, higher truth* leads to a situation where elements of superseded scientific cultures will be carried on and reinterpreted, even when the scientific community at large has abandoned the concepts in question and moved on to entirely new lines of inquiry. This conflict is a predictable result of dismissing disenchantment and negotiating science and higher knowledge in the framework of an open-ended naturalism.