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CUBISM AND 'THE FOURTH DIMENSION' IN THE CONTEXT OF THE LATE NINETEENTH-CENTURY AND EARLY TWENTIETH-CENTURY REVIVAL OF OCCULT IDEALISM

Tom Gibbons

The connexion of non-Euclidean geometry and the Fourth Dimension with Cubism, made by the earliest commentators and often repeated, has not in my view been satisfactorily explained. The best-known early critical statement relating Cubism to the Fourth Dimension is in the third chapter of Apollinaire's Les peintres cubistes (1913). This, together with the fourth and fifth chapters, he adapted from his article 'La peinture moderne', published in the April and May issues of Les Soirées de Paris for 1912. The article in its turn derives from a lecture of 1911.¹

In the year of Apollinaire's lecture appeared Duncan M. Y. Sommerville's Bibliography of Non-Euclidean Geometry. This, in some four hundred pages, lists about four thousand references to books, reviews and articles on non-Euclidean geometry, hyperspace and the Fourth Dimension published in Europe and America up to 1911, covering some twenty languages including Ruthenian and Esperanto. The great majority are highly technical papers by professional mathematicians, but a number of works cited contain more philosophical speculations on hyperspace and the Fourth Dimension, including works by writers on Spiritualism and allusions to the topic in fiction.

Sommerville's Introduction provides a useful broad historical outline of developments to be considered in this article. Even among professional mathematicians, as he makes plain:

. . . the subject of non-Euclidean geometry. . . did not really begin to be studied seriously. . . until about 1870, when Hoüel's French translations of Lobachevskij's and Bolyai's somewhat inaccessible memoirs appeared. . . The study of space of higher dimensions begins about the same time, for, except for a few scattered references in Kant and Leibniz, there is no explicit mention of the subject until Cayley's classical paper of 1843, and it did not become to any extent a subject of study until 35 years later.²

Very rapidly, however, these complex topics not only began to attract the attention of professional philosophers, but were turned by writers on Spiritualism into subjects of popular discussion:

Thirty years ago [i.e. in 1878] Professor G. B. Halsted published the first bibliography of non-euclidean geometry and hyperspace. At that time this joint subject was at an interesting stage. Helmholtz was popularizing non-euclidean geometry in England, and the interest of philosophers was roused to rescue their favourite example of 'necessary truths' from the general attack of scepticism. Space of n dimensions was just emerging as a branch of geometry capable of rigorous

¹ Edward F. Fry, Cubism, New York & Toronto n.d., p. 119.
² Duncan M. Y. Sommerville, Bibliography of Non-Euclidean Geometry, St Andrews 1911, p. v.
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With Sommerville’s remarks in mind, we may now proceed to Apollinaire’s argument, which is summed up in the following extracts from chapters iii and iv of Les peintres cubistes:

Until now, the three dimensions of Euclid’s geometry were sufficient to the restiveness felt by great artists yearning for the infinite.

The new painters do not propose, any more than did their predecessors, to be geometers. But it may be said that geometry is to the plastic arts what grammar is to the art of the writer. Today, scientists no longer limit themselves to the three dimensions of Euclid. The painters have been led quite naturally, one might say by intuition, to preoccupy themselves with the new possibilities of spatial measurement which, in the language of the modern studios, are designated by the term: the fourth dimension.

Regarded from the plastic point of view, the fourth dimension appears to spring from the three known dimensions: it represents the immensity of space eternalizing itself in all directions at any given moment. It is space itself, the dimension of the infinite; the fourth dimension endows objects with plasticity. It gives the object its right proportions on the whole, whereas in Greek art, for instance, a somewhat mechanical rhythm constantly destroys the proportions.

Greek art had a purely human conception of beauty. It took man as the measure of perfection. But the art of the new painters takes the infinite universe as its ideal, and it is to this ideal that we owe a new norm of the perfect, one which permits the painter to proportion objects in accordance with the degree of plasticity he desires them to have . . .

Finally, I must point out that the fourth dimension — this utopian expression should be analyzed and explained, so that nothing more than historical interest may be attached to it — has come to stand for the aspirations and premonitions of the many young artists who contemplate Egyptian, Negro, and Oceanic sculptures, meditate on various scientific works, and live in the anticipation of a sublime art.

Wishing to attain the proportions of the ideal, to be no longer limited to the human, the young painters offer us works which are more cerebral than sensual. They discard more and more the old art of optical illusion and local proportion, in order to express the grandeur of metaphysical forms. This is why contemporary art, even if it does not directly stem from specific religious beliefs, none the less possesses some of the characteristics of great, that is to say religious art.4

As Apollinaire’s editors Breunig and Chevalier rightly remark, ‘Cette quatrième dimension . . . a suscité toutes sortes d’exégèses’.5 A favoured exegesis of the past thirty years interprets Apollinaire’s comment as referring to Einstein’s concept of Relativity (Special Theory, 1905) and/or Minkowski’s concept of a four-dimensional space-time continuum (1908), despite the fact that these names and concepts are nowhere mentioned either by Apollinaire or by his several contemporaries who associate Cubism with ‘the Fourth Dimension’.

Edward F. Fry, for example, suggests Apollinaire’s ‘Fourth Dimension’ was derived from ‘contemporary popularizations’ of Einstein6 and that it, like the reference of Gleizes and Metzinger to non-Euclidean geometry, has ‘ever since served only to obscure the understanding of cubism with a pseudo-scientific mysticism’.7 C. H. Waddington, conjecturing that the Cubists were aware of ‘the breakdown of classical ideas of space and

3 Ibid., p. vi.
6 Fry, Cubism (n. 1 above), p. 119.
7 Ibid., pp. 111–12.
time’ resulting from the work of Fitzgerald and Minkowski, attributes to Apollinaire an ‘enthusiasm for half-understood science’ as a prelude to dismissing his comments on the Fourth Dimension as a ‘descent into nonsense’ which is characteristic of the ‘absolute gibberish’ produced by art critics.8

Such speculations were decisively refuted in 1971 by Linda Dalrymple Henderson, who convincingly showed that ‘contemporary popularizations of the theories of Einstein and Minkowski did not exist’, and that ‘the mistake of art-historians anxious to explain references to the fourth dimension and non-Euclidean geometry has been to read back into Cubist writings of 1911 and 1912 a breakthrough in physics which was not published until 1916’.9

Henderson’s argument is supported by the fact that the official index to The Times reveals no mention of Einstein until after the 1914–18 war. It was not until 7 November 1919, almost exactly a year after Apollinaire’s death, that on page 12 The Times carried the announcements: ‘Revolution in Science: New Theory of the Universe: Newtonian Ideas Overthrown’, informing its readers on the following day that ‘Dr. Albert Einstein[’s] . . . , astronomical discoveries were described at the meeting of the Royal Society on Thursday as the most remarkable since the discovery of Neptune, and as propounding a new theory of the universe.10 What was being reported in 1919 was of course the validation of Einstein’s General Theory of Relativity (1916) by observations of the total solar eclipse of 29 May 1919.

Nevertheless, as Breunig and Chevalier point out, ‘Avant la guerre de 1914, la quatrième dimension était une de ces expressions à la mode qu’on entendait un peu partout’: Marcel Proust uses the term ‘un espace à quatre dimensions’ in Du côté de chez Swann (1913) and a popular French serial of 1912 was entitled Au pays de la quatrième dimension (presumably a reference to Gaston de Pawlowski’s Voyage au pays de la quatrième dimension, published in Paris by Fasquelle in 1912).

Similar but rather earlier references can be found in the works of Proust’s contemporaries in the United Kingdom. W. B. Yeats and his fellow-members of the Dublin Hermetic Society were discussing the Fourth Dimension in 1885;11 the eponymous Canterville Ghost of Oscar Wilde’s short story (1887) ‘hastily adopting the Fourth Dimension of Space as a means of escape’, vanishes through a wall; a short story of 1894 by Rudyard Kipling is entitled ‘An Error in the Fourth Dimension’; different concepts of a Fourth Dimension are central to several of H. G. Wells’s novellas and short stories of the 1890s, such as The Time Machine (1895), ‘The Remarkable Case of Davidson’s Eyes’ (1895) and ‘The Plattner Story’ (1896).

The references by Kipling and Wells, who were writing for publication in mass-circulation magazines, suggest that far from being the exclusive property of the Parisian avant-garde of 1911, the term ‘Fourth Dimension’ was already common property during the 1890s. Henderson confirms, without explaining, ‘the great popularity of the idea of the fourth dimension at the end of the nineteenth century’, and the fact that ‘A fourth dimension which might exist but could not be seen by beings of the three-dimensional

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10 The Times, London 8 November 1919, p. 12.
world continued to fascinate the public during the pre-war years of the twentieth century'.

She also cites, as do Breunig and Chevalier, the five-hundred-dollar prize announced by the widely-circulated Scientific American in 1909 for the best popular explanation of the concept. The response was no less than 245 essays from all over the world, and a volume of twenty-two prize-winning and other selected essays was published in the following year under the title of The Fourth Dimension Simply Explained by Professor Henry P. Manning, who wrote in his informative Introduction that ‘In the last few years there have been many articles in the popular magazines, and some books published to explain more particularly what the fourth dimension is’.

As we would expect, this book makes no mention of Einstein, or Relativity, or any of the developments in late nineteenth-century and early twentieth-century mathematical physics. Remarkably, though, only the editor and one of the essayists mention such nineteenth-century non-Euclidean mathematicians as Bolyai, Lobachevsky, Cayley, Riemann and Beltrami.

Evidently, then, in 1909 a great variety of people in the United States, Turkey, Austria, Holland, India, Australia, France and Germany felt sufficiently familiar with the concept of the Fourth Dimension to write essays explaining it, and their knowledge was not derived either from mid nineteenth-century non-Euclidean geometry or its turn-of-the-century applications to cosmology. Where then did this knowledge come from? In his later and more scholarly Geometry of Four Dimensions (1914), Manning confirms what is ascertainable from other sources when he writes that ‘There is now considerable interest in the four-dimensional geometry because of the many curious things about it, and because of attempts which have been made to explain certain mysterious phenomena by means of it'.

The scientific name most often cited by contributors to The Fourth Dimension Simply Explained is that of J. C. F. Zöllner, Professor of Astronomy at the University of Leipzig. As one competitor puts it:

That the possibilities of space are not exhausted with the three dimensions of length, breadth and thickness has no doubt occurred independently to many minds. However, the present widespread interest in the fourth dimension may be traced directly to Dr. Zöllner, a German astronomer.

Zöllner, whom some essayists describe as a mathematician, was the best known of a number of celebrated late nineteenth-century scientists such as Balfour Stewart, Peter Guthrie Tait, Oliver Lodge and Cesare Lombroso who employed the concept of the Fourth Dimension either generally, as an argument in support of transcendentalism, or, more specifically, as a justification for their researches into Spiritualism. Zöllner also heads the list, given by Kandinsky in Concerning the Spiritual in Art (1912), of Late Victorian scientists he approves. Others are the eminent English physicist William Crookes for his scientific researches into Spiritualism, and the Italian criminal anthropologist Cesare

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12 Henderson, loc. cit. n. 9 above, p. 420.
13 Ibid., p. 420.
17 Ibid., p. 3.
19 Manning, Fourth Dimension (n. 16 above), p. 145.
Lombroso, among those who more recently 'have turned to occult sciences and recognized transcendental phenomena'.

It is to this would-be scientific tradition of late nineteenth-century and early twentieth-century occult idealism that Apollinaire’s celebrated remarks about present-day scientists and the Fourth Dimension appear to belong.

Several authors seem to have been responsible for introducing the term ‘the Fourth Dimension’ into everyday discourse in Europe and the United States from about 1875 onwards. It should be borne in mind that the period from about 1880 witnessed a major revival of transcendentalism and occultism, largely based on new and highly optimistic doctrines of ‘Evolution’, in reaction against the materialist-monism and mechanistic scientism of the previous generation. The term ‘occultism’ itself, first recorded in The Occult World (1881), a best-seller by the prominent Theosophist A. P. Sinnett, is itself both a sign and a product of this important movement which is in my view central to our understanding of late nineteenth-century and early twentieth-century developments in artistic and literary theory and practice.

For this occult movement, ‘the Fourth dimension’ stands for a supernatural, spiritual or transcendental order of existence outside our own three-dimensional, material existence: the domain of the infinite and eternal as opposed to that of our everyday, finite and circumscribed lives. The notion of such a Fourth Dimension of space inhabited by spirits can be traced back at least as far as the Enchiridion Metaphysicum (1671) of Henry More, the Cambridge Platonist.

Murray’s Oxford English Dictionary, however, cites The Unseen Universe (1875) by Balfour Stewart and P. G. Tait as the first recorded use of the term ‘Fourth Dimension’ in English. Almost certainly, this work provided the initial impetus which gave the concept of a transcendental four-dimensional space wide currency in Europe and the United States. The Unseen Universe; or Physical Speculations on a Future State was one of many Late Victorian works which attempted to reconcile recent discoveries in the natural sciences with the claims of revealed religion. It was written by two eminent scientists: Balfour Stewart was Professor of Natural Philosophy at Owens College, Manchester, and at one time President of the British Society for Psychical Research, while Peter Guthrie Tait was Professor of Natural Philosophy at Edinburgh. Highly controversial and widely read, the

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20 Wassily Kandinsky, Concerning the Spiritual in Art and Painting in Particular, New York 1947, p. 32 n. J. A. Richardson, in ch. v of his Modern Art and Scientific Thought, Urbana, Chicago & London 1971, denies, like L. D. Henderson, any connexion between Cubism and modern physics. He also (p. 107) suggests that Apollinaire’s remarks about the Fourth Dimension indicate that he was probably ‘speaking of Cubism as an artistic formulation of Zöllner’s theories’. This highly promising lead is not however followed up.

21 The occult revival to which I refer has been admirably documented by James Webb in his book The Flight from Reason, London 1971 (published in the United States as The Occult Underground); and an excellent survey of the French background is in Christopher McIn- tosh, Eliphas Lévi and the French Occult Revival, London 1972.

22 Chaps 27 and 28 of this work were translated into English and included in the 1981 edn of Joseph Glanvill’s Saducismus Triumphatus under the title of The Easie, True, and Genuine Notion and Consistent Explanation of the Nature of a Spirit, section xxii of this extract being devoted to the proposition ‘That besides those THREE dimensions which belong to all extended things, a FOURTH also is to be admitted, which belongs properly to SPIRITS’. Flora Isabel MacKinnon (ed.), Philosophical Writings of Henry More, London, Toronto, Melbourne & Bombay 1925, p. 213.
book was republished no fewer than twenty-eight times between April 1875 and December 1910. A French edition, *L'univers invisible*, was first published in 1883.

The passage referred to in the *Oxford English Dictionary*, which did not in fact appear until 1876, in the enlarged and re-written fourth edition of *The Unseen Universe*, reads as follows:

> Just as points are the terminations of lines, lines the boundaries of surfaces, and surfaces the boundaries of portions of space of three dimensions: so we may suppose our (essentially three-dimensional) matter to be the mere skin or boundary of an Unseen whose matter has four dimensions.\(^23\)

Zöllner's *Wissenschaftliche Abhandlungen* ('Scientific Treatises') were published in Germany in 1878, shortly after the appearance of the fourth edition of *The Unseen Universe*, Zöllner's article 'On Space of Four Dimensions' also appearing in Williams Crookes's *The Quarterly Journal of Science* for April of that year. 1878 is the very year, it may be remembered, which according to Sommerville in his *Bibliography of Non-Euclidean Geometry* saw the space of \(n\) dimensions 'attaining an unfortunate popularity in the hands of the spiritualists', and Sommerville's covert reference points, as the overt references in *The Fourth Dimension Simply Explained* also point, to Zöllner as a leading figure in the late nineteenth-century propagation of occult notions of the Fourth Dimension.

The third of Zöllner's *Scientific Treatises* was edited and translated into English by the English barrister Charles Carleton Massey in 1880 under the title of *Transcendental Physics*. This work, which was reprinted several times in England and the United States but does not appear to have been translated into French, describes a series of experiments undertaken by Zöllner in order to verify the existence of a spiritualistic Fourth Dimension of space. These were conducted in Leipzig in November and December 1877 and May 1878 with the world-famous American medium 'Dr.' Henry Slade in the company of several of Zöllner's distinguished scientific colleagues, who included Gustav Theodore Fechner, Professor of Physics at Leipzig and author of a pseudonymous pamphlet, published in 1846, arguing amongst other things that space has four dimensions.\(^24\)

Zöllner's experiments were probably the most famous of the many undertaken in the late nineteenth century in order to prove scientifically contemporary Spiritualist claims. Among those devised to demonstrate the fourth dimension were the tying of knots in an endless cord, the interlinking of two wooden rings, and the extrication of a coin from a sealed box. Slade consistently evaded tests which would have demanded more than simple conjuring skills. Nevertheless, even his evasions were greeted with lyrical enthusiasm by Zöllner and his scientific colleagues, who publicly declared themselves 'perfectly convinced of the reality of the observed facts, altogether excluding imposture or prestidigitation'.\(^25\) His reputation enhanced by these testimonials, Slade went on to spread the gospel of the Fourth Dimension and demonstrate its existence to audiences from Sydney to St Petersburg.

However implausible *Transcendental Physics* may appear today, it seems likely that it was regarded by many late nineteenth-century and early twentieth-century readers, especially those with a predisposition towards Spiritualism such as Kandinsky, as conclusive evidence that science had verified the existence of an occult Fourth Dimension.

\(^{23}\) B. Stewart and P. G. Tait, *The Unseen Universe; or Physical Speculations on a Future State*, London 1876, p. 220.  
\(^{24}\) 'Dr. Mises', *Vier Paradoxa*, Leipzig 1846.  
Riemann, later invoked by such apologists for Cubism as Mercereau, Gleizes and Metzinger, is quoted by Zöllner in support of his own experimental position and described as ‘one of those acute founders of the theory of an extended space conception’.26 Zöllner’s tests with Slade were ‘devised on the principle of the extended concept of space (Raum-anschauung [sic]) — for the purpose of experimental proofs of the reality of a fourth dimension’.27 Certain of these tests afforded ‘incontrovertible proof . . . of the reality of so-called clairvoyance’,28 the whole phenomenon of which ‘admits of a very easy and natural explanation by help of the fourth dimension’.29 For, argues Zöllner:

From the direction of the fourth dimension the, to us, three-dimensionally enclosed space must be regarded as appearing open, and indeed in an interval from the place of our body so much the greater the higher the soul is raised to the fourth dimension . . . Thus Slade’s soul was, in the first case, so far raised in the fourth dimension that the contents of the [sealed, opaque] box in front of him were visible in particular detail. In the second case, one of those intelligent beings of the fourth dimension looked down upon us from such a height that the contents of the rectangular box were visible to him . . .30

In the clairvoyant condition, according to Zöllner, there occurs a ‘spatial widening of the three-dimensional circle of sight’ which causes physical bodies to appear increasingly transparent.31 This supposition is confirmed, in his view, by the descriptions of ‘magnetic’ or hypnotic clairvoyant trance given in the autobiography of the famous American clairvoyant and prophet Andrew Jackson Davis (1826–1910):

The sphere of my vision now began to widen . . . Next, I could distinctly perceive the walls of the house. At first they seemed very dark and opaque; but soon became brighter, and then transparent: and presently I could see the walls of the adjoining dwelling. These also immediately became light and then vanished, — melting like clouds before my advancing vision. I could now see the objects, the furniture, and persons in the adjoining house as easily as those in the room where I was situated.32

Just as there are laws of perspective which govern our everyday ‘quadratic’ or three-dimensional vision, argues Zöllner, so there must be ascertainable laws of perspective which govern the ‘cubical vision’ of the clairvoyant condition, and he looks to the science of geometry to formulate these ‘laws of perspective for space intuition widened by a dimension’.33

In 1880, the year which saw the English publication of Transcendental Physics, there appeared in the Dublin University Magazine an article entitled ‘What is the Fourth Dimension?’,34 a title which suggests that the term was already sufficiently in the air for people to be asking what it meant. The author was C. Howard Hinton, who between 1880 and 1907 (An Episode of Flatland) was to be the most single-minded popularizer of the notion of a transcendental Fourth Dimension. His numerous books, pamphlets and articles on this topic were widely reviewed and several times reprinted, and his ideas were by the turn of the century to find their way to France, Russia and other countries. The first five of his Scientific Romances, published separately between 1884 and 1886, appeared in a single volume in the latter year, four more being collected into a single volume in 1898. A New Era of Thought appeared in 1888, and The Fourth Dimension in 1904. Hinton’s article on

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26 Ibid., p. 96.
27 Ibid., p. 135.
28 Ibid., p. 147.
29 Ibid., p. 147.
30 Ibid., pp. 147–48.
31 Ibid., p. 148.
32 Ibid., pp. 148–49.
33 Ibid., p. 149.
the Fourth Dimension in Harper’s Monthly Magazine for July 1904 testifies to a continuing popular interest, following on from Professor Simon Newcomb’s slightly earlier article ‘The Fairyland of Geometry’ in the January 1902 issue of the same magazine.

Hinton is a Platonic idealist who seeks to develop in himself and his readers the conscious mental ability to penetrate to the Fourth Dimension of permanent transcendental reality which will give meaning and purpose to our lives, and in which:

. . . all that has ever come into being or will come co-exists, which passing slowly on, leaves in this flickering consciousness of ours, limited to a narrow space and a single moment, a tumultuous record of changes and vicissitudes that are but to us.35

In order to achieve this vision of the infinite and eternal, we are to ‘. . . set to work deliberately to form in our minds . . . the faculty of higher-space conception’.36 This work, Hinton goes on, ‘. . . is entirely practical and detailed; it is the elaboration, beginning from the simplest objects of an experience in thought, of a higher-space world’.37 We are, that is, to penetrate to the Fourth Dimension of supernatural reality by purely rational and logical means, and not (it is presumably implied) by resorting like Zöllner to mediums like Slade.

The practical programme presented by Hinton in his writings was a series of ever more complex geometrical analogies, starting out from the properties of simple solids, and designed to produce in the reader’s mind the capacity to conceive of the realities of existence in hyperspace. This programme reached its highest degree of elaboration in The Fourth Dimension (1904). Here, after arguing that the transcendentalism of Plato, Parmenides and the Eastern philosophers was reborn in the nineteenth century in the metageometry of Bolyai and Lobachevsky, Hinton details the infinitely complicated properties of the four-dimensional cube, or ‘tesseract’. Surprisingly, enough contemporary readers were willing to embark on the course of enormously taxing mental gymnastics prescribed by Hinton for his book to be reprinted in 1906.

Far-reaching publicity for Hinton’s writings was given by the widely-read Theosophical writer C. W. Leadbeater, whose books, as Sixten Ringbom has shown, had such a decisive effect on Mondriaan and Kandinsky, and consequently on the entire course of Early Modernist abstract painting.38 Leadbeater comments extremely favourably on Hinton’s works in his Clairvoyance (1899) and devotes an entire chapter (chapter ix: ‘An Extension of Consciousness’ to summarizing them in The Other Side of Death, 1903).

Significantly, both these works by Leadbeater were published in French translation in Paris in 1910. Here, on the eve of Apollinaire’s famous and enigmatic pronouncement, are two works (De la clairvoyance and L’autre côté de la mort) from which Apollinaire could easily have learned that the existence of the Fourth Dimension had been mathematically established in the works of Hinton, who confirmed the existence of a supernatural plane believed in by Theosophists, Spiritualists and other contemporary subscribers to the occult tradition. In 1910 there also appeared in France another work which accorded apparent scientific respectability to occult notions of the Fourth Dimension: Cesare

37 Ibid., p. 97.
Lombroso’s *Hypnotisme et spiritisme*, translated from the Italian, reiterates Zöllner’s arguments and reproduces the illustrations from Zöllner’s *Scientific Treatises* in order to explain the alleged power of spiritualistic mediums to modify the conditions of matter.

It is also important to note that Leadbeater consistently equates four-dimensional vision with the ‘astral sight’ of the clairvoyant. In *The Astral Plane* (1895), for example (translated into French as *Le plan astral* in 1899), he states that sight on the astral plane ‘is a faculty very different from and much more extended than physical vision. An object is seen, as it were, from all sides at once, the inside of a solid being as plainly open to the view as the outside’.\(^{39}\) When we look at everyday reality from the astral plane, he adds, ‘even purely physical objects present a very different appearance’, so much so that ‘even the most familiar objects may at first seem unrecognizable’.\(^{40}\) However:

... a moment’s consideration will show that such vision approximates much more closely to true perception than does physical sight. Looked at on the astral plane, for example, the sides of a glass cube would all appear equal, as they really are, while on the physical plane we see the further side in perspective — that is, it appears smaller than the nearer side, which is, of course, a mere illusion. It is this characteristic of astral vision which has led to its sometimes being spoken of as sight in the fourth dimension...\(^{41}\)

In short, the possessor of astral sight or four-dimensional vision is not subject to the illusions of temporal existence, and from his standpoint in eternal and absolute reality can therefore perceive everyday material phenomena as they ‘truly’ are. The thought is familiar from William Blake: the doors of his perception being cleansed, everything appears to the possessor of four-dimensional sight ‘as it is, infinite’.

Similar equations between four-dimensional vision and ‘astral sight’ are made by Leadbeater in *Clairvoyance* (1899), where he recommends the works of Hinton and assures his readers that ‘the tesseract or fourth-dimensional cube which he describes is a reality, for it is quite a familiar figure on the astral plane’. He quotes a recent article from the Theosophical periodical *The Vahan*, whose author argues that ‘astral sight... seems to correspond to the fourth dimension’ and who states that if you looked at a wooden cube with astral sight:

... you would see all the sides at once, and all the right way up, as though the whole cube had been flattened out before you, and you would see every particle of the inside as well — not through the others, but all flattened out.\(^{42}\)

Leadbeater goes on to comment that ‘The thickness of a wall, or the number of walls intervening between the observer and the object... would make no difference whatever to the astral sight, because on the astral plane they would not intervene between the observer and the object’.\(^{43}\)

A common stock of ideas circulated through European and American popular Spiritualistic and Theosophical publications during 1850–1920, and doubtless still does. It is not surprising, therefore, that there are strong family resemblances between Leadbeater’s ‘astral sight’, Hinton’s ‘four-dimensional vision’, and Zöllner’s ‘cubical vision’. Nor is it surprising that there are close and indeed wearisome resemblances between the works of other influential writers in this tradition, such as Edwin A. Abbott

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\(^{40}\) Ibid., p. 9.

\(^{41}\) Ibid., p. 9.


\(^{43}\) Ibid., p. 38.
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(Flatland: A Romance of Many Dimensions, 1884), A. T. Schofield (Another World; or The Fourth Dimension, 1888), Cesare Lombroso, whose Hypnotisme et spiritisme has already been cited, and Claude Bragdon (A Primer of Higher Space [The Fourth Dimension], 1913), for they and the legions of popular explicators, such as the essayists of The Fourth Dimension Simply Explained, rely almost entirely on one or other of two main sources: Zöllner’s Transcendental Physics or the writings of C. Howard Hinton.

What is surprising is that popular interest in the Fourth Dimension should have been so long maintained; for, as we have seen, both Zöllner and Hinton first published their views as early as 1880. Linda Henderson writes of ‘the excitement about the geometry of four dimensions’ so widespread in 1910–11 which meant ‘that the fourth dimension would have fascinated artists and become a part of the “language of the modern studios”, as Apollinaire has stated’.44

But why was the concept so important to self-consciously ‘modern’ painters only thirty years and more after the professional scientists had put the idea into general circulation? For there is, we may infer, no reason at all why Impressionist painters such as Monet and Renoir should not have been familiar with the notion at any time during the 1890s.

By about 1910 there existed amongst the Western European and Russian avant-garde a type of millenarian orthodoxy, taking its Utopian Socialism from such prophets as Tolstoy, its dynamic tone and evolutionary vitalism from Nietzsche and Bergson, and its doctrines of an impending new age of universal religion and evolutionary ‘cosmic consciousness’ from the countless occultist publications of the previous decades.45

One need only look to Kandinsky in Germany, Malevich in Russia, Severini in Italy, Mondriaan in Holland, indeed to A. R. Orage (editor of The New Age) in London, or, as we shall see, to Apollinaire in Paris. One extremely general explanation for the long delay which occurred before the artistic possibilities of the Fourth Dimension could be recognized is that the new and exciting early twentieth-century ideological synthesis matured only in the optimistic dawn of the new century. It was not until about 1910, in other words, that it could be equated with the new ‘cosmic consciousness’ and ‘placed’ in an artistically and philosophically productive context.

One might specifically relate the increasing interest about the Fourth Dimension at the turn of the century to the first publication by Röntgen in 1896 of his X-ray photographs. Sixten Ringbom is right that these ‘created a world-wide sensation’, the news of the discovery being cabled all over the world only two days after the X-rays were exhibited at the Berlin Physical Society on 4 January 1896. Furthermore, as Otto Glasser states:

The newly discovered rays were soon associated with many mysterious hopes and fads which have continued to occupy human fancy through many centuries, such as the discovery of the magic stone, . . . spiritualism, soul photography, soothsaying, fortune telling, telepathy, etc.46

By 1901, as Ringbom points out: ‘The introduction of Besant and Leadbeater’s Thought-Forms . . . claims that Röntgen’s X-rays and the discovery of radium have revolutionized the concept of matter and are leading science into the astral world’.47 For Annie Besant,

44 Henderson, ‘Cubism’ (n. g above), p. 421.
45 The term ‘cosmic consciousness’ was put into general circulation by the Canadian evolutionary transcendentalist Dr Richard Maurice Bucke in his widely-read Cosmic Consciousness: A Study in the Evolution of the Human Mind, first published in America in 1901 and many times reprinted.
47 Ringbom, Sounding Cosmos (n. 38 above), pp. 36–37.
C. W. Leadbeater and other occultists, science itself, in the person of Röntgen, had at last provided the long-awaited proof of the immateriality of matter and the validity of occult notions of 'astral sight' or 'four-dimensional vision'. It had been a commonplace of popular nineteenth-century Spiritualism that mediums in a state of clairvoyant trance have the ability to perceive solid objects as transparent. Andrew Jackson Davis, in the passage of his autobiography earlier quoted from Zöllner's *Transcendental Physics*, claimed to have had this experience, and the condition is graphically described in Lytton's *A Strange Story*, which had been serialized in Dickens's *All the Year Round* as early as 1861. With the evidence of X-rays it could be regarded as even more scientifically respectable to believe in the demonstrable existence of a condition of 'four-dimensional vision' which rendered material objects transparent and immaterial and thereby confirmed an occult, essentially Neoplatonic view of the world. Nor were Spiritualists and Theosophists alone in this interpretation: a number of medical men of the period saw in the new rays validation of the claims of 'somnambulists' (i.e. subjects in a state of clairvoyant hypnotic trance) that they could see through material objects.48

X-rays, then, and their contribution to the anti-materialistic millenarian synthesis, appear largely responsible for the continuous excitement about the Fourth Dimension among general public and avant-garde painters alike during the early years of the twentieth century.

III

It is clear from Apollinaire's famous statement in *Les peintres cubistes* that he regards Cubism as an art of heroic transcendental idealism as opposed to a (Greek) art of merely humanistic and illusionistic realism. The new painters 'yearn for the infinite', they live 'in the anticipation of a sublime art', and they attempt to express not the material, surface appearances of things, but 'the grandeur of metaphysical forms'. Their works, though not derived from specific religious beliefs, possess some characteristics of 'great, that is to say religious art'; in other words, we may infer, they are not specifically Christian, or even Western European, but derive from and express a 'perennial philosophy' of universal religious transcendentalism. His assumptions are very much of the period, with the science, art and religion of the new century all working towards the same ends. The 'various scientific works' on which, according to Apollinaire, the new Cubist painters meditate, probably included not only the writings of professionals convinced of the truth of Spiritualism, such as Cesare Lombroso and Camille Flammarion, but, as in the case of Mondriaan and Kandinsky, the works of such self-styled 'occult scientists' as C. W. Leadbeater.

Commentators on Apollinaire have understandably been more exercised by his enigmatic remarks about the Fourth Dimension than with the overall argument of the passage in which they occur. However, this argument, placed in its proper historical context, may be explicated thus: the young Cubist painters are preoccupied with finding ways to represent, in a new form of religiously sublime art, the faculty of four-dimensional vision, which surpasses the material, illusory world of the senses and gives access to

48 As Otto Glasser states: '... a number of physicians, including Dr. Ottolenghi from Naples, thought that the retinas of somnambulists, who pretended that they could look through opaque bodies, were sensitive to roentgen rays'. Glasser, *Röntgen* (n. 46 above), p. 207.
permanent transcendental realities. In their search for methods of representing four-dimensional reality in their paintings, they (a) read books by spiritualistically inclined scientists who have written in favour of its existence; and (b) study the stylistic conventions of primitive sculpture, because this has the capacity to represent supernatural realities, rather than the stylistic conventions of Greek sculpture, which limited itself to the merely human.

Significantly, Apollinaire refers to the term ‘the Fourth Dimension’ as ‘utopian’. It is not inconceivable that he wished to imply that the Cubist painters are, or see themselves, as the vanguard of the coming Utopia of universal cosmic consciousness, in which the faculty of four-dimensional vision will characterize the nobler humanity of the future; a tenet of Theosophical belief with which Mondriaan showed his familiarity when he wrote to Van Doesburg in 1918.49 There is no doubt that Apollinaire saw Cubism and Orphism as anticipations of a new, universal, artistic sublimity. In 1911 he had written ‘It is time that young painters turned towards the sublime in their art’,50 and his millenarian concept of the ‘sublime’, a key-word in his criticism, is evident in his ‘Modern Painting’ published in Der Sturm during February 1913:

[Cubism and Orphism] . . . are movements of pure art because they attain the sublime without depending on any artistic, literary conventions. We are drunk with enthusiasm. We are soaring towards plastic lyricism. . . . This creative tendency is now spreading throughout the universe. Painting is an art not of reproduction but creation. With these movements, orphism and cubism, we are attaining the fullness of poetry in the bright light.51

Other contemporary interpreters of Cubism echo the occult, transcendental interpretation of the Fourth Dimension. Alexandre Mercereau, citing such nineteenth-century mathematicians as Riemann and Lobachevsky, writes that ‘Our artists ardently desire to achieve an integral truth as opposed to an apparent reality. In harmony with the innovations of science, today’s art seeks to discover ultimate laws more profound than those of yesterday’.52 Albert Gleizes says that ‘Cubism goes beyond externals in order to get a better hold on them. It no longer suffices to look at the model, the painter must re-conceive it. He will transport it into a Space which is at once spiritual and plastic in nature — a Space in regard to which we may perhaps allow ourselves to speak of the Fourth Dimension’.53 Maurice Raynal, making explicit what is implied by Apollinaire about Egyptian, Negro and Oceanic sculpture, argues:

The Primitives . . . obeyed a very exalted need, that of the mysticism which illuminated their thinking. . . . Instead of painting the objects as they saw them, they painted them as they thought them, and it is precisely this law that the cubists have readopted, amplified and codified under the name of ‘The Fourth Dimension’. The cubists, not having the mysticism of the Primitives as a motive for painting, took from their own age a kind of mysticism of logic, of science and reason, and this they have obeyed like the restless spirits and seekers after truth that they are.54

To what extent, however, were such contemporary critics and painters acquainted with genuinely scientific discussions of the Fourth Dimension? Gleizes and Metzinger, in a well-known passage from their Cubism (1912) state: ‘If we wished to relate the space of the

51 Ibid., p. 270.
52 Fry, Cubism (n. 1 above), p. 134.
54 Fry, Cubism (n. 1 above), pp. 129–30.
[Cubist] painters to geometry, we should have to refer it to the non-Euclidean mathematicians; we should have to study, at some length, certain of Riemann’s theorems. Raynal speaks of a contemporary ‘kind of mysticism of logic, of science and reason’ and Mercereau mentions ‘the principles postulated by Bolyai, Lobatschewski, Riemann, Beltrami and de Tilly’.

Henderson argues cogently for the direct influence upon Gleizes and Metzinger of Poincaré’s discussions of non-Euclidean geometry and of the Fourth Dimension (in *La science et l’hypothèse*, 1902). She also notes Marcel Duchamp’s brief references in *À l’infini* (*The White Box*) to both Poincaré and Jouffret, author of the *Traité élémentaire de géométrie à quatre dimensions* published in 1903.

Duchamp’s references to the Fourth Dimension on nearly every page are quite incomprehensibly cryptic working notes for *The Large Glass*; but there is every reason to believe that he had read Jouffret, whom he quotes, and that he, as well as Gleizes and Metzinger, had read Poincaré. I am inclined to believe Duchamp, however, when he stated in 1946 that amongst the Parisian avant-garde before 1915 ‘There were discussions . . . of the fourth dimension and of non-Euclidean geometry. But most views of it were amateurish’ (‘Metzinger’, he adds, ‘was particularly attracted’). There is little or no evidence that other contemporary painters and critics had any first-hand knowledge of genuine scientific speculation. Raynal makes no mention of geometry, non-Euclidean or otherwise, whilst Apollinaire offers only the generalization that contemporary *scientists* ‘no longer limit themselves to the three dimensions of Euclid’. Mercereau alone invokes the names of non-Euclidean geometers, but his impressive roll-call has all the fluency of a list taken from an encyclopedia. All that these statements have in common is an extremely vague suggestion that in some unexplained way contemporary science has validated the concept of a four-dimensional space which is more profound (Mercereau) or mystical (Raynal) or infinite (Apollinaire) than the previously accepted traditional three-dimensional space. As we have seen, such claims were a commonplace of contemporary semi-educated thought.

The extent of genuine scientific knowledge about the Fourth Dimension amongst the early Cubist painters and their apologists will presumably remain disputable. It seems clear, however, that such knowledge was regarded as the means to an end: the depiction of supernatural, as opposed to superficial or ‘materialistic’, reality. As the Futurist painter Gino Severini put it in 1952: ‘At the time of Cubism and Futurism we believed that non-Euclidean geometry was the most convenient way for attaining the reality which was supernatural or super-real by using the concepts of hyper-space and of the fourth dimension’.

Of all the comments of painters and critics, those by Gleizes are most suggestive for the actual practice of Cubist painting. ‘Cubism’, he says, ‘goes beyond externals in order to get a better hold on them’. The painter, in order to re-conceive the model, the material three-dimensional object in front of him, ‘. . . will transport it into a Space at once spiritual and plastic in nature — a Space in regard to which we may perhaps allow ourselves to speak of the Fourth Dimension’ (italics mine). In order to perceive it and represent it as it truly and eternally is, we may infer, he transports it to the Fourth Dimension of spiritual space, or astral plane.

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55 Ibid., p. 106.
58 Waddington, *Behind Appearance* (n. 8 above), p. 16.
CUBISM AND ‘THE FOURTH DIMENSION’

This supposes the painter to have achieved a state of clairvoyant trance. He will then expect, on the authority of the nineteenth-century Spiritualist tradition as confirmed by scientists like Zöllner, to see the model from all sides at once, as if transparent. For the reported phenomena of Fourth-Dimensional sight, or astral vision, correspond exactly to the simultaneous multiple perspectives and the rendering of physical objects as transparent planes which the Cubist painters themselves employed in order to depict the ‘grandeur of metaphysical forms’ underlying everyday materialistic appearances.

IV

The distinguishing characteristics of Cubist paintings as described by John Golding are generally agreed to be ‘... the fusion of objects with their surroundings, the combination of several views of an object in a single image ...’, 59 a ‘system of transparent, interpenetrating shapes or planes ...’, 60 and the ‘dismissal of a system of perspective which had conditioned Western painting since the Renaissance’. 61

These characteristics correspond closely to those of four-dimensional, cubical or astral vision enumerated by such writers as Zöllner and Leadbeater. In fact it is difficult to resist the conclusion that the new pictorial language of the Cubist painters constitutes a deliberate attempt to represent, point for point, the detailed phenomena of this transcendental mode of perception.

The Cubists’ ‘combination of several views of an object in a single image’ described by Golding may be seen as an attempt to represent Leadbeater’s ‘object ... seen ... from all sides at once’. Similarly, the ‘system of transparent, interpenetrating ... planes’ described by Golding may be related to the occult commonplace, ‘scientifically’ verified by Zöllner, that clairvoyant vision renders solid objects transparent; the thickness of a wall, according to Leadbeater, ‘would make no difference whatever to the astral sight’. The Cubists’ ‘fusion of objects with their surroundings’ described by Golding, while not specifically mentioned by Zöllner or Leadbeater, may be seen as a method of depicting the most fundamental belief of the occult-idealist tradition: that the separateness of individual existences, whether of objects or of living creatures, is merely apparent, and that all are, in transcendental reality, part of one interpenetrating and indivisible unity. Likewise, the frequently-remarked ‘visual puns’ of early Cubist painting may be seen as a pictorial equivalent for the occult ‘correspondences’ or ‘Universal Analogies’, which are both traditional figurative devices for indicating this same cosmic unity.

According to Leadbeater the system of three-dimensional perspective which in Golding’s words ‘had conditioned Western painting since the Renaissance’, is ‘a mere illusion’. In the ‘true perception’ of astral vision, ‘the sides of a glass cube would all appear equal, as they really are’. For Leadbeater, in short, the material world, with its apparent solidity and three-dimensional perspective, is the world of ‘maya’ or illusion; in the words of Plotinus, ‘Matter’s every pronouncement is ... a lie’. 62 And this, too, is surely the basis of Cubist painting, whose pictorial conventions are designed to de-materialize everyday reality, and whose characteristic subject-matter is deliberately chosen to emphasize that there is much more, even to a few commonplace objects upon a humble table-top, than meets the physical, three-dimensional eye. In Cubist still-lives, as in Kandinsky’s

60 Ibid., p. 86.
61 Ibid., p. 58.
paintings of 1911, 'The transparency of the figures represents . . . the spiritualization of the content of the work and the dissolution of material forms'.

Given this interpretation it is not difficult to see why the Cubists should have chosen to begin what is always seen as a new era in the history of art and, by inference, in the history of human evolution towards cosmic or four-dimensional consciousness, by dismissing three-dimensional Renaissance perspective. For Apollinaire, as Henderson notes, the Fourth Dimension is the means of overcoming traditional perspective: 'that miserable tricky perspective', 'that fourth dimension in reverse', 'that infallible device for making all things shrink'. To which we may add that for Apollinaire, and presumably for the Cubist painters themselves, traditional three-dimensional perspective is literally 'tricky' (or 'deceptive' or 'illusory') in exactly the same philosophical sense as it is for Leadbeater (and Plotinus), and that it is 'miserable' and infallibly makes 'all things shrink' not merely by representing objects as growing smaller as they recede into the distance, but by trivializing reality and consequentially negating a sublime, heroic, transcendental view of the world.

When Apollinaire, in an article of 1912 entitled 'Reality, Pure Painting', refers approvingly to 'the enthusiasm of a whole generation [of young artists] for a sublime aesthetic that rejects the traditional rules of perspective and other conventions', his apparently casual sentence in fact summarizes what appears to be his most basic contention: that the new, four-dimensional, twentieth-century world-view cannot be achieved without the dismissal of traditional rules of perspective and the materialist philosophy which these rules imply.

The implied equation of traditional three-dimensional perspective with a materialism, and perhaps a humanism, which have dominated European art and thought until the dawn of the twentieth century, underlies and explains Apollinaire's claim, in Les peintres cubistes, that 'the three dimensions of Euclid' are no longer adequate to the needs of great contemporary artists who are 'yearning for the infinite'. For this only four-dimensional vision will suffice.

Juan Gris's Still-Life Before an Open Window: Place Ravignan (Pl. 14a) might almost have been deliberately designed to epitomize the pictorial conventions of 'four-dimensional' Cubist painting, and, more importantly, the spiritualized view of reality which they express. Towards the end of his short life Gris (1887–1927) is said to have shown 'a great leaning towards astrology and the occult'. It is difficult to believe that these were late developments, for every aspect of the still-life of 1915 insists that we should re-interpret reality in accordance with the occult tradition of astral vision.

There is nothing conventionally sublime about the subject-matter; it could hardly be more commonplace. Moving up from the bottom of the picture we see upon a table a book, a partitioned box, a goblet, a crumpled cloth and a newspaper; behind them a bottle of Médoc, a fruit-bowl containing an orange (?), and a carafe. Beyond these lie a wrought-iron balcony, and to the left of the painting what appears to be the skylight or window of a neighbouring house with a patterned curtain drawn across. Outside the window of the room itself is a street, with two leafy trees and, on the extreme right, a lamp-post and

63 Ringbom, Sounding Cosmos (n. 38 above), p. 104.
64 Chipp, Modern Art (n. 4 above), p. 243.
65 Apollinaire on Art (n. 50 above), p. 262.
railings. The broad panel of lighter colour reaching from the window-ledge almost to the front edge of the table represents the light coming from the window, while the mottled triangles above the book represent rays of light filtering past the wine-bottle and fruit-bowl from the window, from the fruit, or from both.

Gris dissolves everyday material reality and draws attention to the illusory nature of conventional three-dimensional perspective by presenting many objects from several points of view. The boundaries of the table appear at first to run from a position just in front of the middle of the further edge of the spine of the book, to a point behind the bottle of Médoc, downward to a position behind the top of the goblet, thence forward again to the bottom edge of the painting. However, another perspective leads the table out leftward towards the neighbouring ‘skylight’, whilst yet another leads off from the bottom edge of the picture at a sharp angle rightward. The visible leg of the table is also shown in two distinct perspectives. The title of the newspaper is shown partly in reverse perspective, with the printed letters growing larger when according to conventional rules they should recede; the circular base of the fruit-bowl is shown both from a three-quarters overhead view and in side-elevation; the cylindrical bottle of Médoc is on its left-hand side in traditional perspective, but towards the centre of the painting unfurls like a flat, two-dimensional scroll.

In the world of this painting normally solid objects are transparent, as they are to the possessor of four-dimensional vision: the table and the newspaper are visible through the book and the box; on the left-hand side the wrought-iron balcony and the frame of the ‘skylight’ can be seen through the table, just as on the right-hand side the balcony can be seen through the table and the low interior wall topped by the window-ledge. Not only the outside balcony but the leaves of the trees and the lamp-post and street-railings are brought into the room and are present on the same near plane as the bottle of Médoc.

The lamp-post, leaves and railings in the top right corner and the leaves and the closed shutters of the house across the street in the top left corner, are seen in ‘clairvoyant’ fashion through the walls of the house. Furthermore, consistently with Gris’s reversals of traditional perspective, these and other portions of the painting such as the top half of the carafe and the unfurling bottle of Médoc are depicted exactly as seen in a photographic reversal: they are negative, or, more accurately, X-ray images, the ‘conventions’ of which Gris has reproduced with a fidelity that betokens diligent study. Gris, we may infer, was one of those who believed that ‘Roentgen’s rays’ verified four-dimensional or astral vision. And we may further infer, from Gris’s insistent rendering of solid objects as transparent, a certain irony in the title of the painting: everyday windows are irrelevant to the occult initiate, for whom material reality is merely a window to the absolute.

Gris’s pictorial language here implies that the sublime is perceptible to the enlightened vision in a perfectly ordinary situation. Might the ambiguous depiction of the ‘fruit’ in the bowl, placed exactly on the intersection of the diagonals of the rectangular composition, allow a Neoplatonic interpretation as the centre of divine energy of which all material objects (such as bottles and newspapers) are embodied emanations?

The mysticism of Gris’s *Still-Life Before an Open Window* seems, by comparison with that of Picasso’s vital and insouciant *Still-Life in a Landscape* (Pl. 14b), almost quietism; it is

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67 I am greatly indebted to the West Australian artist Miriam Stannage for this *aperçu*, which led directly to my inquiries into the early reception of ‘Roentgen’s rays’ by contemporary Spiritualists and Theosophists, and thus made an important contribution to the arguments presented in this article.
the difference between a Rothko and a Pollock in a later decade of transcendentalist painting; or, perhaps more accurately, since a similar ‘metaphysical wit’ informs both still-lives under discussion, the difference between a George Herbert and a John Donne in seventeenth-century poetry.

Picasso’s painting is also much more difficult to elucidate. One detects a guitar, a sheet of music and a goblet upon a table, and, in the background, a flowery field. Yet the sounding-board of the guitar is perhaps doubled with a large round of bread, a ghostly armchair of the same pattern as the flowery field is perhaps interfused with the table, while the fingerboard of the guitar (seen as a vertical triangle) is terminated by what is perhaps the bridge of the guitar seen in front elevation and apparently transmuted into a small cloud.

Like Gris, Picasso introduces reverse perspectives (as in the staves of the musical score) and multiple perspectives (as in the goblet upon the table) in order to overthrow traditional Renaissance rules. He also interfuses objects, not by rendering them transparent in the manner of Gris, but literally by punching holes in them: thus one can see the field/armchair through the sound-hole of the guitar, the sky through the clouds, and the field through the top of the goblet. So complete is the painting’s interfusion of its subject-matter that it might equally be entitled Landscape in a Still-Life. The lower left-hand side of the goblet, incidentally, appears to be a negative or ‘X-ray’ image of a conventional depiction.

Compared to the lucidity of Gris’s still-life, Picasso’s seems ‘hermetic’ in its obscurity — as it might also be considered for the occult ‘correspondences’ which it postulates between land and sky, between earth and heaven. With a playful pantheism it too elevates everyday subject-matter into a four-dimensional vision of the transcendental unity of created things.

In thus interpreting Cubism and arguing for the centrality of the notion of the Fourth Dimension, my account of the movement re-inforces that advanced by Christopher Gray in his Cubist Aesthetic Theories (1953). Gray points out the indebtedness of Cubism to late nineteenth-century Symbolist transcendental idealism and its Hegelian belief that it was the visionary ‘artist-philosopher alone’ who could penetrate to the Absolute and ‘approach the ultimate truth’, and who, ‘by the power of his genius, was the prophet through whom the absolute and its manifestations were revealed to the common man’.68

Gray also draws attention to the striking resemblances between the ‘mathematical mysticism’ of the Cubists and that of P. D. Ouspensky in his Tertium Organum,69 a pretentious millenarian compendium of occultist clichés of the previous thirty years, published in Russia in 1911. It may be added that Ouspensky, whose works strongly influenced the Russian Suprematist painter Malevich,70 had written an earlier book entitled The Fourth Dimension (1909) and that in Tertium Organum he frequently refers not only to Hinton but Leadbeater and other Theosophical commentators on the Fourth Dimension. Susan Compton has convincingly shown how Hinton’s diagrams and

68 Christopher Gray, Cubist Aesthetic Theories, Baltimore 1953, p. 11.
69 Ibid., p. 85 n.
Ouspensky’s occult philosophy influenced the pictorial language of the leading Suprematist, who in 1915 ‘exhibited five paintings with titles which included the phrase “fourth dimension”’.\(^71\)

In one major respect my interpretation differs from those of Gray, Henderson and other scholars: that is in the ‘respectability’ of the sources from which the Cubists probably drew their ideas and inspiration. It seems unlikely that young \textit{avant-garde} painters in the Bateau Lavoir were consistently immersed in either Hegel’s \textit{Philosophy of Fine Art} or Poincaré’s \textit{La science et l’hypothèse}. Rather were they influenced by the fashionable occultism which ranged from high-minded Theosophical speculation to black magic, and in which Apollinaire himself was certainly involved.\(^72\) It is particularly interesting to learn that ‘Apollinaire as well as Picasso and Max Jacob had frequented [the “Sar” Péladan] in their Montmartre days’ and that Péladan ‘had been momentarily interested in Cubism’\(^73\), for there is surely much that the founder of the Symbolist salon of Rosicrucian painters and author of \textit{L’art idéaliste et mystique} would have found congenial in the aspirations of the young Cubist painters. Max Jacob, Picasso’s intimate friend of that time, was, as is well known, an earnest student of Cabbalism and occultism.

Sixten Ringbom’s investigations into the influence of contemporary Theosophical writings on Mondriaan and Kandinsky I take to be central to the extended argument on the transcendentalist infrastructure of Modernist abstraction recently developed by Robert Rosenblum.\(^74\) If my suggestions about Cubism and the Fourth Dimension are correct, then it appears possible to regard Cubism not as something apart from the general Early Modernist movement towards ‘transcendental abstraction’, to use Rosenblum’s term, but as very much part of it. It may be seen as one more pictorial language for the expression of that millenarian transcendentalism which bases itself not, as is sometimes argued, on a defiant rejection of late nineteenth-century Symbolism, but on a Symbolism purged and purified of the decadent and trivializing accretions of the nineties.

It has often been remarked that ‘pure’ Cubism, despite its far-reaching influences and the subsequent long careers of Braque and Picasso, was a phenomenon which did not survive the Great War of 1914–18. If my thesis is right, we should not expect it otherwise. For the early years of the twentieth century culminated, not in the impending heaven of universal four-dimensional consciousness presaged by the painters of millenarian Cubist still-lives, but in the terrible realities of the Battle of Verdun depicted in such paintings as George Leroux’s \textit{Hell}. Apollinaire and the Cubists of his generation were, as Wyndham Lewis said about the ‘men of 1914’ generally, the first men of a future that never arrived, and it would be forty years before a transcendental ethos similar to theirs found expression in far different forms in the works of Rothko, Pollock and their contemporaries.

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\(^72\) As Cecily Mackworth remarks in her biography of Apollinaire: ‘Occultism was fashionable in intellectual circles . . . Fortune-tellers, sorcerers, practitioners [sic] of the black arts, thrived in Paris at the time, and some of them, like the Sar Péladan and Stanislaus de Guitt, had one foot in the world of literature and the other in that of occultism. Apollinaire’s circle, with its strong taste for everything bizarre, was in touch with many of these sorcerers and Apollinaire has named some of them in the poem entitled \textit{Sur les prophéties}.’ Mackworth, \textit{Apollinaire} (n. 53 above), p. 125.

\(^73\) Ibid., p. 126.
