



PHD

**Garden as Laboratory in the Work of John Evelyn
Baconian Intentions and the Hermetic Legacy**

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Garden as Laboratory in the Work of John Evelyn: Baconian Intentions and the Hermetic Legacy.

Juliet Anne Odgers

A thesis submitted for the degree of Doctor of Philosophy

University of Bath
Department of Architecture and Civil Engineering

February 2017

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This thesis is dedicated to my father, Sir Graeme Odgers.

Abstract

Towards the end of the 1650s, John Evelyn (1620-1706) composed a book on gardening, the 'Elysium Britannicum: or the Royal Gardens', transcribing a draft into fair copy between 1660 and 1663. The book was never finished, but a good part of the manuscript survives. He composed the work in three books: the first sets out a philosophical frame for the conduct of gardening; the second describes the design of a Royal Garden; the third book is now lost. In the first book, Evelyn presents a vision of Nature that owes something to newly emerging mechanistic ideas, derived from the contemporary revival of classical atomism, but which owes much more to Renaissance Neoplatonic Hermetic ideas which cast Nature as a vital Universal Spirit. As it appears in the Elysium, Evelyn's syncretic Hermetico-Mechanical speculative physics is underpinned by an ardent experimentalism which emerges time and again in his descriptions of the Royal Garden, and this is in turn informed by his study of the works of Francis Bacon (1561 – 1626). Bringing the Hermetic and Baconian components of Evelyn's thought to bear on the study of his gardens, this thesis offers interpretations of four garden designs. Two are the theoretical propositions from the 'Elysium': the grand universal Royal Garden as a whole, and smaller the smaller Philosophico-Medicall garden within it. Two are realised designs: the gardens at Wotton in Surrey, and Evelyn's own garden at his home in Sayes Court, Deptford. Evelyn's imagined Royal Elysium emerges as a contemplative microcosm, an image of the well governed Kingdom, which reflects the mystical harmony of God's creation; and as a domain which promotes, represents and accommodates the powerful practices of an operative natural philosophy, instituted in accordance with Bacon's design. The gardens and landscape at Wotton and Sayes Court reflect similar ideas on a more modest scale.

Abbreviations

This study uses the long form footnote referencing system of the MHRA.

The most frequently used sources are cited as follows:

<i>Elysium</i>	John Evelyn, <i>Elysium Britannicum, or the Royal Gardens, Penn Studies in Landscape Architecture</i> , ed. by John E. Ingram (Philadelphia: University of Pennsylvania Press, 2001).
<i>Diary</i>	<i>The Diary of John Evelyn. Now First Printed in Full from the Manuscripts ...</i> ed. by E. S. De Beer, 6 vols (Oxford: Clarendon Press, 1955).

When citing the *Elysium* in footnotes, page references will be to John Ingram's modern transcription, rather than the folio numbers of the original manuscript, the 'Elysium Britannicum', London, British Library, Evelyn Papers, Add 78342.

Illustrations captions refer to folio number of the original manuscript of the 'Elysium Britannicum', in London, British Library, Evelyn Papers, Add 78342.

Transcription conventions

When transcribing manuscript material I follow the conventions used by John Ingram in his transcription of the 'Elysium', with the exception that I allow the ends of lines to fall where they may, rather than ending of lines of transcription where the end of a manuscript line lies, as is Ingram's practice.¹

Evelyn's own additions and substitutions are indicated by wavy brackets { }.

Interpolations of the text, either by Ingram, or myself are indicated by square brackets [].

Parentheses () reflect Evelyn's own use.

Evelyn's idiosyncratic and inconsistent spellings have been retained throughout, though I have silently expanded abbreviations for words such as *with*, *which*, *the*, *that*, and *them*.

¹ *Elysium*, pp. 11-12.

Glossary: A Note on the Terms ‘Alchemy’, ‘Chemistry’ and ‘Chymistry’.

During the seventeenth century the terms ‘alchemy’ and ‘chymistry’ (and to a lesser extent the variant spelling ‘chemistry’) were used interchangeably to indicate the entire range of chymical practices, including the production of the grand arcana, the Philosopher’s Stone and its medical equivalent, the Red Elixir. The use of the prefix ‘al’ was typically an indicator of the Arabic derivation of the word and ‘alchemy’ and ‘chymistry’ were essentially synonyms.² In this study, as a convenience, ‘alchemy’ will be used to refer exclusively to the practices and theories of attaining the Philosopher’s Stone and the related medical wonder, the Red Elixir, except in cases where the word occurs within a quotation taken from another author. This usage is anachronistic, but obviates the need for lengthy qualifying phrases. ‘Chymistry’ will be used to refer to the broader field of practice and theory, including the ‘alchemical’ subcategory. Seventeenth-century ‘chymistry’ was not the same as modern ‘chemistry’ in scope, method, or intent. Consequently I have followed the by now widespread practice of using the antique spelling ‘chymistry’ as a subtle reminder of these differences.

² W.R. Newman and L. Principe, ‘Alchemy vs. Chemistry: The Etymological Origins of a Historical Mistake,’ *Early Science and Medicine* 3 (1998), 32-65.

Introduction

This thesis concerns the interpretation of four gardens, designed or envisaged by John Evelyn (1620 – 1706) during the period c.1650 to c.1663, seen through the lens of the evolving natural philosophical ideas that he held during this period. Evelyn was neither a professional garden designer, nor an eminent natural philosopher, but nonetheless both pursuits were central to his life. Nowhere is the connection between the two domains more vividly represented than in the *Elysium Britannicum: or, The Royal Gardens*, Evelyn’s great unfinished compendium of gardening theory and practice, a much amended and augmented document that bears witness to the liveliness of Evelyn’s engagement with the rapidly developing field of gardening and natural philosophy over the period. A substantial part of the manuscript of this work survives amongst the Evelyn Papers at the British Library. It has recently been made available in modern transcription and provides the primary reference point for many of my arguments.¹ Here Evelyn makes the unambiguous statement to his putative noble readership that he regards a grounding in natural philosophy as an essential accompaniment to gardening; and here he outlines his syncretic chymico-mechanical vision of Nature, whilst detailing various aspects of the design, layout, ornamentation and cultivation of his imagined British Royal Garden, the Elysium.²

Over the course of his life Evelyn gave informal advice to many friends on the design of their estates. In most cases there is little firm evidence of the direction that this took, but the four gardens that appear in this study are all well documented.³

¹ London, British Library, Evelyn Papers, Add 78342, transcribed as John Evelyn, *Elysium Britannicum, or the Royal Gardens*, ed. by John E. Ingram (Philadelphia: University of Pennsylvania Press, 2001), page numbers refer to Ingram.

² *Elysium*, p. 34, p. 42.

³ There is no systematic source on Evelyn’s informal involvement in garden design, but see Sally Jeffery, ‘The Way of Italian Gardens’, in *A Celebration of John Evelyn: proceedings to mark the tercentenary of his death*, ed. by Mavis Batey (Sutton, Surrey: Surrey Gardens trust, 2007) pp. 23-52, (pp. 44); his principal known involvements include advice on the design of Albury Park, c. 1666, see Michael Charlesworth, ‘A Plan by John Evelyn for Henry Howard’s Garden at Albury Park, Surrey’, in *John Evelyn’s ‘Elysium Britannicum’ and European Gardening*, ed. by Therese O’Malley and Joachim Wolschke-Bulmahn (Washington, D.C.: Dumbarton Oaks, 1998), pp. 289-293; Carola and Alastair Small, ‘John Evelyn and the Gardens of Epicurius’, *Journal of the Warburg and Courtauld Institutes* 60 (1997), 194-214; Douglas Chambers, “‘The Tomb in the Landscape: John Evelyn’s Garden at Albury’”, *Journal of Garden History* 1 (1981), 37-54; Moreton Hall, 1680s, see Gillian Darley, *John Evelyn: Living for Ingenuity* (New Haven, Conn.; London: Yale University Press, 2006),

Two of the gardens are speculative idealisations described by Evelyn in the *Elysium Britannicum*. The first is the grand, ‘universal’ Elysium as a whole, the outline of which emerges from the pages of Evelyn’s text through fragmentary descriptions, precepts and drawings; the second is the ‘Philosophico-Medicall’ garden, a discrete enclosure within this larger domain, for which Evelyn provides an illustrated layout (FIG. 2.1).⁴ The other two gardens treated in this study were both realised. The first is the garden that Evelyn helped to create, in collaboration with members of his family, at his brother’s home at Wotton, in Surrey, in the years preceding 1653.⁵ This survives in a much altered state, but a series of topographical perspective sketches by Evelyn, now held in the British Library, record the estate both before and after the works to which he contributed (FIGS. 6.1 A to 6.3 B).⁶ The British Library also holds the famous annotated plan of the final garden in this study, the garden which Evelyn created at his own home at Sayes Court in Deptford, from 1653 onwards (FIG. 7.1).⁷ Sayes Court garden was much celebrated in Evelyn’s lifetime, even receiving a visit from Charles II, but is now entirely destroyed and is known to us primarily from Evelyn’s plan.⁸ The question addressed by this thesis is: bringing a knowledge of Evelyn’s natural philosophy to the consideration of these four gardens, what new meanings can we find inscribed in their spaces? The idea that Evelyn’s gardens are informed by his engagement with natural philosophy is not new (they have been described as ‘experimental’ by several scholars), but no one has sought to interpret these spaces against the specific natural philosophical ideas that Evelyn expresses in

p. 187; Sally Jeffery, “‘The Flower of All the Private Gentlemens Palaces in England’: Sir Stephen Fox’s “‘Extraordinarily Fine” Garden at Chiswick’, *Garden History* 32 (2005), 1-19; Kings Weston (<http://www.kwag.org.uk/wp-content/uploads/2014/02/Southwell-Evelyn-letters.pdf>), [accessed 20 July 2015]; Groombridge Place, c. 1674, <http://www.groombridgeplace.com/the-gardens-of-groombridge-place> [accessed 20 July 2015].

⁴ *Elysium*, p. 94; pp. 403-410.

⁵ Small and Small, pp. 198-202; Frances Harris, “‘My Most Cherished Place on Earth’: John Evelyn and Wotton”, in *A Celebration of John Evelyn: Proceedings of a Conference to Mark the Tercentenary of His Death*, ed. Mavis Batey (Wotton, Surrey: Surrey Gardens Trust, 2006), pp. 53-73; Juliet Odgers, ‘Water in Use and Philosophy at Wotton House: John Evelyn and the History of the Trades’, *arq: Architectural Research Quarterly* 15 (2011), 237-247.

⁶ London, British Library, Evelyn Papers, Add. 78610 A –I; see Odgers (2011).

⁷ London, British Library, Evelyn Papers, Add 78628 A; On Sayes Court, Mark Laird, ‘Parterre, Grove, and Flower Garden: European Horticulture and Planting Design in Design in *John Evelyn’s “Elysium Britannicum” and European Gardening*, ed. by Therese O’Malley and Joachim Wolschke-Bulmahn (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), pp. 171-221; Mark Laird, ‘Sayes Court Revisited’, in *John Evelyn and His Milieu*, ed. by Michael Hunter and Frances Harris (London: British Library, 2003), pp.115-144; Edward Watson, ‘John Evelyn’s House at Sayes Court’, *Bygone Kent* X (1989), 290-296; Prudence Leith-Ross, ‘The Garden of John Evelyn at Deptford’, *Garden History* 25 (1997), 138-152.

⁸ Darley, p. 204.

the *Elysium*.⁹ ‘Natural philosophy’ is taken to encompass both Evelyn’s theories of Nature and his understanding of the proper religious frame, aims and institutional design of that discipline. His understanding of Nature proves to be strongly informed by the traditions of Renaissance Hermetic Neoplatonism.¹⁰ His understanding of the purposes of natural philosophy and the institutional forms required to support its pursuit, is an area strongly influenced by the reformist agenda of Francis Bacon (1561 – 1626).

Evelyn was a deeply religious man, a Royalist and a passionate member of the Church of England, which was, of course, subject to sweeping reform and ‘purges’ during the Commonwealth period.¹¹ Evelyn responded to the marginalisation and suppression of his preferred forms of moderate High Church worship by organising clandestine Prayer Book services at Sayes Court, including baptisms and the celebration of the Eucharist, a ceremony that he cast as close to ‘heaven upon Earth’.¹² Though he was orthodox, Evelyn’s beliefs were not merely conventional. In the words of one principal commentator, John Spurr, he was: ‘never in the pocket of a clerical clique, but enjoyed a wide and generous appreciation of the heritage of the English church’.¹³ He was independent and scrupulous in forming his own opinions, taking theology as an important lifelong study, actively reflecting

⁹ Roy C. Strong, *The Renaissance Garden in England* (London: Thames and Hudson, 1979), pp. 221-222; John Dixon Hunt, ‘Evelyn's Idea of a Garden: A Theory for All Seasons’, in *John Evelyn's "Elysium Britannicum" And European Gardening*, ed. by Therese O'Malley (Washington D.C.: Dumbarton Oaks, 1998), pp. 269-287, (p. 271); John Dixon Hunt, *Greater Perfections: The Practice of Garden Theory* (London: Thames & Hudson, 2000), p. 190; Small and Small, pp. 210-211.

¹⁰ For this tradition see: Frances Amelia Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge, 1964); Frances Yates, ‘The Hermetic Tradition in Renaissance Science’ in *Ideas and Ideals in the Northern European Renaissance*, vol III (London: Routledge & Kegan Paul, 1984), pp. 227-246; D.P. Walker, *Spiritual and Demonic Magic from Ficino to Campanella, Magic in History* (Pennsylvania: Pennsylvania State University Press, 1958).

¹¹ On Evelyn’s religious life see: Frances Harris, *Transformations of Love: The Friendship of John Evelyn and Margaret Godolphin* (Oxford: Oxford University Press, 2003); John Spurr, ‘“A Sublime and Noble Service”: Evelyn and the Church of England’, in *John Evelyn and His Milieu*, ed. by Frances Harris and Michael Hunter (London, 2003), pp. 145-164; Florence Higham, *John Evelyn Esquire: An Anglican Layman of the Seventeenth Century* ([S.l.]: SCM Press, 1968), pp. 76-93; On context see H. R. Trevor-Roper, *Catholics, Anglicans and Puritans: Seventeenth-Century Essays* (London: Secker & Warburg, 1987); John Spurr, *The Restoration Church of England, 1646-1689* (Yale University Press, 1991).

¹² Spurr (2003), p. 146; Hugo Grotius, *De Veritate Religionis Christianae* (edition unknown) features prominently in Evelyn’s reading from the 1650s, Michael Hunter, ‘John Evelyn in the 1650s’, in *John Evelyn's Elysium Britannicum and European Gardening*, ed. Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 79-106, (p. 86).

¹³ Spurr (2003), p. 160.

on sermons, and maintaining an intense prayer practice.¹⁴ During the 1650s Evelyn relied on Jeremy Taylor (1613 – 1667), later to become the Bishop of Down and Connor, as his spiritual advisor.¹⁵ Their correspondence sometimes ranged beyond the boundaries of spiritual practice into issues of gardening and natural philosophy. Thus Taylor consulted with Evelyn on the title of the *Elysium*, and supplied material for the text concerning the sacred history of mountains. He also cautioned Evelyn against the potentially irreligious attitudes of the Epicurean atomists, whose ideas Evelyn began cautiously to embrace and promote during the 1650s through his translation of Lucretius's *De Rerum Natura*, published in part in 1656.¹⁶ For a pious seventeenth-century Christian issues of theology could come close to issues of natural philosophy and for one who, like Evelyn, believed that the central aim of mortal life was to save the immortal soul, obtaining the advice of 'divines' on the religious implications of various philosophical precepts or experimental practices could be an appropriate and useful support when approaching the boundary between the two disciplines.¹⁷ Consequently, though the religious framing of Evelyn's endeavours is not the primary focus of this thesis, religious issues nonetheless surfaces repeatedly during the following discussions.

The Formative Period

The period of this study encompasses three distinct phases of Evelyn's life - the last few years of the nine year period he spent living abroad, first in Italy and then in France, returning to England for only relatively brief periods; the period of enforced retirement that followed Evelyn's return to England in February 1652, to set up his

¹⁴ For an extended study of Evelyn's spiritual life see Harris, *Transformations* (2003); also Spurr (2003), pp. 149-150; the principal register of Evelyn's theological studies is his manuscript, 'The History of Religion', 1657-1704, London, British Library, Evelyn Papers, Add 78367, posthumously published as John Evelyn, *The History of Religion: A Rational Account of the True Religion*, ed. by Reverend R. M. Evanson, 2 vols (London: Henry Colburn, Publisher, 1850).

¹⁵ John Spurr, 'Taylor, Jeremy (*bap.* 1613, *d.* 1667)', *Oxford Dictionary of National Biography* (Oxford University Press, 2004); online edn, Oct 2006: <http://www.oxforddnb.com/view/article/27041> [accessed 11 May 2016].

¹⁶ On Taylor and Evelyn see Harris, *Transformations* (2003), pp. 75-77, pp. 155-157; Darley, pp. 138-141, pp. 142-145; Titus Lucretius Carus, and John Evelyn, *An Essay on the First Book of Lucretius, De Rerum Natura: Interpreted and Made English Verse by J. Evelyn, Esq. (Animadversions Upon the First Book, Etc.)* (London: G. Bedle and T. Collins, 1656); Taylor's contributions on sacred mountains see *Elysium*, p. 202.

¹⁷ See Appendix 1.

marital home at Sayes Court; and finally, the first few years of the Restoration.¹⁸ As a Royalist Evelyn was debarred from public service during the Interregnum. Consequently, on his return to England in the early 1650s, he had ample leisure to study, write, plant his garden, and carry out chymical experiments in the purpose-built garden ‘elaboratory’ that he constructed overlooking the flower garden at Sayes Court.¹⁹ It was during this period that he initiated the *Elysium Britannicum* project. He made good progress at first, but the Restoration brought with it new duties and opportunities, which effectively brought the project, if not to an end, at least into a protracted decline. On the foundation of the Royal Society in 1660, Evelyn became an active and committed member of that institution, devoting a substantial amount of time to its activities. Public appointments followed: from 1662 Evelyn served as Commissioner for ‘Buildings, wayes, streets and incumbrances’ and, in 1664, he accepted the post of Commissioner for Sick and Wounded Mariners and Prisoners of War, in the Dutch Wars, an appointment which brought with it substantial and onerous duties.²⁰ He also had other writing projects - there was little time left for the *Elysium*, though Evelyn continued to work on the project for the rest of his life, cancelling, altering, and supplementing the text in layer upon layer of amendments. The text that we consider here is Evelyn’s initial fair draft of the *Elysium*, the easily discernible coherent base layer of manuscript that lies beneath later alterations and accretions (FIG. 9.2).²¹ This dates from c. 1660-1663, and will hereafter be referred to as the *Elysium*, whilst references to subsequent alterations will be announced as such.²²

Given that Evelyn was engaged on the transcription of the *Elysium* during the first years of his membership of the Royal Society, it is perhaps surprising that this text does not show the influence of those ‘mathematically and mechanically’ minded fellow members, who were to become a significant influence on Evelyn over the

¹⁸ For outline see Darley, pp. 19-112; pp. 113-154; pp. 155-191.

¹⁹ Hunter (1998), pp.82-83.

²⁰ Edward Chaney, ‘Evelyn, Inigo Jones, and the Collector Earl of Arundel’, in *John Evelyn and His Milieu* ed. by Frances Harris and Michael Hunter (London: British Library, 2003), pp. 37-60, p. 53; Diary iii, 387, 28th Oct 1664; Darley, pp.192-213.

²¹ Add 78342.

²² Frances Harris, ‘The Manuscripts of the “Elysium Britannicum”’, in John Evelyn, *Elysium Britannicum or the Royal Gardens*, ed. by John Ingram (Philadelphia: University of Pennsylvania Press, 2001), pp.13-19.

ensuing years.²³ Robert Boyle (1627 – 1691), Christopher Wren (1632 – 1723), John Wilkins (1614 – 1672), and Robert Hooke (1635 – 1703) all appear in Evelyn’s later insertions and corrections to the text, but, despite the fact that he became acquainted with Wilkins, Boyle and Wren during the 1650s, none of these characters appear in the first fair draft.²⁴ The theories and practices that Evelyn initially set out in the *Elysium* are the fruit of earlier influences.²⁵

From the period of Evelyn’s travels in Europe, the *Elysium* bears witness to his familiarity with the spectacular Mannerist hydraulic gardens of the Villa Aldobrandini at Frascati, and Villa D’Este at Tivoli; the perspectival gardens at the Palais de Luxembourg and the Tuileries in Paris; the botanical gardens at Leiden, Padua, Paris, and so on.²⁶ The text is also a register of the extended education that Evelyn gathered on his travels, an education that perhaps unsurprisingly shows a bias towards European authors and influences.²⁷ Given that the *Elysium Britannicum* was composed during the Interregnum, it can be seen as a somewhat seditious work of resistance, and certainly shows a patriotic intent. But Evelyn’s patriotism frequently took the form of introducing foreign ideas and practices to his native audience through his published translations of European works, primarily, though not exclusively, French works.²⁸

²³ Douglas Chambers, 'John Evelyn and the Construction of the Scientific Self', in *The Restoration Mind*, ed. by W. Gerald Marshall (Newark; London: University of Delaware Press; Associated University Presses, 1997), pp. 132-146; Darley, pp. 167-172, pp. 1171-172, pp. 295-296, p. 255, *et passim*.

²⁴ Evelyn encountered Wren and Wilkins in 1654, he met Boyle in 1656, Esmond de Beer, 'Introduction', in *Diary*, vol 1, p. 12.

²⁵ Hunter (1998), p.102.

²⁶ See for example *Elysium*, pp. 131-132; p.181, p. 184, p. 127; Jeffery (2007), for summary of Evelyn’s knowledge of gardens.

²⁷ Hunter (1998), p. 85.

²⁸ For example, during the period of the study: François de La Mothe Le Vayer, *Of Liberty and Servitude*. ... trs. by John Evelyn [the Translator's Epistle Signed: Phileleutheros, I.E. John Evelyn.] (London: for M. Meighen & G. Bedell, 1649); Nicolas de Bonnefons, *The French Gardiner, Instructing How to Cultivate All Sorts of Fruit Trees and Herbs for the Garden ... First Written by R. D. C. D. W. B. D. N.*, ... trs. by John Evelyn (London: John Croke, 1658); Gabriel Naudé, *Instructions Concerning Erecting of a Library*, trs. by John Evelyn (London: G. Bedle and T. Collins, 1661); Roland Fréart, Sieur de Chambray, *A Parallel of the Antient Architecture with the Modern; ... To Which Is Added an Account of Architects and Architecture, in An ... Explanation of Certain Tearms Particularly Affected by Architects: With L. B. Alberti's Treatise of Statues*, trs. by J. Evelyn (London: John Place, 1664); For a full bibliographic study of Evelyn see Geoffrey Keynes, *John Evelyn. A Study in Bibliophily with a Bibliography of His Writings* (2nd edn.) (Clarendon Press: Oxford, 1968).

Evelyn's Italian tour brought him into contact with the famous Jesuit polymath, Athanasius Kircher (1602 – 1680), who later appears as a prominent authority in the *Elysium*, particularly in relation to mechanical automata, sound and music.²⁹ Evelyn encountered Kircher whilst in Rome, in the company of his lifelong friend and travelling companion, the chymist Thomas Henshaw (1618 – 1700). The two young men were treated to a personal tour of the Jesuit College's 'Dispensatory, Laboratory, Gardens' by Kircher himself, who also conducted them through his own collection of 'perpetual motions, Catoptrics, Magnetical experiments, Modells, and a thousand other crotchets & devices'.³⁰ Moving further north, Evelyn registered at the University in Padua, in 1644, taking a short course in anatomy and starting a collection of dried 'simples' (medicinal plants). At the time the University's anatomical and botanical studies were under the direction of Johann Vessling (1598 – 1649). Here Evelyn acquired the gruesome specimen of three 'tables', bearing dissected human remains – one was devoted to the nervous system, one to the veins, and one to arteries.³¹ Though Evelyn never trained in medicine, this Paduan episode is an early indication of his enduring interest in botany and its medical applications – as he says in the *Elysium*, 'Without some tincture of Medicine, Gardening is a voluptuous and empty speculation'.³² In Padua Evelyn was reunited with his mentor and one time Surrey neighbour, Thomas Howard, the Earl of Arundel (1586 – 1646), then living in Italy. Arundel was an important Stuart courtier who had accompanied Princess Elizabeth (1596 – 1662) to Heidelberg following her marriage to Frederick, the Elector Palatine. He was a major patron of Inigo Jones (1573 – 1652) (whose work Evelyn admired) and famous as a collector and humanist.³³ Arundel encouraged Evelyn in his virtuoso pursuits and, when they met in 1646, advised him on an itinerary for his tours, which included the works of Andrea Palladio (1508 – 1580).³⁴

²⁹ *Elysium*, Chapter XII, 'Of artificial Echo's, Musick, & Hydraulick motion', pp. 225-252, and p. 304.

³⁰ Darley, pp. 49-51. *Diary*, vol II, 8th November, 1644, p. 230.

³¹ Darley, pp. 60-64.

³² *Elysium*, p. 34.

³³ Frances A. Yates, *The Rosicrucian Enlightenment* (London and New York: Ark, 1986), p. 8; Esmond de Beer, 'Evelyn, life and Character', in *Diary*, I, p. 5; David Howarth, *Lord Arundel and His Circle* (New Haven; London: Yale University Press, 1985); D. Jaffé and others, 'The Earl and Countess of Arundel: Renaissance Collectors', *Apollo* 144 (1996), 3–35.

³⁴ Chaney, pp. 52-53; Darley, pp. 30-31, pp. 62-65.

Some of these Italian influences can be traced in the *Elysium*, but the influences that Evelyn encountered in France were even more important to him. In 1647, on his return from Italy, Evelyn stopped in Paris to marry the thirteen year old Mary Browne (1634 – 1709), the daughter of Charles II's official Resident, Sir Richard Browne (c. 1605 – 1683), who he had encountered on a previous visit to France. Then, after nine months at home in England, he was back in Paris, spending his time amongst the circle of exiled British Royalists who gathered at Browne's house. In Paris he developed his artistic interests, whilst continuing his studies in natural philosophy and befriending, amongst others, the famous print maker and perspectivist Abraham Bosse (1604 – 1676), who worked closely with the mathematician Girard Desargues (1591 – 1661).³⁵ It was at this juncture that Evelyn acquired a copy of René Descartes's (1596 – 1650), *Discourse de la méthode*, a gift from his father-in-law.³⁶ Descartes was not a primary influence on Evelyn, but other natural philosophical influences that he encountered in this milieu had a profound influence on Evelyn's physics, as formulated in the *Elysium*.

The first of these influences was the vitalist 'chymical philosophy', a school of thought strongly influenced by the work of the maverick, sixteenth-century medical reformer, Theophrastus von Hohenheim (1493 – 1541), usually known as Paracelsus. The chymical philosophy incorporated significant elements of Renaissance Hermetic Neoplatonism, in the tradition of Marsilio Ficino (1433 – 1499), Pico della Mirandola (1463 – 1494), *et al.*³⁷ At the time of Evelyn's residence in Paris in the late 1640s and early 50s, the city was witnessing a significant Paracelsian revival, which took the form of a heated dispute between the traditional Galenist/ Aristotelean Parisian medical faculty and Paracelsian

³⁵ Darley, pp. 72-73; pp. 93-112, p. 103; Sheila McTighe, 'Abraham Bosse and the Language of Artisans; Genre and Perspective in the Academie Royale de Peinture et de Sculpture, 1648-1670', *Oxford Art Journal*, 21 (1998), 1-26.

³⁶ Christie's Sale Catalogue, 'The Evelyn Library', IV parts (1977-1978) Part II, item 456, p. 14; René Descartes, *Discours de la méthode pour bien conduire sa raison et chercher la vérité dans les sciences; Plus La Dioptrique; Les Météores et La Géométrie qui sont des essais de cette méthode* (Leyde, 1637).

³⁷ Allen G. Debus, *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries* (New York: Science History Publications, 1977); Allen G. Debus, *The French Paracelsians: The Chemical Challenge to Medical and Scientific Tradition in Early Modern France* (Cambridge: Cambridge University Press, 1991); Charles Webster, *Paracelsus: Medicine, Magic and Mission at the End of Time* (New Haven, Conn.; London: Yale University Press, 2008).

practitioners who promoted chymical preparations in their medical treatments.³⁸ Evelyn encountered the latter through the chymical studies that he began under the direction of Annibal Barlet (dates unknown, 16.. – 16..), in 1646 and continued under William Davidson (1593 – 1669) and Nicaise Lefebvre (c.1610 – 1669).³⁹ Both Davidson and Lefebvre were directors of the Jardin du Roi, which was an important centre for both botany and chymistry, and the principal precedent for Evelyn's Philosophico-Medicall garden.⁴⁰ Whilst absorbing the theoretical foundations of the discipline, Evelyn also gained a certain practical proficiency in laboratory practice, continuing his chymical studies with Lefebvre on his return to England.⁴¹ Chymistry was not the only conduit through which Evelyn absorbed the Hermetic and Neoplatonic ideas that he expresses in the theoretical statements of the *Elysium*, but it is of primary importance.⁴²

The second important philosophical influence that Evelyn encountered in Paris, comes from a contrary direction. This is the school of mechanical atomism promoted by Pierre Gassendi (1592 – 1655) and his followers, including Evelyn's Oxford Contemporary, Walter Charleton (1620 – 1707).⁴³ Encouraged by his father-in-law, Sir Richard Browne, and by other friends, Evelyn was soon to embark on his own foray into this field, with his translation of Lucretius's *De Rerum Natura*, his only formal work in the field of natural philosophy.⁴⁴ As noted above, Evelyn encountered atomism with considerable hesitation and misgiving, for at this time the school of Democritus, of which Lucretius was a part, was strongly associated with

³⁸ Debus (1991), pp. 46-101 (pp. 99-101).

³⁹ F. Sherwood Taylor, 'The Chemical Studies of John Evelyn', *Annals of Science* 8 (1952), pp. 285-292; Michael M. Repetzki, 'John Evelyn: Virtuoso and the Venture of Atomism' in *John Evelyn's Translation of Titus Lucretius Carus De Rerum Natura: An Old-Spelling Critical Edition*, ed. by Michael M. Repetzki (Frankfurt am Main; New York: Peter Lang, 2000), pp. xi-lii (p. xxvii); Debus (1991), pp. 131-132, pp. 124-129.

⁴⁰ Repetzki, p. xxvii; John Prest, *The Garden of Eden: The Botanic Garden and the Re-Creation of Paradise* (New Haven; London: Yale University Press, 1981), pp. 47-56.

⁴¹ W. G. Hiscock, *John Evelyn and His Family Circle* (London: Routledge & Kegan Paul, 1955), p. 29.

⁴² See also the influence of Jacques Gaffarel's writing on talismans, in Juliet Odgers, 'Resemblance and Figure in Garden and Laboratory: Gaffarel's Influence on John Evelyn', in *Jacques Gaffarel: Between Magic and Science*, ed. by Hiro Hirai (Rome, Pisa: Serra, 2014), pp. 85-109.

⁴³ On atomism see Robert Kargon, *Atomism in England from Hariot to Newton* (Clarendon Press: Oxford, 1966); Thomas Mayo, *Epicurus in England (1625-1725)*, 1 ed. (Dallas: Southwest Press, 1934).

⁴⁴ Darley, pp. 102-103; Hunter (1998), pp. 79-10, (pp. 96-99); for modern transcription of the unpublished parts of Evelyn's translation, *John Evelyn's Translation of Titus Lucretius Carus De Rerum Natura: An Old-Spelling Critical Edition*, ed. by Michael M. Repetzki (Frankfurt am Main; New York: Peter Lang, 2000).

atheism. Evelyn consequently found it necessary to accompany his translation of Lucretius with his copious *Animadversions*, designed to protect the reader against any irreligious ideas that they might take from the text. Thus fortified against irreligion, atomism became acceptable to him.⁴⁵ Dependent as it was on the schools of Renaissance Hermetic Neoplatonism, Paracelsian chymical philosophy came to Evelyn already aligned with Christianity, albeit the terms of its engagement with Christian doctrine and scripture were much disputed.⁴⁶ Both of these schools – the mechanical and the chymical – were primary sites of resistance to the Scholastic Aristotelianism that characterised University learning in both England and France at the time, and both were incorporated by Evelyn in his statements on Nature in the *Elysium*.⁴⁷ Though eventually Evelyn became a prominent voice in promulgating the ‘*Mathematical, or Mechanical*’ works of Royal Society, which he contrasted with the ‘*Pedantick Rubbish*’ of less experimentally aligned and mathematically underpinned philosophies, at the time when he was composing the *Elysium Britannicum* the compound of Hermetic and Neoplatonic ideas represented by the chymical philosophy, was more securely established in his thinking than the mechanical philosophy.⁴⁸

Evelyn did take an interest in the ‘mathematical disciplines’ during the period under consideration, but he never developed any significant skill in the area. The form that his interest took is evidenced by the notes from his commonplace book from the 1650s, the ‘Tomus Tertius’. In this volume Evelyn devotes an early chapter to the ‘MATHEMATICAE DISCIPLINAE: Arithmetica, Geometria, Geographia {ASTRONOMIA} Cosmographia, Hydrographia, Optica, Musica’.⁴⁹ The notes that he compiled under this heading has some recognisably modern ‘mathematical’ content, notably the long passages of observational astronomy copied from

⁴⁵ Repetzki, p. xl-xli; Mayo, pp. 43-48.

⁴⁶ See Jole Shackelford, *A Philosophical Path for Paracelsian Medicine: The Ideas, Intellectual Context, and Influence of Petrus Severinus (1540/2-1602)* (Copenhagen: Museum Tusulanum Press, 2004), pp. 11-18; Debus (1991), pp. 5-9. Allen G. Debus, *Chemistry and Medical Debate: Van Helmont to Boerhaave* (Canton: Science History Publications, 2001), pp. 1-29.

⁴⁷ John Henry, *The Scientific Revolution and the Origins of Modern Science*, 3rd ed. (Basingstoke: Palgrave Macmillan, 2008), pp. 18-55; Paolo Rossi, *The Birth of Modern Science* (Oxford: Blackwell, 2000), pp. 122-147; Evelyn was self-conscious of the innovative nature of his attempted reconciliation of chymical and atomistic theories, see *Elysium*, p. 40.

⁴⁸ John Evelyn, *Sylva, or a Discourse of Forest-Trees ... 3rd ed.* (London: printed for John Martyn, 1679), eighth page of the unpaginated preface ‘To the Reader’.

⁴⁹ John Evelyn, ‘Tomus Tertius’, London, British Library, Evelyn Papers, Add 78330, fols. 88-95^v.

Hevelius's *Selenography*, which show his early familiarity with all the principal recent developments in this area of study.⁵⁰ But these passages keep company with a much larger collection of material that, to modern eyes, looks scarcely mathematical at all. To give some flavour of the miscellany: Evelyn records passages on the portentousness of meteors in foretelling disasters; on the worth and limitations of astrology; speculations on the site of the garden of Eden; lengthy passages on the healing powers of music, some of which are in Greek; several notes concerning talismans, amulets and 'enchantments'; and an account by one 'Father Bonifacio', concerning 'a pair of Virginalls, which made musicke, by the Beames of the sunne'; and so on.⁵¹ In his mathematical chapter there is not a single geometrical proof, nor algebraic formula, and where 'arithmetic' appears, it does so in the guise of numerology, represented principally in passages derived from the *Conjectura Cabbalistica* of the Cambridge Neoplatonist, Henry More (1614 – 1687).⁵²

At the start of the 1650s, Evelyn also developed an interest in the work of Francis Bacon.⁵³ Bacon's work on the reform of natural philosophy was not particularly influential during his lifetime, but by the middle of the seventeenth century it had become a common point of inspiration for thinkers who, fired by a mutual disdain for the 'pedantic' disputational methods of Scholasticism, sought to institute a new, well organised, collaborative, and useful 'experimental' philosophy. This is as true of Commonwealth Puritans as of Evelyn's Royalist friends.⁵⁴ Evelyn's

⁵⁰ Add 78330, fols. 88^v-91^v.

⁵¹ Evelyn, Add 78330: for meteors, w.r.t. 'Cardinal Caetan', fol. 91; for astrology, w.r.t. 'Malvezzi', 'David perseq', Hugo Grotius, Francis Bacon, Paracelsus, and Meric Casaubon: fols. 88 – 88^v, fol. 93; Eden: fol. 95; music: fol. 94-94^v; talismans etc., w.r.t Robert Fludd, Isaac de la Peyrère, Marcus Manilius and Joseph Juste Scaliger, fol. 88, fol. 93, fol.94; fol. 88.

⁵² Add 78330: fols. 93-93^v.

⁵³ Hunter (1998), p. 86.

⁵⁴ Antonio Pérez-Ramos, 'Bacon's legacy', in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996), pp. 311-334; Michael Hunter, *Science and Society in Restoration England*, 2nd ed. (Cambridge: Cambridge University Press, 1981), pp. 8-31; more generally on Bacon see Charles Webster, *The Great Instauration: Science, Medicine and Reform, 1626-1660* (London: Duckworth, 1975); Markku Peltonen ed., *The Cambridge Companion to Bacon* (Cambridge: Cambridge University Press, 1996); Julie Robin Solomon and Catherine Gimelli Martin eds., *Francis Bacon and the Refiguring of Early Modern Thought* (Aldershot: Ashgate, 2005); John Henry, *Knowledge Is Power: How Magic, the Government and an Apocalyptic Vision Inspired Francis Bacon to Create Modern Science* (Cambridge: Icon, 2002); Paolo Rossi, *Francis Bacon: From Magic to Science*, trs. by Sacha Rabinovitch (Firenze: Routledge & Kegan Paul: London, 1968); Stephen Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy* (Cambridge; New York: Cambridge University Press, 2001); Eduard Jan Dijksterhuis, *The Mechanization of the World Picture*, trs. by C. Dickshoorn (Princeton: Princeton University Press, 1961), pp. 396-403.

early interest in Bacon is evident both in his abortive attempt to compile what has come to be known as the ‘History of Trades’, and in the copious notes he recorded in his ‘Tomus Tertius’ from Bacon’s *Advancement of Learning*.⁵⁵ As the 1650s progressed, the History of Trades project provided a point of contact between Evelyn and the Baconian circle of Puritan reformers surrounding the Commonwealth ‘Intelligencer’, Samuel Hartlib (1600 – 1662), whilst also featuring in his correspondence with the famous natural philosopher, Robert Boyle. During this period, Evelyn had some slight contact with another Baconian circle - the Oxford philosophers gathered at Wadham College, around the mathematician, Dr. John Wilkins.⁵⁶ Both the Oxford group and the Hartlib group were important precursors of the Royal Society, an institution which famously promoted itself under the banner of Bacon (FIG. 0.1).⁵⁷

Since Theodore Hoppen’s study of 1976, the degree to which individual members of the early Royal Society actually followed Bacon’s methods in their practices and beliefs has been much questioned.⁵⁸ It is now clear that in its early days the Society was a broad church, united not so much by adherence to any particular theory of nature as by a tolerance of diversity, accommodated under the banner of Bacon. In practice, the Baconianism of the Society often manifested in a loose interpretation of Bacon that placed:

⁵⁵ Walter E. Houghton Jr., ‘The History of Trades: Its Relation to Seventeenth-Century Thought: As Seen in Bacon, Petty, Evelyn, and Boyle’, *Journal of the History of Ideas*, 2 (1941), 33-60; Hunter (1998), pp. 86-92; McTighe, p. 9.

⁵⁶ Hunter (1998), pp. 86-87, p. 92; Michael Leslie, ‘Bringing Ingenuity into Fashion’: the “Elysium Britannicum” and the Reformation of Husbandry’, in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Joachim Wolschke-Bulmahn and Therese O'Malley (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), pp. 131-152; for Evelyn first meeting with Wilkins and Wren, *Diary*, III, 10th July 1654, pp. 105-106; for Evelyn first meeting with Boyle, *Diary* III, 11th April 1656, 169 -170 and n. 7.

⁵⁷ Rose-Mary Sargent, ‘Bacon as an advocate for cooperative scientific research’, in *The Cambridge Companion to Bacon*, ed. by Peltonen, pp. 146-171 (p. 166).

⁵⁸ Theodore K. Hoppen, ‘The Nature of the Early Royal Society: Part I’, *The British Journal for the History of Science* 9 (1976), 1-24. Theodore K. Hoppen, ‘The Nature of the Early Royal Society, Part II’, *British Journal for the History of Science* 9 (1976), 243-273; Brian Vickers and Nancy S. Struever, *Rhetoric and the Pursuit of Truth: Language Change in the Seventeenth and Eighteenth Centuries: Papers Read at a Clark Library Seminar, 8 March 1980* (Los Angeles: William Andrews Clark Memorial Library, University of California, 1985), pp. 3-76; Hunter (1981), pp. 8-57; Webster (1975), pp. 88-99; William T. Lynch, ‘A Society of Baconians?: The Collective Development of Bacon's Method in the Royal Society of London’, in *Francis Bacon and the Refiguring of Modern Thought*, ed. J. R. Solomon and C.G. Martin (Aldershot: Ashgate, 2005), pp. 173-202.

[...] emphasizes on the benefit of mankind, the stockpiling of information, reticence in the erection of systems, and the superficial lack of discrimination evidenced by the *Sylva Sylvarum*.⁵⁹

Only a few leading lights placed emphasis on the development of a more rigorous interpretation of Bacon's thought. Within this structure, both Hermetic and mechanistic ideas flourished and the curious combination of Hermetico-chymical, Neoplatonic and mechanical ideas that Evelyn expressed in his *Elysium* would not have looked out of place.⁶⁰ As Michael Hunter observes: 'the Restoration scientific circles were filled with men who combined vocal devotion to Baconian empiricism with confused world-views full of astral influences and non-mechanical causes and cures.'⁶¹

Evelyn and Gardening

Over his long life, Evelyn wrote and published on a broad range of topics: gardening, agriculture, etching and engraving, politics, natural philosophy, and painting, to give an incomplete list.⁶² To those working in the field of the history of art and architecture, Evelyn is famous as a prominent virtuoso and as author of *Sculptura* (1662), a book on etching and engraving; *Fumifugium* (1661), a polemic towards improving the air quality of London; and his translation of *A Parallel of the Antient Architecture with the Modern* (1664) by Fréart de Chambray (1606 – 1676).⁶³ To his contemporaries, however, he was most famous for his work on arboriculture, *Sylva: or a Discourse of Forest Trees* (1664).⁶⁴ This was the first book to be published by the Royal Society and ran to four editions during Evelyn's lifetime. He also

⁵⁹ Hunter (1981), pp. 17-20; Hoppen, Part I, p. 5.

⁶⁰ Hoppen, Part II, p. 10.

⁶¹ Hunter (1981), p. 19; see also Richard Yeo, 'Between Memory and Paperbooks: Baconianism and Natural History in Seventeenth-Century England', *History of Science* xlv (2007), 1-46 (p. 18); For further discussion of the 'Magical' and vitalist aspects of Evelyn's thought see Appendix 4.

⁶² For a full bibliographic study of Evelyn see Keynes (1968).

⁶³ John Evelyn, *Sculptura: Or the History, and Art of Chalcography and Engraving in Copper* [...] (London: printed by J. C. for G. Beedle & T. Collins; J. Crook, 1662); John Evelyn, *Fumifugium: Or the Inconvenience of the Aer and Smoak of London Dissipated* (London: printed by W. Godbid for Gabriel Bedel & Thomas Collins, 1661); Roland Fréart, sieur de Chambray, *A Parallel of the Antient Architecture with the Modern; ... by J. Evelyn* (London, 1664).

⁶⁴ John Evelyn, F. R. S., *Sylva, or a Discourse of Forest-Trees, and the Propagation of Timber in His Majesties Dominions* (London: printed by Jo. Martyn & Ja. Allestry, 1664); followed by editions 1670, 1679, 1706.

published other books on agricultural and hortulan ‘improvement’, to use a contemporary term. These include his translations of French gardening works into English: Nicolas de Bonnefons’s (dates unknown, 16.. – 16..), *The French Gardiner* (1658), and Jean de la Quintinie’s (1626 – 1688), *The Compleate Gardiner* (1693); and his own compositions: *A Philosophical Discourse of Earth* (1676) and *Acetaria: A Discourse of Sallets* (1699).⁶⁵

With such a body of work, Evelyn has never been absent from the history of British gardening. Immediate posterity acknowledged him as an important authority in the sphere of horticulture, with Stephen Switzer (1682–1745) singling Evelyn out, in his *Iconographia Rustica* (1718), as one of the five principal figures in English gardening from the reign of Charles II and bringing attention to his translations of French gardening books and other practical gardening works.⁶⁶ It is only relatively recently, however, that attention has turned to the meanings of Evelyn’s garden designs and his conception of the garden, rather than the practical advice that he gave in his publications.

Over the last twenty-five years, both the *Elysium Britannicum* and Evelyn’s realised gardens at Wotton, Sayes Court, and elsewhere, have attracted a significant amount of commentary. This focuses on a few key topics, the first of which is the formal and horticultural genealogy of Evelyn’s designs. In practice, as suggested above, his primary influences were Italian and French, though his knowledge went far beyond these boundaries.⁶⁷ John Dixon Hunt expands this discussion by placing Evelyn’s *Elysium* in the broader artistic context of the Baroque, identifying the importance of the common Baroque principle of affective variety in Evelyn’s design

⁶⁵ Nicolas de Bonnefons, *The French Gardiner, Instructing How to Cultivate All Sorts of Fruit Trees and Herbs for the Garden*, trs. by John Evelyn (London, 1658); Jean de La Quintinie, *The Compleat Gard’ner; or Directions for Cultivating and Right Ordering of Fruit-Gardens and Kitchen-Gardens*, trs. by John Evelyn (London, 1693); John Evelyn, *A Philosophical Discourse of Earth As It Was Presented to the Royal Society, April 29, 1675* (London: printed for John Martyn ..., 1676.); John Evelyn F. R. S., *Acetaria. A Discourse of Sallets ...* (London: printed for B. Tooke, 1699).

⁶⁶ Stephen Switzer, *Ichnographia, or the Nobleman, Gentleman, and Gardener's Recreation, Containing Directions for the General Distribution of a Country Seat ... And a General System of Agriculture; Illustrated With ... Copper Plates*: 3 vol London, 1718), p. 58-59.

⁶⁷ Jeffery (2007); Laird (1998); John Dixon Hunt, *Garden and Grove: The Italian Renaissance Garden and the English Imagination 1600-1750* (London: Dent, 1986), pp. 65-66, p. 75-79, pp. 84-85, p.104, pp. 144-149, p. 158; Prudence Leith-Ross, ‘A Seventeenth-Century Paris Garden’, *Garden History* 21 (1993), 50-57; Leslie (1998), p. 149.

thinking, and the theatrical intent and ‘representational’ function of his imagined garden scenes.⁶⁸

Several authors have commented on the influence of Evelyn’s classical erudition on his conception of gardening and garden spaces, discussing his work in terms of Georgics and the pastoral, and characterising his gardens as spaces devoted to philosophical retirement, modelled on the gardens of Epicurus.⁶⁹ If the title of the *Elysium Britannicum* announces the influence of classical literature, Christian ideas were equally important in its conception, or more so for, as noted, Evelyn’s Christianity was the essential backdrop for all of his activities.⁷⁰ Religious themes inform several studies of his gardens and hortulan writings, addressing both iconographic issues (the image of Eden, and statuary programmes based on Biblical history), and Evelyn’s enduring interest in the numinous qualities of landscape and garden settings and their potential to support spiritual experience.⁷¹ Evelyn thought of gardens as environments especially suited to the attainment of ‘pious ecstacie’ and explains his intentions for the *Elysium* in a letter to Sir Thomas Browne, in 1660, as follows:

We will endeavour to shew how the aire and genious of Gardens operat upon humane spirits towards virtue and sanctitie, I meane in a remote, preparatory and instrumentall working. How caves, Grotts, mounts, and irregular ornaments of gardens do contribute to contemplative and Philosophicall Enthusiasme; how *Elysium, Antrum, Nemus, Paradysus, Hortus, Lucus &c.* signifie all of them *rem sacram et diviniam*; for these expedients do influence

⁶⁸ Hunt (1998); Hunt (2000), pp. 97-98.

⁶⁹ Chambers (1981); Douglas Chambers, *The Planters of the English Landscape Garden: Botany, Trees, and the Georgics, Studies in British Art* (New Haven; London: Published for the Paul Mellon Centre for Studies in British Art by Yale University Press, 1993), pp. 1-11; Douglas Chambers, ‘“Wild Pastoral Encounter”: John Evelyn, John Beale and the Renegotiation of Pastoral in the Mid-Seventeenth Century’, in *Culture and Cultivation in Early Modern England: Writing and the Land*, ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 173-194; Small and Small.

⁷⁰ Frances Harris, *Transformations* (2003); Spurr (2003); Higham, pp. 76-93.

⁷¹ Prest, pp. 47-56; Rebecca Ann Michaels, ‘John Evelyn’s *Elysium Britannicum*: Transplanting the Baroque Italian Garden to Restoration England’ (MA thesis, University of Victoria, 1997); Michael Leslie, ‘The Spiritual Husbandry of John Beale’, in *Culture and Cultivation in Early Modern England*, ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 151-172; Graham Parry, ‘John Evelyn as Hortulan Saint’, in *Culture and Cultivation in Early Modern England*, ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 130-150.

the soule and spirits of man, and prepare them for converse with good Angells.⁷²

Evelyn's religiously inspired intentions for the *Elysium*, evident not only in this letter to Browne, but also in correspondence with the John Beale (c.1608 – 1693), a vicar from Somerset and early member of the Royal Society, have received ample attention from a number of scholars.⁷³ Many of the religious themes presented briefly above inform this thesis, but other less familiar religious topics are also developed here - particularly Evelyn's approach to the interpretation of the Biblical account of the Creation, which he takes as a guide to the order of nature, and the pious attitudes that he adopts to frame his endeavours in experimental natural philosophy.

Finally, Evelyn's gardens have often been characterised as 'experimental'.⁷⁴ John Dixon Hunt, for example, identifies the *Elysium Britannicum* 'as a product of the scientific mentality we associate with the Royal Society', a domain 'necessarily dedicated to empirical enquiry'.⁷⁵ He brings attention to the potential of garden ornaments (prodigious water works; optical and auditory tricks; and so on) to serve as sites of 'scientific' experiment.⁷⁶ Alistair and Carola Small follow a similar line, proposing, in passing, that the tunnel excavated in the gardens at Albury Park, in Surrey, according to Evelyn's design in the mid-1660s, be seen as a site of optical experiment.⁷⁷ These insightful fragments provide a starting point for an important theme developed here: that Evelyn's gardens can be seen as laboratories. There are two curious omissions from the current work on this topic, however, for although a summary of Evelyn's understanding of nature, as expressed in the *Elysium*, has been available for some time through the work of Michael Hunter, no garden historian has

⁷² John Evelyn to Sir Thomas Browne, 28th January 1660, quoted and discussed in Parry, p. 135, cf. transcription in *The Letterbooks of John Evelyn*, ed. by Douglas Chambers and David Galbraith (Toronto: University of Toronto Press, Scholarly Publishing Division, 2014), pp. 270-272, (p. 271), which substitutes 'Enthusiasms' for 'Enthusiasme'. A similar passage in 'Elysium Britannicum' manuscript says 'enthusiasme', see British Library, Evelyn papers, Add 78342, fol. 145.

⁷³ Parry (1992); Chambers (1992); Leslie (1992); Peter H. Goodchild, 'No Phantasticall Utopia, but a Real Place': John Evelyn, John Beale and Blackbury Hill, Herefordshire', *Garden History* 19 (1991), 105-27.

⁷⁴ Strong (1979), pp. 221-222; Hunt (1998), p. 271; Small and Small, pp. 210-211.

⁷⁵ Hunt (1998), p. 271.

⁷⁶ Hunt (1986), p. 175.

⁷⁷ Small and Small, pp. 210-211.

addressed this in a reading of the spaces of any of his gardens.⁷⁸ Similarly, although both the *Elysium Britannicum* and Evelyn's other publications on hortulan topics are firmly established as intentional contributions to the History of Trades project, no author has addressed the way that this project might be manifest in Evelyn's conception of landscape and garden; neither has any garden historian addressed any other aspects of Francis Bacon's influence in reading Evelyn's garden spaces. These are the themes developed in this thesis.

Thesis Statement

The theory of nature that Evelyn advances in the *Elysium* is a syncretic mixture which combines concepts taken from Aristotelean physics, with ideas adopted from mechanical atomism, and Paracelsian chymical concepts based on a vitalist conception of 'Nature', which he presents as an immaterial Neoplatonic 'Universal Spirit'.⁷⁹ Evelyn has a plethora of synonyms for this pan-universal 'energie': 'the forme, [...] of nature', the 'Roote, Sperme, *Entelechia*, and Soule of all things', the 'seminal forme and Archeus'.⁸⁰ Ultimately an emanation from God, the Universal Spirit flows 'through all the workes of the creation' binding the universe in hierarchical relational harmony. It is the highest link in a chain of ascent that ends in the 'divine Throne'.⁸¹ Descending from the stars, the Universal Spirit is received in individual material 'matrices' of the 'inferiour Elements', adding a spark of 'energetic' life to each, which consequently brings forth a plant, mineral or animal according to the individual 'character', or 'idea', of the 'womb'.⁸² On the 'death' of this individual being, the Spirit is released from its material 'feters' to ascend once more and unite with its 'source and original'.⁸³ For Evelyn, the Universal Spirit is the secondary cause, through which the reciprocal influence of heaven and earth is sustained. He articulates these ideas with reference to the Hermetic dictum, 'that abstruse *Maxime* of the *Smaragdine Table*', '*Nihil est ~~Sup~~ {inf}erius, quod non fit*

⁷⁸ Hunter (1998), pp. 99-100.

⁷⁹ *Elysium*, p. 37.

⁸⁰ *Elysium*, p. 41, p. 37.

⁸¹ *Elysium*, p. 37. MS reads 'divine {sublimest} Throne'.

⁸² *Elysium*, p. 42.

⁸³ *Elysium*, p. 37.

superious, and *è contra*'.⁸⁴ This is the speculative physics which Evelyn presents in book one of the *Elysium*, as the backdrop to his 'experimental' garden.

Though it may be possible to pick out occasional commonalities between the speculative physics of Evelyn and Bacon (Bacon also depended to some degree on Paracelsian concepts and incorporated mechanical atomistic ideas into his understanding of nature), Evelyn's theoretical position is clearly not derived from Bacon, for the two thinkers differ fundamentally on central issues.⁸⁵ In contrast to Evelyn, Bacon does not organise his thinking around the idea of a harmonious universe, hierarchically ordered according to the metaphor of the great chain of being, nor does he embrace the idea of the Universal Spirit. In banishing this vital force from the world, Bacon separates himself decisively from the traditions of Renaissance Neoplatonic Hermeticism, which remain central to Evelyn's thought at the time of this study.⁸⁶

When addressing the experimental project more broadly, it is often difficult to discern with any accuracy which of Evelyn's seemingly 'Baconian' ideas may be traced to Bacon's direct influence, for many 'Baconian' ideas, including those that Evelyn valued, were common currency in other experimentalist traditions.⁸⁷ Thus, for example, the chymical philosophers also believed that artificial processes could provide a legitimate site of enquiry into natural processes (an idea strongly opposed in Aristotelian thought) and that, rather than being oriented solely towards contemplation and understanding, natural philosophy must also serve practical ends – it must be useful.⁸⁸ What then is specifically 'Baconian' in Evelyn's thinking?

⁸⁴ *Elysium*, p. 42. Translates as: 'that which is below is the same as that which is above and the opposite', cf. William R. Newman, and Anthony Grafton, *Secrets of Nature: Astrology and Alchemy in Early Modern Europe* (Cambridge, Mass.; London: MIT Press, 2001), p. 25.

⁸⁵ G. Rees, 'Francis Bacon's Semi-Paracelsian Cosmology', *Ambix*, 22 (1975), 81-101; G. Rees, 'Francis Bacon's Semi-Paracelsian Cosmology and the Great Instauration', *Ambix*, 22 (1975), 161-73; Graham Rees, 'Bacon's Speculative Philosophy', in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996), pp. 121-145.

⁸⁶ Perez Zagorin, *Francis Bacon* (Princeton, N.J.; Chichester: Princeton University Press, 1998), p. 128; Rossi (1968), p. 13; D. P. Walker, 'Francis Bacon and Spiritus', in *Science, Medicine and Society in the Renaissance*, ed. by Allen G. Debus (London: Heinemann, 1972), pp. 121-130.

⁸⁷ For a summary of Bacon's impact, Zagorin, pp. 125-128; Antonio Pérez-Ramos, "Bacon's Legacy," in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996), 311-334.

⁸⁸ Hunter (1981), pp. 14-15; Rossi (1968), pp. 1-35; Houghton (1941), pp. 34-36; Paolo Rossi, *Philosophy, Technology, and the Arts in the Early Modern Era*, trs. by G. Feltrinelli (New York,

Bacon's influence on Evelyn is most clearly discerned in the call for the proper institution and organisation of experimental natural philosophy, under state patronage, an issue of primary importance in Bacon's work and the focus of his utopian tale, *New Atlantis*.⁸⁹ But in addition, over the period considered by this study, Evelyn became increasingly influenced by aspects of Bacon's method. In particular, he embraced Bacon's vision of a cumulative, collaborative and progressive study of Nature and was, it seems, convinced by the methodological necessity of collating and ordering experimentally derived facts, in 'histories' which were expected to serve as the foundation upon which a superstructure of natural philosophical 'axioms' could eventually be constructed. He participated in this project through his engagement in the *History of Trades*.⁹⁰

This thesis proposes that whilst Evelyn's garden designs and his understanding of landscape were informed by Baconian institutional intentions, and nuanced by aspects of Bacon's experimental method, his conception of the divine economy of created nature and consequently his understanding of the 'little world' represented by the garden was more profoundly grounded in the traditions of Hermetic Neoplatonism. This Hermetic legacy, which finds articulation in the chymico-mechanical physics that Evelyn expresses in the *Elysium*, informs the emblematic meanings he inscribed in the spaces of the Royal Garden; the perceptual practices which underpin the experience of hortulan space; the astrological gardening routines that he adopts; and the garden experiments which he describes in the pages of the *Elysium*. The imagined Royal Garden of Evelyn's *Elysium Britannicum*, emerges from the pages of this text as a contemplative microcosm, an image of the well governed Kingdom, which reflects the mystical harmony of God's creation; and as a domain which promotes, represents and accommodates the powerful practices of an operative natural philosophy, instituted in accordance with Bacon's design. The gardens and landscape at Wotton and Sayes Court reflect similar ideas on a more modest scale.

Evanston, London: Harper & Rowe, 1970), pp. 138-139, pp. 1-15; Allen George Debus, *The English Paracelsians* (Oldbourne: London, 1965), pp. 13-48. Gaukroger, pp. 14-18.

⁸⁹ Rossi (1968), pp. 1-35; Houghton (1941); Hunter (1999), pp. 86-95; Zarogin, p.124; Rossi (1970), pp. 80-87; pp. 117-122; Gaukroger, pp. 160-165.

⁹⁰ For Bacon's method and aims see Paolo Rossi, 'Bacon's idea of Science' in *The Cambridge Companion to Bacon*, ed. by Peltonen, pp. 25-46; Henry (2002); Houghton (1941).

Thesis structure

The thesis is structured into two parts. The first part comprises five chapters and addresses the *Elysium Britannicum*. The second part, comprising three chapters, addresses the gardens and landscape at Wotton House and Evelyn's design for his own garden at Sayes Court. The discussion of the two realised gardens is primarily focused on Evelyn's early designs, c. 1650-1653, though it also touches on later developments. Thus the thesis adheres broadly to a reversed chronological order, since the designs for Wotton and Sayes Court precede Evelyn's engagement with the *Elysium* project. The structure has the advantage of allowing the primary theoretical basis of Evelyn's gardening to be established before discussion proceeds to the more ambiguous complexities of the realised gardens. So, first we examine Evelyn's imagined royal Elysium and the smaller Philosophico-Medicall garden within it, bringing these together with the theoretical precepts set out in the *Elysium* and other relevant material. From thence we move on to the interpretation of the earlier realised projects, Wotton and Sayes Court, building on ideas gathered from the preceding discussions, whilst introducing some new ideas. The emphasis throughout is on the interpretation of the garden spaces.

Chapter 1 introduces Evelyn's engagement with Bacon's programme of institutional reform, suggesting that the *Elysium Britannicum* can be seen as a hortulan manifestation of Bacon's utopian college of experimental natural philosophy, Salomon's House, described in the *New Atlantis*.⁹¹ The argument is progressed through a comparison between the experimental 'ornaments' of the *Elysium* and the experimental facilities, or 'Instruments', with which Bacon equips his utopian college. The chapter concludes that the fictional world of Evelyn's Royal Garden, like Bacon's fictional college, can be seen as propaganda for, and a 'prediction' of, the proper institution of natural philosophy under the patronage of the Stuart monarchy, which Evelyn understood to be realised in the foundation of the Royal Society.

⁹¹ Francis Bacon, *Sylva Sylvarum: Or a Naturall Historie. In Ten Centuries ... Published after the Authors Death. By William Rawley. (New Atlantis. A Worke Unfinished.)* (London: J. H. [John Haviland], for William Lee, 1627).

Having established the broad Baconian intentions of the *Elysium*, the focus moves to the spatial expression of Evelyn's Hermetic chymico-mechanical philosophies in a pair of chapters devoted to the interpretation of his Philosophico-Medicall garden, the botanical garden of the *Elysium*. Chapter 2 is ordered around two themes. Firstly, it establishes the religious orientation of both Evelyn's experimentalism and his gardening, exploring the commonplace idea that the botanical garden is a recreation of Eden, and framing the experimental practices particular to this garden (a medically oriented botany and chymistry) through Christian ideas of Fall and redemption. Secondly, the chapter introduces the idea that Evelyn intended the garden to be seen as a microcosm conceived in chymical terms, an idea that depends on one of the central tenets of Paracelsian chymical philosophy, namely, that chymical processes can be used to describe both the economy of the universe as a whole and the functioning of smaller individual beings within it.

Chapter 3 develops this idea in a reading of Evelyn's design for the Philosophico-Medicall garden as an 'alchemical' emblem.⁹² The idea is supported with reference to archival evidence of Evelyn's reading in Paracelsian literature devoted to the production of the Philosopher's Stone and is conducted through a comparison between Evelyn's drawing of the garden and a selection of relevant alchemical emblems, drawn from this literature.

Chapter 4 presents Evelyn's imagined Royal Garden as a quasi-theatrical 'spectacle', ordered through the wonder working art of perspective. It argues that the primary topic of the hortulan spectacle is the harmony and variety of the world, recreated in ideal microcosm of the garden. Within this structure, set-piece 'perspectives' (principally the tree lined walks and *trompe l'oeil* paintings Evelyn describes in the *Elysium*), emerge as sites of optical 'experiment'. A close reading of the *Elysium* establishes that Evelyn derived his ideas on the hortulan uses of perspective from the established French tradition of perspectival gardening. This perception leads to a second line of argument. A dominant theme in the historiography of 'the French perspectival garden' holds that the geometrically constructed, perspectival spaces of such gardens can be seen as a metaphorical

⁹² On 'Alchemical' see Glossary note above.

embodiment of ‘Cartesian’ metaphysics. Though archival evidence shows that Evelyn did study Descartes’s optics in some depth, this chapter argues against a Cartesian reading of his *Elysium*, finding a more appropriate metaphysical frame for the perspectives of his imagined garden in the Neoplatonic Hermetic tradition, exemplified in the writings of John Dee (1527 – 1609).

Chapter 5 continues the theme of the harmony of the world, this time considered through the ‘sonorous’ aspects of the *Elysium*. The argument focuses on two experimental episodes which Evelyn includes, both of which are derived from the work of Athanasius Kircher. The first is a pair of artificial echoes, the functioning of which Evelyn describes in mechanistic terms; the second is a ‘prodigious experiment’ for the musical cure of the bite of the tarantula spider. Brought together these experiments illustrate how Evelyn accommodates both mechanistic and Spiritual energetic ideas within his experimental accounts, and suggests that he includes these experiments to support his understanding of the harmony of the world. This is reflected in the harmony of the garden, which for Evelyn can be perceived through all the senses, though ultimately it transcends any particular sensory perception.

Chapter 6 opens the consideration of Evelyn’s realised gardens with a recapitulation of the Baconian theme, considered through a study of the garden and landscape at Wotton House. The arguments are developed around a set of drawings of Wotton, made by Evelyn in the period up to 1653, and his descriptions of the landscape, taken from a later letter to John Aubrey (1626 – 1697).⁹³ The drawings show the transformations wrought on the old moated Tudor manor, as Evelyn’s brother, George Evelyn (1617 – 1699), gradually remodelled the house and gardens according to a more outward looking and axially aligned, villa-like scheme, which begins to conform to the principles that Evelyn was later to recommend in the *Elysium*. The chapter argues that, in his drawings Evelyn represents both an ideal microcosm, in which the hierarchical order of the ‘family’ is inscribed in the geometric and spatial order of garden and estate; and an extensive laboratory lying

⁹³ Much of this argument is based on material published in Odgers (2011); drawings, John Evelyn, British Library, Evelyn Papers, Add 78610 A, B, C, F, G, H; John Evelyn to John Aubrey, 8th February, 1675/76, in *The Miscellaneous Writings of John Evelyn, Esq. F.R.S* ed. by William Upcott (London: Henry Colburn, 1825), pp. 687-691.

latent within the terrain. The microcosm theme is developed with reference to Evelyn's writings on the ideal household, whilst the laboratory theme is developed through a discussion of Evelyn's engagement with Bacon's project to compile a History of Trades, his attempts in this direction covering many of the trades practiced at Wotton.⁹⁴ The chapter suggests that Evelyn's attempts at compiling a History of Trades emerged from within the spatial and social topographies of the family estate, and that the History is consequently subject to the same hierarchical social prerogatives as the family.

The two final substantive chapters of the thesis are devoted to readings of Sayes Court garden. Chapter 7 focuses on the most elaborate of the ornamental plots within the garden, the 'oval parterre' or 'dial garden'. A reading of this enclosure is developed in tandem with a study of Evelyn's engagement with astrology. Evelyn believed that the 'celestial bodies' exerted 'influences' on the world below, and that these varied according to the changing patterns of the sky. These influences were important in the generation and nurture of plant life, and consequently, astrology was an important concern for the gardener. The chapter offers an emblematic and spatial reading of the dial garden, based on Evelyn's engagement with astrology and astronomy, presenting this enclosure as a theatre of the sun and moon.

Chapter 8 is devoted to a consideration of the quincunx at Sayes Court (the figure of five on dice). Evelyn uses the quincunx both in the composition of his ornamental plots and as a planting pattern for his orchards. Here we draw on the arguments of chapter 3, concerning alchemical emblematics, whilst introducing new material showing Evelyn's engagement with the tradition of Neoplatonic numerology, evident in his reading notes and Bible annotations.⁹⁵ The chapter argues that, on one level, the quincunxes of Evelyn's garden are emblematic of the Hermetic correspondence of above and below, or spirit and matter, articulated through the number five, which in the numerological tradition is presented as an emblem of generation. At another level, the quincunx is an 'operative' device, for

⁹⁴ Evelyn, John, 'Instructions Oeconomique', 1648, London, British Library, Evelyn papers, Add 78430.

⁹⁵ Add 78330, fols. 93-93v; John Evelyn's Bible, 2 vols (Cambridge: Thomas Buck and Roger Daniel, 1638), London, British Library, Evelyn Papers, Add 78360 and Add 78361.

quincunxial planting allows for an even exposure of plants to the sun, thus facilitating their ‘capture’ the ‘celestial influences’ – both the visible, ‘material fire’ of the sun and the more profound ‘invisible’, ‘immaterial fire’, the Universal Spirit. Considering Evelyn’s reading of the *Garden of Cyrus, or the Quincunciall Lozenge*, by his correspondent, the famous medical doctor and author, Sir Thomas Browne, the chapter speculates that Evelyn saw the quincunx as a figure that facilitated the ‘diffusion’ of hidden, or ‘occult’ influences across a field.⁹⁶ In these ways the figure of the quincunx bridges the categories of representation and operation, concerns that are developed both in relation to experiment and in relation to the mystical revelations of Biblical numerology.

Structure of the *Elysium Britannicum*

Though a substantial part of the *Elysium Britannicum* is now lost, we know the structure and contents of the whole work from a series of broadsheets, published by Evelyn in 1659 and 1660.⁹⁷ These set out various versions of the table of contents, and the latest and most comprehensive is transcribed here as an appendix.⁹⁸ The *Elysium* is structured into three books. Only the first book and the first three quarters of the second book survive. The first book is theoretical, the second is more practically oriented. Book three, which was devoted to what might be termed supplementary material, is entirely lost.

The first book opens with an evocation of Eden, it then proceeds to a definition of a garden (a ‘heaven’, a ‘Paradise of God’, an ‘ELYSIUM’), and lists the various types of enclosure which should be included in a Royal Garden: the parterre; the ‘coronary’ or flower garden; the ‘medical’ garden, for growing simples; the orchard and ‘olitory’ or vegetable garden of ‘esculent’ plants.⁹⁹ Evelyn explains that he omits the orchard and ‘olitory’ garden from his consideration, since

⁹⁶ Sir Thomas Browne, *Hydriotaphia, Urne-Buriall, or, a Discourse of the Sepulchrall Urnes Lately Found in Norfolk. Together with the Garden of Cyrus, or the Quincunciall Lozenge, or Network Plantations of the Ancients, Artificially, Naturally, Mystically Considered. With Sundry Observations* (London: For Hen. Brome, 1658).

⁹⁷ Harris (2001), pp. 14-15.

⁹⁸ Appendix 1, which follows the transcription that appears in *Elysium*, pp. 21-23.

⁹⁹ *Elysium*, pp. 29-32 (p. 32).

he has published on them elsewhere.¹⁰⁰ Chapter II frames the character traits and qualifications necessary in a good gardener and praises the dignity and nobility of gardening, establishing it as a ‘philosophical’ pursuit suited to gentlemen.¹⁰¹ The remainder of the first book establishes Evelyn’s chymico-mechanical philosophy of Nature in an account dispersed over the chapters III – XII, whilst also considering the ‘celestiall influences’, the ‘Mould and Soil of a Garden’ and the ‘Generation of Plants’.¹⁰²

The practically oriented second book opens with a consideration of gardening tools; then moving to the choice of site and overall the layout of a garden; and the propagation and transplanting of plants and trees.¹⁰³ It addresses the design of the individual ‘relievos’ and ornaments of the garden – parterres; groves; grottoes; mounts; walks and avenues; fountains and other waterworks; statues and ornaments such as hydraulic automata and artificial echoes; pall malls; bowling greens; aviaries, ‘viviaries’ and apiaries etc.¹⁰⁴ This material is peppered with numerous quotations from classical authors, and is interspersed with erudite digressions on topics such as the sacred uses of ancient groves and mountains, and enquiries into the nature of insects, those ‘*magnalia Dei in minimis*’, which Evelyn presents as a privileged site of experiment.¹⁰⁵ The last five surviving chapters of book two are devoted to specialised horticultural and botanical concerns, addressing the cultivation of ‘Perennial-greenes, and perpetuall Springs’; ‘Orangeries and Conservatories’, ‘Coronary Gardens’, ‘the Philosophico-Medicall Garden’ and finally ‘Wonderfull and Stupendious Plants’.¹⁰⁶ This chapter on ‘Stupendious Plants’ is arranged as an alphabetical catalogue, which breaks off at *Ficus Indicus*. The remainder of the chapter is lost, as are the final five chapters of book two which addressed orchards and ornamental ‘esuculent’ plants; vineyards and winemaking; garden maladies, pests and remedies; and the gardeners almanac.¹⁰⁷

¹⁰⁰ Evelyn’s reference is to his translation of Nicholas de Bonnefons, *The French Gardiner* (1658).

¹⁰¹ *Elysium*, pp. 33-35.

¹⁰² *Elysium*, pp. 36-80.

¹⁰³ *Elysium* pp. 83-92; pp. 93-94; pp. 95-101; 131-132; pp. 102-122; pp. 161-168.

¹⁰⁴ *Elysium* pp.123-126; pp. 139-143; pp. 187-201; pp. 198-203; pp. 126-134; pp. 169-186; pp. 204-252; pp. 135-138; p. 134; pp. 253-296.

¹⁰⁵ ‘The wonderful works of God in the least’; *Elysium*, passim; pp 150-160; pp. 201-203; pp. 297-312.

¹⁰⁶ *Elysium*, pp. 313-419.

¹⁰⁷ Appendix 1.

The lost third book furnished material such as ‘Painting of flowers’; ‘Hortulan Entertainments, Divine, Moral and Natural’; ‘Of Crowns, Chaplets and Garlands’. It also contained chapters with ‘philosophical’ content, such as the ‘transmuting and altering the Species, Forms, and substantial qualities of Plants and Flowers’, and a chapter devoted to ‘the Gardiners Elaboratory’, which included accounts of ‘Rare experiments’.¹⁰⁸ The loss of book three also entailed the loss of Evelyn’s history of ‘the most famous Gardens of the World, Ancient and Modern’ and his ‘Description of a *Villa*’. Though some manuscript material intended for incorporation in book three survives, these notes are all of later date than the original draft and have not been addressed here.¹⁰⁹

Other important manuscript sources which have been consulted in the preparation of this thesis, include Evelyn’s commonplace book from the 1650s, the ‘Tomus Tertius’ (particularly the chapters devoted to mathematics, to chymistry and to natural philosophy); Evelyn’s annotated Bible; and his two primary chymical notebooks, referred to here as the ‘Barlet notebook’ and the ‘Lefebvre notebook’, since their contents are predominantly devoted to the teachings of these two chymistry masters.¹¹⁰ A comparison between the contents of the ‘Lefebvre notebook’ and the speculative physics of Evelyn’s *Elysium* show that Lefebvre was an important source for Evelyn in this area. Lefebvre differs from Evelyn in that he does not incorporate elements of mechanical atomism, but, apart from this, his understanding of the incorporeal Universal Spirit and the ‘the principals or Elements of Natural things’ closely parallels the treatment of those topics in the *Elysium*.¹¹¹

¹⁰⁸ For some account of ‘rare experiments’ drawn from later manuscript material intended for inclusion in the *Elysium* see Odgers (2014).

¹⁰⁹ Appendix I for full list of contents; for a summary of later manuscript material intended for inclusion in the *Elysium*, Harris (2001), pp. 16-19.

¹¹⁰ Add 78330, ‘Cap. II, Mathematicae Disciplinae. Arithmetica, Geometria, Geographia, Astronomia, Cosmosgraphia, Hydrographia, Optica, Musica’ fols. 88-95^v; ‘Cap. IV. Philosophia ‘sive Physica’, fols. 126-141^v; ‘Cap. IIIII. Medicina: Morbi, Alchymia, Pharmaca, Chyrurgia’, fols. 142-149^v; John Evelyn, London, British Library, Evelyn Papers, Add 78360, 78361; Add 78335; Add 78345.

¹¹¹ cf. *Elysium* Chap. III, ‘Of the Principles and Elements in generall’, pp. 36-41, with Evelyn’s notes from/ translation of Lefebvre in Add 78345, ‘Chap IIII: Of the principals of Elements of Natural things’, fol. 2^v. For the relation of this manuscript to Lefebvre see Sherwood Taylor (1952).

Scope of Study

This study does not present a comprehensive consideration of all the influences that Evelyn encountered during the period under consideration, either through correspondence, personal contact, or reading. To attempt such a distillation would be a vast task, well beyond the capacity of this thesis. Instead, the text of the *Elysium* has been taken as a starting point, indicating specific themes that have been investigated further through a study of Evelyn's manuscripts, texts from his library and other relevant material.¹¹² This method has indicated the importance of Evelyn's chymical preoccupations and consequently led to a further study of his reading in chymistry and 'alchemy'; it has shown the importance of religious considerations in his natural philosophy and gardening; it has also pointed to the central place occupied by the discourse of universal harmony in Evelyn's thought.

Specific authorities have emerged during the investigation of these themes, some of whom are prominent in the *Elysium*. In this category we find Sir Thomas Browne (who appears in this study principally in relation to Evelyn's use of the quincunxial figure at Sayes Court) and Athanasius Kircher, whose influence is important in the discussions of sound and harmony.¹¹³ Given the prominence of Bacon in the secondary literature devoted to Evelyn's natural philosophical interests, it would be difficult to ignore his influence, but he too is cited frequently in the *Elysium*, with references to the *New Atlantis*, *Sylva Sylvarum* and the essay on gardens.¹¹⁴ Amongst the Hermetic chymical philosophers who appear in the following pages, Robert Fludd (1574 – 1637) features in the *Elysium*, though several important influences do not.¹¹⁵ These include Evelyn's three chymistry teachers, William Davidson, Annibal Barlet and Nicaise Lefebvre, and the prominent English

¹¹² For a summary of Evelyn's library see G. de la Bedoyere, 'John Evelyn's Library Catalogue', *Book Collector* 43 (1994), 529-548; Michael Hunter, 'The British Library and the Library of John Evelyn: With a Check List of Evelyn Books in the British Library Holdings', *Book Collector* 44 (1995), 218-238; *The Evelyn Library Sale Catalogue*. 4 vols (London: Christie, Manson & Woods Ltd., 1977, 1978). Evelyn's manuscripts, Theodore Hofmann; Joan Winterkorn; Francis Harris and Hilton Kelliher, 'John Evelyn's Archive in the British Library', *Book Collector* 44 (1995), 147-209.

¹¹³ For Kircher, see primarily *Elysium* pp. 225-252 *passim*; pp. 303-306; For Browne as authority on physics see *Elysium* p. 59; other mentions of Browne, p. 185, p. 229.

¹¹⁴ Of the 27 indexed references to Bacon in the *Elysium* only 12 occur in the original fair draft. These are p. 33; p. 34; p. 69; p. 170; p. 182; p. 183; p. 194; p. 213; p. 214; p. 254; p. 314; p. 315.

¹¹⁵ Evelyn cites Fludd, *Elysium*, p. 252; Cornelius Agrippa, *Elysium*, p. 266; Pico della Mirandola, *Elysium*, p. 266.

Hermetic chymist, John Dee, each of whom appears in Evelyn's other manuscripts from the period.¹¹⁶ Finally there is Descartes, who despite exerting no obvious influence on Evelyn's fundamental philosophical position at this time, is nonetheless treated at some length in this study, in the context of perspective. Evelyn did study Descartes's optics during the 1650s, so his relevance to the discussion is secure, but the inclusion of Descartes in this study is a response to the prevalence of Cartesian optics as a topic in the historiography of seventeenth-century gardens, rather than any internal indications within the *Elysium* text.¹¹⁷ This is the exception to the rule.

¹¹⁶ Barlet: Add 78335 *passim*; Lefebvre: Add 78345 *passim*; Davidson: Add 78335, fol. 5^v; Dee: Add 78335, fol. 5^v and Add 78330, fol. 144.

¹¹⁷ Add 78330, fols. 132^v-133.

Illustrations: Introduction



0.1

John Evelyn, Frontispiece included in Thomas Sprat, *The History of the Royal Society of London for the Improving of Natural Knowledge* (1667) . The bust of Charles II occupies the pedestal; Lord Brouncker sits to the left of the drawing and Francis Bacon to the right © The Royal Society.

Chapter 1: The *Elysium Britannicum* as Salomon's Garden: Ornaments and Instruments.

This chapter argues that Evelyn's Elysium Britannicum is underpinned by a pervasive experimentality, which informs the various 'ornaments' that punctuate the terrain of the garden. It suggests that Evelyn took programmatic inspiration for these from Francis Bacon's Salomon's House, the utopian experimental college described in the New Atlantis. The argument is conducted through a comparison between the 'Instruments' with which Bacon equips the fellows of the House, and the ingenious 'ornaments' of Evelyn's imagined Royal Garden. From this a discussion develops concerning the proper conduct of experiment in Evelyn's milieu and the relationship between the categories of 'ornament' and 'Instrument' in the Elysium. The Royal Garden of Evelyn's text is interpreted as a domain of royal power developed around the pursuit of experimental natural philosophy.

The end of our *Foundation* is the Knowledge of *Causes*, and Secret Motions of things; and the Enlarging of the bounds of *Humane Empire*, to the Effecting of all Things possible.

Francis Bacon, *New Atlantis*.

Introduction

In 1657 Evelyn initiated a correspondence with his new friend Robert Boyle.¹ His first letter concerned an exchange of drawings and a recipe for varnish, but he referred in passing to a project that had evidently been the topic of a previous conversation between the two men - the 'Mathematico-Chymico-Mechanical School' of their mutual acquaintance, Dr. John Wilkins of Wadham College. Evelyn characterised Wilkins' school as a 'Solomon's House', in reference to the fictional

¹ John Evelyn to Robert Boyle, 9th May 1657, *The Letterbooks of John Evelyn*, ed. by Douglas Chambers and David Galbraith, 2 vols, vol 2 (Toronto: University of Toronto Press, Scholarly Publishing Division, 2014), Letter 114, pp. 204-205.

college of natural philosophy, described by Francis Bacon in his utopian tale, *New Atlantis*.² The correspondence continued and, in 1659, Evelyn wrote again to Boyle this time at length, proposing that they cooperate in establishing a retired community of experimental philosophers, a group of likeminded 'gentlemen' (and one woman – Evelyn's wife), who would live in seclusion from the 'barbarous' Cromwellian regime, in the pious pursuit of experimental knowledge, directing their efforts towards the 'glory of God Almighty, and the benefit of others'.³ In Evelyn's vision, the members of this community were to follow a routine of experimental work, facilitated by the provision of a 'Physical-Garden'; a library; 'a Repository for rarities'; individual gardens for each of the members, which they would cultivate themselves; and a chymical 'Elaboratory' staffed by 'an Artist' (FIG. 1.1). Their work was to be supported by courses in chymistry and punctuated by religious observances. They were to make tours to disseminate their works. Evelyn set out a daily regime for the gentlemen of the college, which included obligatory evening conversation, 'never omitted save in cases of indisposition'. The whole enterprise was to be conducted in an atmosphere 'free from Pedantrie and all affectation'.⁴ Again Evelyn compared his college proposal to 'Solomon's House', in this case with regret, for under the prevailing political circumstances of the Interregnum he could not plan for the grand, comprehensive, state funded institution, suggested in Bacon's utopia. But nonetheless, in a small and private way, the proposed community was meant to address similar concerns.⁵ Evelyn's reading of Bacon was not restricted to a perusal of the *New Atlantis*, he also owned a copy of the 1640 edition of Bacon's *Of the Advancement and Proficiency of Learning*, now kept in the British Library, and took substantial notes from this work in the early 1650s.⁶ But the description of Salomon's House was clearly an important and commonly understood point of reference amongst his peers, as they began to develop ideas for the institutional form

² Evelyn uses 'Solomon'; Evelyn mistakenly refers to Wilkins as 'Dr. Wilkinson', *Letterbooks*, vol 1, p. 205; Michael Hunter, 'John Evelyn in the 1650s', in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 79-106, (pp. 93-94); Francis Bacon, *New Atlantis a Work Unfinished / Written by the Right Honourable Francis, Lord Verulam, Viscount St. Alban* (London:1658, [1627]).

³ John Evelyn to Robert Boyle, 3rd September 1659, *Letterbooks*, vol 1, Letter 159, pp. 253-257.

⁴ Evelyn to Boyle, *Letterbooks*, vol 1, pp. 255-256.

⁵ Evelyn to Boyle, *Letterbooks*, vol 1, p. 254.

⁶ Evelyn owned Francis Bacon, *Of the Advancement and Proficiency of Learning or the Partitions of Sciences ix Bookes. Written in Latin by the Most Eminent Illustrious & Famous Lord Francis Bacon Baron of Verulam Vicount St Alban Counsilour of Estate and Lord Chancellor of England*. trs. by Gilbert Wats (Oxford: Printed by Leon: Lichfield, printer to the University, for Rob: Young [London], & Ed. Forrest [Oxford], 1640), British Library call number Eve.b.16.

that might be adopted to support the pursuit of the new experimental natural philosophy.⁷ Salomonic preoccupations were uppermost in Evelyn's thoughts towards the close of the 1650s, at precisely the time when he was working on his *Elysium Britannicum* with some intensity.⁸

Bacon's Salomon's House was to be supported by the patronage of a Christian Prince, the ruler of his island utopia and the college was to be a powerful institution, for its fellows were in possession of secrets of great 'operational' value.⁹ Evelyn's ideal Royal Garden, described in the *Elysium*, is similarly designed to accommodate and demonstrate the practices of experimental natural philosophy, which Evelyn portrays as proper adornments to the power and prestige of the Royal house. The central proposal of this chapter is that the *Elysium* may be seen as an echo of Bacon's Salomon's House - an 'ornamental' equivalent of Bacon's fictional institution, a 'Salomon's garden'.

In the course of its argument, the chapter addresses the relationship between the categories of 'ornament' and 'Instrument' in Evelyn's imagined garden, thus gaining insight into Evelyn's idea of the proper and decorous environment in which to conduct experiment. As Evelyn transports Bacon's Salomonic experimental Instruments into his *Elysium*, he recasts them in suitably courtly guise, eliding the category of serious, useful experimentation with the category of playful pleasure and ornament, crossing a boundary that we are used to seeing as a necessary determinant in establishing an appropriate decorum for the 'scientific' enterprise. A comparison is drawn with the experimental 'shows' mounted by the Royal Society in its early years.

⁷ For Baconianism in 1650s England, see Charles Webster, *The Great Instauration: Science, Medicine and Reform, 1626-1660* (London: Duckworth, 1975); Charles Webster, 'The Origins of the Royal Society', *History of Science* (1967), 106-28.

⁸ Frances Harris, 'The Manuscripts of the "Elysium Britannicum"', in *Elysium Britannicum or the Royal Gardens*, ed. by John Ingram (Philadelphia: University of Pennsylvania Press, 2001), pp. 13-19, (p. 13-14); Clare Preston, *The Poetics of Scientific Investigation in Seventeenth Century England* (Oxford: Oxford University Press, 2016), pp. 133-143; Graham Parry, 'John Evelyn as Hortulan Saint', in *Culture and Cultivation in Early Modern England: Writing and the Land* ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 130-150.

⁹ Bacon, *New Atlantis*, (1658), p. 16; Rose-Mary Sargent, 'Bacon as an advocate for cooperative research' in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996), pp. 146-171; Markku Peltonen, 'Bacon's Political Philosophy', in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996), pp. 283-310, (pp. 290-295).

Historiography

This chapter builds on the work of several scholars in addressing the issue of Evelyn's ideas of the decorum proper to the spaces of his 'experimental' garden. Michael Hunter has commented on the literary style of the *Elysium*, remarking that Evelyn intended this to appeal to the tastes of his putative gentlemanly and noble readership. As he says, at one level the text of the *Elysium* shows an aspiration to serve as a practical guide to gardening, but Evelyn expresses himself in polished phrases, he includes poetic passages and erudite asides, whilst lacing his text with classical references and quotations.¹⁰ The *Elysium*, though embracing 'usefulness', was never intended as a wholly workaday volume. Michael Leslie continues this line of thought, but expands it to include Evelyn's intentions for the spaces of the garden. He contrasts Evelyn's desire for elegance with the more practically oriented aesthetics of members of the Hartlib circle, for whom agricultural and hortulan topics were central concerns.¹¹

If the *Elysium* is characterised by its aspiration towards elegance, its 'experimental' episodes have the character of 'wonders', which are designed to pique the curiosity, and are valued for their rarity and ingenuity. This combination of priorities is typical of the culture of the virtuosic gentleman scholar, of which Evelyn has long been established as a prime proponent, through the foundational work of Walter Houghton.¹² The virtuoso was civil and graceful, in contrast to the Aristotelian scholar he was neither 'litigious' nor 'pedantic'. He did not pursue his philosophical studies in dismal solitude, but presented himself in public from time to time, to converse and consult. Hence Evelyn's stipulation that members of the philosophical college, described in his letter to Boyle, should engage in conversation as a part of their daily routine. For Evelyn, natural philosophy and experiment were

¹⁰ Hunter, 'John Evelyn in the 1650s' (1998), p. 103.

¹¹ Michael Leslie, "Bringing Ingenuity into Fashion"; the "Elysium Britannicum" and the Reformation of Husbandry', in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 131-152.

¹² Walter E. Houghton, Jr., 'The English Virtuoso in the Seventeenth Century: Part I', *Journal of the History of Ideas* 3 (1942), 51-73; Walter E. Jr. Houghton, 'The English Virtuoso in the Seventeenth Century: Part II', *Journal of the History of Ideas* 3 (1942), 190-219.

to be conducted with ease and grace and in this, Evelyn epitomised the English culture of virtuosity, which emerged over the course of the seventeenth century from the earlier European culture of magic and natural secrets, or, more particularly, from the Italian courtly culture of *virtù*, a progress described in detail in the work of William Eamon.¹³

Turning to existing studies on the 'experimental' nature of Evelyn's garden, the work of John Dixon Hunt provides an important starting point. The practically oriented second book of the *Elysium*, in which Evelyn details the various features of the garden (its terrain, layout and ornaments), is strongly characterised by the attention that Evelyn brings to the fragments that make up his garden. The design of the 'whole' is not entirely missing, but Evelyn seemingly never tires of detailing the minutest particulars - the dimensions of a thread of box hedging in a parterre; the type of gravel and correct camber to be used in the profile of a walk; how to lay out a 'pall mall'; alternative constructions for a beehive, and so on.¹⁴ Many of these descriptions are illustrated by Evelyn's own drawings, which tend to focus on the individual ornaments and include only the most rudimentary indication of any background or setting (FIG. 1.6). This graphic treatment gives the *Elysium* a fragmentary character and, as Hunt remarks, in order to appreciate the garden as a whole, the reader must construct its design by assembling the descriptions of its various parts. In this assemblage, Hunt describes how each of the 'ornaments' that Evelyn describes or illustrates, represents a feature of the wider world beyond the garden walls, which brought together form a 'representation' of the whole world. He draws on Evelyn's text to illustrate the point, saying 'Grottoes are invented to represent Dens and Caves'; mounts represent mountains; whilst groves, parterres, 'Viridaria', steams etc. 'all have a representational function'.¹⁵ Similarly, fountains 'represent, Raine-bowes, Stormes, raine Thunder and other artificial Meteors'; whilst automata represent the 'motion & chirpings of Birds, Satyres, & other (vocal)

¹³ William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture* (Princeton, N.J.: Princeton University Press, 1994), pp. 301-318.

¹⁴ *Elysium*, p. 123; pp. 128-131; p. 135, p. 138; pp. 274-282.

¹⁵ John Dixon Hunt, 'Evelyn's Idea of a Garden: A Theory for All Seasons', in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 269-287.

Creatures, after a wonderful manner'.¹⁶ As Hunt suggests, by bringing these quasi-theatrical representations of the wider world together, Evelyn allows us to see the world itself afresh.¹⁷

The quasi-theatrical 'representation' of the world embedded in the various elements of the garden may be interpreted in a variety of ways, but here we are interested in the potential of the ornaments to serve as sites of experimental investigation. Again the interpretative direction builds on an idea articulated by Hunt: the idea that the performative hydraulic ornaments, typically included in the more elaborate English gardens of the period, are sites of 'experiment' and that 'the English-Italianate grotto' may be understood as a locus of ingenuity 'annexed to the rather unsteady beginnings of experimental science'.¹⁸ Similar claims have been made by Frances Yates in connection with the hydraulic wonders of the *Hortus Palatinus* at Heidelberg, created by Salomon de Caus (1576 – 1626) in the second decade of the 1600s, for Frederick, the Elector Palatine and his bride princess Elizabeth, 'an outpost of Jacobean England' (FIGs.1.2, 1.2A).¹⁹ The brief comments of these authors establish the 'experimental', investigative nature of princely gardens during the Early Modern period, proposing the grotto as a primary locus of experimental wonder-working. The grotto and the associated hydraulics are important in Evelyn's *Elysium*, and provide one focus of attention in this chapter, though the experimental nature of the garden extends far beyond these prodigies of mechanical ingenuity.

In researching the hydraulic experimental devices he proposed for the *Elysium*, Evelyn drew on the literary tradition of natural magic, wonders and secrets, for, at the end of his treatment of 'Hydraulick automats' he presents his reader with a list of experts in perpetual motion, which includes: '*Bettinus, Grunbergius, Matinus, Kirkir, Finugius, Drebell, Boekler, Harstorffer, Schoti {etc}*'; not forgetting our

¹⁶ Caves: *Elysium*, p. 191; Mounts: *Elysium*, p. 194; Groves: *Elysium*, etc. p. 125, 127; Artificial weather: *Elysium*, p. 184; Birds: *Elysium*, p. 242; all quoted in Hunt (1998), pp. 277-278.

¹⁷ Hunt (1998), p. 271.

¹⁸ John Dixon Hunt, *Garden and Grove: The Italian Renaissance Garden and the English Imagination 1600-1750* (London: Dent, 1986), p. 137.

¹⁹ Yates emphasises the older culture of wonder-working 'magic' in characterising de Caus's work, see Frances A. Yates, *The Rosicrucian Enlightenment* (London: Ark, 1972), p. 14; Yates (1972), pp. 78-79.

countriman *Flud*.²⁰ But he was also well acquainted with a wide range of gardens in which hydraulic, optical and acoustic marvels took their place alongside collections of horticultural and other rarities. He knew the hydraulic gardens at Lord Burghley's (1520 – 1598) Theobalds; and at the gardens of the Countess of Bedford (circa 1581 – 1627); he knew the work of Isaac de Caus (1590 – 1648) at the palace gardens at Wimbledon, Surrey and at Wilton House, Wiltshire.²¹ Beyond the English context, he had first-hand experience of the hydraulic wonders of St-Germaine-en-Laye and Fontainebleau, whilst he had also visited the principal Italian Mannerist gardens of the sixteenth century, to cite only the most prominent examples.²² In his diary, Evelyn describes his party 'feasting our Curiositie with [its] artificial Miracles' at the Villa d'Este. He also describes the Villa Aldobrandidi at length, dwelling on its:

Theatre of Water representing an exact & perfect Raine-bow ... its artifi-
cal Grott, where in are curious rocks, hydraulic Organs & all sorts of singing birds
moving, & chirping by force of water, with severall other pageants and
surprizing inventions [...] but above all the representation of a storme is most
naturall, with such fury of raine, wind and Thunder as one would imagine ones
selfe in some extreme Tempest.²³

The performative hydraulics and other wonders that Evelyn proposes for his *Elysium* were developed within a well-established hortulan tradition, which cross-fertilized with the broader traditions of magic, ingenuity, virtuosity and experiment. But what is it that suggests that Evelyn may have drawn specifically on Bacon for the programme of his elegant experimental garden?

²⁰ *Elysium*, p. 252; for further reflection on Evelyn's debts to 'magical' traditions see Appendix 4.

²¹ English tradition see Roy C. Strong, *The Renaissance Garden in England* (London: Thames and Hudson, 1979), pp. 73-197; Hunt (1986), pp. 133-139.

²² Influence of the Italian precedents on Evelyn see Hunt (1986), *passim.*; for Evelyn and Wilton, see Hunt (1986), p. 142, p. 139; for Theobalds, see Hunt (1986), p. 105; for Heidelberg, see Luke Morgan, *Nature as Model: Salomon de Caus and Early Seventeenth-Century Landscape Design* (Philadelphia: University of Pennsylvania Press, 2007); Evelyn's knowledge of gardens generally see Sally Jeffery, 'The Way of Italian Gardens', in *A Celebration of John Evelyn: proceedings to mark the tercentenary of his death*, ed. by Mavis Batey (Sutton, Surrey: Surrey Gardens trust, 2007) pp. 23-52; general description of French tradition see Kenneth Woodbridge, *Princely Gardens: The Origins and Development of the French Formal Style* (London: Thames & Hudson, 1986).

²³ *Diary*, vol II, 5th May 1645, pp. 392-393.

The Priority of 'Utensils'

The idea that we might see the *Elysium* as a 'Salomon's garden', inspired by Bacon's *New Atlantis*, is suggested by a specific reference that Evelyn makes to 'Lord Bacon's...Idea of Solomans house' in his treatment of caves as places of 'chymical' experiment.²⁴ But there are two other supporting characteristics of Evelyn's text that can be brought to the argument. Firstly, there is the emphasis that Evelyn places on the 'Instruments of the gardiner' and the 'philosophical' status he grants them – this suggests a Baconian intent. Secondly, there is a suggestive parallel that may be drawn between the specific *topoi* of Evelyn's garden 'ornaments' (the hydraulics, the avenues, fishponds, mounts and so on) and the 'Instruments' of Salomon's House, 'Instrument', in context meaning 'experimental facilities'. The degree of parity is so close that we might imagine Evelyn using Bacon's description of the Salomonic Instruments as a check-list for the *Elysium's* table of contents, for each of Bacon's Instruments finds its echo in the *Elysium*.²⁵ This chapter is structured to take these issues in order, first addressing Evelyn's prioritisation of the 'Instruments of the gardiner', and from thence moving to a comparison between the ornaments of the garden and the Instruments of Bacon's college.

In the *Elysium*, Evelyn opens his discussion of the practical aspects of gardening with a chapter devoted entirely to 'the Instruments belonging to a Gardiner, and their various uses'.²⁶ By including this topic so early in the book, Evelyn emphasises what might more normally be seen as a relatively lowly concern. In the course of book two he addresses many more 'elevated' topics, describing how to choose a site for a noble garden, how to lay out the ground, and how to detail the full range of ornaments that properly furnish his 'universal' design. He describes parterres and groves, walks and terraces, fountains, ponds, hydraulic automata, echoes, perspectives, statues, aviaries and a 'viviary', alongside gardens devoted to specific plants – the coronary garden and his 'Philosophico-Medicall garden' or

²⁴ *Elysium*, p. 194.

²⁵ In place of a footnote, see Appendix 2 for a tabulated correspondences between Bacon's Instruments and Evelyn's *Elysium* ornaments.

²⁶ *Elysium*, pp. 83-92.

botanical garden – to name only the core of the project.²⁷ But before all of these, he lays before his putative noble audience an illustrated list of the gardener's 'Instruments' - spades and rakes; a water level and other setting out tools; dibbers; a 'Planting Lattice'; Rollers; 'Reachers'; knives; pots; bell jars and so on.²⁸ Each is carefully described in the text and drawn in the accompanying illustration (FIG. 1.3). This prioritisation of tools is not accidental, for Evelyn offers an elliptical apology, telling his reader, 'truely, we are not asham'd to bring them forth', and then proceeding to situate his spades and mattocks in a suitably learned frame by surrounding them with classical quotations:

'Dicendum est quæ sint duris agrestibus arma'

I. Geor.

We now produce the hardy Gardeners Tooles.²⁹

He defends the intrinsic worth of the tools, saying they were 'borne in the royall standard [...] of the Indian Kings'. He emphasises their 'magical' efficacy by recounting Pliny's anecdote of how an 'industrious Romane' was accused of 'Sorcery, because he had a better crop then his envious Neighbour', but was acquitted when he produced his ingenious gardening tools before the Senate.³⁰ The message is clear - '*Utensils*' are not to be hidden away or despised. They are to be thought of as honoured objects that might legitimately come under the gaze, or even into the hands, of the most noble patron.³¹

Therèse O'Malley has proposed that by including this description and illustration of tools so early in the book, Evelyn aimed to establish 'the professional status of the gardener as parallel to that of the architect'.³² She develops her argument by drawing a parallel with the frontispiece of Sebastiano Serlio (1475 – c. 1554), in *The First Booke of Architecture*, a work which Evelyn owned in its first

²⁷ *Elysium*, pp. 83-419, *passim*.; for an expanded summary of the *Elysium* see Therèse O'Malley, 'Introduction to John Evelyn and the "Elysium Britannicum"' in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 9-33.

²⁸ *Elysium*, pp. 84-92, items 1-3; 10-19; 20; 23; 40; 35; 48-53.

²⁹ *Elysium*, p. 83.

³⁰ *Elysium*, p. 83.

³¹ *Elysium*, p. 336.

³² O'Malley, p. 14.

English edition.³³ Serlio's frontispiece includes a set of tools - dividers, set-square, plumb line and rule - which take their place amongst Platonic solids and grotesque scrollwork in framing the title of the book (FIG. 1.4). Evelyn was certainly at pains to establish gardening as a gentlemanly pursuit, however, O'Malley's comparison between Serlio's frontispiece and Evelyn's illustration of gardening instruments is rather loose, for the two authors include different ranges of tools.³⁴ Serlio does not include construction tools so much as geometric, setting-out tools. His appeal is to mathematics. Whilst Evelyn also includes these in his drawing (he shows levels; a ruler; 'A Circumferencer'; a 'compass'), he also includes many more mundane and non-mathematical pieces of equipment, such as 'Baskets of all sizes' and 'Netts etc for the destruction of Vermine'.³⁵ The Platonic solids are entirely missing. If Serlio's frontispiece intends to raise the status of architecture by association with the mathematical and therefore somewhat elevated surveying tools, Evelyn's appeal is not so much to raise the status of the gardener, as to raise the status of the tools themselves. He wants his reader to regard them as 'philosophical Instruments'.

This becomes obvious in Evelyn's description of 'The Foixt', a wheeled watering truck with an integral hand-pump, which appears as item number 43 in his collection (FIG. 1.3A). Evelyn lavishes praise on the device, his description occupying almost an entire page. He dwells on the 'exquisitely sothered' lead lining; the stop-cock; the 'spouts perforate to the boare of a gooses quill' and other construction details and ends his description with the accolade, that 'of all the Gardiners Instruments, this is the most elegant, usefull, and Philosophicall', a triad of descriptors that might be used to characterise his garden as a whole.³⁶ It is the idea of the 'philosophical Instrument' and its dual orientation towards 'use' and 'philosophy' that points to Bacon's fictional college. The concern with 'elegance' is, as we have seen, highly characteristic of Evelyn. He expected the tools to be taken up by his gentleman readers – perhaps by the king himself. Such readers might be encouraged in their fledgling forays into hortulan experimentation by the

³³ Sebastiano Serlio, *The First Booke of Architecture, Made by Sebastian Serly, Entreating of Geometrie*. ... trs. by Robert Sir Peake (London: Robert Peake, 1611); Christie's Sale Catalogue, 'The Evelyn Library', IV parts (1977-1978), part III, p. 151, item 1349.

³⁴ *Elysium*, p. 42.

³⁵ *Elysium*, pp. 84-92, items 10; 11; 12; 15; 18; 60; 67.

³⁶ *Elysium*, pp. 88-89.

understanding that the tools of the endeavour were both 'philosophical' and elegant.³⁷

Experimental Intentions: Instruments and Ornaments

When Bacon has the 'Father' of Salomon's House explain the details of his college to his visitors, he makes the 'preparations and Instruments' that belong to the fellows the primary focus of the description. The Father does address other issues - 'the end of our foundation'; 'the several employments and functions' of the fellows; and 'the ordinances and rites' of the college - but these three concerns, important as they may be, are summarily dispatched. It is the Instruments on which the Father dwells.³⁸ The emphasis that Bacon places on Instruments is a reflection of his intention to promote the new experimental natural philosophy through his utopian tale. The fellows' methods of inquiry are founded on an active and experiential study of the phenomena of the world, a study that starts with sensory perception and entails the bodily engagement of the philosopher as well as their intellectual effort.³⁹ As with the experimenting fellows, so with Evelyn's philosophical gardener.

Evelyn sets out this philosophical agenda early in the text, saying that the gardener should aspire:

To comprehend the nature of the *Earth*, and her productions: To be able to discourse of the *Elements* and to penetrate into the nature energie and reason of things with judgement and assurance. In a word, What is our Gardiner to be but an absolute Philosopher!⁴⁰

³⁷ For reflections on usefulness, sobriety, magnificence and luxury in seventeenth-century context, see Christine Stevenson, *Medicine and Magnificence: British Hospital and Asylum Architecture, 1660-1815* (New Haven, CT: Yale University Press, 2000), pp. 14-18 *et passim*; Christine Stevenson, 'Architectural Husbandry', in *Economy and Architecture*, ed. by Juliet Odgers; Mhairi McVicar; Steven Kite (London: Routledge, 2015), pp. 73-85.

³⁸ The 'End of the foundation', Bacon, *New Atlantis* (1658), p. 26; the 'preparations and instruments', Bacon, *New Atlantis* (1658), pp. 26-32; 'employments and functions', Bacon, *New Atlantis* (1658), pp. 32-33; 'Ordinance and rites', Bacon, *New Atlantis* (1658), pp. 33-34.

³⁹ For a summary of this tripartite Baconian structure see William T. Lynch, 'A Society of Baconians?: The Collective Development of Bacon's Method in the Royal Society of London', in *Francis Bacon and the Refiguring of Early Modern Thought*, ed. by Julie R. Solomon and Catherine G. Martin (Aldershot: Ashgate, 2005), pp. 173-202.

⁴⁰ *Elysium*, p. 34.

He berates and flatters his readers saying 'we pretend not here to write to *Cabbage-planters*; but to the best refined of our nation', persons who already have 'more then ordinary qualifications', and are assumed to be possessed of a grounding in natural philosophy.⁴¹ But philosophy is not presented as an idle or sedentary pursuit. To advance in his knowledge of nature Evelyn's 'refined' gardener needs his tools, just as the fellows of Salomon's House need their Instruments. Whilst writing on the topic of the generation and growth of plants Evelyn muses in experimental vein: 'These intractable are the difficultys worthy Philosopher heads & hands'.⁴² His text gives a ready assent to the experimental programme.⁴³

The parallels between Salomon's House and the *Elysium Britannicum* are not limited to the contents of the tool shed, however, nor to the few specific 'laboratory' type enclosures that Evelyn includes within the bounds of his *Elysium*: that is the Philosophico-Medicall garden and the astronomical observatory. The Philosophico-Medicall garden is treated at some length in the following chapters and the observatory is addressed briefly below, but the current chapter is chiefly concerned with the grand quasi-theatrical 'ornaments' that constitute Evelyn's representation of the world - the mounts, grottos, fountains, groves, curious hydraulic automata, and so on, that he describes in the pages of the *Elysium*. Item by item these recall Bacon's experimental facilities though there must, of course, be some difference in orientation between Bacon's Instruments and Evelyn's garden ornaments, since Salomon's House is to be devoted *exclusively* towards experimental philosophy, whilst Evelyn's Royal Garden is conceived of primarily as a 'Garden of Pleasure' intended to accommodate a range of human concerns, of which experimental philosophy is but one.⁴⁴ Nonetheless, Evelyn's ornaments closely resemble Bacon's Instruments in terms of the physical phenomena that they purport to investigate or display; in terms of the natural forces that they harness; and in terms of the types of artistry that each specific instrument or ornament entails.

⁴¹ *Elysium*, p. 42.

⁴² *Elysium*, p. 72.

⁴³ See John Dixon Hunt, *Greater Perfections: The Practice of Garden Theory* (London: Thames & Hudson, 2000), pp. 192.

⁴⁴ *Elysium*, p. 32.

Bacon's description of the Salomonic Instruments starts with a range of places in the landscape included for their natural potentials. He has the Father of the House describe streams and 'Cataracts' that power 'divers Motions'; and caves, which he refers to as 'the lower region', and used by the Fellows for 'Coagulations, Indurations, Refrigeration's, and Conservations of Bodies'. He describes salt and freshwater lakes, used not only for raising fish and fowl, but for:

Burials, of some Natural Bodies: For we find a difference in things buried in Earth, or in Air bellow the Earth; and things buried in Water.

The landscape also accommodates an 'upper region' - 'High Towers [...] set upon High Mountains', that serve for 'Insolation, Refrigeration, Conservation, And for the View of divers Meteors'.⁴⁵ Next he describes a range of experimental houses devoted to ingenious arts. These accommodate experiments with light and sound; the production of medicines and perfumes; and the development and deployment of mechanical engines. There are also specific gardens – vineyards, for example, and orchards.⁴⁶ To detail the entire list of facilities would be tedious, though the temptation is there in Bacon's very method. The laboratory-like world of Salomon's House is devoted to the experimental production of facts, diverse facts are generated by diverse situations, consequently the House, like Evelyn's garden, aspires to a full representation of the variety of the world. Comprehensiveness was integral to the intention.

For Bacon, the experimental gardens of the House are designed 'not so much to respect Beauty, as Variety of Ground and Soil, proper for divers Trees and Herbs'.⁴⁷ He does not portray the inhabitants of his mythical island as immune to concerns of magnificence in dress or environment, but this is not a quality that he brings into the description of the Instruments of the House.⁴⁸ In this particular then, the Instruments of the House differ from Evelyn's garden 'ornaments', for Evelyn tends not to prioritise utility over beauty or pleasure, even when stressing the usefulness of parts of the garden. Thus, for example, he describes the Jardin du Roi,

⁴⁵ Bacon, *New Atlantis* (1658), p. 27.

⁴⁶ Bacon, *New Atlantis* (1658), p. 28.

⁴⁷ Bacon, *New Atlantis* (1658), p. 28.

⁴⁸ Bacon, *New Atlantis* (1658), p. 18, p. 24.

as: 'the best furnished and Contrived of any in Europe; because not onely ~~abon~~ affording simples & plants for demonstration & pleasure onely, but for use and experience {also}'.⁴⁹ But despite this difference, the similarities between Bacon's Instruments and Evelyn's garden ornaments remain striking. Where Bacon's philosophers have: 'Great and spacious Houses, where we imitate and demonstrate Meteors; As Snow, Hail, Rain, some Artificial Rains of Bodies, and not of Water, Thunders, Lightnings', Evelyn tells his reader that 'By water may [...] be reppresented, Raine-bowes, {Halos} Stormes, raine Thunder and other artificial Meteors', the context of this quotation being a treatment of fountains as 'pleasant and magnificent diversions'.⁵⁰ Similarly, where Bacon's philosophers possess: 'Sound Houses, where [they] practise and demonstrate all Sounds, and their Generation' and reproduce 'the Voices and Notes of Beasts and Birds' and have a 'diverse strange and Artificial Echoes Reflecting the Voice many times, and as it were tossing it', Evelyn's describes a range of artificial 'echo' constructions, and 'wonderfull' musical garden automata, including an Æoliq̄ue chamber that imitates the chirruping birds; a 'Watchman' that sounds a single trumpet note; a 'speaking' statue of Memnon; and an Autophône Organe, which will play whatever musical piece is 'deliniated' on its 'Phonotactique Cylinder' (FIG. 1.6 A, 1.6 B, 1.6 C; 1.7).⁵¹

Evelyn frames these hydraulic machines as sites of theatrical diversion and pleasure, but he nonetheless gives their descriptions a 'philosophical' turn, for he introduces particular devices as exemplars of particular physical principles. Thus his hollow statue, 'the Watchman' that sounds a trumpet, is an 'example by expulsion'; he includes two 'Water dyalls', one 'for Example of Attraction' and one 'for an example of Rerifaction' (the latter also produces a trumpet blast) (FIG. 1.8).⁵² Meanwhile, in his description of the 'Windchest for the Animation of Birds' Evelyn furnishes enough detail to give some rough idea of the construction of the piece,

⁴⁹ *Elysium*, p. 404.

⁵⁰ Bacon, *New Atlantis* (1658), p. 27; *Elysium*, p. 184, p. 169.

⁵¹ Bacon, *New Atlantis* (1658), p. 31; *Elysium*: Memnon, p. 249-50; Bird, p. 244; Watchman sounding a trumpet, pp. 244-245; *Autophône Organe*, pp. 232-242; the latter derived from Athanasius Kircher, *Musurgia Universalis, Sive Ars Magna Consoni Et Dissoni in X. Libros Digesta. [...]*. (Romæ: ex typographia haeredum Francisci Corbelletti, 1650); the plate is not present in all editions, but is reproduced in Athanasius Kircher, *Musurgia Universalis. Zwei Teile in Einem Band. Mit Einem Vorwort, Personen, Orts- Und Sachregister Von Ulf Scharla*, ed. by Ulf Scharlau (*Reprografischer Nachdruck Der Ausgabe Rom 1650*), (Hildesheim, New York: Georg Olms Verlag, 1970) vol 2, following p. 346.

⁵² *Elysium*, pp. 244-245.

whilst telling the reader that the air which animates the birds is forced through the 'Æoliq̄ue chamber' by a sort of 'Syphon' that could provide enough draught to:

serve for an Artificall Ventiduct, sufficient either to refrigerate a roome in Summer, or to animate any other Bird, blow the Fire, turne any image or wheele, made light and fitt for it the force of it, & very proper to be placed in a Grott, or Rock worke, [...] to the great admiration of Spectators. [...] And here I will not conceale, how profitably & usefully these Æoliq̄ue chambers may be improved [...] for the use of Smiths, & principaly of Forges & Furnaces, which are constrain'd to make use of Bellows which are very charageable, & often out of order.⁵³

The description of these mechanical marvels juxtaposes manual ingenuity with the wonder of the spectacle; the articulation of physical principles that lie behind the phenomena; and potential trade applications. Thus Evelyn constructs his hortulan theatre of experiment.

Within these descriptions, Evelyn not only juxtaposes the categories of ornament and Instrument, but actually elides them, placing philosophical and practical issues in strict continuity, whilst giving the whole an 'elegant' gloss. His treatment of natural and artificial 'Grotts and Crypta's' [*sic*], can serve as an illustration. Evelyn opens his discussion of caves with an appeal to their affective qualities – their delightful 'horror & confusion'; he proceeds with a description of the 'wonderfull varieties', the 'exuberances & irregularities' of natural caves, produced by 'Natural Tartar or Lapidescient Juice', telling his reader how these may be imitated by importing 'Spirites, Ostracites, Ostracomorph's, Chirites, Pyramidal stelechites', or by using artificial alternatives such as detritus gathered from glass makers kilns. Finally he describes the 'peopling' of the grottos with appropriate beasts - rabbits, bears, foxes, 'Heremites, Shepherds'. These, he suggests, may be animated using 'Machines or Mills [...] turned by some seacret pipes of waters', producing a subterranean display of 'motions, histories and sceanes'.⁵⁴ Into this Satyrical theatre he drops some lines from Lucretius (in his own translation), telling the reader how the stars may be observed in the daytime from a dark cave:

⁵³ *Elysium*, p. 244.

⁵⁴ *Elysium*, pp. 188-194.

...
But from the darke, we spie things in the light
Since when the neere dul aire invades our sight
And dos our open Eyes possesse, bright aire
Forthwith ensues, and purges them as 'twere
...⁵⁵

From the poem, Evelyn moves into a brief description of the underground observatory of 'the famous Astronomer Ticho Brahe in his nobel Gardens at Vranaberge', which he presents as an example worthy of imitation (FIG.1.5). He closes his consideration of caves with the thought that:

How they may farther be improved for the congelation and many other Philosophicall Experiments, let the Lord Bacon informe you in his Idea of Solomans house. And such as are exercised in Chymicall operations.⁵⁶

In Evelyn's description of caves, grotts and crypts, the dedicated philosophical Instruments (i.e. Tycho Brahe's observatory and the Chymical 'lower region' of experiment) emerge seamlessly from the wondrous subterranean realm of theatrical spectacle. Significantly, Evelyn presents 'Vranaberge' as 'a nobel garden' and the Crypta as an 'ornament' which is 'converted' into a 'profound and usefull pleasure'.⁵⁷ Conversely, the theatrical caves present occasion for philosophical speculation. There is no strict separation of the categories of ornament and pleasure from those of experiment and utility. Thus experiment is brought into the heart of Evelyn's Royal Garden and, finding its place there, it is necessarily made 'elegantly'.

The Social Witness and Prestige of Experiment

The flamboyant and theatrical character of Evelyn's philosophical garden ornaments is at odds with the sober decorum that we now associate with 'scientific experiment'. Indeed, it is counter intuitive to see Evelyn's hydraulic automata as 'experimental' at all, in this 'scientific' sense. Conversely, we would not now characterise Tycho Brahe's observatory as an 'ornament', even granting that the word can still be used

⁵⁵ *Elysium*, p. 194.

⁵⁶ *Elysium*, p. 194.

⁵⁷ *Elysium*, p. 194.

in the sense of adding 'grace, beauty or honour' to an occasion or institution, at least when used to describe a person.⁵⁸ The point is that for Evelyn the three senses of the word 'ornament' - grace, beauty and honour - are inextricably intertwined. If we compare Evelyn's garden marvels with the 'shows' of experiments that were being mounted at the Royal Society as early as 1661, shows which were a staple part of the weekly round in the early years of the institution, we may appreciate how close witness of 'serious' experimental demonstrations and the spectacle of Evelyn's ingenious garden ornaments could be.⁵⁹ This may be surprising, but as Michael Hunter observes, 'the Society seems to have visualized science very much as a performing art in its early years'.⁶⁰

On Thursday evenings, the virtuosi of the Royal Society used to meet to witness specially prepared demonstrations of intriguing 'experiments'.⁶¹ Though new experiments were preferred, the pace of discovery was not swift, and consequently the Society often had to show the same demonstration many times. As Steven Shapin and Simon Schaffer tell us, Boyle's air-pump trials were 'routinely performed in the Royal Society's ordinary assembly rooms, the machine being brought there specially for the occasion.'⁶² They further explain that the repetition of the 'performance' of an experiment had a methodological function: by multiplying the assenting witnesses to the outcome of any particular experiment, the validity of the experimental findings was increased. The validity of the experiment was, in effect, dependent on its social construction.⁶³ In addition to this weighty function, the Thursday evening 'shows' added to the prestige of experimental philosophy on a general level, particularly if the performance was impressive and worked as expected. Witness Christopher Wren's anxiety to find something suitable for the royal visit of Charles II in 1664. On that occasion, writing to Lord Brouncker, the Society's President, Wren says:

⁵⁸ <http://www.oxforddictionaries.com/definition/english/ornament>, <accessed 17:55 02/02/2016>.

⁵⁹ Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton; Guildford: Princeton University Press, 1985), p. 30.

⁶⁰ Michael Hunter, *The Royal Society and Its Fellows, 1660-1700: The Morphology of an Early Scientific Institution*, 2nd ed. (Oxford: British Society for the History of Science, 1994), p. 21.

⁶¹ Michael Hunter, *Science and Society in Restoration England*, 2nd ed. (Cambridge: Cambridge University Press, 1981), p. 56.

⁶² Shapin and Schaffer, p. 57.

⁶³ Shapin and Schaffer, p. 25, p. 39; Penelope Gouk, *Music, Science and Natural Magic in Seventeenth-Century England* (New Haven; London: Yale University Press, 1999), pp. 54-55.

It must be something[...] both luciferous to philosophy, and yet whose use and advantage is obvious without a lecture; and, besides, that may surprise with some unexpected effect, and be commendable for the ingenuity of the contrivance.⁶⁴

The successful experimental show should meld theatricality with 'luciferousness' and novelty - the intention is clear. Without wishing to make performances of Evelyn's garden automata identical to demonstrations of Boyles's air pump experiments, there is clearly some commonality of ground, especially given the claims that Evelyn makes for his machines as demonstrations of physical principles.

If the experimental shows of the Royal Society served the dual purposes of educating the virtuosi and increasing the prestige of experiment, the same may be said of Evelyn's intention for his *Elysium*, especially given that his putative 'refined' readership occupied precisely that social sphere from which the Royal Society drew its membership.⁶⁵ In this way the *Elysium Britannicum* can be seen to participate in the broader theatre of experimental discourse and thus, again, shares common ground with Bacon's *New Atlantis*. Evelyn's garden had to accommodate many performances - the social enactment of the life of the court, formal musical events, flirtations, games of bowls - but latent within every ornament is the demonstration of physical principles, vying for place as the focus of the spectacle.⁶⁶ The propagandistic experimental intent of the *Elysium* is spoken softly through the language of pleasure and ornament, but nonetheless it is insinuated into every corner of Evelyn's imagined *Elysium*.

Evelyn's copy of the 1640 edition of Bacon's *Advancement of Learning*, now held in the British Library, includes a preface by its translator, Gilbert Wats.⁶⁷ This is addressed to 'the growing glory of a Future Age', the future Charles II and is framed to promote Bacon's project as the proper object of Royal patronage. Wats writes:

This is the Author I here present to *Your Highnesse*, this his worke, which by the powerfull influence of Your favour shall prosper, and, it may be, be

⁶⁴ Wren to Brouncker, 9th August, 1663, quoted in Shapin and Schaffer, p.31.

⁶⁵ Hunter (1994), pp. 8-24.

⁶⁶ *Elysium*, pp. 228-229; p. 229; p. 134.

⁶⁷ Bacon, *Advancement*, ed. by Wats (1640), British Library call number Eve.b.16.

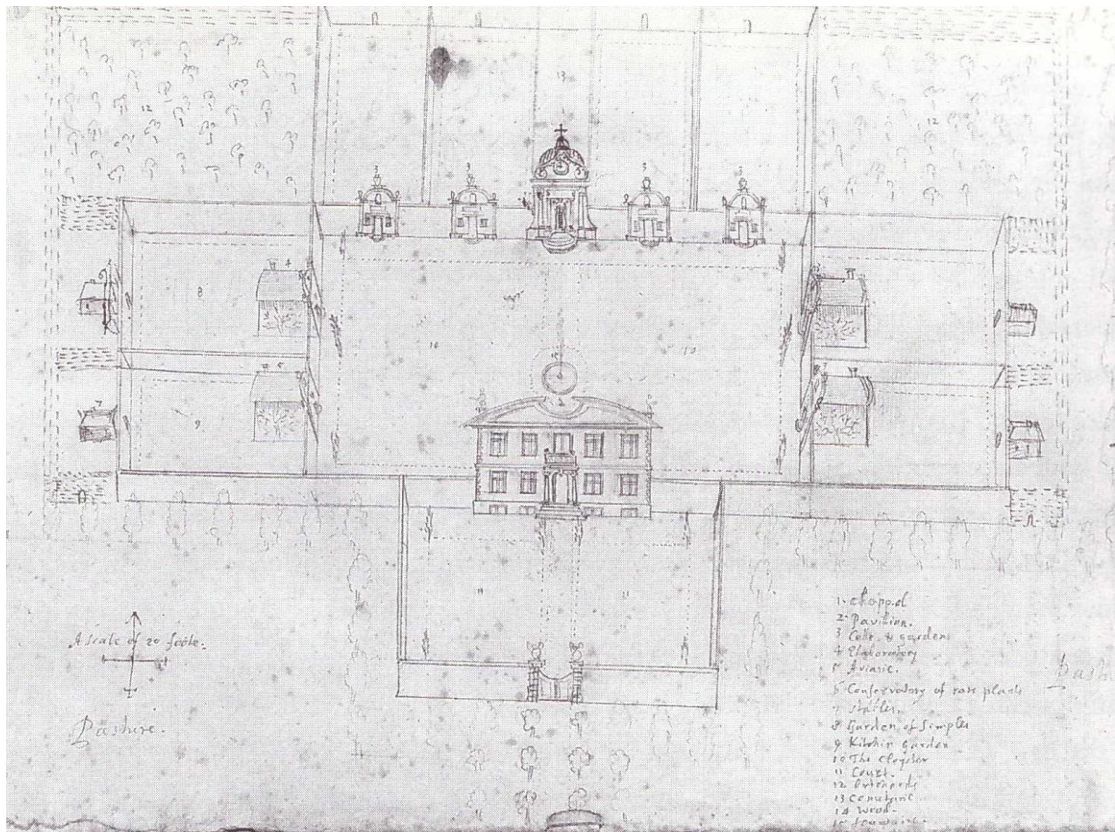
quickened to the regeneration of another Phoenix out of his ashes, to adorne your World: for it is only the benigne aspect & irradiation of Princes that inspires the Globe of learning, and makes Arts, and sciences grow up and flourish.⁶⁸

Against this passage Evelyn made a note: 'A prediction of the Royal Society Instituted by this prince Charles the second'. Hopes for the advancement of experimental philosophy under Charles' patronage far preceded his rule. To Royalist apologists of experiment, such as Wats or Evelyn, when it eventually came, the establishment of the Royal Society was the fulfilment of long held 'prediction', inextricably linked with the influence of Francis Bacon. The *Elysium Britannicum* project, initiated under the Cromwellian regime and transcribed in the first years of the Restoration parallels the rise and fulfilment of these hopes, just as its experimental incidents parallel the programmatic details of Salomon's House, the '*greatest Jewel*' of Bacon's utopian Christian island Kingdom.⁶⁹

In this chapter we have introduced the *Elysium Britannicum* as a domain inspired by overarching Baconian intentions, but as we approach Evelyn's experimental ornaments more closely, the chymico-Hermetic sides of his thought begin to obtrude. To introduce Evelyn's preoccupation with the tropes of the chymical philosophy, we turn now to the most obviously Hermetically oriented of Evelyn's garden enclosures, the Philosophico-Medicall garden.

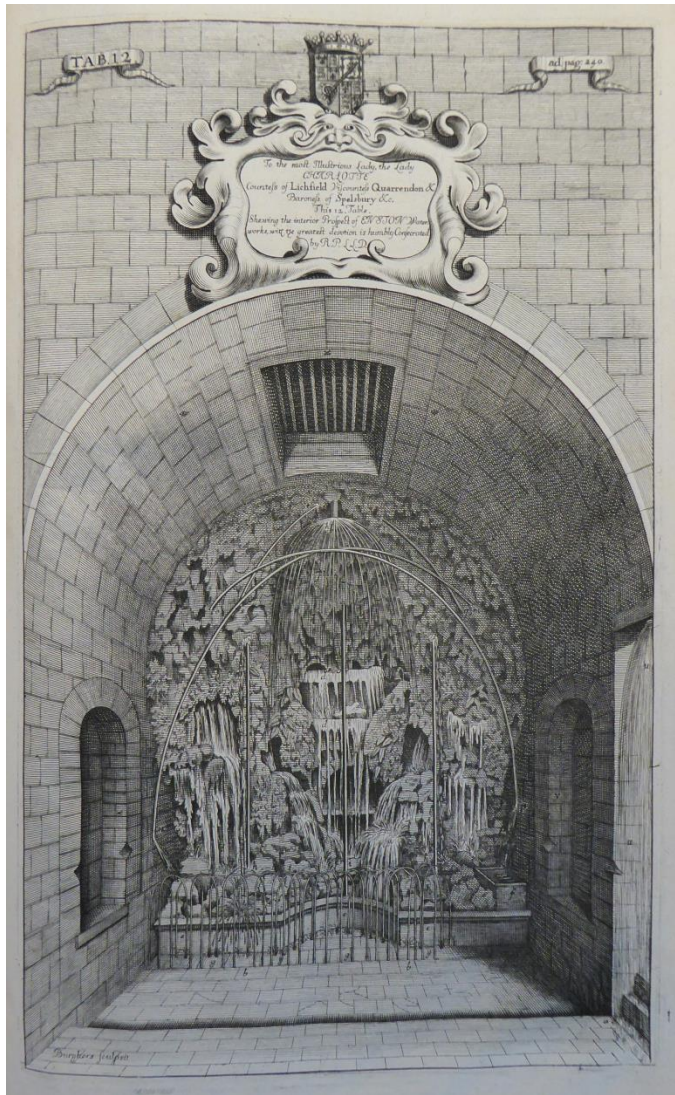
⁶⁸ Gilbert Wats, 'To the PRINCE of great Britain & France and Ireland' in, Bacon, *Advancement*, ed. by Wats (1640), p. g3^v.

⁶⁹ Bacon, *New Atlantis* (1658), p. 26.



1.1

John Evelyn, drawing for a college, sent to Robert Boyle in 1659. The drawing is published in Michael Hunter 'John Evelyn in the 1650s', in *John Evelyn and European Gardening*, ed. by O'Malley (2001), p. 95. Source unknown.



1.2

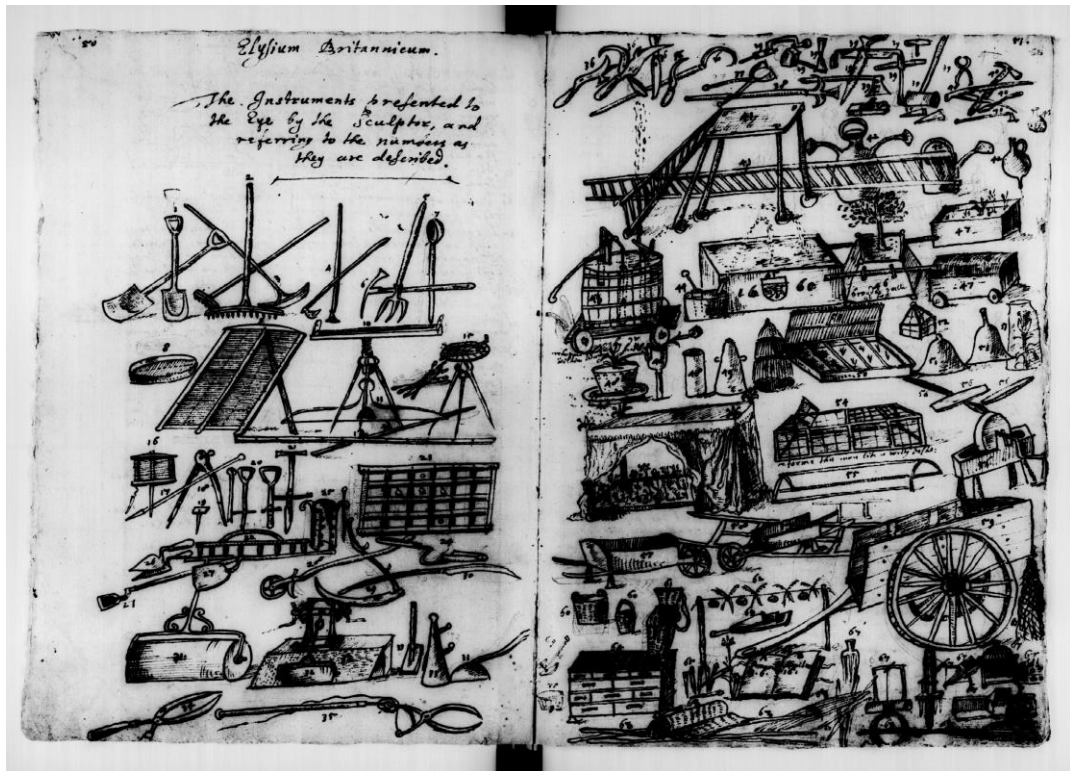
Grotto created by Thomas Bushell at Enstone, engraving from Robert Plot, *The Natural History of Oxfordshire* (1677), p. 239 © Author.

1.2A

Waterworks from a grotto in the gardens of the Hortus Palatinus. Engraving by Matthieu Marian, in Salomon de Caus, *Hortus Palatinus a Friderico Rege Boemiae Electore Palatino Heidelbergæ Extractus, Salamone de Caus Architecto* (1620) © Author



A

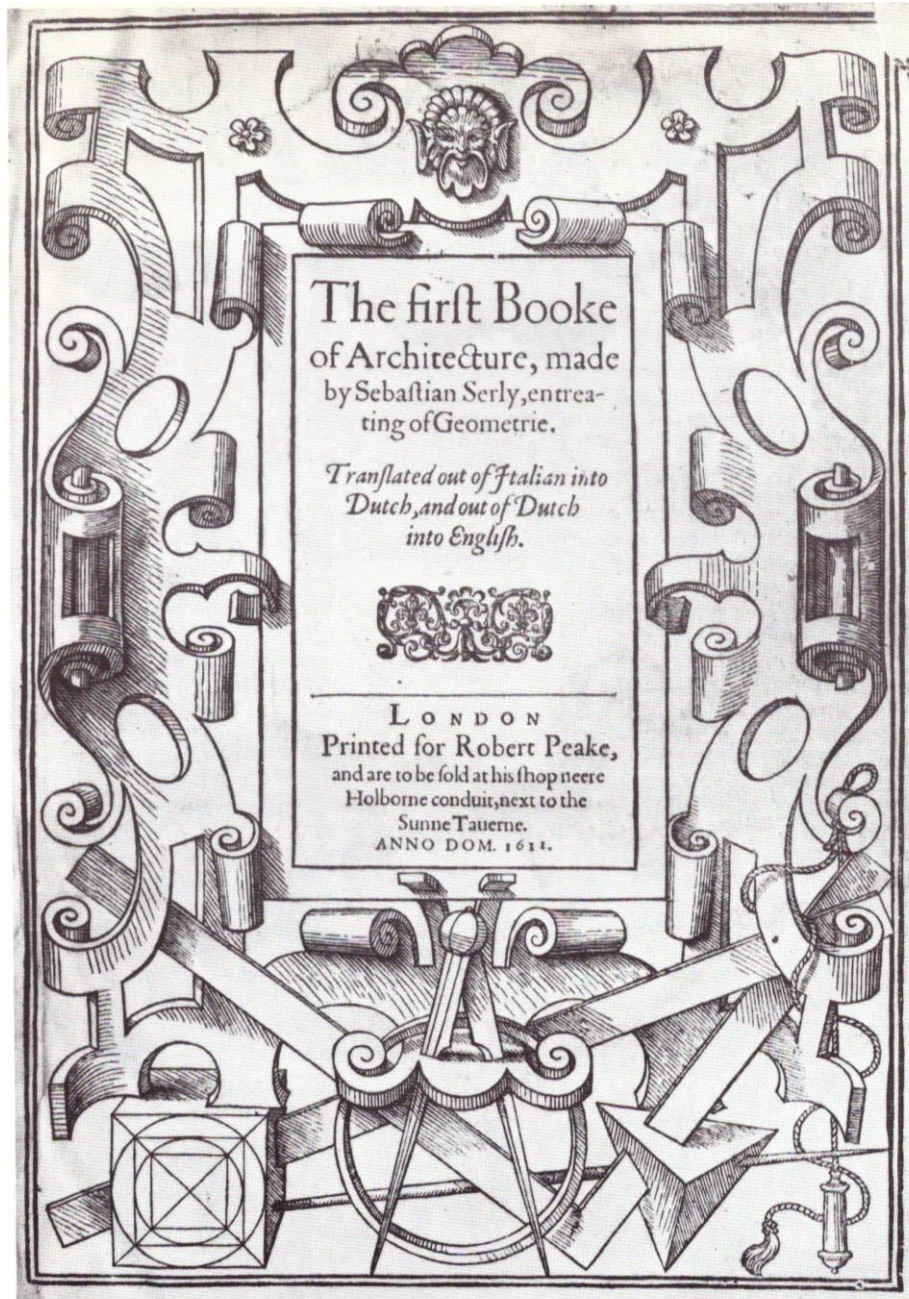


1.3

John Evelyn, 'The Instruments presented to the Eye by the Sculptor and referring to the numbers as they are described', in 'Elysium Britannicum' manuscript © The British Library Board, Add 78342, fols 57^v – 58.

1.3A

Detail showing item 43: 'The Foixt'.



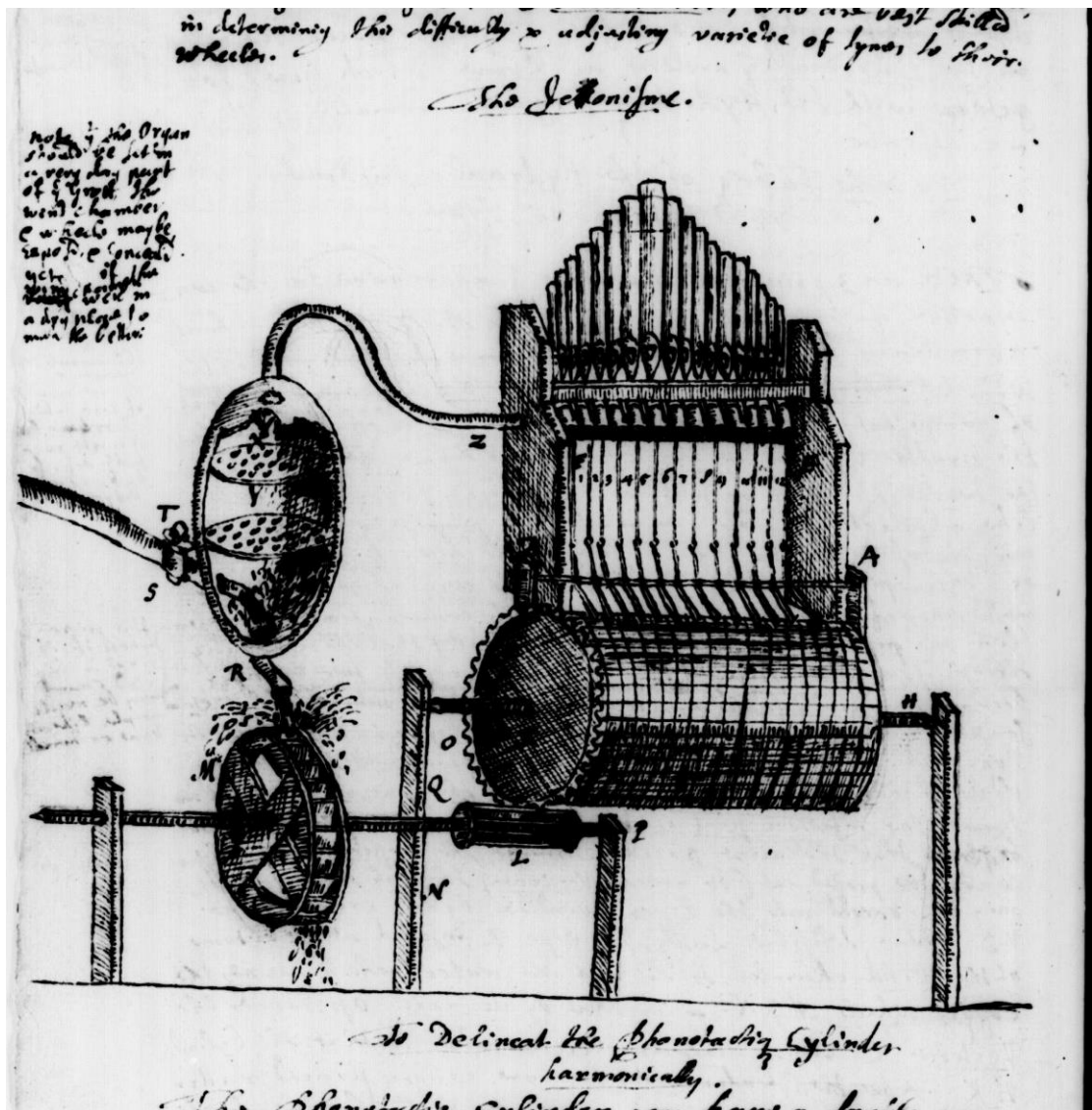
1.4

Frontispiece to Evelyn's copy of Sebastiano Serlio, *The First Booke of Architecture* [...] *entreating of Geometrie*, first English edition (1611) © Christie Manson and Wood Ltd., Catalogue of Sale, *The Evelyn Library*, Plate 19.



1.5

Tycho Brahe in his crypt observatory, from *Tychonis Brahe Astronomiae Instauratae Mechanica* (1598) © Author.



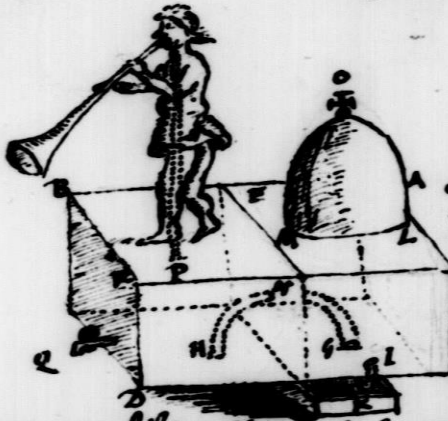
1.7

John Evelyn's drawing of a hydraulically operated 'Phonotactique Cylinder' after Athanasius Kircher, from the 'Elysium Britannicum' manuscript
 © The British Library Board, Add 78342, fol. 177^v.

Elysium Britannicum.

How to erect an Hydrolays or water Dyall, showing
giving notice of the hour by the sound of a
a Trumpet: for an example of Rerifaction.

The Figure:



The Figure of the siphons
and pipes, & severall Recepta-
cles, are very perspicuously descri-
bed in the Figure; This onely
shall suffice to explaine what may
appear most difficult:
That the passages leading in the
curved siphon through the Dia-
ma or partition N. must be carefully sothered: then upon the
cover of the second Chamber cutt a round hole some what
& sother or cement exactly to it a Concave Glass, made in
of a Cupola, viz: L O M, or it may be wrought of very thin
Plate: Then let a small pipe passe from the lower receptacle
I, where it must be fitted with a Valvulus to open at the orifice
the other mouth determines in the water. This done, Fill the
Receptacle wth water to a 3d, and expose the whole Machine
Sun, and when any side of the Cupola or Copper Hemispher
now hott, the water wth is thereby rarified in the larger
ix, will repell the it selfe by the Siphon G K H. The Cook
for the drawing forth of the water out of the larger Chamber
of the lesser by the Siphon K J. But this effect would follow
where no water in either, by the virtue of Rerifaction.

1.8

John Evelyn's drawing of a 'Water dyall', 'for an example of Rerifaction' from the 'Elysium Britannicum' manuscript © The British Library Board, Add 78342, fol. 185^v.

Chapter 2: Restoring Eden: Redemptive Labour in the Philosophico-Medicall Garden.

This chapter addresses Evelyn's Philosophico-Medicall garden, a specialised enclosure within the Elysium dedicated to the focused experimental practices of medically oriented botany and chymistry. If the last chapter established the Elysium as a representation of the wider world, constructed in part, as a domain of experiment, here the microcosmic image is developed in two further directions. Firstly, the garden is cast as an Eden, a commonplace of the period. Secondly, the garden is seen as a chymically conceived laboratory or chymical microcosm. Through the following discussions, we establish the religious frame of Evelyn's experimental endeavours and the importance of chymistry, both as an experimental pursuit particular to the Philosophico-Medicall garden and as an underlying 'philosophy' which informs the vision of cosmos. The garden emerges both as a place of delight, a vision of Eden, and as a purgatorial space, in which the practices of chymistry and gardening are seen as pious labours, directed towards the redemption of Fallen nature.

¹⁷ And unto Adam he said, Because thou hast hearkened unto the voice of thy wife, and hast eaten of the tree, of which I commanded thee, saying, Thou shalt not eat of it: cursed is the ground for thy sake; in sorrow shalt thou eat of it all the days of thy life;

¹⁸ Thorns also and thistles shall it bring forth to thee; and thou shalt eat the herb of the field;

¹⁹ In the sweat of thy face shalt thou eat bread, till thou return unto the ground; for out of it wast thou taken: for dust thou art, and unto dust shalt thou return.

Genesis 3, King James Bible.

Introduction

Near the beginning of the *Elysium*, Evelyn sets out the constituent parts of a noble garden, naming five different types of plot, which he regards as essential for its completion. These are the 'coronarie' or flower garden; the parterre; the orchard; the

vegetable garden, and the Philosophico-Medicall garden.¹ The vegetable garden and orchard, he explains, fall outside his current remit since he had published on those topics elsewhere.² Consequently, the Philosophico-Medicall garden is one amongst only three distinct categories of garden within the *Elysium*. It is relatively small, and quite concisely treated by Evelyn in the few pages of chapter XVII, ‘Of the Philosophico-Medicall garden’, but it is important, not least because it is an intensely focused experimental domain.³ As we have seen in the previous chapter, the more public areas of the *Elysium* certainly housed ‘experimental’ displays of various kinds, but in the more sequestered domain of the Philosophico-Medicall garden we find a dedicated laboratory type space, an enclosure focused more on the *work* of experiment, than the public display of marvels.

Evelyn explains the purposes that he has in mind for this botanico-medical domain, saying that it is a place which:

enlarg[es] our roome & opportunities for new & rare experiments for enfranchising strange plants & civilizing the wild and rude: for the easier knowledge of Physical Simples, for the culture {& entertainment} of forreigne plants, for the composition of medicines & the use of the Family & lastly (by all these) for the contemplation of Nature & the accomplishment of our Elysium.⁴

Amongst these contemplative and experimental intentions, the botanical and medical purposes of the garden take the foreground, but if there is room for plant experiments, there is also room for chymical experiments, for Evelyn furnishes the Philosophico-Medicall garden with a chymical laboratory. This is shown in the small sketch, or ‘Ichonisme’ explaining the layout of the plot, which Evelyn includes at the end of the chapter (FIG. 2.1). The sketch indicates two engaged pavilions attached to the garden wall, one to either side of the entrance gate. To the left, Evelyn places a house for the gardener and, to the right, he places an identical building (but with rather more emphatically drawn chimneys), which is somewhat indistinctly labelled, ‘elaboratory’, a

¹ *Elysium*, p. 32.

² Nicholas de Bonnefons, *The French Gardiner, Instructing How to Cultivate All Sorts of Fruit Trees and Herbs for the Garden ... First Written by R. D. C. D. W. B. D. N., and Now Transplanted into English by Philocephos. [John Evelyn]...* (London: John Crooke, 1658); John Evelyn, *The Manner of Ordering Fruit-Trees. By the Sieur Le Gendre, Curate of Henonville ...*, trs. by John Evelyn (London: Humphrey Moseley, 1660).

³ *Elysium*, pp. 403-410.

⁴ *Elysium*, p. 403.

fact that has escaped previous commentators. Meanwhile the text of the chapter outlines what might be produced in this facility. Evelyn says:

From hence has the ~~Master~~ of Lord of our Elysium, distilled Waters, Syrups, Conserves, Condited rootes, Oyles, powders {species} Decoctions, Unguents, Emplasters, Antidotes, Bathes, Clysters and whatsoever else is needfull upon any emergency or suddaine accident.⁵

The Philosophico-Medicall garden is intended to serve as an essential medical resource for the noble or royal household, providing the extended family with a cabinet of cures, some of which are clearly chymical preparations. Evelyn himself and his wife, Mary, collected recipes for just such cases.⁶

The practical chymical and medical intentions that Evelyn held for his Philosophico-Medicall garden have been acknowledged in the slight secondary literature devoted to this garden.⁷ But there is another dimension to Evelyn's chymistry, beyond the practical which has received no attention - a 'philosophical' dimension. A consideration of this opens an entirely new direction in the interpretation of this little garden, one that suggests that it may be read as a chymical microcosm. The endlessly flexible idea of microcosm lends itself to numerous specific interpretations, several of which may be simultaneously supported by a particular space. Thus, it would be possible to see in the Philosophico-Medicall garden a smaller image of the little world of experiment represented by Salomon's House, especially given that, like the *Elysium* at large, the Philosophico-Medicall garden also had a suite of experimental caves, equally reminiscent of Bacon's Salomonic Instrumental 'lower region'.⁸ These are located beneath the central feature of Evelyn's garden, a large pyramidal mount, which is perhaps reminiscent of the '*Poeticall and Fabulous*' descriptions of the '*Magnificent Temple, Palace, City, and Hill*' accessed by '*several Degrees of Ascent, whereby Men did climbe up to the same, as if it had been a Scala Coeli*', that Bacon includes in his account of the utopian island of his Atlantean tale. A Salomonic association might well

⁵ *Elysium*, p. 409.

⁶ London, British Library, Evelyn Papers, Add 78340; Add 78337.

⁷ John Prest, *The Garden of Eden: The Botanic Garden and the Re-Creation of Paradise* (New Haven; London: Yale University Press, 1981), p. 57, pp. 47-48; Therese O'Malley, 'Introduction to John Evelyn's "Elysium Britannicum"', in *John Evelyn's "Elysium Britannicum" And European Gardening*, ed. by Therese O'Malley, and Joachim Wolschke-Bulmahn (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), p.31.

⁸ cf. *Elysium*, p.405 and Francis Bacon, *New Atlantis a Work Unfinished / Written by the Right Honourable Francis, Lord Verulam, Viscount St. Alban* (London: 1658), p. 26.

have been amongst Evelyn's intentions for the garden.⁹ The arguments of this and the following chapter, however, construct an interpretation around two further microcosmic tropes, joining the primary chymical reading with the more commonplace idea that the garden is a recreation of Eden.

The chapter is structured to treat the Edenic theme first, addressing both the physical structure of the garden and the experimental activities housed within it. It argues that that the latter were informed by the Biblical story of the Fall from grace and expulsion from the Garden of Eden, and the associated idea of a Christian redemption through labour. Having established the religious and ethical frame of the Edenic image, the discussion moves to the chymical theme, pursuing a reading of the garden as a chymically conceived microcosmic laboratory, an idea predicated on the common Paracelsian idea of the chymical order of the cosmos.

The Philosophico-Medicall Garden as Eden: Description and Historiography

Evelyn's drawing of the Philosophico-Medicall garden is a conceptual sketch of an idealised design, dissociated from any actual place and, as such, expresses his underlying intentions with particular directness (FIG. 2.1). The sketch shows a highly regularised layout, in which the garden's parterre, mount, and woody 'theatre' for shade loving plants, are all ordered and regulating by an obvious geometric scheme. This is dominated by a tripartite structure, but also seeks, somewhat unsuccessfully in aesthetic terms, to accommodate a four quartered pattern in the entrance parterre.

The text of the chapter indicates that the Philosophico-Medicall garden should be situated in some part of the Elysium 'most obliged to the Sun'.¹⁰ In the sketch, the garden is oriented strictly to the cardinal directions, the sunny, flat parterre sheltered from the north by the central pyramidal mount. The plot, which is fairly large and fully enclosed, is entered through the southern boundary on an axial path.¹¹ This leads directly through the parterre past a large circular basin with a central water jet, to the

⁹ Bacon, *New Atlantis* (1658), p. 21.

¹⁰ *Elysium*, p. 403.

¹¹ The parterre measures 350 x 350 ft. according to Evelyn's *Ichonisme*. This is about the size of two football pitches.

base of the mount, which rises in a gradual ascent of twelve stages. At each stage there is a terrace, accessed by a double flight of stairs on the south face. The ascent eventually leads to a summit plateau, which is square in plan and is centred on a circular fountain with a central jet, similar to the one in the parterre below. Evelyn painstakingly details the dimensioning of this vast construction, which he explains is hollowed out beneath to provide experimental facilities. At the lowest stage of the southern face of the pyramid, he shows seven openings which lead into a ‘lower region’ of caves, which are to be used as ‘Conservatories’, the openings glassed-in or boarded-over in winter to keep the heat in.¹² On the concealed north face there are unseen entrances to other caves which descend far below the ground level, ‘circling & in meanders’ beneath the pyramid – their chilly recesses serving for ‘congelations and other [...] Philosophicall experiments’.¹³ Water flows from the upper and lower fountains, whilst rills run around the edge of the high plateau and along the borders of the main paths of the parterre, irrigating the beds. To the east and west of the mount lie a pair of curious, marshy pits which take the unlikely form of inverted pyramids. Evelyn describes these in his text as ‘bottomes’, suited to the cultivation of particular ‘aquatick plants, and such as affect fresh and coald places [...] bottomes so deepe as to [...] end in the watry & slushie’.¹⁴ To the north of the mount lies a semi-elliptical ‘theatre’, carved out of a thick grove of trees. Here, shade loving plants can be arranged on the steps.

Evelyn makes a few notes on his drawing. Besides bringing attention to the ‘gardiner’s dwelling’ and the ‘elaboratory’; he also inscribes the drawing with outline dimensions and, as a second thought, sketches a different form for the ‘reverberatory’ boundary wall, in which alternate round and square bays are substituted for the straight wall. A note also suggests an alternate shape for the mount - ‘Round like that at Paris’.¹⁵ Finally, hovering above the fountain at the summit of the mount, which even from the entrance to the garden announces itself as a goal of some sort, Evelyn has drawn a north point in the form of a cross. Whilst the conventional reading of this symbol relies on us understanding the cross to lie in a horizontal plane, it is difficult not to see the arrow as

¹² *Elysium*, p. 405. Evelyn refers the reader to the earlier Chapter XV for details, ‘Of Orangeries, {*Oporothecas*} and Conservatories of rare Plants & Fruites...’, *Elysium*, pp. 317-334.

¹³ *Elysium*, p. 405.

¹⁴ *Elysium*, p. 405.

¹⁵ *Elysium*, p. 410. Evelyn is referring to the artificial mount constructed in the Parisian Jardin du Roi on the site of a refuse tip, see Alain Mazas, ‘Le Belvedere du Jardin des Plantes de Paris’, *Journal of Garden History* 10 (1990), 1-9.

pointing upwards, indicating a further ascent beyond the summit of the mount. Given that the symbol is a cross, the ascent must surely be seen in Christian terms. It serves as a reminder of the overriding importance of Evelyn's religious beliefs in all of his endeavours, including his gardening and his chymistry, and reinforces the association of the garden with the first garden planted by God at the dawn of the world, the Garden of Eden.

The European commonplace that any garden is an Eden has its own particular valency when developed in connection with the botanical garden. In his study of this topic, John Prest describes how the botanical gardens of Early Modern Europe were typically ordered into primary geometric schemes of an *imago mundi* type, in variously elaborated four quartered schemes, either circular or, more usually, square (FIG. 2.2).¹⁶ The creators of these gardens and the botanical collections which they housed understood that, by bringing the plants of the world together in one place, they were reassembling the fragments of the long lost Garden - fragments that were commonly believed to have been dispersed by the universal deluge.¹⁷ Following the discovery of the Americas, the four quartered planting pattern became associated not only with the four quarters of the world, but also the four known continents. Planting schemes, unsurprisingly, sometimes took their cue from this idea, bringing together the plants from a particular continent in their appropriate quarter, thus adding a botanico-geographical layer to the geometric representation of cosmos.¹⁸

Prest's study includes the only treatment of Evelyn's Philosophico-Medicall garden of any substance, which, despite its brevity, offers an important point of departure for the following discussion.¹⁹ He explains how, whilst the parterre of the Evelyn's Philosophico-Medicall garden retains an echo of the simple geometric *imago mundi* found in botanical gardens such as those of Leiden or Oxford, in planning his garden, Evelyn follows another garden more closely. This is Jardin du Roi at Paris, the

¹⁶ Prest, p. 1

¹⁷ Prest, p. 42; see also John Dixon Hunt, *Garden and Grove: The Italian Renaissance Garden and the English Imagination 1600-1750* (London: Dent, 1986), p. 80.

¹⁸ Prest, p. 39, p. 40; Lucia Tongiorgi Tomasi, 'Projects for Botanical and Other Gardens: A 16th - Century Manual', *Journal of Garden History* 3 (1983), 1-34. For a summary of the cosmographic tradition see S. K. Heninger, *The Cosmographical Glass: Renaissance Diagrams of the Universe* (San Marino, Calif.: Huntington Library Press, 1977).

¹⁹ Prest, pp. 47-48.

site of his early chymical studies (FIG. 2.3).²⁰ In modelling the Philosophico-Medicall garden on this Parisian precedent, Evelyn adopts a different and ‘more scientific’ principle for his design - that of providing the diversity of terrain needed to support the variety of plants that he proposes to collect - a ‘compendium of what the whole Globe of the Earth has ~~growing~~ {flourishing} on her bososome’.²¹ The image of Eden appears in Evelyn’s design, both in the geometric patterning of the parterre and in the proposed endeavour to form a representative collection of botanical material. Prest’s description implies that the activity of collecting was seen by the gardeners of the time as a redemptive labour - a thought that introduces the central Edenic trope developed in this chapter.

Eden, Fall and Redemption: the Religious Frame of Experiment

If Edenic ideas inspired Evelyn’s vision of the garden as a blissful abode and embodiment of all Paradisian perfections, the ‘experimental’ labours he assigns to the Philosophico-Medicall garden also implicitly framed by an Edenic theme - the idea that through labour, the pious Christian might eventually re-establish the lost Paradise.²² This pious trope had considerable cultural currency in the Early Modern period, a background we can establish with reference to the work of other scholars, whilst characterising Evelyn’s own particular attitudes with reference to the *Elysium*, to his *History of Religion* and to the annotations that he made to his Bible.²³

²⁰ Prest, p. 47; F. Sherwood Taylor, ‘The Chemical Studies of John Evelyn’, *Annals of Science* 8 (1952), 285-292; Clara de Mint, ‘Early Chemistry at the Jardin Du Roi’, *Journal of Chemical Education* (1941), 503-509.

²¹ Prest, pp. 47-48; on Variety see Prest, p. 98; *Elysium*, p. 403-404.

²² O’Malley, pp. 9-33, (p. 18, p. 26); Joseph M. Levine, ‘John Evelyn: Between Ancients and Moderns’ in O’Malley, ‘Introduction to John Evelyn’s “Elysium Britannicum”’, in O’Malley (ed.), pp. 57-78, (p. 71); John Dixon Hunt, ‘Evelyn’s Idea of a Garden: A Theory for All Seasons’, in O’Malley (ed.), pp. 269-287, (p. 272); Bruce Janacek, *Alchemical Belief: Occultism in the Religious Culture of Early Modern England* (University Park, Pa.: Pennsylvania State University Press, 2011), pp. 137-140.

²³ John Evelyn, *The History of Religion: A Rational Account of the True Religion*, ed. by R. M. Evanson, 2 vols (London: Henry Colburn, 1850); the manuscript from which this text is derived was composed by Evelyn over a long period, starting in 1657. Evanson’s edition makes no attempt to distinguish between the various dates at which portions were written. Original manuscript is London, British Library, Evelyn Papers, Add 78367. Page nos. refer to Evanson. For dating see Hunter (1998), p. 100; Evelyn’s *Bible*, 2 vols (Cambridge: Thomas Buck and Roger Daniel, 1638), London, British Library, Evelyn Papers, Add 78360.

In the very first line of the *Elysium*, Evelyn evokes Adam, not in his Paradisian state, but as the Fallen protoplast, ‘exiled ... out of Paradise’. After the disastrous eviction Evelyn tells us that:

Adam instructed his Posteritie how to handle a Spade so dextrously, that in processe of tyme, men began, with the indulgence of heaven, to recover that by Arte and Industrie, which was before produced to them Spontaneously; and to improve the Fruites of the Earth, to gratifie as well their Pleasures and contemplations, as their necessities and daily foode’.²⁴

This opening statement of the potentials of ‘Arte and Industrie’ points to the theme of practical ‘usefulness’ which recurs throughout the *Elysium*, whilst placing the idea of gardening in a redemptive frame. Evelyn describes Adam’s descendants bringing forth plant life from the stubborn soil as a ‘sweete & most agreeable purition of their Sins’.²⁵ The background to this idea is that, when Adam Fell, the whole of created nature also suffered corruption, consequently, whilst the idea of redemptive labour could be applied to the spiritual state of the individual, it could also be applied to any endeavour directed towards the restoration of Fallen man’s corporeal or intellectual capacities, or the Fallen and corrupted natural world in which he lived. Here we find ample scope not only for religious contemplations, but also for the useful applications of the experimental natural philosopher. This is a well-worn theme amongst historians working within a variety of disciplines.²⁶

A primary study in this area, Charles Webster’s *The Great Instauration*, details the importance of such ideas in the interregnum circle surrounding Samuel Hartlib, of which Evelyn was a member, though his royalist associations kept him on the periphery of the group.²⁷ As Webster explains, Hartlib and his peers sought religious and

²⁴ *Elysium*, p. 29.

²⁵ *Elysium*, p. 29, n. 1.

²⁶ Philip C. Almond, *Adam and Eve in Seventeenth-Century Thought* (Cambridge; New York: Cambridge University Press, 1999); Peter Harrison, ‘Reinterpreting Nature in early Modern Europe: Natural Philosophy, Biblical Exegesis and the Contemplative Life’, in *The Word and the World: Biblical Exegesis and Early Modern Science*, ed. by P. J. Forshaw (Basingstoke, Palgrave Macmillan, 2007) pp. 25-44; Peter Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998); Scott Mandelbrote and J. A. Bennett, *The Garden, the Ark, the Tower, the Temple: Biblical Metaphors of Knowledge in Early Modern Europe* (Oxford: Museum of the History of Science in association with the Bodleian Library, 1998), p. 45-65, also available as www.mhs.ox.ac.uk/gatt/ [Accessed 05 02 2013]; Joanna Picciotto, *Labors of Innocence in Early Modern England* (Cambridge, Mass.; London: Harvard University Press, 2010); Charles Webster, *The Great Instauration: Science, Medicine and Reform, 1626-1660* (London: Duckworth, 1975).

²⁷ Michael Hunter, ‘John Evelyn in the 1650s,’ in O’Malley (ed.), pp. 79-106, (p. 81).

intellectual justification for their experimentalism through literal readings of the Biblical accounts of the Creation, the Fall, and the end of time, typically supporting these beliefs with Millenarian beliefs about the immanence of the Second Coming.²⁸

Peter Harrison gives additional nuance and scope to this picture in his detailed study of the cultures of experiment in the Early Modern period in relation to various practices of Biblical exegesis. His work ranges over a broad spectrum of cultures, including the culture of High Anglicanism, where Evelyn found his religious home.²⁹ The core of Harrison's argument, as it touches the topic of Eden, is that at the Reformation many parts of the Bible were read for the first time primarily as historical accounts. Whereas traditional exegesis sought to interpret the chapters of Genesis allegorically, reading Scripture as a contemplative exercise directed towards the perfection of an individual's '*scientia*' (their learning or spiritual development), in distinction, post Reformation Protestants started to see the same chapters as literal truth. The book of Genesis effectively became a treatise of natural philosophy penned by Moses.³⁰ Exceptions to this literalism were allowable, as for example when interpreting scriptural passages as parables that give moral guidance, but where no moral message was discerned, the Bible was approached as a repository of historical, geographical, artistic or technical information.

Although several studies have been devoted to Evelyn's religious practices and ideas, there is no existing treatment of his Bible reading practices.³¹ To address this topic in any depth must be beyond the scope of this thesis, but reference to Evelyn's Bible annotations in conjunction with his posthumously published *History of Religion* indicates that his attitudes accord with the general picture sketched by Harrison.³² A few

²⁸ Webster (1975), pp. 1-31; Evelyn did not share the millenarian aspect of these beliefs, see Michael Leslie, "Bringing Ingenuity into Fashion"; the "Elysium Britannicum" and the Reformation of Husbandry', in O'Malley (ed.), pp. 131-152, (pp. 141-143).

²⁹ Harrison (1998), pp. 121-160; Harrison (2007), pp. 25-44.

³⁰ Harrison (2007), p. 26.

³¹ Frances Harris, *Transformations of Love: The Friendship of John Evelyn and Margaret Godolphin* (Oxford: Oxford University Press, 2003); John Evelyn, *A Devotionarie Book of John Evelyn of Wotton, 1620-1706*, ed. by Walter Frere (London: John Murray, 1936); Florence Higham, *John Evelyn Esquire: An Anglican Layman of the Seventeenth Century* (London: SCM Press, 1968); John Spurr, "A Sublime and Noble Service": Evelyn and the Church of England', in *John Evelyn and His Milieu*, ed. by Frances Harris and Michael Hunter (London: British Library, 2003), pp. 145-164.

³² Hunter (1998), p. 93.

fragments of this material can help illustrate this claim, whilst establishing the tenor of Evelyn's engagement with the central metaphor of Edenic corruption and redemption.

In a Bible which Evelyn acquired in 1650, he made copious annotations, including many notes in the margins of the first book of Genesis. These indicate that he primarily sought a literal meaning in the text, but allowed some elements of 'typological', moral interpretation. Thus, he made the inscription:

There is doubtlesse a spirituall mystical sense by way of type, from the material world, so the Intellectual: The Chaos (which God did not blesse) may signifie (without violating the letter) the dark and confused state of sin, & to what it does reduce the world.³³

Note his parenthetical caution that any 'typological' interpretation should not be taken too far – reading should be made 'without violating the letter'. In other words, the literal truth of the Bible must not be subverted or displaced by other readings. This attitude is carried over into his accounts of Adam and of Eden.

Evelyn was quite certain that Adam was a real historical person, who in his prelapsarian state enjoyed a full range of perfections. In the *History of Religion*, he describes the 'Protoplast' in the following terms:

O happy sovereign then, whose empire once was the whole world; whose palace was the spacious earth, whose canopy was the starry heavens, whose vassals were all the creatures; whose food was paradisian; clothing innocence; conversation, angels; whose law was refined reason, without passion, without fear, want, sickness, or death itself.³⁴

Adam was the perfect and uncorrupted man:

a person of such singular majesty, beauty, strength, and other abilities, and, next, (of all earthly creatures) in perfection to the Divine Intelligences - in consummate fruition of all good suitable to his nature and constitution, [...] with power and dominion over all the world, over all his own faculties also, concredited to him by his bounteous Maker. He was, as we said, created with a clear and bright understanding, freedom of will, and, as the rest of God's creatures, perfectly good, but indeed not immutable, as left in the counsel of his own hands.³⁵

³³ Add 78360, fol. 12.

³⁴ Evelyn (1850), vol I, p.38.

³⁵ Evelyn (1850), vol II, p.8.

When Adam Fell he lost not only his blessed goodness, but also pan-sapience, perfect health, perfect senses, and obedient fellow creatures, the soil became ‘stubborn’, he was condemned to labour for his food.

As was common, Evelyn also believed in the existence of the Garden of Eden as a real terrestrial place.³⁶ Again in his marginal notes to Genesis, he summarises the arguments for and against various views of the location of the lost Garden, saying:

Garden or paradise, where situated much controverted: some placed {it} extraterraens some in the 3d Heaven, whither St. Paul was rapt, & where grow those intellectuall Trees whence our first parents were brought down after their transgression:

continuing:

Clemens Alexand.[...illegible...] places it in the 4 Heaven. To these might be added Origen etc. [...illegible...], whilst the Rivers mention'd in the Text sufficiently confute them; the most likely, and receiv'd opinion being, that this Garden or Country (for we must not fancy it to be of narrow Compasse, like our Gardens & villas) was about Damascus there being a Citty (long standing) called Eden not far from thence, built in memorie of that delicious abode as geographers affirme.³⁷

To Evelyn, the terrestrial paradise was not a metaphor. It had a site, a terrain, four rivers, and he no doubt shared in the common hope that, even if the Garden itself had long since disappeared, the territory where it once stood might yet be firmly established and explored.³⁸

In summary, in Evelyn's milieu, a concern with restoring the lost perfections of Eden served as inspiration for the useful, or ‘operational’ aspects of experimental natural philosophy, conceived as a pious endeavour oriented towards alleviating sufferings of Fallen mankind. Edenic metaphors thus inform not only the spatial structure of Evelyn's garden, but also the ‘Philosophico-Medicall’ activities housed within it. With this thought we turn to the primary theme of this chapter - the idea that

³⁶ Alessandro Scafi, *Mapping Paradise: A History of Heaven on Earth* (London: British Library, 2006); Peter Harrison, (1998), pp. 126-127.

³⁷ Add 78360, fol. 13.

³⁸ Scafi, pp. 284-323; Harrison (1998) p.127; Mandelbrote, ‘The Garden’ at <www.mhs.ox.ac.uk/gatt/>.

the Philosophico-Medicall garden is most fruitfully interpreted in terms of ‘philosophical’ chymistry.

Chymical Cosmos, Chymical Garden

It is curious that no one has previously thought to pursue an interpretation of the Philosophico-Medicall garden in terms of Evelyn’s chymical thought, for the important place that he gave to chymical practices in the *Elysium* has been known for some time. It is generally acknowledged that Chymical preoccupations not only informed the programme of activity that Evelyn envisaged for the Philosophico-Medicall garden, but also found expression in the now lost third book, in a chapter devoted to ‘The Gardiner’s elaboratory, and of distilling, and extracting of Waters, Spirits, Essences, Salts, Resuscitation of Plants, with other rare Experiments ...’.³⁹ In addition, the Paracelsian or chymical elements of Evelyn’s understanding of nature, expressed in the *Elysium* has been known since Michael Hunter’s summary of Evelyn’s intellectual interests in the 1650s, first published in 1981. Despite these incitements, no one has previously thought to offer a chymical interpretation of the garden.

The interpretation offered here opens with a consideration of the ‘philosophical’ remit of chymistry, expressed through the words of the Paracelsian chymist, Nicaise Lefebvre. Lefebvre was the ‘most prominent chemist of the mid-century’ England, appointed as the resident chymist at St James’ Palace, by Charles II, after the Restoration.⁴⁰ He was also one of Evelyn’s three principal known teachers in chymistry

³⁹ O’Malley, ‘Introduction’ in *John Evelyn’s “Elysium Britannicum” [...]*, ed. by O’Malley and Wolschke-Bulmahn (1998), p. 31; Frances Harris, ‘The Manuscripts of the “Elysium Britannicum” in *Elysium Britannicum or the Royal Gardens*, ed. by John Ingram (Philadelphia: University of Pennsylvania Press, 2001), pp. 13-19, (p. 16); for some of the contents of this lost chapter see Juliet Odgers, ‘Resemblance and Figure in Garden and Laboratory: Gaffarel’s Influence on John Evelyn,’ in *Jacques Gaffarel: Between Magic and Science*, ed. by Hiro Hirai (Rome, Pisa: Serra, 2014), pp. 85-107; full title of the chapter see Appendix 1 of this thesis.

⁴⁰ Variant spellings: Le Fèvre/ Lefebure/ Le Febvre; also Nicaise/ Nicholas; A. Guerrini, ‘Chemistry Teaching at Oxford and Cambridge, Circa 1700’, in *Alchemy and Chemistry in the 16th and 17th Centuries*, ed. by Piyo Rattansi and Antonio Clericuzio (Dordrecht, Boston, London: Kluwer Academic Publishers, 1994), pp.183-199, (p. 184); Allen Debus, *The French Paracelsians: The Chemical Challenge to Medical and Scientific Tradition in Early Modern France* (Cambridge: Cambridge University Press, 1991), pp. 125-130; Antonio Clericuzio, *Elements, Principles and Corpuscles* (Dordrecht, Boston, London: Kulwer Academic Publishers, 2000), pp. 168-169, (p. 4); L. Thorndike, *A History of Magic and Experimental Science*, 8 vols (Columbia NY: Columbia University Press, 1923–1958, 1958), vol 7, pp. 131-133, pp. 135-137; Sherwood Taylor (1952); Harris, *Transformations* (2003), p. 16.

(the others are Annibal Barlet and William Davidson) and, as stated in the Introduction, was an important source for Evelyn in formulating the chymical side of his understanding of Nature. He writes:

Chymistry is nothing else but the Art and Knowledge of Nature it self; that it is by her means we examine the Principles, out of which natural bodies do consist and are compounded; and by her are discovered unto us the causes and sources of their generations and corruptions...

Tracing chymistry to its supposed ancient roots, he continues:

it is known, that the ancient Sages have taken from Chymistry, the occasions and true motives of reasoning upon natural things, and that their monuments and writings do testifie this Art to be of no fresher date then Nature it self. To this do agree the testimony of the holy Scriptures, by whom we are taught, that even in the Worlds Infancy, *Tubal-Cain* the eighth of Mankinde from *Adam*, descended of *Cain's* line, was an expert Artist.⁴¹

Coeval with ‘Nature it self’, chymistry was understood to be the key that unlocks the secrets of the creation. It provided a model for universally valid processes of generation and corruption at every scale, from the vastness of the cosmos, to the smaller economy of the individual being. This attitude was typical of the Paracelsian chymical philosophers from whom Evelyn acquired his early education in chymistry.⁴²

One expression of the universal validity of chymistry is found in the metaphor that casts the cosmos as a vast chymical apparatus. Evelyn was clearly familiar with the idea, for it underpins a drawing that he made in a small *vade mecum* volume, now held in the Houghton Library, at Harvard University (FIG. 2.4).⁴³ The drawing is available on the Houghton Library website, but is not accompanied by any commentary either here or elsewhere. However, a comparison between this image and the work of another of

⁴¹ Nicaise Lefèvre, *A Compendious Body of Chymistry, Which Will Serve as a Guide and Introduction Both for Understanding the Authors Which Have Treated of the Theory of This Science in General* (London: Tho. Davies and Theo. Sadler, 1662), pp. 1-2.

⁴² Allen George Debus, *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries* (New York: Science History Publications, 1977), pp. 84-96.

⁴³ Debus (1991), p. 11; Debus (1977), pp 84-96; John Evelyn, [Commonplace book]: AMs (unsigned); [n.p.], 1690, Cambridge, Mass., Houghton Library at Harvard University, MS Eng 992.7, the Harvard University Library catalogue dates the book as 1690, though the title page, which is in Evelyn’s hand, declares the book to have been started in 1650. The furnace drawing appears near the end of a section ‘*Sententiae*’, that is ‘Aphorisms’ and, judging from the handwriting, belongs neither to the earliest nor the last period of the book’s composition.

Evelyn's teachers, William Davidson, shows Davidson to have been the ultimate source of the ideas and structures embedded in Evelyn's drawing, though the specifics of Evelyn's 'subliming' apparatus do not appear to have been derived from Davidson and may perhaps have been based on Rudolph Glauber's (1604 – 1670) work on furnaces, a copy of which Evelyn owned (FIGS. 2.5, 2.6, 2.7).⁴⁴ The fact that Evelyn includes the figure of a five pointed star, hovering above the mouth of the furnace, may indicate that he composed the drawing himself, for he used this as a personal cypher from the 1640s onwards.⁴⁵

Evelyn's subliming apparatus rises from a four square brick base, to a transparent zone of three stacked glass vessels, crowned by a radiant 'sun' finial (FIG. 2.4). The drawing is annotated with several parallel systems of symbols and legends, which indicate that the furnace can be read at cosmic scale. One of these systems is most explicit in this regard – that is, the system of planetary symbols mounted on the central axis of the furnace wall and, above that, on top of each of the three stacked glass vessels. These seven symbols indicate a progress through the heliocentric cosmos from dark, distant Saturn, at the base of the tower; through Jupiter; Mars; and the moon; Venus; Mercury; finally arriving at the apex of the apparatus and the radiant sun, which is flanked by the legend, '*Lux Metaphysica*'. The cosmos is a chymical apparatus, the apparatus is a whole world – it is a chymical microcosm.

The relevance that this chymical vision of cosmos holds for our current discussion becomes clear when we consider that, at the end of the chapter 'Of the Philosophico-Medicall garden', Evelyn invites his reader to see the Ichonisme of the garden specifically in chymical terms. This invitation comes in a paragraph (entirely overlooked in the secondary literature), which serves both as a caption to his sketch of the garden and as a segue into the following chapter 'Of Wonderfull and Stupendious

⁴⁴ See British Library holdings of: William Davidson, *Philosophia Pyrotechnica Seu Curriculum Chymiatricus* (Paris: Bessin, 1633-35); William Davidson, *Commentariorum in Sublimis Philosophi et Incomparabilis Viri Petri Severini Dani Ideam Medicinæ Philosophicæ Prope Diem Proditorum Prodomus* (Den Haag: Vlacq, 1660); William Davidson, *Les Elemens de la philosophie de l'art du feu ou chemie.*, trs. by Jean Hallot (Paris, 1651, 1657); for commentary on Davidson see Jole Shackelford, *A Philosophical Path for Paracelsian Medicine: The Ideas, Intellectual Context, and Influence of Petrus Severinus (1540/2-1602)* (Copenhagen: Museum Tusculanum Press, 2004), pp. 403-454; Johann Rudolph Glauber, *Furni Novi Philosophici, Sive Descriptio Artis Destillatoriae Novæ, Etc* (Amsterdam: apud Joannem Janssonium, 1651), British Library call number for Evelyn's copy Eve.a.81.

⁴⁵ Harris, *Transformations* (2003), p. 61; see also Harriet Sampson, 'Appendix A' in John Evelyn, *The Life of Mrs. Godolphin*, ed. by Harriet Sampson (London: Oxford University Press, 1939), pp. 212-217.

Plants'.⁴⁶ Employing a highly uncharacteristic, cryptic prose style, characteristic of many 'alchemical' texts, Evelyn writes as follows:

There are yet who have discoursed of {an} other *Philosophicall* Garden, which concernes the Vegetable worke in *Physick* whose principal fire is the stomach of the Estrich, the mould the best vegetable *Saturne*, made contrite by the ~~imbi~~ fruitfull imbibitions of the *Aqua Cælestis*, which produces most strange {miraculous} & glorious plants, flo: & trees, such as yet we have never encountered amongst the spontaneous growers of nature; but we refer the curious reader to the true Sonns of Art whilst we shall in the next chapter {present him} with some natural rarities, for the most part strangers to our Elysium as yet, not in lofty words but plaine & veritable narrations, & in such Instances as will become both our ~~Wonder~~ {wonder &} astonishment ~~and~~ But first we behold our ~~Physi~~ Garden of Simples {thus reppresented} in Perspective:⁴⁷

Thus Evelyn associates his Philosophico-Medicall garden with this 'other *Philosophicall* Garden' tended by the 'true Sonns of Art' - the '*adepti*', a class of philosophical chymists who concerned themselves not merely with the production of everyday cures, but with arcane or hidden matters, the grandest of which was the Philosopher's Stone or its medical equivalent the Red Elixir. We return to this topic in an extended 'alchemical' reading of the garden in the next chapter. Here, the caption serves the more immediate and limited purpose of establishing the general direction and legitimacy of a chymical reading.

Evelyn's uncited source for the phrases of his caption is a work entitled, *The Garden of Eden*, a book by the widely read Elizabethan inventor, gardener and chymist/chemist Sir Hugh Plat (c.1552 – 1608).⁴⁸ Though Evelyn's interest in Plat is well-known, this particular dependence has not previously been noted.⁴⁹ For the most part, Plat's book offers pragmatic horticultural advice, delivered in straightforward terms, but one chapter is written in a different style and has a different, chymically oriented content. The chapter is entitled 'A Philosophicall Garden: with a touch of the

⁴⁶ *Elysium*, Chapter XVIII, 'Of Wonderfull and Stupendious plants', pp. 411-419.

⁴⁷ For my usage of 'alchemical' see Glossary above; *Elysium*, p. 410.

⁴⁸ Sir Hugh Plat, and Charles Bellingham, *The Garden of Eden, or, an Accurate Description of All Flowers and Fruits Now Growing in England with Particular Rules How to Advance Their Nature and Growth, [...] 3rd ed.* (London: Printed for William Leake, 1654); other editions appeared in 1652, 1663. The work first appeared with minor differences as Sir Hugh Plat, *Floraes Paradise [...]* (London: Printed by H. L[ownes] for William Leake, 1608).

⁴⁹ Malcolm Thick, *Sir Hugh Plat: the Search for Useful Knowledge in Early-Modern London* (London; Totnes: Prospect, 2010), p. 45, p. 85; Evelyn cites Plat in chapter X, 'Of the Mould and Soile of a Garden', *Elysium*, pp. 65-73, (p. 67).

vegetable worke in physicke, whose principall fire is the stomacke of the Ostrich’ – Evelyn’s dependence is clear from the vocabulary alone.⁵⁰ A short examination of this source will help to characterise the field of references encompassed by Evelyn’s cryptic, Plat-based phrases. Plat’s chymical chapter moves seamlessly from a description of a process for ‘redeeming’ spent soil by exposing it to the ‘influences’ of heaven in a specially constructed brick tank; to the evocation of a wonder working arboriculture, practiced by ‘the alchemist’, in the person of George Ripley (c. 1415 – c.1490); finally arriving at the ‘Vegetable worke in *Physick*’, which proves to be the preparation of a ‘miracle working’, ‘ruby red’ medicine.⁵¹ The special brick tank, the garden of miraculously fruiting trees, the chymist’s flask, the Garden of Eden, the pages of Plat’s book - each and all of these is, by implication, a ‘*Philosophicall Garden*’.

Looking closely at the Philosophico-Medicall garden Ichonisme caption, it seems that Evelyn intends *his* ‘other *Philosophicall Garden*’ to refer to both the garden presented in his sketch and the chymical vessel which contains ‘the Vegetable worke in *Physick*’ – that is to say the chymist’s flask, but the larger sphere of reference is surely implied and would have been recognised by at least some of his readers, for his chymist friend, Thomas Henshaw, was well versed in Plat’s work.⁵² The Philosophico-Medicall garden pictured in the Ichonisme is then a chymically conceived enclosure, analogous to these other chymical vessels. It is an enclosure in which the philosophical gardener could carry out his ‘redeeming’ experiments, in ‘Conserving, Properating [sic], Retarding, Multiplying, Transmuting and altering of Species, Forms, and substantial qualities of Plants and Flowers’, to quote the title of one of Evelyn’s lost *Elysium* chapters, whilst conducting a variety of other ‘chymical’ procedures in the caves beneath the mount, or in the ‘elaboratory’ overlooking the parterre.⁵³ Each of these ‘vessels’ – the garden, the cave, and the laboratory flask – was understood to be subject to the same, universally valid, chymically conceived natural processes.

⁵⁰ Plat (1654), pp. 167-175; see Janacek, pp. 141-142.

⁵¹ Plat (1654), p.167-168; p. 169; p. 174.

⁵² Thick, pp. 373-375.

⁵³ See Appendix 1.

Chymically Conceived Processes in the Natural World

When Evelyn comes to explain the ‘generation’ and growth of plants, unsurprisingly he does so in chymical terms. He describes the maturation from seed to shoot in terms of the process of ‘fermentation’, writing:

these Seminall and apt masses, convening under the Earth, in proper, but variously dispos’d and characteris’d recipients; being (as we affirm’d) actuated and *fermented* by the universal Spirit (which imparts to them both heate and moysture) ~~they~~ come to put forth themselves.⁵⁴

Similarly, ‘the most exquisitely *elaborated* juice, advances into buds, blossomes and flowers’ and, writing of mature trees, he conceives of the vital activity of the plant in terms of a chymical heat, ‘this flame & Spirit’, and saying that the foliage of deciduous trees falls ‘for want of sufficient heate to draw up *meteorise*, and exhalt it’.⁵⁵

‘Exhaltation’ is a chymical process in which the material in the chymist’s flask is subjected to repetitive ‘dissolution’ and ‘coagulation’, thus bringing the chymical substance to ‘higher’ state of purity and potency.⁵⁶ It is as if each plant or tree is a little chymical vessel.

At a grander scale we find similar metaphors in play when Evelyn describes the weather. To understand this, some technical detail is necessary, for Evelyn treats the rain, thunder and lightning in terms of the Paracelsian concept of the ‘three principles’. He explains these concepts in chapter III of the first book, the chapter ‘Of the Principles and Elements in generall’.⁵⁷ The Paracelsian principles, or ‘*tria prima*’ – ‘Sulphur’, ‘Salt’ and ‘Mercury’ - are characteristic qualities or ‘denominations’ of the Universal Spirit, ‘unical in *Essence* though differing in Name according to the varietie of qualities and effects’.⁵⁸ They are immaterial, vivifying ‘energies’ that infuse themselves into corporeal matter. Occasionally, but not consistently, Evelyn uses the prefix ‘our’ to distinguish the principles, ‘our Salt’, ‘our Sulphur’ and ‘our Mercury’ from:

⁵⁴ *Elysium*, p. 78.

⁵⁵ *Elysium*, p. 79, p. 74.

⁵⁶ Lyndy Abraham, *A Dictionary of Alchemical Imagery* (Cambridge: Cambridge University Press, 1998), p. 72.

⁵⁷ *Elysium*, pp. 36-41.

⁵⁸ *Elysium*, p. 37.

those {concrete juices and} grosse substances commonly knowne by those names; and sold in Shops, which are indeede but the result of grosser principles, proceeding from masses of Atomes.⁵⁹

In summary, the three principles stand in dynamic relation to Aristotle's four elements - fire, air, water and earth - which Evelyn conceives of as material bodies, composed of clusters of 'Atomes'. In themselves, the elements are inert. They form the 'matrix' which, in order to become active, must be 'vivified' by Spirit.⁶⁰

Opening his chapter 'Of the Celestiall Influences' with a discourse on 'meteors', Evelyn imagines the 'Pyromantic', who, if he can 'attaine a certaine cognisance of the Principles' in the laboratory, might learn:

[...] to know of what Sulphure the Lightenings; and other meteors are compos'd; of what Salt the Thunderbolt; of what Mercury the Raines'.⁶¹

The rain that falls on his Philosophico-Medicall garden, drenching the parterre beds and running down the steps of the mount to trickle into the marshy 'bottomes', is a Mercurial rain, a rain 'impregnated with the Universall Spirit, which descending in gentle irrigations upon her, becomes that powerfull Agent, the father {& life} of all productions'.⁶² The three principles are of primary importance and, with the four elements, they provide Evelyn with an elaboration of the fundamental explanatory structure of created nature - the interaction of the Universal Spirit with elemental matter.

At the smaller scale, Mercury and Sulphur, are responsible for colour in plants (Mercury), and 'odoriferous undulations of {the } Sents from {of} Flowers and other bodies' (Sulphur) Salt is responsible for the tastes of things - tastes which 'varie, remitt, and intende proportionably as [...] {they} {ææ} blended with the two former substances'. Consequently:

The Simple is purely *Salt*; that which is mixed with *Sulphur* is sweete; with *Mercurie* Egre; and compounded with them all, bitter, asper, sower etc. these substances being nowhere incountered Solitarie, as truely insperable.⁶³

⁵⁹ *Elysium*, p. 39.

⁶⁰ *Elysium*, p. 37.

⁶¹ *Elysium*, pp. 55-59, (p. 55).

⁶² *Elysium*, p. 61

⁶³ *Elysium*, pp. 39-40.

‘Our Sulphur’, ‘our Mercury’ and ‘our Salt’ are not abstractions for Evelyn. Their real presence is discernible in the everyday material/spiritual ‘mixts’ encountered in both garden and laboratory. We may imagine these spaces as intensely sensual domains, spaces in which the wonders of Nature are encountered in vivid experiential interactions, as the chymist-gardener’s trained senses are brought to bear in manipulating the ‘earth’ and its ‘most strange’ growths, whether these be found in the flask or in the flower bed.

The primary metaphor, that the garden is a laboratory conceived in chymical terms, has been presented here as an image rooted in concepts supported by the Paracelsian chymical philosophy. However, the image, or its obverse - that the laboratory is a garden – had a much broader cultural currency. The long tradition of cryptic chymical writing and graphic illustration, reaching back to antiquity, frequently employs floral, horticultural or agricultural images to represent chymical processes.⁶⁴ Closer to Evelyn we also have the example of Robert Boyle. Boyle explicitly attacked the Paracelsian principles and Aristotelian elements, so central to Evelyn’s chymico-mechanical understanding of Nature, but still employed the image, writing to his sister in 1649 that: ‘Vulcan has so transported and bewitched me, that as the delights I taste in it make me fancy my laboratory a kind of Elysium’.⁶⁵ Similarly, Elias Ashmole’s *Theatrum Chemicum Britannicum* - a compilation of much older pre-Paracelsian English chymical works - contains contributions such as ‘BLOOMFIELDS BLOSSOMS; OR, the Campe of Philosophy’, the ‘campe’, or ‘field’ here being the matter in the chymist’s glass.⁶⁶ Consequently, Evelyn was using a broadly recognised image in proposing, however cryptically, that his garden is analogous to the chymist’s flask (FIG. 2.8). What marks his image as specifically Paracelsian is his broader recourse

⁶⁴ Janacek, pp. 136-145; Gareth Roberts, *The Mirror of Alchemy: Alchemical Ideas and Images in Manuscripts and Books; from Antiquity to the Seventeenth Century* (London: British Library, 1994), p. 82; Abraham p. 147, p.101.

⁶⁵ L. Principe, *The Aspiring Adept: Robert Boyle and his Alchemical Quest: including Boyle's "lost" Dialogue on the transmutation of metals* (Princeton, N.J.; Chichester: Princeton University Press, 1998), pp. 27-62; Letter from Mr. Boyle to the Countess of Ranelagh, Stalbridge Aug. the last 1649, *The Works of Robert Boyle*, ed. by Edward B. Davis, and Michael Hunter, 14 vols (London: Pickering & Chatto, 1999-2000), vol I, pp. 82-3.

⁶⁶ ‘Bloomfields Blossoms; or, the Campe of Philosophy’ in *Theatrum Chemicum Britannicum: Containing severall poetickal pieces of our famous English philosophers, who have written the hermetique mysteries in their owne ancient language. Faithfully collected into one volume, with annotations thereon, by Elias Ashmole, Esq. Qui est Mercuriophilus Anglicus...* (London: Printed by J. Grismond for Nath: Brooke, at the Angel in Cornhill, MDCLII. [1652]), pp. 305-323.

to the idea of the three principles, and the idea of Nature as the Universal Spirit. This justifies the characterisation of Evelyn's garden as a Paracelsian chymical microcosm.

Conclusion

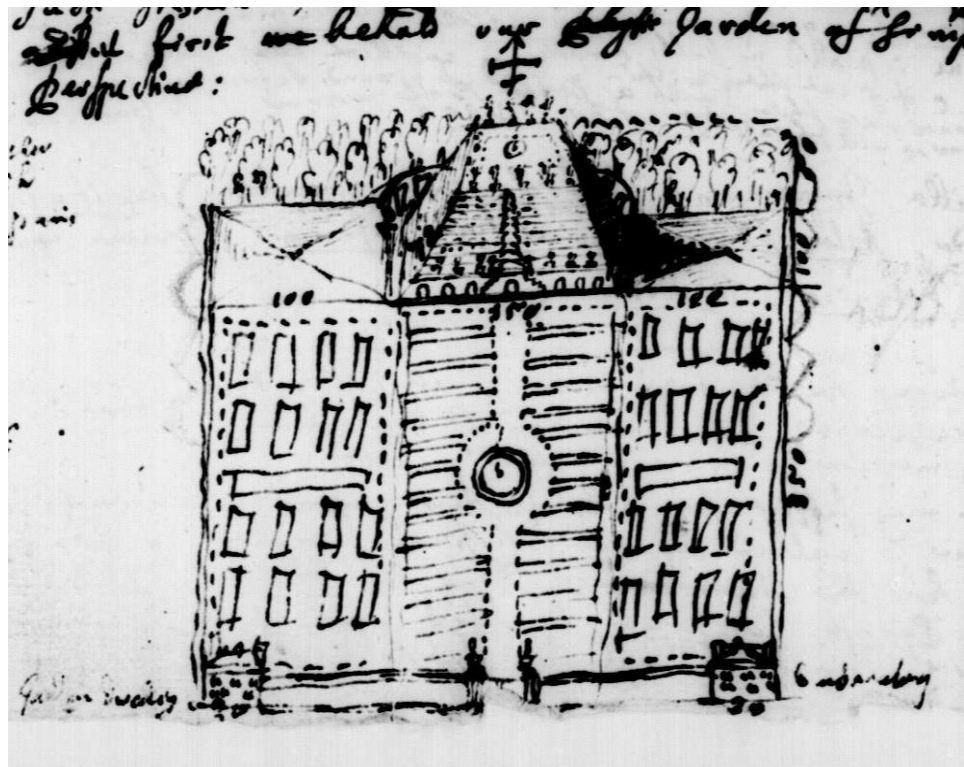
The image of paradise lost and regained had huge potency as an ethical frame for experimentalist endeavours in natural philosophy during the sixteenth and seventeenth centuries. In consequence, the Edenic experimental garden attained a somewhat ambivalent character - on the one hand, the spaces of the garden could be seen as an embodiment of all prelapsarian perfections and, on the other, the same spaces were spaces of labour - they were purgatorial spaces.⁶⁷ As in the garden, so in the laboratory. If Boyle thought of his laboratory as an elysium, Evelyn recorded his intention to place the motto: 'Purgatorium' in his garden laboratory at Sayes Court, 'over the: Melting Funas'.⁶⁸ If this was a reference to the purging fires within, it may equally be seen as an evocation of the purgatorial frustrations of the work of the chymist at his, or her, stills. In the Philosophico-Medicall garden and the Philosophico-Medicall laboratory, work was piously directed towards the project of terrestrial redemption. Here the gardening chymists might apply themselves to remedies for the spent soil; the sickly plants; the failing health and dimmed senses that were the legacy of original sin. The motivational framework was common to the circles in which Evelyn moved, and finds its particular expression in his Philosophico-Medicall garden, through metaphors supported by the chymical philosophy, a tradition that Evelyn associated closely with the *Jardin du Roi* in Paris, the site of his early chymical studies and the exemplary botanico-chymical institution that inspired the design for his *Elysium's* botanical enclosure.

The next chapter continues with the chymico-Hermetic line of interpretation, for there is one further metaphor which links the themes of chymistry and redemptive work. This is the idea of gold making. The reader may have noticed that both Evelyn's Harvard furnace drawing and the Philosophico-Medicall garden Ichonisme are structured around a gradual ascent, a progressive movement towards the transcendent

⁶⁷ Picciotto, p.104, pp. 108-109.

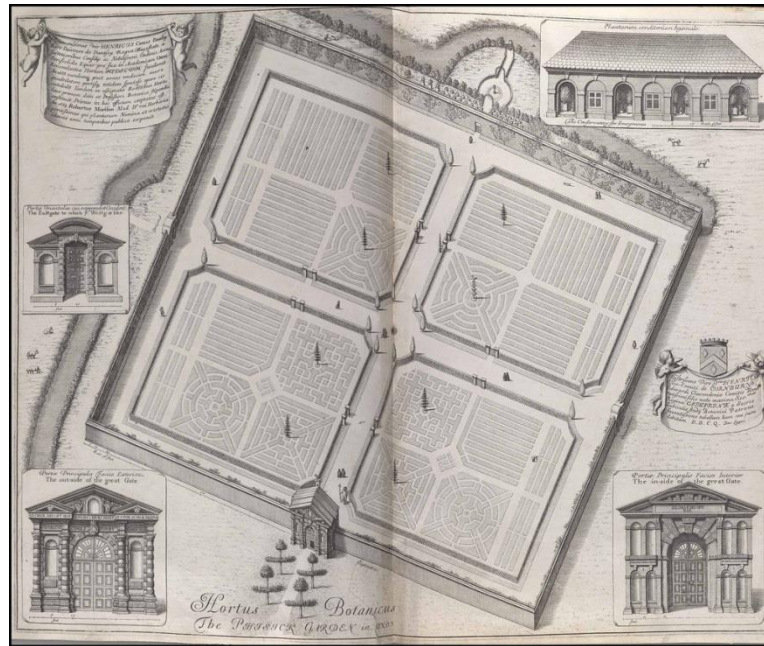
⁶⁸ London, British Library, Evelyn Papers, Add 78345. fol. 33. The drawing of a chymical laboratory on this leaf bears a strong resemblance to the laboratory shown of Evelyn's plan of Sayes Court garden, London, British Library, Add 15950, fol. A; see Harris (2001), p.16.

goal represented respectively by the '*Lux Metaphysica*', and the cross which hovers over the summit of the mount. However, in both drawings Evelyn shows a penultimate goal - 'gold'. The conventional seventeenth-century chymical cypher for gold is a circle with a central dot, a symbol that it shares with its associated 'star', the sun. If the apex of the furnace drawing represents the culmination of a progress towards the sun, it also marks an ascent from base metal to gold. Thus the planetary symbols which compose the sequence of ascent must also be understood to signify their associated metals, and can be read as follows: Saturn/ Lead; Jupiter/ tin; Mars/ iron; the moon/ silver; Venus/copper; Mercury/quicksilver; and finally sun/gold. Given the chymical context established in this chapter, the fountain at the summit of the Philosophico-Medicall mount, a seemingly innocuous circular basin with a central fountain jet, can surely be seen as a symbol for 'gold'. It is formed in the shape of the sign for gold, but we may also imagine the golden light of the sun glittering in the droplets of the fountain. Seen in this light Evelyn's garden takes on the image of the restoration of the golden age, attained through the progressive labours of the chymically minded philosophical gardener. This, however, is too diffuse an image, for in making explicit reference to the 'true Sonns of Art' in his Ichonisme caption, Evelyn evokes the *adepti* who held the secrets of the Philosopher's Stone, the agent that reputedly could transmute base metals into purest gold. This is the topic of the next chapter, which elaborates a reading of Evelyn's Ichonisme specifically in terms of the emblematics of gold making, or 'alchemy'.



2.1

John Evelyn, the Philosophico-Medicall Garden 'Ichonisme', 'Elysium Britannicum' manuscript © The British Library Board, Add 78342, fol. 330.



2.2

A 'Hortus Botanicus' at Oxford University in David Loggan, *Oxonia Illustrata* (1675). https://c3.staticflickr.com/4/3887/14766541738_2fafcda4eb_b.jpg [accessed 24 05 2016] {CC BY 2.0} Paul K
<<https://creativecommons.org/licenses/by/2.0/>>

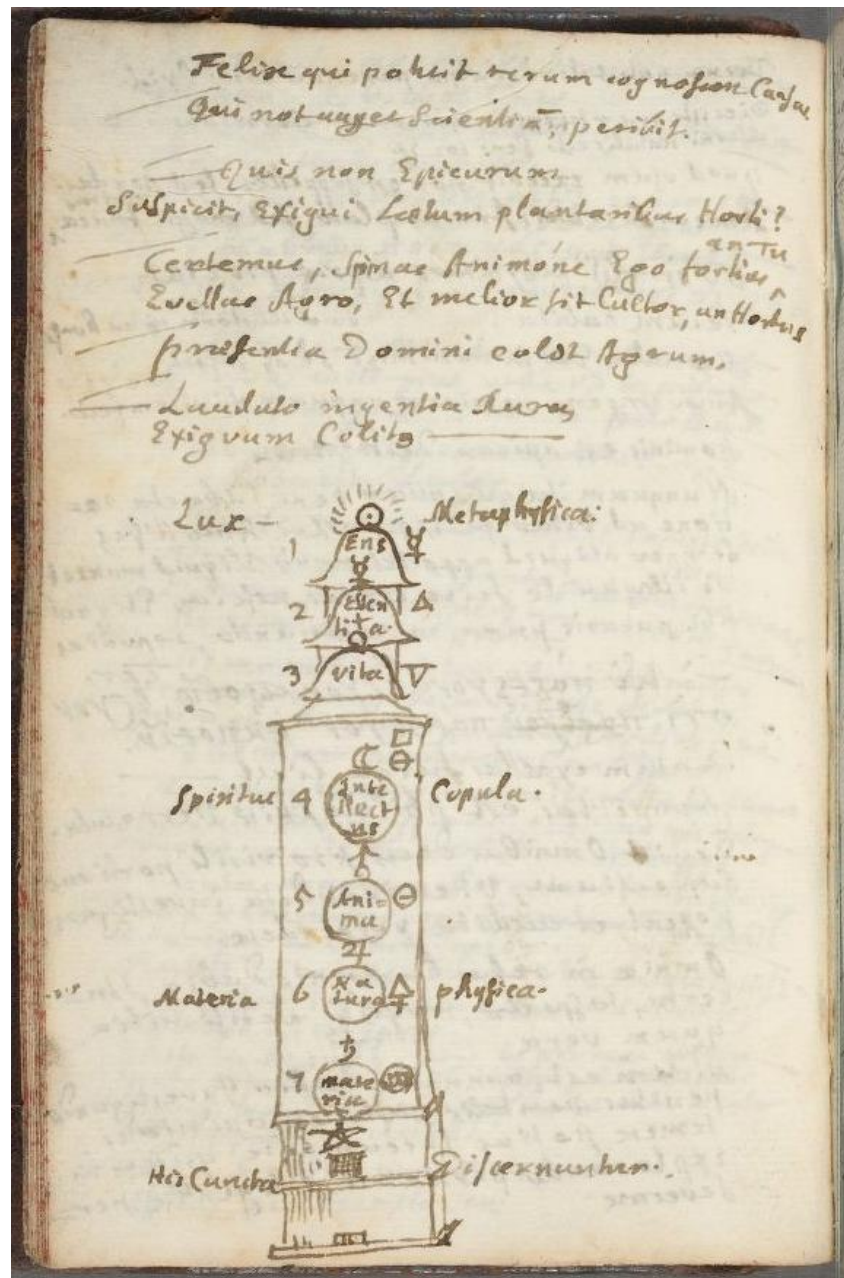
B Johannes van Meurs, the botanical garden at the University of Leiden. Engraving after a design by W. Swanenburgh (1608), from Orlers, *Beschrijvinge der Stad Leyden* (1614), p. 203.
<https://upload.wikimedia.org/wikipedia/commons/3/30/Hortus_botanicus_leiden.gifWoudanus_15x11_300_dpi_jpg.jpg> [CC-PD-Mark](#), [PD-Art \(PD-old-100\)](#)



2.3.

Frédéric Scalberge, 'Jardin du Roi, Paris', published as a frontispiece to *Description du jardin royal des plantes médicinales* by Guy de La Brosse, *médecin ordinaire* to Louis XIII and founder of the garden. Original held by the Bibliothèque du Muséum national d'histoire naturelle.

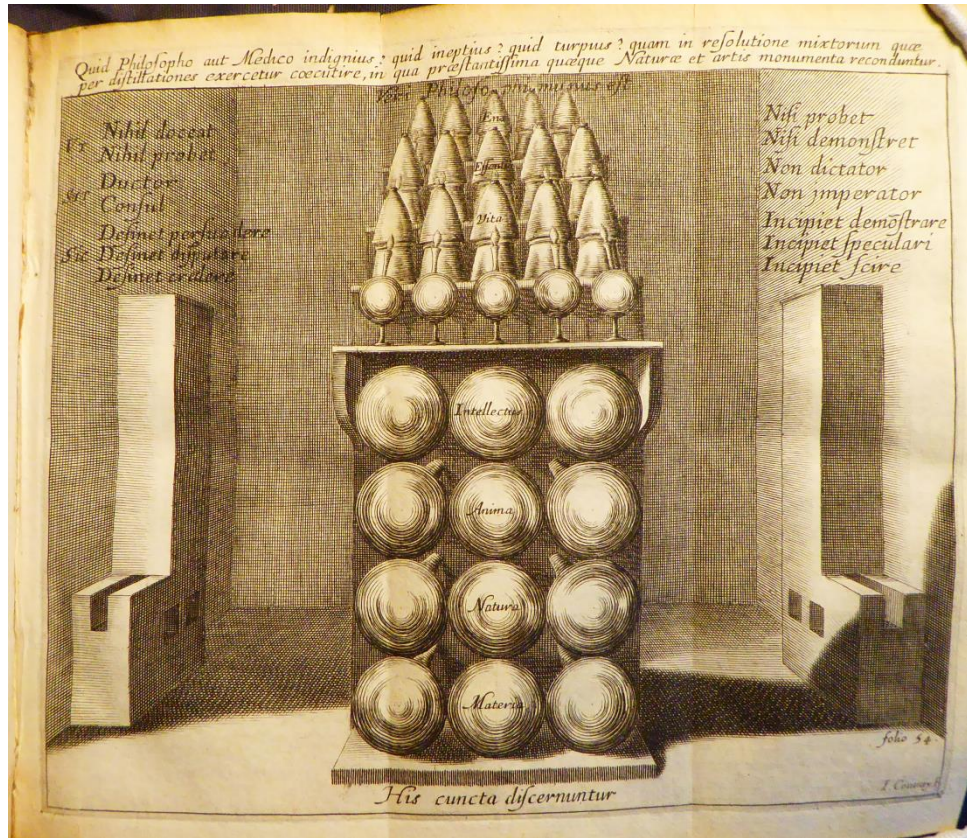
https://upload.wikimedia.org/wikipedia/commons/9/9d/Jardin_du_roi_1636.png [CC-PD-Mark](#) { [PD-old-100](#) } .



2.4

John Evelyn, an allegorical subliming furnace, from 'vade mecum' © Houghton Library, Harvard University, MS Eng 992.7, unpaginated.

The structures and symbols are derived in part from William Davidson cf. figures 2.5 and 2.6.



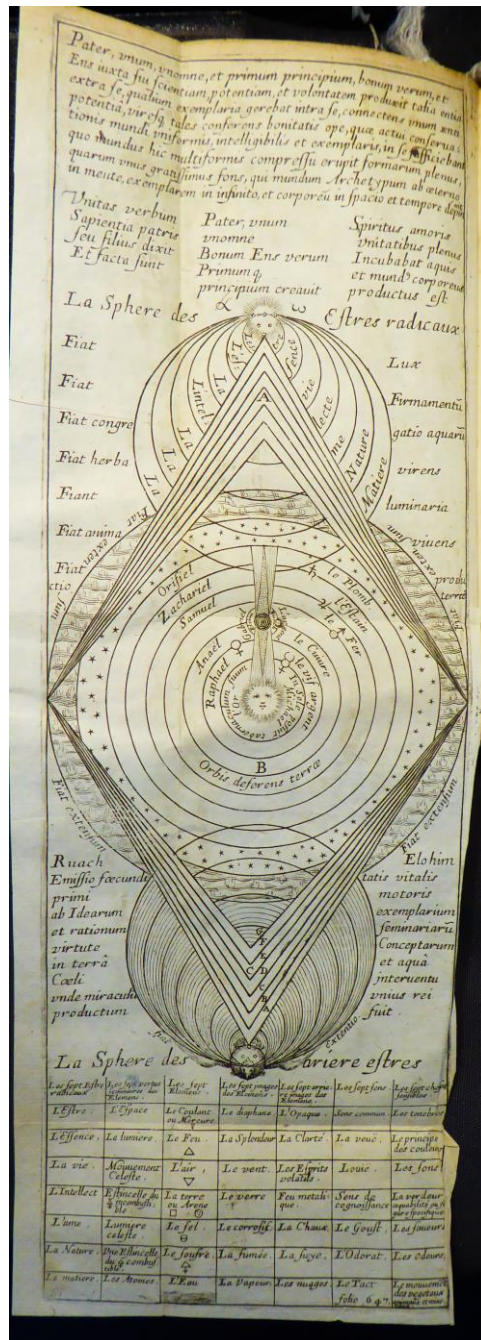
2.5

William Davidson, stacked chymical vessels, from *Les Elemens de la philosophie de l'art du feu ou chemie* (1651), fol. 54 © Author

The sequence of annotations running up the centre of the stack is identical to that in Evelyn's Harvard Furnace Drawing, thus, in descending order:

Ens, Essentia, Vita, Intellectus, Amina, Natura, Matrix.

Both this sequence and the chymical symbols that runs up the right side of Evelyn's drawing are part of the articulation of the more ambitious Neoplatonic, chymico-cosmic schemes that Davidson develops in this and other works: see fig. 2.6.



A

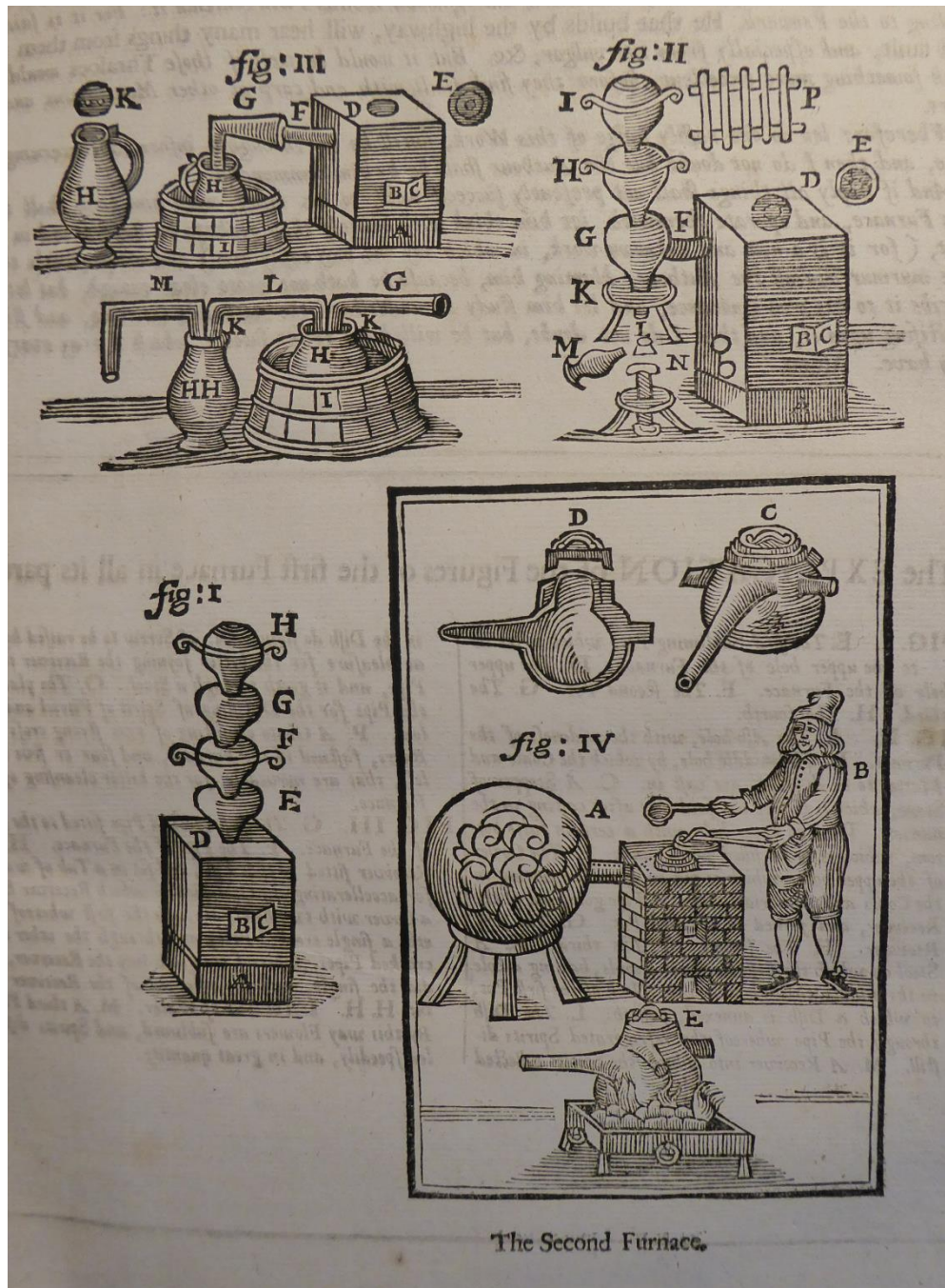


B

2.6

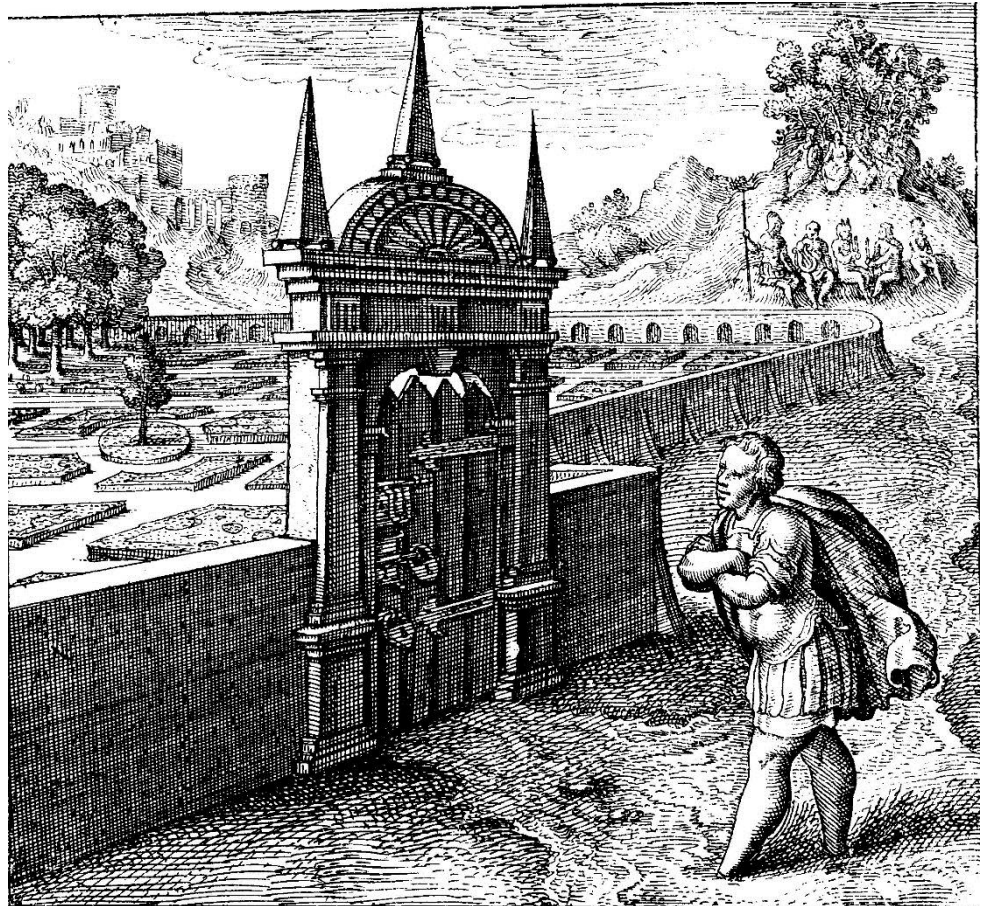
A Fold out plate from William Davidson, *Les Elemens de la philosophie de l'art du feu ou chemie*, fol. 647. (1651) © Author.

B Detail of 2.6A. The symbols in the third column of the table match those on the right side of Evelyn's Harvard furnace drawing. © Author.



2.7

Subliming apparatus from Johann Rudolph Glauber, *The Works of the Highly Experienced and Famous Chymist, Johann Rudolf Glauber* (1689), Figure I-IV © Author.



2.8

Matthäus Merian, 'He who tries to enter the rose garden of the philosophers without the key is like a man walking without feet', in Michael Maier, *Atalanta Fugiens* (1618).

https://commons.wikimedia.org/wiki/File:Michael_Maier._Atalanta_Fugiens_1618_Emblem_XXVII.JPG [Accessed 24 05 2016] [CC-PD-Mark](#) {[PD](#) [Old](#)}

Chapter 3: The Philosophico-Medicall Garden as Alchemical Emblem.

This chapter offers an interpretation of Evelyn's Philosophico-Medicall garden Ichonisme as an 'alchemical' emblem, which draws on conventions used in cryptic graphic illustrations used in the seventeenth century to describe the Philosopher's Stone and the 'great work' of its production. The Philosopher's Stone is, of course, the agent that reputedly transforms base metals into gold. In Evelyn's garden design he uses the Stone as a metaphor to describe both the wider redemptive potentials of gardening, treated in the last chapter, and the dynamic stability and harmony of cosmos. In support of its arguments, this chapter considers the extent of Evelyn's engagement with 'alchemical' practice and the associated literature, through a brief survey of his alchemical manuscripts and his list of 'Writers of Chymistry'. This material furnishes relevant examples of alchemical emblems, which are used as comparators to Evelyn's Ichonisme in framing the interpretation. Attention is given to Evelyn's understanding of appropriate uses of cryptic imagery.¹

The Philosophers Stone is found in the oldest
mountaines, and flowes from everlasting brooks;
those mountaines are of silver, and the brooks of
gold: from thence gold and silver, and all the
treasure of Kings are produced.

Jean d'Espagnet, 'Arcanum Hermeticum' (1650)

Introduction

Seventeenth-century alchemical publications often, though not invariably, sought to communicate the secret of the 'great work' of metallic transmutation through images involving bizarre, animistic motifs.² Birds and beasts devour each other; vomits of

¹ 'Alchemy' is used here to refer particularly to practices related to the Philosopher's Stone and the medical Elixir, see 'Glossary'.

² For an introduction to alchemical imagery see Gareth Roberts, *The Mirror of Alchemy: Alchemical Ideas and Images in Manuscripts and Books; from Antiquity to the Seventeenth Century*: British Library, 1994), pp. 65-91; Lawrence M. Principe, *The Secrets of Alchemy* (London: University of Chicago Press, 2013), pp.143-157; Lyndy Abraham, *A Dictionary of Alchemical Imagery* (Cambridge: Cambridge University Press, 1998); John Read, *Prelude to Chemistry: An Outline of Alchemy, Its Literature and Relationships* (London: G. Bell and Sons, 1939); F. Sherwood Taylor, *The Alchemists* (St Albans: Paladin, 1976), pp. 116-124; Stanislas Klosowski de Rola, *The Golden Game: Alchemical Engravings of the Seventeenth Century* (London: Thames and Hudson, 1988).

differing complexions issue from a variety of monstrous beings; copulations, births and deaths are presented in unlikely configurations. The specific actions and posture of these creatures are enigmatic or coded expressions of the laboratory materials and processes attendant on the production of the Philosopher's Stone (FIG. 3.1).

Important as these beasts and persons are in articulating the *opus*, however, alchemical emblems sometimes encompass another element of equal significance – the spatial frame in which the action takes place. This is often a landscape and it is through this that we can establish a relationship between Evelyn's Philosophico-Medicall garden Ichonimse and the wider field of alchemical emblematics (FIGS. 3.2, 3.5, 3.6, 3.8, 3.10, 3.11, 3.12).

Alchemical emblems were often referred to by their readers and authors as 'hieroglyphics', in homage to the supposed Egyptian origins of the mythical ancient sage of 'Hermetic' chymistry, Hermes Trismegistus, and the supposed Judeo-Egyptian origins of the 'Art of *Hermes*'.³ There is one Egyptianising motif, particularly pertinent to our discussion of Evelyn's garden that recurs in these illustrations - the stepped pyramidal mount. A clear example, with obvious formal similarities to Evelyn's Philosophico-Medicall mount, appears in Andreas Libavius's (c.1540 – 1616), *Alchymia*, of 1606 (FIG. 3.3).⁴ On one level, Libavius's mount is not the most pertinent example, for though Evelyn knew his work (he used Libavius as a point of reference in his *Sculptura*), at a theoretical level, Evelyn had some differences with this author, who was hostile to the 'Paracelsians'.⁵ But Paracelsian authors also use the mount motif. Johann Daniellus Mylius (c.1583–1642), an

³ See for example Nicaise Lefèvre, *A Compendious Body of Chymistry, [...]* (London Tho. Davies and Theo. Sadler, 1662), p. 6; Joseph Du Chesne, *The Practise of Chymicall, and Hermeticall Physicke, for the Preseruation of Health*. trs. by Thomas Tymme (London: Printed by Thomas Creede, 1605), B2-3; Principe (2013), pp. 30-31; Don Cameron Allen, *Mysteriously Meant: The Rediscovery of Pagan Symbolism and Allegorical Interpretation in the Renaissance* (Baltimore; London: Johns Hopkins Press, 1970), pp.107-133.

⁴ Andreas Libavius, *Alchymia ... Recognita, Emendata, et Aucta, Tum Dogmatibus et Experimentis Nonnullis, Tum Commentario Medico-Physico-Chemico, ... Præmissa Defensione Artis Opposita Censuræ Parisianæ* (Francofurti: J. Saurius, 1606), unpaginated, near p.50.

⁵ John Evelyn, 'Authors, and Books which have been consulted for this Treatise', in *Sculptura: Or the History, and Art of Chalcography and Engraving in Copper. With an Ample Enumeration of the Most Renowned Masters, and Their Works. To Which Is Annexed a New Manner of Engraving, or Mezzo Tinto, Communicated by His Highness Prince Rupert to the Authour of This Treatise* (London: printed by J. C. for G. Beedle & T. Collins; J. Crook, 1662), unpaginated; Frances A. Yates, *The Rosicrucian Enlightenment* (London: Ark, 1986, 1972), pp. 51-52; Bruce T. Moran, *Andreas Libavius and the Transformation of Alchemy: Separating Chemical with Polemical Fire* (Sagamore Beach, MA: Science History Publications, 2007), pp.6-9, p. 45.

important source in the following arguments, furnishes two such images, one of which is a clear adaptation of Libavius's emblem – Mylius's image appears as the illustration appears as a stage in a twelve part emblematic representation of the *opus* (FIGS. 3.4, 3.2).⁶ Similar examples are not hard to find (FIGS. 3.5, 3.6). Given the formal resonance between these alchemical mounts and Evelyn's stepped pyramid, and given the hint towards an alchemical reading which Evelyn includes in his caption to the Philosophico-Medicall garden Ichonisme, these emblems offer an obvious direction for further enquiry.

The purpose of this chapter is to establish Evelyn's Ichonisme as an alchemical emblem. This reading is supported by reference to Evelyn's alchemical manuscripts and the theories of nature that he expresses in the *Elysium* and is conducted through comparison between the Ichonisme and an appropriate body of Paracelsian alchemical literature. In preparation for these arguments we establish the extent and character of Evelyn's engagement with alchemy, whilst offering a characterisation of the remit of the 'great art' and sketching attitudes to alchemical pursuits in Evelyn's immediate milieu. Particular attention is paid to issues of interpretation attendant on the commonly cryptic expression of the alchemical ideas and processes.

Evelyn's Alchemy in Context

Existing studies of Evelyn's chymistry have not placed any emphasis on his engagement with alchemy. Indeed, Frank Sherwood Taylor, whose 1952 paper on Evelyn's chymical studies remains the primary source on this topic, is at pains to downplay the idea that Evelyn may have had any interest in either alchemy or the closely related field of astrology.⁷ Sherwood Taylor's study is valuable in presenting an outline of the contents of Evelyn's two primary chymical notebooks, referred to

⁶ Joannes Daniel Mylius, *Philosophia Reformata [...]* Book 1, Part 4 (Francofurti; Jennis, 1622), p. 126; Mylius, Joannes Daniel, *Opus Medico-Chymicum, Continens Tractatus Sive Basilicas Quorum Prior Inscritur Basilica Medica, Secundus Basilica Chymica, Tertius Basilica Philosophica* (Francofurti: Jennis, 1618-30), unpaginated frontispiece to *Basilica Philosophica*; for commentary see Read (1936), pp. 262-264.

⁷ F. Sherwood Taylor, 'The Chemical Studies of John Evelyn', *Annals of Science* 8 (1952), 285-292, (p. 288).

here as the ‘Barlet notebook’ and ‘Lefebvre notebook’, since the work in them is primarily, though not exclusively, devoted to the work of two of his teachers, Annibal Barlet and Nicaise Lefebvre.⁸ However, his analysis is misleading, for he overlooks the undoubted alchemical contents of both documents. The picture of Evelyn as an indifferent sceptic has been somewhat corrected by Michael Hunter’s identification of the copious notes he took from the *New Light on Alchymie*, by the Polish Paracelsian alchemist Michel Sendivogius (1566 – 1636), in the ‘Tomus Tertius’ commonplace book.⁹

Building on the work of Sherwood Taylor and Hunter with a closer inspection of the manuscripts material that they identified, we find additional evidence for Evelyn’s interest in alchemy, for the alchemical contents of the ‘Tomus Tertius’ addresses not only Sendivogius, but also an alchemical companion work by Paracelsus, entitled *The Nature of Things*, and a popular poetic description of the *opus*, by the fifteenth century English adept, George Ripley, entitled *The Compound of Alchymie*.¹⁰ In addition, Evelyn owned two alchemical recipes in manuscript form, one in French, entitled ‘Les Choses Necessaires a la Composition de la Pierre des Sages’ (identified by Hunter); and one in the ‘Barlet notebook’, entitled ‘The Philosophers worke; or the mistery of perfection & inflible projection; in five operations’.¹¹ The ‘Barlet notebook’ also gives important insight into Evelyn’s early frame of chymical reference in the form of a long list of ‘Writers of Chymistry’, both

⁸ Evelyn, ‘Barlet notebook’, London, British Library, Evelyn Papers, Add 78335; Evelyn, ‘Lefebvre notebook’, London, British Library, Evelyn Papers, Add 78345.

⁹ Michael Hunter, ‘John Evelyn in the 1650s’ in in *John Evelyn's “Elysium Britannicum” and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 79-106, (pp. 99-100).

¹⁰ Michal Sedziwój [Micheel Sendivogius] and Paracelsus, *A New Light of Alchymie: Taken out of the Fountaine of Nature, and Manuall Experience. To Which Is Added a Treatise of Sulphur: Written by Micheel Sandivogius: ... Also Nine Books of the Nature of Things, Written by Paracelsus,....* trs. by John French (London: Printed by Richard Cotes, for Thomas Williams, at the Bible in Little-Britain, 1650); George Ripley, *The Compound of Alchymy. Or the Ancient Hidden Art of Archemie Containing the Right & Perfectest Meanes to Make the Philosophers Stone, Aurum Potabile, with Other Excellent Experiments. Diuided into Twelue Gates. ...* ed. by Raph Rabbards Gentleman, Studios and Expert in Archemicall Artes (London: Imprinted by Thomas Orwin, 1591); see John Evelyn, ‘Tomus Tertius’, London, British Library, Evelyn Papers, MS Add 78330, the notes are contained in two chapters: Cap III ‘Historia Universalis Chronologia Vitae &c.’, fols. 98-125^v. (fols. 103-104^v); Cap IIII ‘MEDICINA, Morbi, Alchymia, Pharmaca, Chyrugia’, fols. 142-149^v (fol. 142^v-145); Evelyn uses the 1591 edition of Ripley see Add 78330, fol. 104.

¹¹ ‘Les Choses necessaires a la composition de la Pierre des Sages’, London, British Library, Evelyn Papers, Add MS 78418; ‘The Philosophers worke; or the mistery of perfection & inflible projection; in five operations’ in John Evelyn, ‘Barlet notebook’, London, British Library, Evelyn Papers, Add 78335, fols. 118-122.

‘antient’ and ‘more moderne’.¹² The list of moderns, which is distinctly Paracelsian in character, contains ample material devoted to the production of the Philosopher’s Stone.¹³ Moreover, the whole list is given an alchemical frame by an astro-alchemical diagram that Evelyn drew at the bottom of the page under the title ‘*Signifei Philosophorum cum Planetarium Domicile*’, a fact conveniently overlooked by Sherwood Taylor, who includes this list in his discussion.¹⁴ Appearing at the start of the volume, this chart forms something like a frontispiece to the whole book. Evelyn copied both the drawing and its title from the *Arcanum Hermeticae*, of Jean d’Espagnet (1564 – c. 1637), where it appears in conjunction with a succinct description of a twelve stage description of the *opus*, organised month by month to accord with the cycle of the zodiac (FIG. 3.7).¹⁵ Evelyn also used Espagnet as the source for some verses, which he inscribed beneath the diagram and wrote the admiring comment, ‘as elegant a piece as was ever written in any tongue whatsoever’, against the title of another of Espagnet’s works, the *Enchyridion Physicae Restitutae*.¹⁶ Evelyn evidently valued Espagnet’s Neoplatonic alchemical writings, which addressed not only the laboratory production of the Stone (the topic of the *Arcanum Hermeticae*), but also the chymical treatment of universal order (the topic of the *Enchyridion*).¹⁷

Taking these manuscript notes together, we can confidently assert that Evelyn had more than a passing interest in the Philosopher’s Stone, though a note of

¹² ‘Writers of Chymistry’, Add 78335, fol. 5^v, See Appendix 3 for transcription.

¹³ The most important for the following arguments are Mylius (1618-30) and (1622); ‘Les douze Clefs de Basil Valentino’, which is probably Basilus Valentinus, *Les douze clefs de philosophie de frère Basile Valentin* (A Paris: Chez Ieremie et Christophle Perier, 1624); Joannes d’Espagnet, *Arcanum Hermeticae Philosophiae Opus: In quo Occulta Naturæ et Artis circa Lapidis Philosophorum Materiam et Operandi Modum Canonice et Ordinate Fiunt Manifesta. Opus Ejusdem Authoris Anonymi. Penes Nos Unda Tagi* [the Anagram of Joannes d’Espagnet.] (Genevæ, 1653); Evelyn also lists ‘Dr: d’Avinson:’ [Davidson] and ‘Mon: Barlet not yet in print’ [Barlet], which dates the list to before 1653, see Sherwood Taylor (1952); for general commentary on these sources see Read, pp. 260-267 and *passim*.

¹⁴ ‘The signifier of Philosophers with the Houses of the Planets’; Sherwood Taylor, p. 285.

¹⁵ Jean d’Espagnet, ‘The Arcanum or Grand Secret of Hermetick Philosophy’, in *Fasciculus Chemicus or Chymical Collections. ...*, ed. by Arthur Dee and Elias Ashmole, trs. by James Hasolle, Esquire, Qui Est Mercuriophilus Anglicus (London: Printed by J. Flesher for Richard Mynne, at the sign of St. Paul in Little Britain, 1650), pp. 155-268, (p. 266).

¹⁶ Add 78335, fol. 5^v.

¹⁷ On Espagnet see Betty Jo Teeter Dobbs, ‘Studies in the Natural Philosophy of Sir Kenelm Digby’, Part III, *Ambix* (1974), 1-28, (pp. 22-24). Bruce Janacek, *Alchemical Belief: Occultism in the Religious Culture of Early Modern England* (University Park, Pa.: Pennsylvania State University Press, 2011), pp. 142-149.

caution is in order, for in the ‘Tomus Tertius’ we also find him recording from Francis Bacon:

Alchimy may truly be compared to Æsops Fable of the Husbandmen that when he died told his sonnes he had left unto them a masse of Gold buried under ground in his vineyard, but did not remember the place, the men digging though they found noe treasure yet by stirring the mold about the rootes had afterwards a plentiful vintage, so the painfull search of Alchymists to make Gold hath brought to light a world of usefull experiments. Lo Bacon. Advncement. P. 33.34.¹⁸

Mere study of alchemical manuscripts does not necessarily indicate an unwavering belief in the Stone, nor a laboratory practice devoted to its production. Set against this caution however, is the now well-established understanding that the reality of the Philosopher’s Stone was widely accepted across seventeenth-century Europe, as was the recognition of an initiatory brotherhood of *adepti*, who possessed the skills, discipline and secrets needed to complete the work.¹⁹ Certainly there were detractors, accusations of fraud and plentiful scope for ribaldry at the alchemist’s expense, but nonetheless the idea that the Philosopher’s Stone (or in some theories a range of Stones and/or Elixirs) could be attained was common, not just amongst marginal, credulous or ill educated figures, but amongst intellectual elites such as the sober members of the ‘sceptical’ assembly of virtuosi, at the Royal Society.²⁰ There is no evidence to suggest that Evelyn was seriously engaged in the purgatorial, frustrating and lengthy laboratory operations attendant on the alchemical quest, but some of his friends certainly were.

Many of the members of the early Royal Society were ardent chymists with a declared interest in alchemy. Examples amongst Evelyn’s friends include Elias Ashmole(1617 –1692); Robert Boyle, the author of the *Sceptical Chemist* and the ‘father of modern chemistry’ himself; Sir Kenelm Digby (1603 – 1665); and finally, Thomas Henshaw (a particularly close friend) and the members of his Kensington

¹⁸ Add 78330, fol. 142^v.

¹⁹ Principe (2013), pp. 84-86; pp. 107-108; Lyndy Abraham, *Marvell and Alchemy* (Aldershot: Scolar Press, 1990), pp. 6-25.

²⁰ Lawrence Principe, *The Aspiring Adept: Robert Boyle and His Alchemical Quest* (Princeton, N.J.; Chichester: Princeton University Press, 1998), pp.183-188; William R. Newman, *Promethean Ambitions: Alchemy and the Quest to Perfect Nature* (Chicago; London: University of Chicago Press, 2004), p. 72.

‘Chymical Club, including Sir Robert Paston (1631 – 1683), who served as Henshaw’s patron in the producing the Red Elixir, a project that consumed more than twenty years’ effort.²¹ Somewhat later we have the illustrious example of Isaac Newton (1642-1727).²² All of these men had a sustained and expert engagement with either the literature, or laboratory techniques of alchemy, or both. This is an important point, for the vitality of alchemical practices and concepts in Evelyn milieu gives potency to the alchemical imagery we shall see his using in his design for the Philosophico-Medicall garden.

The Remit of Alchemy

In approaching the enigmas of Early Modern alchemy, some interpretative scaffolding must inevitably be adopted or constructed, a structure which in turn rests on a particular understanding of what ‘alchemy’ might be. The interpretation developed in this chapter depends on the work of many scholars from a number of disciplines. From the history of chemistry repeated use has been made of the alchemical primers of John Read, Frank Sherwood Taylor, and Bruce T. Moran; and the painstaking and detailed work of Lawrence Principe, William R. Newman and Anthony Grafton. From the discipline of the English literature Lyndy Abraham’s *A Dictionary of Alchemical Imagery*, Gareth Roberts’ *The Mirror of Alchemy*, and Stanton J. Linden’s *Dark Hieroglyphics* have been invaluable resources. From the perspective of a broader cultural history the studies of Bruce Janacek and Urszula Szulakowska have been important. Finally, Stanislas Klossowski de Rola’s handsome and accessible compilation of seventeenth-century alchemical engravings, *The Golden Game*, has also been useful, for it brings together reproductions of the most prominent alchemical emblems from the seventeenth century in one place, and

²¹ Michael Hunter, ‘Ashmole, Elias (1617–1692)’, *Oxford Dictionary of National Biography* (Oxford University Press, 2004); online edition, May 2006 [<http://www.oxforddnb.com/view/article/764>, [Accessed 16 Oct 2014]; Robert M. Schuler, ‘Some Spiritual Alchemies of Seventeenth-Century England’, *Journal of the History of Ideas* 41 (1980), 293-318; Principe (1998); B.J.T. Dobbs, ‘Studies in the Natural Philosophy of Sir Kenelm Digby, Part I’, *Ambix* 20 (1973), 143-163; B.J.T. Dobbs, ‘Studies in the Natural Philosophy of Sir Kenelm Digby, Part II’, *Ambix* 18 (1974), 1-25; Janacek, pp.129-159; Donald R. Dickson, ‘Thomas Henshaw and Sir Robert Paston’s Pursuit of the Red Elixir: An Early Collaboration between Fellows of the Royal Society’, *Notes and Records of the Royal Society*, 51 (1997), 57-76.

²² Betty Jo Teeter Dobbs, *The Foundations of Newton’s Alchemy, or, the Hunting of the Greene Lyon* (Cambridge: Cambridge University Press, 1975).

records bibliographic details.²³ However, though this work is scholarly in certain respects, its author did not intend it as a contribution to academic discourse.

Klossowski's work could stand as the perfect example of an ahistorical, essentialist, syncretic 'spiritual' interpretation of alchemical emblems which, interesting as it might be in its own terms, is highly misleading as a basis for historical analysis.²⁴ Taking guidance from these authors, we can begin to erect some structure for understanding the remit of 'alchemy' in Evelyn's milieu, whilst establishing appropriate limits for the current study.

Although the idea of the Philosopher's Stone has its roots in medieval metallurgy, natural philosophers of the seventeenth century did not necessarily understand the potency of this miraculous substance to be limited to this arena. The Stone was commonly understood to be a cure equally applicable to the ailments of metals (the 'base' metals were understood to be as yet unperfected gold in need of a curative, transmutational regime) and to the diseases of the human frame.²⁵ Thus we find Evelyn making a note in his 'Tomus Tertius':

The caution of the Medicine of the Philos: if taken inwardly. for if one grayne may passé through thousands of Metalls, much more through mans Body: p: 133.²⁶

Clearly Evelyn was attributing a dual medical and metallurgical capacity to the 'Medicine of the Philos' when he made this note. We may legitimately wonder why the emblematics of gold-making might be appropriate to the iconography of a

²³ Read (1939); Sherwood Taylor (1976); Bruce T. Moran, *Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution* (Cambridge Mass, London: Harvard University Press, 2005); Principe (1998); Principe (2013); William R. Newman and Anthony Grafton, *Secrets of Nature: Astrology and Alchemy in Early Modern Europe* (Cambridge, Mass.; London: MIT, 2001); Newman (2004); Abraham (1998); Roberts; Stanton J. Linden, *Darke Hieroglyphicks: Alchemy in English Literature from Chaucer to the Restoration, Studies in the English Renaissance* (Lexington: University Press of Kentucky, 1996); Urszula Szulakowska, *The Alchemy of Light: Geometry and Optics in Late Renaissance Alchemical Illustration* (Leiden: Brill, 2000); Klossowski de Rola.

²⁴ On the problems of this approach see Principe (1998), pp. 18-19; William R. Newman, and Lawrence M. Principe, 'Alchemy vs. Chemistry: The Etymological Origins of a Historiographic Mistake', *Early Science and Medicine* 3 (1998), 32-65.

²⁵ Moran (2005), pp. 25-26, p. 87; Read, pp. 118-163 (pp. 125-136); Principe (2013), p. 5, pp. 71-73; pp. 109-114, p. 186; Newman (2004), p. 87, p. 117.

²⁶ John Evelyn, MS Add 78330, fol. 278. He is writing notes on the 'Englished' version of Sendivogius's *Novum Lumen Chymicum*, i.e. Michal Sedziwój, *A New Light of Alchymie: Taken out of the Fountaine of Nature, and Manuall Experience. ...To Which Is Added a Treatise of Sulphur: Written by Micheel Sandivogius*: trs. by John French M.D. (London: Printed by Richard Cotes, for Thomas Williams, at the Bible in Little-Britain, 1650); see also ambivalent use of 'Lapis Elixir' in Add 78330, fol. 143, fol. 143^v.

botanical and medical garden, such as Evelyn's Philosophico-Medicall garden, but with this understanding the relevance becomes clear.

Paracelsian alchemists typically directed their laboratory operations more towards the production of medicines than towards gold making, though it seems that the basic concepts of producing the medical and metallurgical Elixirs were closely aligned (Elixir is amongst the synonyms for the Philosopher's Stone).²⁷ Among chymists influenced by Evelyn's teacher Nicaise Lefebvre, the production of both the Stone and the Elixir entailed 'fixing' the immaterial Universal Spirit, a topic addressed by both Betty Jo Teeter Dobbs and Antonio Clericuzio.²⁸ Clericuzio presents the issue through Henry Oldenburg's correspondence from the late 1650s, in which he reports from France on 'la medicine universelle et la vray entretien de la vie', obtained 'par l'industrie secrete des sages', who worked on the 'corporification' of 'L'Esprit Universelle'.²⁹ Besides the more general alignment of these phrases and concepts with Evelyn's *Elysium* statements about the generative interrelation of Universal Spirit and material matrix, a brief extract from an early manuscript on the management of the household, a wedding gift for his wife, written c.1648, contains a fragment which reads:

The Spirit is amongst Philosophers commonly called the Quintessentia. And without doubt should we truly fix it strange things may be wrought therewith to the Conservation of our health and Prolonging of Life.³⁰

'Quintessence' is one of Evelyn's synonyms for the Universal Spirit, so it appears that his conception of this grand medical arcanum aligns with that reported by Oldenburg, over a decade later.³¹ If the medical Elixir was to be produced by fixing or corporifying the Universal Spirit, Dobbs has established that similar ideas

²⁷ Szulakowska, p. 44.

²⁸ Dobbs (1973); Antonio Clericuzio, 'The Internal Laboratory: The Chemical Reinterpretation of Medical Spirits in England (1650 – 1680)', in *Alchemy and Chemistry in the 16th and 17th Centuries*, ed. by Rattansi and Clericuzio (Dordrecht, Boston, London: Kluwer Academic Publishers, 1994), pp. 51-84, (pp. 56-57).

²⁹ 'The universal medicine and the true preserver of life', obtained by 'the secret work of the Philosophers'; *The Correspondence of Henry Oldenburg*, ed. by A.R. Hall and M.B. Hall, 13 vols, vol 1 (Madison and London: 1965 – 86), pp. 233-234, quoted in Clericuzio, p. 56.

³⁰ John Evelyn, 'Oeconomique Instructions', c. 1648, London, British Library, Evelyn papers, Add 78430, fol. 52.

³¹ '...which the Philosophers have diversely named: vital substance, spirit of life, light, balsame of life, vital mercury, naturall heate, radicall humour, soule of the worlds, natura, Entelothia, quintessence, Mercury of life, the Universal Spirit and the like', see Add 78345, fol. 2^v.

informed the metallurgical *opus*. According to Dobbs, amongst Lefebvrian chymists gold was ‘associated very closely’ with the Universal Spirit and was sometimes seen as ‘nothing but it [the Universal Spirit], first corporify’d in a pure place, and then baked to a perfect Fixation’.³² The words are those of Evelyn’s friend and one time companion in his early Parisian studies with Lefebvre, Sir Kenelm Digby.³³

The transmutation of metals and the redemption of failing human health, important and central as they were, did not necessarily represent the limits of alchemical ambition.³⁴ Some thought of the Stone as a full and universal panacea for all the ills of the world, including the spiritual redemption of individual souls.³⁵ Over the *longue durée* alchemical emblems frequently used Christian images to describe laboratory processes – the matter in the flask ‘dies’, is ‘buried’ and ‘resurrected’; the Philosopher’s Stone is Christ, and so on. Conversely, the processes of alchemy were often harnessed to express spiritual truths - terms such as mortification, sublimation, exaltation and more, finding a home as much in religious, as alchemical contexts.³⁶ This tradition continued with added vigour into the seventeenth century, finding expression in the frenzy of alchemical publications that reached its zenith during its middle decades. Alchemical texts and emblems make enticing material for reading alchemy as a ‘spiritual’ practice, in the sense of pertaining to an individual’s psychic or religious progress, and have been used in this way throughout the nineteenth and twentieth centuries.³⁷ But it is a mistake to presume that all alchemy is necessarily ‘spiritual’ in this sense.³⁸ The default presupposition adopted here is that both alchemical practice and literary expression

³² Sir Kenelm Digby, *A Discourse Concerning the Vegetation of Plants Spoken by Sir Kenelme Digby at Gresham College on the 23 of January*, 1660 [i.e. 1661]: At a Meeting for Promoting the Philosophical Knowledge by Experiments (London: Printed by J.C. for John Dakins ..., 1661), p. 225, quoted in Dobbs (1973), p. 157.

³³ Dobbs (1973), p. 156.

³⁴ Szulakowska, p. 44.

³⁵ Read, pp. 118-163 (pp. 125-136); Principe (2013), p. 5, pp. 71-73; p.186; Moran (2005), p. 25, p. 87; Newman (2004), p. 87, p. 117.

³⁶ Janacek, pp. 1-5; Lawrence M. Principe and William Newman, ‘Some problems with the historiography of alchemy’, in Newman, William R. and Anthony Grafton eds., *Secrets of Nature: Astrology and Alchemy in Early Modern Europe* (Cambridge, MA: MIT, 2001), pp. 385-431 (p. 388); Read, pp. 105-117; Principe (2013), pp. 67-68, pp. 80 -81, pp. 200-203; Linden, pp. 8-9.

³⁷ See for example, Klossowski, or more moderately Abrahams (1998).

³⁸ See note 25.

were oriented primarily to the laboratory production of the Philosopher's Stone.³⁹ This is a position, however, that requires some qualification.

If seventeenth-century alchemy was a laboratory discipline, this does not mean that it was necessarily devoid of 'spiritual' potentials. Robert Boyle, famously, received an 'initiation' as an adept and later in life aspired to possess the Stone, not for its metallurgical potentials so much as for its reputed power to attract angels.⁴⁰ Elias Ashmole was much less interested in laboratory practice than Boyle, but he too probably harboured ambitions for angel conversation facilitated by 'alchemy'. In the preface to his *Theatrum Chemicum Britannicum*, Ashmole details four different types of Stone, one of which, 'the *Angelicall Stone*':

is so *subtill*, [...], that it can neither be *seene, felt, or weighed*; but *Tasted* only. [...]It affords the *Apparition of Angells*, and gives a power of conversing with them, by *Dreames and Revelations*: [...] it is a *Quintessence wherein there is no corruptible Thing*.⁴¹

Ashmole was a friend of Arthur Dee (1579 – 1651), the son of John Dee whose angel conversations achieved some notoriety during the middle years of the seventeenth century, following the 1657 publication of his records of the 'scrying' activities he undertook with his medium, Edward Kelley (1555 – 1597).⁴² There is no evidence to support the idea that Evelyn thought of alchemy as a devotional practice, in any sense beyond the more general pious intentions attendant on his experimentalism, nor that he thought of alchemy as an aid to angelic converse, however attractive that idea was to him on a more general level (we remember his hopes that the garden would 'influence the soule and spirits of man, and prepare them for converse with good Angells').⁴³ These assertions are made, however, on lack of evidence rather than on any positive refutation of that possibility.⁴⁴

³⁹ Principe (2013), pp. 143-157.

⁴⁰ Lawrence Principe, *The Aspiring Adept: Robert Boyle and His Alchemical Quest* (Princeton, N.J.; Chichester: Princeton University Press, 1998), p. 187.

⁴¹ Elias Ashmole, 'Prolegomena' in *Theatrum Chemicum Britannicum*, ed. by Elias Ashmole (1652), p. B^v; Janacek, pp. 153-155.

⁴² John Dee, *A True & Faithful Relation of What Passed for Many Yeers between Dr John Dee ... And Some Spirits ... His Private Conference with Rodolphe Emperor of Germany, Stephen K. Of Poland, and Divers Other Princes About It...* ed. by Meric Casaubon. (London: D. Maxwell, 1659); see Deborah Harkness, *John Dee's Conversations with Angels: Cabala, Alchemy, and the End of Nature* (Cambridge: Cambridge University Press, 1999).

⁴³ John Evelyn to Sir Thomas Browne, 28th January 1660, quoted and discussed in Parry, Graham, 'John Evelyn as Hortulan Saint', in *Culture and Cultivation in Early Modern England: Writing and*

Exactly how far Evelyn intended to harness the ‘spiritual’ religious associations of alchemy in his appropriation of the iconography of the great work is uncertain, but clearly there is great potential for metaphorical reading of his garden Ichnonimse that embrace personal spiritual redemption. Equally, the potential to heal, sublime, exalt, and transmute attributed to the Stone renders its image highly appropriate to the iconography of a garden devoted to redemptive experimental pursuits.⁴⁵ But how did Evelyn approach the reading of alchemical emblems?

Reading Emblems

Reading alchemical texts and emblems was never supposed to be easy, for authors typically used enigmatic forms of expression in describing the *opus* with the intention of opening their meanings to the diligent and pious initiate, whilst concealing those same meanings from ‘vulgar’ eyes. Alchemical authors did, in fact, use a fairly standard set of coded terms, or *Decknamen*, in composing their images, but the interpreter is nonetheless left to struggle with seemingly endless ambiguities – synonyms, multivalent terms, redundancies and repetitions.⁴⁶ There are scores of names for the Philosopher’s Stone - some of the more common include: elixir, lapis, phoenix, tincture, medicine, rose, lily, and mercury.⁴⁷ Meanwhile, ‘mercury’, a central and famously fugitive concept in the *opus*, can refer to a multitude of

the Land ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 130-150, (p. 135).

⁴⁴ Robert M. Schuler has made a study of an initiatory spiritual alchemical society, called the ‘Society of the Sun in Aires’ which, included amongst its six members one ‘J.E.’ ‘frater’. The society was High Church and Royalist, and was enjoined to read from the Bible and from Jean d’Espagnet’s *Enchyridion Physicae Restitutae*. Despite Evelyn’s well known propensity to engage in formal spiritual pacts, I have found no candidates amongst his associates for the other five members ‘F:H, A:F, D:D’ and ‘M:S’ ‘Pater’, see Robert M. Schuler, ‘Some Spiritual Alchemies of Seventeenth-Century England,’ *Journal of the History of Ideas* 41 (1980), 293-318. For Evelyn’s spiritual pacts see Frances Harris, *Transformations of Love: The Friendship of John Evelyn and Margaret Godolphin* (Oxford: Oxford University Press, 2003).

⁴⁵ ‘Lapis elixir’, Add 78330, fols. 143-143’; See for example the dispute between the collaborators Henshaw and Paston, in Dickson (1997).

⁴⁶ Principe (2013), pp. 137-166; Roberts, pp. 65-91; broader culture of emblems see Michael Bath, *Speaking Pictures: English Emblem Books and Renaissance Culture* (London; New York: Longman, 1994); John Manning, *The Emblem* (London: Reaktion, 2002); Mario Biagioli, ‘Galileo the Emblem Maker’, *Isis* 81 (1990), 230-58; Raymond Klibansky, Erwin Panofsky, and Fritz Saxl, *Saturn and Melancholy. Studies in the History of Natural Philosophy, Religion and Art* (London: Nelson, 1964).

⁴⁷ Abraham (1998), p. 147.

particulars, the last and least of which is that ‘corporeal’ substance also known as quicksilver. ‘Mercury’ can mean the completed Stone; it can mean the first matter of the Stone; as we saw in the last chapter, it can mean one of the three Paracelsian principles; it can also mean the Universal Spirit.⁴⁸ Mercury is, in turn, endowed with multiple synonyms - dragon, poison, lion, oroboros, *prima materia*, virgo, virgin’s milk, tincture, elixir, tree, flower...and so on.⁴⁹

When studying Sendivogius, Evelyn noted in his ‘Tomus Tertius’: ‘Contradictions amongst the Hermetique Phylosophers usuall, to disguise their arte: p: 43’.⁵⁰ His friend Thomas Henshaw, attributed the same author with even greater deviousness. Writing to his patron and alchemical collaborator Sir Robert Paston, he fulminated over the difficulties that he was having with his interpretation, saying: ‘who knows but Sendiuog, myght safely enough conceale his meaning in a litteral sence, where all y^e world expected an Enigmaticall’.⁵¹ Enigma, code, hieroglyphic expression - these were the norm in alchemical writing to the extent that even seemingly straightforward expression comes under suspicion of obfuscation.

To some Early Modern readers and authors this enigmatic style of writing was a positive virtue. Thus Jean d’Espagnet, whose style Evelyn so much admired, enjoins his reader to:

suspect things that are quickly understood, especially in mystical Names and Secret Operations; for truth lies hid in obscurity; nor doe Philosophers ever write more deceitfully, then when plainly, nor ever more truly then when obscurely.⁵²

Espagnet tells us that ‘philosophers do usually express themselves more pithily in types and ænigmatical figures as by a mute kind of speech’ and directs his readers towards the emblems of Rosarius, Abraham Judaeus and Flamel and Michael Meyer, saying:

⁴⁸ Evelyn, Add 78345, fol.2^v.

⁴⁹ See entry on ‘Mercurius’ in Abraham (1998), pp. 124-128.

⁵⁰ MS Add 78330, fol. 103^v.

⁵¹ Henshaw to Paston at Norwich, 9th September 1671, NRO Bradfer-Lawrence, 1c/1, quoted in Dickson, p. 65.

⁵² Espagnet (1650), p. 168; Allen G. Debus, *The French Paracelsians: The Chemical Challenge to Medical and Scientific Tradition in Early Modern France* (Cambridge: Cambridge University Press, 1991), p. 47, p. 70; Janacek, pp. 142-145.

[herein] the mysteries of the Ancients are so fully opened, that as new Perspectives they can present antiquated truth, and remote from our age as near unto our eies, and perfectly to be seen by us.⁵³

The visual ‘ænigmatical figure’ was supposedly possessed of a revelatory clarity. How exactly Espagnet thought such figures were to be approached by the initiate is unclear, though he warns that progress ‘may be sooner met with by the force of the Seeker's intuition, than be found by reason or toil’.⁵⁴ The capacity to receive such direct illumination was typically thought to depend on the spiritual purity of the aspiring adept.⁵⁵

During Evelyn's lifetime and even before, the idea that enigmatic expression was a good way of communicating natural philosophical truths came under a sustained attack. Amongst the loci of disapproval was the Royal Society.⁵⁶ Thomas Sprat's (1635 – 1713) somewhat pre-emptive *History of the Royal Society*, published a mere four years after the Society was formally incorporated, provides us with a pithy contrast to Espagnet. Sprat traces both the foundation of learning and the seeds of its corruption to the ‘East’ and ‘the Assyrians, the Chaldeans, the Egyptians’. He tells us:

It was the custom of their Wise men, to wrap up their Observations on Nature, and the Manners of Men, in the dark Shadows of *Hieroglyphicks*; and to conceal them, as sacred *Mysteries*, from the apprehension of the vulgar. This was a sure way to beget a Reverence in the Peoples Hearts towards *themselves*: but not to advance the true Philosophy of *Nature*.⁵⁷

In Sprat's rather partial and partisan version of events, both the modes of expression and the species of experimental ‘experience’ valued by the Royal Society were quite

⁵³ Espagnet (1650), p. 170.

⁵⁴ Espagnet (1650), p. 185.

⁵⁵ Espagnet (1650), p. 165, 193; Janacek, p. 4; Owen Hannaway, *The Chemists and the Word, the Didactic Origins of Chemistry* (Baltimore: John Hopkins University Press, 1975), pp. 26.

⁵⁶ Brian Vickers, and Nancy S. Struener, *Rhetoric and the Pursuit of Truth: Language Change in the Seventeenth and Eighteenth Centuries* (Los Angeles: William Andrews Clark Memorial Library, University of California, 1985), pp. 3-76; Michael Hunter, *Science and the Shape of Orthodoxy: Intellectual Change in Late Seventeenth-Century Britain* (Woodbridge: Boydell, 1995), pp. 170-171; Michael Hunter, *Science and Society in Restoration England* (Cambridge: Cambridge University Press, 1981). pp. 29-31; Moran (2007), p. 55-60; Linden, pp. 260-293.

⁵⁷ Thomas Sprat, *The History of the Royal Society of London for the Improving of Natural Knowledge* (London: J. R., 1667), p. 5.

different from the cryptic hieroglyphs and illuminative practices still favoured by many chymical authors of the mid-seventeenth century.⁵⁸

Evelyn's contributions to the Royal Society and his formal roles within it included a concern with language and communication. There is no reason to suppose that his attitude towards issues of expression did not eventually tally with the views so acerbically expressed by Sprat in his *History*.⁵⁹ As early as the mid-1650s, Evelyn was expressing his preference for a plain style, writing in his *Animadversions* on Lucretius:

Lucretius was no admirer of *Hieroglyphical* learning; yet not out of disaffection to pure and natural Eloquence, but when it was empty and jejune of matter.⁶⁰

But where exactly did Evelyn draw the boundaries between a *Hieroglyphical* style and 'natural Eloquence'? In the same text he also notes that '*Nardius* [was] very much in choler against our poor *Chymists*, at whose canting he is exceedingly bitter and impatient'.⁶¹ This passage gives the impression that Evelyn himself had somewhat more patience with the unfortunate chymists and that cryptic imagery was acceptable, so long as it had some genuine content and meaning. If eventually Evelyn was to follow Sprat *et al.* in promoting the banishment of allegory from the discourse of natural philosophy, when he drew his Philosophico-Medicall garden Ichonimse, c. 1660, he had not yet reached this point. In his caption to this image, even whilst distancing himself from the 'lofty words' of the 'Sonnns of Art', which he contrasts with his own 'true and veritable narrations', Evelyn appropriates Plat's phrase, the 'Stomach of the Estrich', an expression which sits squarely within the alchemical traditions of codified obfuscation.⁶²

⁵⁸ Vickers and Struever (1985) pp. 52-53; Charles Webster, 'The Origins of the Royal Society', *History of Science* (1967), 106-128; Michael Hunter, 'Latitudinarianism and The "Ideology" of the Early Royal Society: Thomas Sprat's History of the Royal Society (1667) Reconsidered' in *Philosophy, Science, and Religion in England, 1640-1700*, ed. by Richard Ashcraft Richard Kroll, Perez Zagorin (Cambridge: Cambridge University Press, 1992), pp. 199-218.

⁵⁹ Vickers (1985), p. 32; M. Denny, 'The Early Program of the Royal Society and John Evelyn', *Modern Language Quarterly* 1 (1940), 490-491; Hunter *Science and Society* (1981), p. 93.

⁶⁰ John Evelyn, *An Essay on the First Book of T. Lucretius Carus De Rerum Natura: Interpreted and Made English Verse by J. Evelyn, Esq.* (London: 1656), p. 148.

⁶¹ Evelyn, *Lucretius* (1656), p.148.

⁶² *Elysium*, p. 410.

Reference to Evelyn's earlier alchemical notes in the 'Tomus Tertius' shows that he had a certain familiarity with alchemical codes. Thus, when wrestling with the interpretation of George Ripley's alchemical poem, *The Compound of Alchymy*, his notes show him trying to determine the author's exact meaning. Evelyn transcribed long passages from the poem, including the following extract with its marginal query:

Bodys with the first we Calcine naturally
 Perfect, but none which be uncleane
 Except one which is usually
 Named by philosophers the Lyon greene.
 He is the Meane the sunne and the Moone betweene: st: 16

With the second which is an humiditie
 Vegitable, __ __
 Both principles materials must loosed be. St: 17

With the 3d Humiditie most permanent
 __ __ it is our natural fire: st: 18

Quaere: whether this
 [mercury symbol] be
 extracted after
 sublimation: for this
 is the [mercury
 symbol] to ferment
 with all.⁶³

The fact that Evelyn recorded such a 'Quaere' suggests that, for the most part, he believed that he understood Ripley's meaning and that he is trying to decode the poem in terms of specific laboratory processes and products. It also suggests that he had a certain fluency in alchemical codes, which he could draw on in composing his own alchemical emblem – the Philosophico-Medicall garden Ichonisme. We are now ready to proceed to a reading of the specifics of his design, through comparison with a range of alchemical emblems.

⁶³ Add 78330, fol. 143; the green lion, the sun and the moon are all central alchemical concepts referring to the primary 'male' and 'female' 'seeds' of metals, and to the *prima materia* of the Stone, respectively, see Abraham (1998), p. 185 p. 92; On Ripley see Jennifer M. Rampling, 'Establishing the Canon: George Ripley and His Alchemical Sources,' *Ambix* 55 (2008), 189–208; Schuler, p. 294.

The Alchemical Stage

Uniquely in the context of the *Elysium*, Evelyn provides his reader with a programme of statuary for the Philosophico-Medicall garden, suggesting that:

A moderat mixture of such Statues as represent to the life the Effigies & memorie of the most skillfull & illustrious Botanists, Physitians & Philosophers ~~it which~~ {they} may be rarely placed upon the Ascents of the Mount.⁶⁴

In a marginal note, he adds: ‘Apollo Solomon Chiron: Pliny, Theophrastus: etc.’ – a list which is not devoid of alchemical resonance.⁶⁵ In an earlier chapter of the *Elysium*, Evelyn describes Apollo and Chiron as botanists and healers, saying:

Chiron and *Æscylapius* and *Apollo* himselfe {have} were esteem’d as Gods among men, and have been chiefly celebrated for their Skill in Plants, there being so many incomparable {admirable & soveraigne} Remedies to be deriv’d out of the Vegetable Family.⁶⁶

But Apollo the sun god, who is thus associated with gold making, makes frequent appearances in alchemical emblematics in various guises; whilst Chiron, though principally a healer, is also closely associated with Prometheus and thus with the ‘arts of fire’.⁶⁷ The wise King Solomon was supposedly an accomplished alchemist and, according to Elias Ashmole, possessed the secret of the ‘Angelical Stone’.⁶⁸ Placed on the ascending steps of the Philosophico-Medicall mount, Apollo, Solomon and Chiron could not have been intended as cyphers in the same alchemical register as Ripley’s ‘Lyon greene’, or Plat’s ‘Stomach of the Estrich’, but they nonetheless give an alchemical tinge to the march of botanical, medical and philosophical heroes which Evelyn proposes for the garden. For the more specifically alchemical aspects of Evelyn’s design, however, we must look beyond these characters, to the topographical and structural features of the garden. Our approach is made through a

⁶⁴ *Elysium*, p. 407.

⁶⁵ *Elysium*, p. 407.

⁶⁶ *Elysium*, p. 34.

⁶⁷ Read, p. 162; 270-272; Allen, p. 245.

⁶⁸ Janacek, p. 155; Paul Kléber Monod *Solomon's Secret Arts: The Occult in the Age of Enlightenment* (New Haven: Yale University Press, 2013), *passim*.

consideration of a set of Paracelsian alchemical emblems, published during the period 1618 – 1660.

The primary example is the elaborate allegorical landscape, included by Johann Danielus Mylius in his vast *Opus Medico-Chymicum*, one of the titles on Evelyn's list of 'Writers of Chymistry' (FIG. 3.2).⁶⁹ The shifting nature of alchemical emblematics does not allow any convenient registration of the features of Evelyn's garden, item by item, against those of Mylius's drawing. Mylius's image serves only as an opening example, allowing us to establish a field of reference that will be amplified with additional material as the argument proceeds. We will also look at material drawn from Mylius's *Philosophia Reformata*; William Davidson's *Philosophia Pyrotechnica*; the 'Twelve keys' of Basil Valentine; Stefan Michelspacher's *Cabala: Spiegel der Kunst und Natur in Alchymia*; and the *Musæum Hermeticum*, which is a compilation of alchemical texts, published in 1625 (FIGS. 3.4; 3.5; 3.6; 3.9; 3.10).⁷⁰ As established in the last chapter, Evelyn certainly knew Davidson's work and he was at least aware of both Mylius and Basilus, for 'Les douze clefs de Basil Valentino' appears alongside Mylius on the list of 'Writers of Chymistry', but we cannot be sure that he knew the other sources. They are typical, however, and display certain consistent structural commonalities through which key concepts of cosmic ordering and metallurgical principle are communicated, though again there are variations and scope for multiple interpretations of a single symbol. All the images referred to can be characterised as Paracelsian.⁷¹ In order to find a most probable reading of Evelyn's Ichonimse,

⁶⁹ Mylius (1618- 1630), vol II; Add 78330, fol. 5^v.

⁷⁰ Mylius (1622); William Davidson, *Philosophia Pyrotechnica Seu Curriculum Chymiatricus* (Paris: Bessin, 1633-35); Basilus Valentinus, *Les douze clefs de philosophie de frère Basile Valentin* (Paris: Chez Ieremie et Christophle Perier, 1624); 'Twelve keys of Basil Valentine' in Michael Maier, *Tripus Aureus, hoc est, Trs Chymici Selectissimi, Nempe I. Basili, Benedicto Ordinis Monachi, Germani, Practica una cum 12 Clvibus & Appendice, ex Germanico...* (Frankfort: Jennis, 1618); Steffan Michelspacher, *Cabala. Spiegel der Kunst und Natur in Alchymia* (Augsburg, 1616); *Musæum Hermeticum, Omnes Sopho-Spagyricæ Artis Discipulos Fidelissime Erudiens, ... in Latinum Conversum Ac Juris Publici Factum* (Frankfurt: Jennis, 1625).

⁷¹ On Mylius see L. Thorndike, *A History of Magic and Experimental Science*, 7 vols, vol VII (Columbia NY: Columbia University Press, 1958), p. 177-178; Read, pp. 260-264; on Davidson see Jole Shackelford, *A Philosophical Path for Paracelsian Medicine: The Ideas, Intellectual Context, and Influence of Petrus Severinus* (Copenhagen: Museum Tusulanum Press, 2004), pp. 92-454; Basil Valentine see Read, pp.183-211; I characterise Michelspacher as 'Paracelsian' on the basis of his use of the Paracelsian Salt, Sulphur and Mercury in his emblem 'Anfang: Exaltation', reproduced in Stanislas Klossowski de Rola, *The Golden Game: Alchemical Engravings of the Seventeenth Century* (London: Thames and Hudson, 1988), p. 55; On the *Musæum Hermeticum* see Read, pp.166-167.

reference is made to the *Elysium* text, but this is only possible in discussing those features of the garden that are intended to express aspects of cosmic order and natural process. For those emblematic features that are specific to transmutational alchemy (not a topic that we find treated in the *Elysium*, outside the veiled references included in the Philosophico-Medicall Ichonisme and caption) reference is made to Evelyn's alchemical notes for an expanded reading, wherever possible.

Mylius's Allegorical Landscape

Mylius's landscape from the *Opus Medico-Chymicum* shows the Philosopher's Stone as a microcosm, in which the substances and forces of created Nature are held in harmonious and dynamic balance. He develops this theme through a tableau in which the cosmo-alchemical concepts he wishes to convey are communicated through animistic personifications set against a carefully composed backdrop. Here we find some stock characters of the alchemical *opus* - Sol and Luna, the bicorporate green lion, an eagle, a phoenix and other 'volatilia' – the crow, the dragon etc.⁷² These all play a part in acting out the alchemical drama, but the landscape features of the setting - the mount, the stream, the jet of volcanic fire emerging from the base of the mount, the symbol bearing trees, and the richly articulated heavens above - provide an equally eloquent frame. It is this frame that we draw on in developing an understanding of Evelyn's Philosophico-Medicall garden Ichonisme.

In Mylius's drawing, the landscape is axially disposed around the central, subtly stepped mount, which is fringed with symbol bearing trees. The seven trees ranged around the silhouette of the mount bear the signs of the planetary metals. A further set of twelve, which also bear chymical symbols, is ranged in two rows within this. The tree that occupies the summit of the mount is emblazoned with the symbol for gold, its branches piercing the circle of clouds, which parts to reveal the celestial image of the Philosopher's Stone. Mylius's landscape is ordered into three zones, one above the other, in a way reminiscent of the vertical hierarchy inscribed in Evelyn's Harvard furnace drawing (FIG. 2.4) – at the base there is a terrestrial

⁷² Abraham (1998), p. 64-65, pp. 152, p. 23-25, p. 49, p. 59; Klossowski de Rola, p. 138, p. 150.

zone; above this a the celestial zone; and finally, above that the ‘super celestial’ zone of divine illumination, where symbols of the Holy Trinity are surrounded by choirs of seraphim and cherubim (these correspond to the brick furnace; the glass vessels; and invisible realm of ‘*Lux Metaphysica*’ in the Harvard drawing). Gold sits at the junction of the terrestrial and celestial realms, the Stone sits at the junction of the celestial and super-celestial regions.

At the lowest, earthly level of the drawing Mylius’s landscape is divided about its central axis, with primarily masculine features occupying the left half of the drawing, and primarily feminine features occupying the right half. On the left, we find Sol, with his accompanying lion, a solar disc, and the fiery phoenix holding spheres of the hot (and therefore ‘masculine’) elements, fire and air.⁷³ On the right we find Luna, with a stag like creature, a lunar disc and an eagle sheltering spheres of the cold (and therefore ‘feminine’) elemental water and earth. This division is reinforced by the landscape where it is day on the left, and night on the right. At the base of the drawing a jet of fire and a stream of water (primary opposites and emblems of the primary metallic principles –sulphur and mercury) issue from the subterranean region beneath the mount.⁷⁴

The primary theme of this complex image is the generative union of opposites, a theme played out both between the left and right sides of the image, and between earth and heaven, in the Hermetic correspondence of ‘above’ and ‘below’.⁷⁵ The vertical correspondence and interchange is indicated principally by the figures of Sol and Luna, who though descended to earth remain chained to the cycle of the heavens, where the remaining five ‘roving stars’ – Saturn, Jupiter, Mars, Venus and Mercury – occupy the lower half of the stellar cycle. The upper half of the same circle shows the twelve zodiacal signs. The influence of the heavens on the earth beneath is thus articulated as an astrological concern.⁷⁶ Throughout the image, Mylius orders the elements into numbered groupings – twelve zodiacal signs; seven metals and planets; four elements; and, in three concentric rings surrounding the

⁷³ Principe (2013), p. 78, p. 38.

⁷⁴ Moran (2005), pp. 25-27, p.76, p.77, pp. 85-86; Principe (2013), p. 57, p. 109, p. 122.

⁷⁵ Read, pp. 101-105; Klossowski de Rola, p. 150.

⁷⁶ On Astrological alchemy see Newman and Grafton eds. (2001), pp. 14-17.

central mercurial image of the Stone, the three Paracelsian principles ('our Mercury', 'our Sulphur' and 'our Salt').

This use of number to convey meaning is typical of seventeenth-century alchemical emblems, as John Read explains with reference to an image that appears as an appendix to Michael Maier's edition of *Twelve Keys of Basil Valentine*. This emblem is intended as a summary of the *opus* in a single image, rather than as an explanation of a single step within the process. In this it is similar to Mylius's landscape (FIG.3.9, 3.10).⁷⁷ Read tells us that in Basilus's emblem: 'The enclosing square represents the four elements; the triangle and the three crowned serpents stand for the *tria prima* – sophic sulphur, mercury and salt' and the two intersecting circles, stand for the 'conjunction of the masculine and feminine principles'.⁷⁸ These basic concepts of Paracelsian alchemy are communicated not only through figural cyphers, but also through their numerically groupings. We can cement the alchemical reading of Evelyn's Philosophico-Medicall garden by considering the numbers that he uses in its composition. Number is not the only eloquent component of the empty alchemical stage represented by Evelyn's Ichonisme, but it plays a crucial part. The following reading is organised through the significant numbers embedded in Evelyn's design, which we consider in descending sequence. We start with twelve, and then proceed to seven, four, three, two and one.

The Philosophico-Medicall Garden as Alchemical Emblem.

(i) Twelve

Ever concerned with pragmatic issues, in both his text and the accompanying Ichonisme Evelyn details the spatial configuration he imagines for his Philosophico-Medicall mount quite precisely. He insists that the mount should be composed in twelve ascending levels and he gives dimensions. But a curious inconsistency arises, for the space that he allows to accommodate this vast construction in his overall plan

⁷⁷ Read, pp. 207-210; From Daniel Stolcius, *Viridrium Chymicum Figuris ... Adornatum, et Poeticis Picturis Illustratum, Etc.* (Francofurti, 1624), reproduced in John Read, p. 207.

⁷⁸ Read, p. 207. 'Sophic mercury' is synonymous with 'our Mercury', etc..

(the Ichonisme), is insufficient for the twelve terraces, dimensioned according to the precise instructions that he gives in the text. Thus, describing the terraces, or ‘Cascades’ of the pyramid, Evelyn says:

every Cascade being 6 foote high, the whole will amount to 72, and 13 broad: so that 12 such cascades will reach the top after that computation.⁷⁹

If $12 \times 6 = 72$ cannot be other than correct for the height of the construction, Evelyn’s arithmetic fails in the calculation of the plan area required for a mount composed (as his drawing shows) of eleven horizontal steps repeated on each side of the mount, plus the breadth of the summit plateau. The plan area of the twenty-two, thirteen foot wide terraces alone would be 286ft ‘broad’ (11 x 2 x 11ft), to which we must add the dimensions of the plateau at the top of the mount to achieve the total dimension for the base of the pyramid. Making a conservative estimate of 50ft for the breadth of the summit plateau, the base of the pyramid becomes 336 x 336ft. It is simply too large to fit in the available plot which, according to the Ichonisme, is only 150ft wide. In Evelyn’s imagining of the Philosophico-Medicall garden mount, the symbolic significance of number precedes the practical arithmetic of spatial planning. It is important to Evelyn that his mount should rise in twelve stages and this is a register of the emblematic intention of his design.

One characteristic way in which number appears in alchemical literature is in the articulation of the process of the *opus* into a definite number of stages. A variety of numbers are used. Evelyn’s manuscripts include one in which the *opus* is organised into five stages, but seven and twelve are more popular, for these numbers have connotations of spatio-temporal cycles – the twelve months of the year, the twelve constellations of the fixed stars; the seven days of the week and seven ‘moving stars’.⁸⁰ Thus, several authors who featured in Evelyn’s alchemical studies, or on his reading list, describe a twelve stage process – Ripley in his ‘Twelve Gates’; Mylius in both his *Philosophia Reformata* and his *Opus Medico-Chymicum*; ‘Basilius’ in his *Twelve Keys*, Espagnet in his *Arcanum*.⁸¹ The twelve stages of

⁷⁹ *Elysium*, p. 405.

⁸⁰ Add 78335, fols. 118-122; Newman and Grafton eds. (2001), pp. 14-18; Read, pp. 136-142.

⁸¹ Evelyn records from Ripley: ‘Calcination cap: 1. Dissolution: 2d: elemental separation: 3d: conjunction [...illegible...]: 4th: putrifaction 5th: congelation Albificans: 6th: cibation: 7th -----stanza:

Evelyn's mount may be read as a reference to the twelve staged process of attaining the perfection represented by the Philosopher's Stone.

This reading finds support in an emblem in Michelspacher's *Cabala* (FIG. 3.5). The image is one of four and is entitled 'Mittel: Coniunction'. In his scholarly compendium of European cosmographic symbolism, S.K. Heninger includes Michelspacher's image, which he interprets as the 'climactory' stage of the *opus* - the point of conjunction of the male and female principles of metals, Sol and Luna, who are shown seated in their 'esoteric' palace.⁸² The palace occupies an ambiguous inside/outside position with respect to a mountain and sports a Phoenix on its roof, a symbol of the Philosopher's Stone. The ascending steps which approach the throne room are inscribed with the legend - 'Calcination, Sublimation, Solution, Putrefaction, Distillation, Congelation, Tincture' - a recital of a seven stage process of the *opus*, derived from Paracelsus.⁸³ It remains only to substitute the number twelve for the number seven to establish a reading of Evelyn's Philosophico-Medicall mount in terms of this emblematic motif. Or, moving backwards through this chain of associations, the twelve stages of ascent may be seen as a cypher for the idea of any work, in which perfection and completion are sought through an alignment with the seasons and passage of the year registered in the passing of the stars - including, of course, gardening.

(ii) Seven

We have seen that 'seven' appears in Mylius's drawing both as the seven 'roving stars' (two of which, Sol and Luna, have come down to earth), and as the set of seven metals outlining the mount. In Evelyn's Ichonimse 'seven' appears in the group of openings into the experimental caves beneath the mount. What is explicit in

28: sublimation 8th: Firmentation 9th: Exhaltation: 10th: Multiplication: 11th: Projection 12th st: 29, Add 78330, fol. 104.

⁸² S. K. Heninger, *The Cosmographical Glass: Renaissance Diagrams of the Universe* (San Marino, Calif.: Huntington Library Press, 1977), pp. 182-183.

⁸³ 'Tincture' is a synonym for the Stone, Read, p. 137; Evelyn records this in his notes from Paracelsus, *Of The Nature of Things*, [in Sendivogius (1650)]: 'There are 7 principal degrees of Transmutation: viz Calcination, sublimation, Solution, Putrefaction, Distillation, Congelation, Tincture: Lib: 7: p: 62', Add 78330, fol. 145.

Mylius is implied in Evelyn's drawing - the seven cave openings are a reference to the seven primary planetary metals and thus contribute to the thematics of ascent as purification, articulated through the metaphor of transmutation.⁸⁴

Alchemical illustrations frequently show the seven metals gathered together in underground caves. In one of Mylius's emblems from the *Philosophia Reformata*, the metals appear as their associated planetary deities, gathered around a harp-playing, solar Apollo in a subterranean grotto (FIG. 3.12).⁸⁵ The frontispiece to the *Musaeum Hermeticum* shows a similar scene, this time with the metals shown as six female planetary muses, again surrounding Apollo (FIG. 3.11). Given their underground situation, these figures represent the metallic ore awaiting transmutation through the fiery arts of the philosopher, arts which imitate the slower processes of nature.⁸⁶ Through Evelyn's notes from Sendivogius we can link this idea with his Philosophico-Medicall garden mount, in another register. Evelyn records that in 'a place hott and pure [...] is made gold' and in 'cold and impure places [...] is made leade &c'. Lead, however, can naturally change into gold as:

vapour issues continually from the centre [of the earth] to the superficies subliming still in its passage, so that by this meanes it may come that Gold may be after found, where before lead onely was'.

Evelyn's notes conclude: 'Therefore is gold seldome or never found in playne or levell ground'.⁸⁷ A Sendivogian alchemist would expect gold to be found at the top of mountains, places that are 'more pure' than lower ground since the mountain effectively acts like a subliming furnace, such as that pictured in Evelyn's Harvard furnace drawing.

Evelyn describes the experimental caves of the Philosophico-Medicall garden as descending 'as farr below the area of the plaine as were possible' and imagines that here the 'philosophers' will experiment in 'congelations and other Philosophical experiments', a phrase which has resonance with Bacon's descriptions of the 'lower region' of Salomon's House, devoted to 'Coagulations, Indurations, Refrigerations,

⁸⁴ Principe (2013), pp. 108-112; Moran (2005), p. 26-27. For the field of association of 'seven' implied by Evelyn's drawing, following Davidson, see Shackelford, p. 413.

⁸⁵ Mylius (1622), p. 167.

⁸⁶ Newman (2004) p. 112-113; Read, pp. 94-95, p. 24, p. 46.

⁸⁷ Add 78330, fol. 103.

and Conservations of Bodies'. Bacon also saw these caves as a place for: 'the Producing, also of New Artificial Metals, by Compositions and Materials which we use and lay there for many years' and it is conceivable that Evelyn harboured some particular metallurgical intentions for these subterranean Instruments.⁸⁸ But given the Botanico-medical intentions of the enclosure, any precious ores found in the caves of the Philosophico-Medicall garden are probably best seen as the riches of more general experimental findings, the adept's capacity to perfect metals through the Noble Art of chymistry standing for the wider restorative potentials of experimental philosophy. Evelyn's mount is a transmutational alembic of sorts, a 'furnace' tended by the 'philosophers' who move between their experimental caves, their laboratory stills, and the 'wonderfull and stupendious plants' disposed about their garden in diverse situations where they are 'inlightned & exposed by severall degrees of heate'.⁸⁹

(iii) Four and Three

The commonplace association of the four quarters of a parterre with the four quarters of the world and the four cardinal directions, noted in the last chapter, was often extended to include a multiplicity of other groups of four, including the four elements. This practice was of long duration and can be found in many forms of expression including alchemical emblems.⁹⁰ Both the frontispiece to the *Musaeum Hermeticum* and Mittelspacher's 'Mittel: Coniunctio' emblem incorporate this motif. Another clear, if elaborate example, is found in a diagram usually referred to as 'Ripley's wheel', which was included in the 1591 edition of his *Compound of Alchemie* - the edition from which Evelyn took his notes (FIG. 3.13).⁹¹ If the four quartered element of Evelyn's design for the Philosophico-Medicall garden parterre guarantees a reading of the plot as a cosmic symbol, mediated by the idea of the Garden of Eden, this elemental reading of 'four' is also implied. But Evelyn makes

⁸⁸ Francis Bacon, *New Atlantis a Work Unfinished / Written by the Right Honourable Francis, Lord Verulam, Viscount St. Alban* (London, 1658, first published 1627), p. 26.

⁸⁹ *Elysium*, p. 405.

⁹⁰ Heninger (1977), pp. 165, pp. 182-189; Richard Foster, *Patterns of Thought: The Hidden Meaning of the Great Pavement of Westminster Abbey* (London: Cape, 1991).

⁹¹ Add 78330, fol. 104.

the quartered structure of the parterre co-exist with a dominant tripartite pattern. Given the alchemical context, this overlay of three and fourfold patterns may perhaps be taken as an indication of the interplay of the three principles and four elements, an arrangement that parallels Mylius's landscape depiction of the heavenly *tria prima*, which circle the stone, in relation to the four earthly elements, ranged along the base-line of the drawing (FIG. 3.2). Seen in this light, Evelyn's parterre pattern appears as an emblematic representation of the fundamental alchemical idea of the union of opposites, which, as we have seen, is the primary intent of Mylius's landscape. There is, however another way in which this idea is registered in Evelyn's design for the terrain of the Philosophico-Medicall garden.

(iv) Two and One

In alchemical images, the reconciliation of opposites is often represented through the pairing of 'water' and 'fire'. In the Philosophico-Medicall garden Evelyn has placed two marshy pits, one to either side of his furnace-like mount. These take the unlikely shape of inverted pyramids. We remember that Evelyn specifically states that these boggy areas, should 'end in the watery and slushie' – a material condition that is surely irreconcilable with his choice of shape for the 'bottome'. Consequently, it seems probable that he proposed the form with a deliberate iconographic intent. This may be explained, in part, with recourse to conventional seventeenth-century chymical symbols. Typically, an upward pointing triangle was used to denote fire, whereas a downward pointing triangle was used to denote water – the one rises, the other descends - they are opposing elements, the one hot and dry, the other cold and wet, they have no primary qualities in common (FIG. 3.14).⁹² This convention was certainly known to Evelyn, for the fire and water triangles, along with further bisected triangles representing earth and air, appear with commentary in chymical keys, found in both his 'Barlet' and 'Lefebvre notebooks' (he also gives a variation following Davidson) (FIG. 3.15).⁹³ The mount is analogous to a distillation vessel and thus an instrument of fire, and the watery pits are already just that – watery. Thus 'fire' and 'water', are already inscribed in the terrain of the garden irrespective of

⁹² Heninger (1977), pp. 103-106.

⁹³ Add 78335, fol. 18v; Add 78345, fol. 19.

precise geometric form. By superimposing the descending pyramid on his graphic representation of the ‘bottomes’, it is as if Evelyn has framed this wateriness as a chymically conceived quality or potential, thus contributing to the idea that the garden be seen in terms of oppositional forces held in dynamic balance. The frontispiece to William Davidson’s *Philosophia Pyrotechnica* accomplishes something similar (FIG. 3.6). This image, like Mylius’s landscape, is divided into masculine and feminine – the masculine elements are on the right of the volcanic mountain which occupies the horizon of the drawing, the feminine elements are on the left. The triangular mount provides a telling counterpoint to the teeming watery depths of the foreground, again articulated as an opposition between ‘fire’ and ‘water’, albeit Davidson’s ‘water’ doesn’t take a triangular form. But Davidson, aberrationally, used a rectangle enclosing wavy lines to represent water, rather than the more usual triangle. Evelyn knew this, judging by the prevarications and alterations he made to his transcription of a Davidsonian chymical key found in the ‘Lefebvre notebook’ (FIG. 3.15, 3.16a).⁹⁴

When brought together, oppositional triangles can be made to form a six pointed star, which, in seventeenth-century context, was used as a symbol for Philosopher’s Stone (FIGS. 3.11; 3.14).⁹⁵ The frontispiece to the *Musaeum Hermeticum* uses this motif and accompanies it with a poem, which articulates the idea of the union of opposites through a gloss on the Hermetic dictum: ‘That which is above is above is like to that which is below, and that which is below is like to that which is above, to accomplish the miracles of the one thing’. The Philosopher’s Stone is that ‘one thing’ (FIG. 3.11).⁹⁶ The poem translates as:

The things that are in the realms above are also in the realms beneath

What heaven shews is often found on earth.

Fire and flowing water are contrary to one another;

*Happy thou, if thou canst unite them: let it suffice thee to know this!*⁹⁷

⁹⁴ Add 78345, fol. 19.

⁹⁵ Mylius (1618-30), frontispiece; Abraham, comments that the six pointed star is the ‘transforming arcanum Mercurius, the divine light hidden in the prison of matter’, and using seventeenth-century sources argues that it can indicate ‘the mercurial power which unites heaven above (downward pointing triangle) with earth below (upward pointing triangle)’ (1998), p. 190-191; Roberts, p. 67.

⁹⁶ Newman and Grafton eds. (2001), p. 25.

⁹⁷ Translation follows Read, p. 168; for original Latin poem see (FIG. 3.11).

The six pointed star also occupies pride of place in the frontispiece to Mylius's *Opus Medico-Chymicum*, where it is both a cypher for the unification of 'fire' and 'water' and connotes a much broader field of reference, in which the six pointed star encompassing all four 'lowly' elements and their relation to the celestial realm (FIG. 3.14). As in Mylius's emblematic alchemical landscape, which appears later in the same work, the Stone is shown as a summary of cosmos in which the celestial influences are brought down to earth as the Paracelsian principles infuse the elements, and the Spirit is united with matter.

We may see these oppositional triangles as conventional signifiers, intended to reveal/ conceal concepts associated with the laboratory work of the production of the Stone, and many readers no doubt saw them as such. However, the more general 'revelatory' potential sometimes attributed to alchemical emblems could extend to a mystical readings of numbers and figure and their mathematical manipulation both in relation to the great work of transmutation and in relation to the chymical order of cosmos. Looking to the context of Evelyn's early chymical studies in Paris, both William Davidson and Annibal Barlet accompany their chymical textbooks with elaborate Neoplatonic chymical cosmogonies, unfolded through geometric diagrams.⁹⁸ In Davidson's case these are formed on the pattern of the better known work of Robert Fludd. Oppositional triangles play a significant role in the diagrams of all three authors, again denoting a generative union of opposites (FIGS. 3.16; 3.17; 3.18).⁹⁹ Given the derivation of Evelyn's Harvard furnace drawing in Davidson's work, it is clear that Evelyn took interest in some aspects of this author's speculative cosmographic thought, but what was his attitude to such numerological and geometrical speculations? It is tempting to assume that Evelyn would have

⁹⁸ Annibal Barlet, *Le vray et methodique cours de la physique resolutiue, vulgairement dite chymie ... pour connoistre la theotechnie ergocosmique, c'est à dire, l'art de Dieu, en l'ouurage de l'vniuers* (Paris: N. Charles, 1653), pp. 19-76; Davidson, *Philosophia Pyrotechnica* (1633-35); Davidson, *Les Elemens de la philosophie de l'art du feu ou chemie*, trs. by Jean Hallot (Paris, 1651); William Davidson, *Commentariorum in Sublimis Philosophi et Incomparabilis Viri Petri Severini Dani Ideam Medicinæ Philosophicæ Prope Diem Proditurorum Prodromus* (Den Haag: Vlacq, 1660).

⁹⁹ Shackelford (2004), pp. 404-408; pp. 413 onwards; Robert Fludd, *Utriusque Cosmi Majoris Scilicet et Minoris Metaphysica Atque Technica Historia...*, 2 vols (Frankfurt: Oppenheimii: 1617), vol 1, p. 89, p. 84, p. 97; vol 2, p. 82; Robert Fludd, R. F. ... *Philosophia Sacra et Vere Christiana, Seu Meteorologica Cosmica* (Francofurti, 1626), p. 212; All Fludd images reproduced in Joscelyn Godwin, *Robert Fludd: Hermetic Philosopher and Surveyor of Two Worlds* (London: Thames and Hudson, 1979), pp. 42-53; for comment on Fludd see William H. Huffman, *Robert Fludd and the End of the Renaissance* (London: Routledge, 1988), pp. 171-173; Barlet, pp.48-50.

dismissed the geometric cosmogonies of his teachers as ‘cobwebs spun out of his own substance’, to paraphrase Bacon’s pithy condemnation of self-sufficient philosophical system building, emancipated from an appropriately strict structure of experiment.¹⁰⁰ This is certainly the direction in which the Royal Society milieu would eventually have pushed him and probably does represent the general tenor of Evelyn’s attitudes towards the end of the 1650s, given the absence of evidence to the contrary. There is, however, some indication that Evelyn did engage with numerology during the course of the 1650s and it is quite possible that he was more interested in this material at the beginning of the 1650s than he was ten years later. This, however, is a topic reserved for chapter 8, which concerns the use of figure in his first designs for Sayes Court garden, c. 1652.

In closing the current discussion, we note that numerology and geometric cosmogonics retained some currency into the second half of the seventeenth century, for Davidson was still publishing his geometric speculations in new work as late as 1660.¹⁰¹ Given the ambiguity of emblematic figural articulation, it is likely that had the *Elysium* ever come to press at least some of Evelyn’s readers would have taken the oppositional triangles framed through his mount and pits, and the numbers embedded in the parterre and the ‘Cascades’ of the mount, to have entailed a broader revelatory cosmogonic significance, allied to a Neoplatonic conception of number. Whatever the exact valency of the image, however, it is now clear that Evelyn intended his Edenic Philosophico-Medicall garden to be read in specifically alchemical terms. He composed his Ichonimse as an image of the dynamic stability of cosmos, seen through the cyphers of the Great Work of transmutation - a quest for pure gold, a substance conceived as a ‘corporification’ of the primary invisible light of Nature, the Universal Spirit and emblematised not only in the form of the pond at the summit of Evelyn’s Philosophico-Medicall garden mount, but also in the golden droplets created by the ‘fiery’ light of the sun, as it passes through the water droplets of the fountain. With the alchemical and chymico-chymical conception of the garden

¹⁰⁰ Precis of Francis Bacon, *Redargutio Philosophiarum*, in *The Works of Francis Bacon*, ed. by J. Spedding, R. L. Ellis, and D. D. Heath, 14 vols, vol 3 (1857-1859), p. 583, quoted in Eduard Jan Dijksterhuis, *The Mechanization of the World Picture: Pythagoras to Newton*, trs. by C. Dickshoorn (Princeton: Princeton University Press, 1961), p. 397.

¹⁰¹ Davidson (1660).

established, we now return to the more public spaces of Evelyn's *Elysium* in a consideration of the visual structuring of the garden.



3.1 Frontispiece from Michael Maier, *Arcana Arcanissima* (1614) http://38.media.tumblr.com/a6d1767f1dce3c9539ffe39d562806d1/tumblr_mvxlkx92LS1r84jico1_1280.jpg



3.1A J.D. Mylius, Frontispiece to *Philosophia Reformata*, (1622) © Author.



3.2 Alchemical landscape from Joannes Daniel Mylius, *Opus Medico-Chymicum, ... Tertius Basilica Philosophica* (1618-30) © Author.

56 Comment. Alchem. Part. II. Lib. IV.

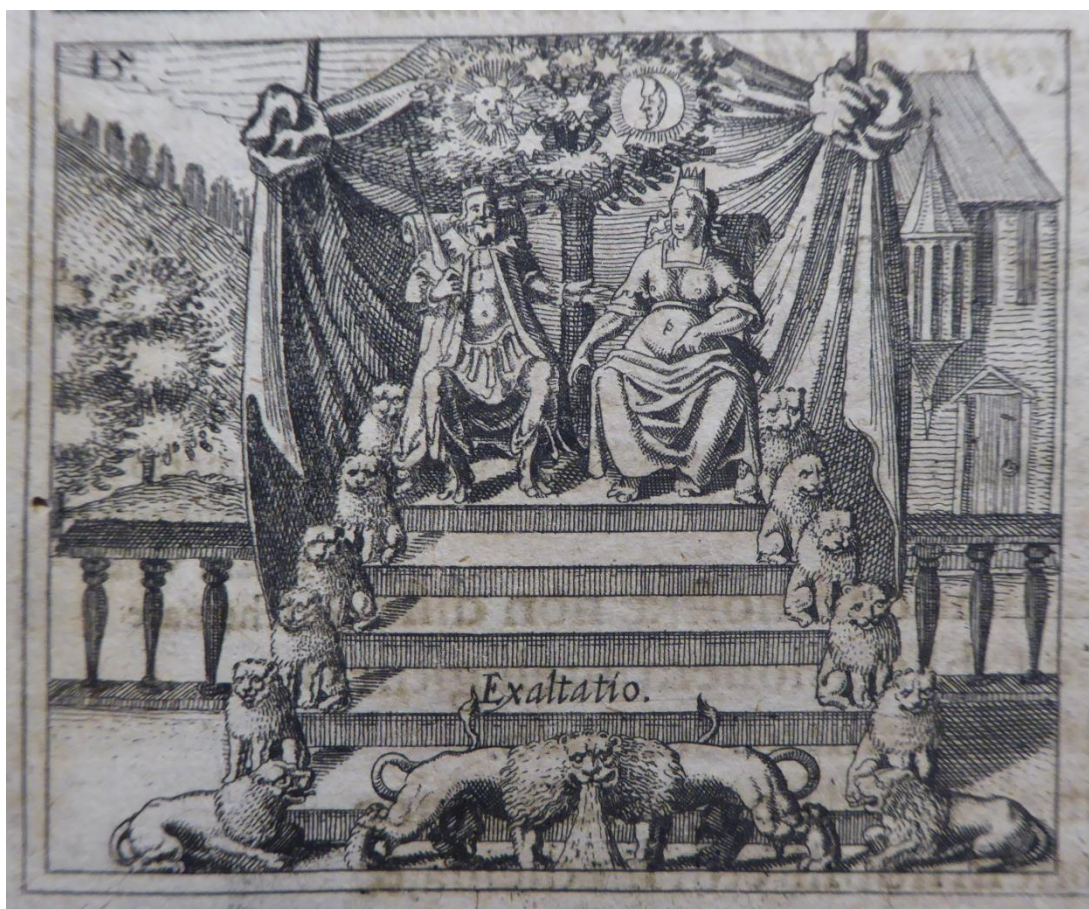


- A. Leo duplex vnius capitis, quo signatur materia prima lapidis ex duplici mercurio leonino caput illud vomit aquam viridem, quæ est mercurius philosophorum ex duobus generis. Vocatur alias Leo viridis.
- B. Leones vtrobique quasi in gradu Salomonio quinque, ad representandum quinque metalla vnius radicis leoninæ & mercurii cocti; Hæc in Solem & Lunam transire possunt: Dextri leones in Solem; sinistri in Lunam contendunt, idque in opere conspicitur per potentiarum successum & permutationem. Non sine mysterio supremus Leo respicit inferiores &c.
- C. Solis effigies.
- D. Lunæ imago.
- E. Balneum in quo sedet rex cum regina, Est & figura lecti genitalis ad generandum similes: Item horti in qua arbor, cum pomis hesperidum.
- F. Rex cum diademate & sceptro liliato quasi alloquens reginam.
- G. In medio arbor poma aurea producit, stellæ vero aureæ circumstant coronas, ad multiplicationem & augmentum, vel etiam fructum protectionis designandum.

DE LA-

3.3

Alchemical mount from Andreas Libavius, *Alchymia* (1606), p. 56.
© Author.



3.4 'Exaltatio', showing an alchemical mount after Libavius. The figure appears as the penultimate stage in the twelve stage opus expressed in the emblems from Joannes Daniel Mylius, *Philosophia Reformata* (1622), p. 126 © Author.



3.5

'Mittel: Coniunctio' from Steffan Michelspacher, *Cabala. Spiegel der Kunst und Natur in Alchymia* (Augsburg, 1616) © Author.



3.6 William Davidson, Frontispiece to *Philosophica Pyrotechnica*, Paris (1635) © Author.

L'Intellect	Estincelle du ☿ incombusti- ble.	La terre ou Arene □ ☼	I
L'ame	Lumiere celestes.	Le sel, ⊖	I
La Nature	Une Estincelle du ☿ combusti- ble.	Le soufre, ♁	I
La matiere	Les Atomes,	L'Eau	I

3.6 A Detail of a Chymical key from Davidson's *Les Elemens de la philosophie de l'art du feu ou chemie*, (1651), fol. 647. © Author.

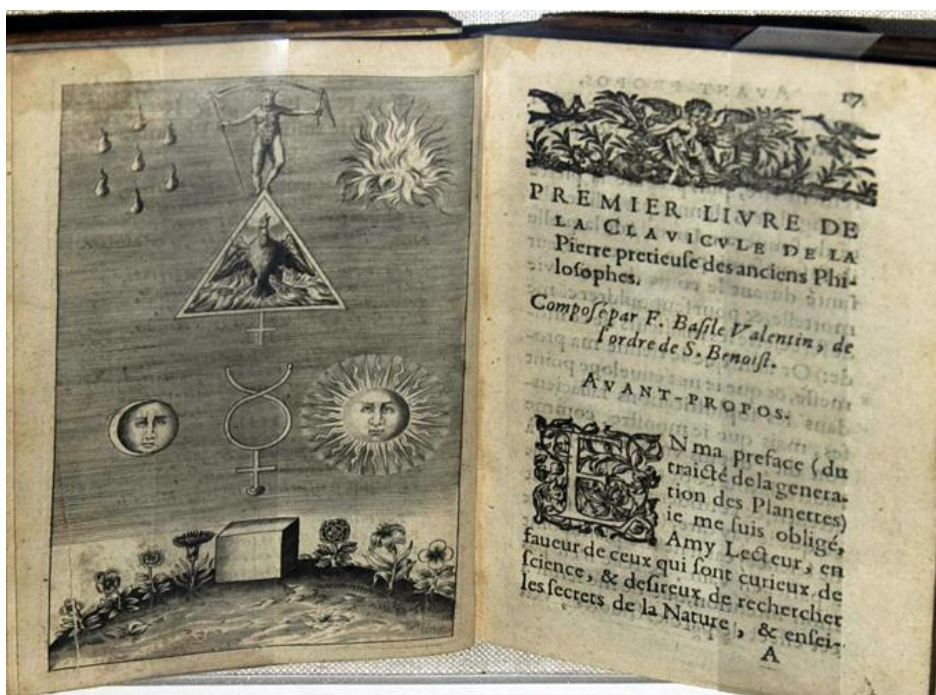
Continued in Illustrations Part 2.



3.8 'Sublimatio' from Joannes Daniel Mylius, *Philosophia Reformata* (1622), p. 126 © Author.



3.9 Alchemical emblem appended to the Twelve keys of Basil Valentine printed in Stolcius, *Viridarium Chymicum* (1624), figure XIII
© Author.



3.10 Basilius Valentinus. *Les douze clefs de philosophie de frère Basile Valentin*. (1624).
<<http://www.lib.udel.edu/ud/spec/exhibits/alchemy/emblems.html>>
[Accessed 10th July 2015] © University of Delaware.



3.11 Frontispiece to *Musaeum Hermeticum*, (Frankfurt: Jennis, 1625).
 <http://aker.deprofundis.co/media/aker/books_and_literature/hermetic_museum/musaeum_hermeticum_img_01.jpg?cache=&w=550&h=700&tok=48d856>
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Poem reads:

*Quia sunt in superis, hæc inferioribus insunt:
 Quod monstrat coelum, id terra frequenter habet.
 Ignis, Aqua et fluitans duo sunt contraria: felix,
 Talia si jungis: sit tibi scire satis*

The things that are in the realms above are also in the realms beneath:

What heaven shews is often found on earth.

Fire and flowing water are contrary to one another;

Happy thou, if thou canst unite them: let it suffice thee to know this!

Translation from John Read (1939), p. 168



3.12 The metallic/planetary muses from Joannes Daniel Mylius, *Philosophia Reformata* (1622), p. 167 © Author.



3.13 'Ripley's wheel' from George Ripley and Ralph Rabbards, *The Compound of Alchymy* (1591) © Author.



3.14 Frontispiece to J. D. Mylius *Opus Medico-Chymicum* (1618-30)
© Author.

Materia, is called Mater. $\Delta \text{♀} \nabla$ maxima Exemplaria.

* ∇ * Terra — conceptrix. $\text{♂} \text{♀}$ Masculina et aetiva;
 Δ Ignis — Memoria: $\text{♂} \text{♂}$ Passiva & Foeminea.
 ♁ Sal — Obstetrix.
 ♀ Sulphur — Retentrix. $\text{♀} \nabla \text{♁}$ Volatilia.
 ♁ Mercurius — Conciliatrix: $\text{♁} \text{♁}$ fixa:
 Licentrix: ♀ Medius:
 Phantasia: $\Delta \text{♀} \nabla$ Invisibilia.
 ∇ Aer — Sensus Communis. $\text{♁} \text{♀} \text{♁} \text{♁}$ Sensibilia.
 ♁ Aqua — promptrix.

1 ♁ Saturnus. — Lead. Rx Recipe.
 2 ♃ Jupiter. — Tyne: $\text{q} : \text{s} : \text{quantum}$ sufficit:
 * ♂ 3 ♂ Mars. — Iron. lb libra — 12 unc:
 4 ♁ Sol. — Gold. 3 Uncia — 8 Drachm:
 5 ♀ Venus — Copper. 3 s semuncia — 4 Drachm:
 * $\text{♀} \text{♁}$ 6 ♁ Mercury — Quickfilve. 7 Drachma: — 9 Scrupul:
 7 ♁ Luna. — Silver. 7 Scrupulus: — 20 obol. aut 20 gran:
 7 s. Obolus: — 10 gran:
 7 s. Librarius:
 Duo fratres: are Sal armoniac and Sul pater.
 Dies d
 Nox q

Marca is the goldsmiths weight, & containes 8 ounces; A pound Medialiterum: 720 grains.

pond	Uncia	Drachm	scrupula	grana
lb libra	12:	96	248	5760
	uncia	8	24	480
	Drachm	3	60	
	Scrupul		20	

3.15 Chymical keys from John Evelyn's 'Barlet notebook'. The marginalia show him struggling with alternative symbols for water © The British Library Board, Add 78335, fol. 18v.

Chapter 4: Garden as Perspective Spectacle: the Harmony of the World and Optical Experiment.

This chapter considers the spaces of the Elysium in visual terms, through the idea of the quasi-theatrical ‘spectacle’. The primary topic of this spectacle is the harmony of the world and Evelyn employs perspective as an important means of achieving a harmonious visual effect in the garden spaces. Perspective is also important in several prominent ornaments, framed by Evelyn as privileged sites of optical experiment – particularly the long tree lined walks of the garden and its trompe l’oeil paintings. Evelyn was strongly influenced in his use of hortulan perspective by the French tradition. Consequently, this chapter constructs its argument in dialogue with the dominant historiographic tradition that posits ‘the French formal garden’ as an expression of a ‘Cartesian’ metaphysics. Such a characterisation fails in Evelyn’s case for, despite his evident interest in Descartes’s optics, he disapproved of Cartesian metaphysics. A more relevant metaphorical ground is found in the Neoplatonic elements of Evelyn’s thought, exemplified here in the work of John Dee.

What *Plato* caused to be inscribed upon the *Architrave* of his *Schoole dore*, would be set with as much reason over that of our Garden, ‘*Ἀγεωμέτρητος nemo*’.

Evelyn, *Elysium*.¹

Introduction

We have seen that Evelyn’s *Elysium* is pervaded by experimental intentions, which inform both the dedicated laboratory space of the Philosophico-Medicall garden, and the more public areas of the grand enclosure, which is punctuated by performative ‘Salomonic’ experimental ornaments. In this chapter we expand the theme of experiment in a discussion of the visual ‘spectacle’ of the garden. This spectacle is not so much found in the formal entertainments that would typically have been

¹ ‘None ignorant of geometry enter here’, *Elysium*, p. 33.

included in the round of the court, and which are hinted at in Evelyn's text, but a more diffuse and all pervasive theatricality.² Evelyn invariably refers to his imagined garden visitor as a 'spectator' when casting him or her as one who sees, and portrays the encounter with the garden as a drama of sorts, an experience which he sees as being affecting as well as intellectually stimulating.³

Evelyn's writing on the spectacle of the *Elysium* is dominated by two themes: the dramatic revelation of harmony; and the drama of sight itself. Both are 'experimental', a word that has a dual orientation in this context. On the one hand it is a synonym for 'experiential' and, on the other, it implies a more structured and deliberate engagement with experience, in which the spectator seeks to understand the act of seeing and the behaviour of light through measure and through the theoretical principles of geometric optics and perspective. In this last sense Evelyn's *Elysium* is both experimental and 'perspectival'.⁴

Evelyn develops these themes through his descriptions of a variety of set piece 'prospects' and 'perspectives' found in the *Elysium*. Firstly, he describes the overall 'prospect', in which the garden is viewed from a specific vantage point - either the paradigmatic axial view from the first floor reception rooms of the mansion; or alternatively a view from some 'eminence' in the middle or at the periphery of the garden.⁵ Then comes the dynamic spectacle of the garden, in which individual scenes of particular character are arranged according to the principle of affective contrast, one with another. Finally he describes various *trompe l'oeil* perspectives, which fall within the category of optical tricks, or 'deceits', known in the period as 'prestiges'.⁶ Each class of visual spectacle has something to offer us in

² John Dixon Hunt, *Garden and Grove: The Italian Renaissance Garden and the English Imagination 1600-1750* (London: Dent, 1986), pp. 59-72; *Elysium*, p. 228-229.

³ 'Spectator' see *Elysium* p.128, p. 216, p. 128; Affectivity of garden and landscape see, for example, *Elysium* p. 97, p. 156; p. 187.

⁴ Example of 'experiment' as synonym for 'experience' see, Jeremy Taylor letter to Evelyn, 3rd November 1659, in *Diary and Correspondence of John Evelyn, F.R.S: [...]*, ed. by W. Bray (London, New York: George Routledge, E. P. Dutton, 1906), p. 595; see also Peter Dear, *Discipline & Experience: The Mathematical Way in the Scientific Revolution* (Chicago; London: University of Chicago Press, 1995), pp. 1-31.

⁵ *Elysium*, pp. 99-100, p. 195.

⁶ *Elysium*, pp. 215-218; Stuart Clark, chapter 3, 'Prestiges', in *Vanities of the Eye: Vision in Early Modern European Culture* (Oxford: Oxford University Press, 2007), pp. 78-122.

understanding how Evelyn thinks a garden should be constructed and how the experience of the garden might be understood and interpreted.

For Evelyn, a ‘prospect’ is a grand overview, taken from a high vantage point; whilst a ‘perspective’ is a view which is prominently delineated by parallel lines, seen diminishing as they recede into the distance. He also uses the term ‘a perspective’ to denote *trompe l’oeil* paintings, recalling the common seventeenth-century usage of ‘a perspective’ to mean a painted theatrical stage set.⁷ In sum, a ‘prospect’ may include elements of ‘perspective’, but the prospect is grander - the perspective emerges within it. When Evelyn uses the word ‘perspective’, his intent appears to be to direct the reader’s attention towards the discourse of artificial perspective and geometric optics (which he sometimes refers to as natural perspective) and/or the skill by which a ‘perspective’ is constructed.⁸

Two visual ‘wonders’ emerge from the pages of the *Elysium* as particularly important for the discourse of mathematically underpinned experiments in seeing - illusionistic *trompe l’oeil* and perspectival tree-lined walks.⁹ Evelyn describes both in terms that establish them as sites of experimental encounter with the fabric of the garden. Thus they stand in strict continuity with the other ‘Salomonic’ experimental episodes of the *Elysium*. The ‘experiments’ which they frame, however, have a particular twist, for their topic is not so much the external world as the encounter between the world and the perceiving subject – the spectator.

Perspective is integral to the geometric ordering of Evelyn’s garden and serves an important office in contributing to its visual harmonisation. It is the harmony and variety of the garden, however, not the perspectivity of its construction or the underlying geometrics of visual perception that constitutes the primary ground of Evelyn’s design. The priority Evelyn gives to this concern is a reflection of the importance he places on what he understood to be the harmonious nature of God’s creation. This is a topic which prompts an enquiry into the underlying conception of light in relation to the ‘higher’, metaphysical, invisible order of creation – an issue

⁷ *Elysium*, p. 131, p. 97; p. 100, p. 127; p. 215; theatrical ‘perspectives’ at ‘White hall Theatre’ in *Diary*, vol. III, 7th Feb 1671, p. 569.

⁸ *Elysium*, p. 100.

⁹ *Trompe l’oeil*, *Elysium*, pp. 215-218; Perspectival walks, *Elysium*, pp. 126-128.

which is best framed through a consideration of existing historiography, for the metaphysics of space, considered as an adjunct of the use of perspective, is a prominent theme in the historiography of seventeenth-century gardens.

Historiography

Little scholarly attention has been given to the issue of Evelyn's treatment of perspective, possibly because his references to the topic are dispersed over several chapters of the *Elysium* and do not form a self-contained discussion.¹⁰ Mark Laird has made the link between Evelyn's compositional intentions for his own garden at Sayes Court and the French tradition of garden design, in a discussion focused on the perspectival elongation of the parterre.¹¹ Luke Morgan also places Evelyn's concern with perspective in French context, bringing our attention to Evelyn's *Elysium* descriptions of garden *trompe l'oeil*, as one manifestation of a common seventeenth-century practice.¹² He establishes these illusions as a common constituent of seventeenth-century Parisian gardens and details Evelyn's diary records of the *trompe l'oeil* that he saw in the gardens of the Hôtel de Liancourt and the Duc de Richelieu's chateau at Rueil (FIG. 4.13).¹³ Neither Morgan nor Laird, however, develops a full view of Evelyn's use of perspective in the garden, and neither treats the themes of harmony; perspectival proportioning; and the peripatetic experience of spectacle; nor do they address the 'philosophical' underpinnings of perspective, the themes developed in this chapter.

If little has been written specifically on Evelyn's use of hortulan perspective, the situation is quite different when we turn to the wider context of seventeenth-century garden design, particularly the French tradition. The French context is relevant to our discussion since, though Evelyn referred to a great range of material

¹⁰ *Elysium*, principally Chapters III, V, VI and VII, pp. 100-101, pp. 123-125, pp. 126-128, pp. 132-186.

¹¹ Mark Laird, 'Parterre, Grove, and Flower Garden: European Horticulture and Planting Design in John Evelyn's Time', in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), pp. 171-221, (pp. 186-190).

¹² Luke Morgan, 'The Early Modern Trompe L'Oeil Garden,' *Garden History* 33 (2005), 286-293.

¹³ Morgan (2005), p. 286, p. 289.

in forming his gardening principles, his thinking on the issue of hortulan perspective was derived principally from French precedents and French authors.¹⁴ Building on the insights of Laird and Morgan, an examination of the text of *Elysium* reveals the importance of the French context in several ways in. When Evelyn writes of perspective, he repeatedly lapses into French with terms such as ‘à perte de vue’ and ‘Lontanance {distance}’ and although he does refer in passing to examples of perspectival garden elements from other countries - the avenues on the ramparts of Antwerp and Lucca for example - his primary reference points are two Parisian gardens, the Jardin des Tuileries and the Jardin du Luxembourg.¹⁵ Moreover, in his treatment of perspectival tree lined walks, Evelyn relies heavily on Jacques Boyceau’s (1560 – c. 1633) posthumously published *Traité du jardinage* of 1638 and on Claude Mollet’s (1557 – 1647) *Théâtre des plans et jardinages*.¹⁶

Several major studies of this important French context take perspective as their primary theme, including those by Allan Weiss, Frank Hamilton Hazelhurst and Georges Farhat.¹⁷ Similarly, Alberto Pérez-Gómez uses the seventeenth-century garden as a whole as a primary example of the more general phenomenon of a seventeenth-century perspectivisation of space.¹⁸ Hazelhurst is interested in the perspectival spatial structures of the gardens of André le Nôtre (1613 –1700), seen in terms of technique and in terms of the experience of the garden. He places these gardens in context, arguing that ‘scientific’ optics exerted a considerable influence on the French garden theorists and gardeners of the early seventeenth century, but he

¹⁴ For the varied influences that Evelyn absorbed, see Sally Jeffery, ‘The Way of Italian Gardens’, in *A Celebration of John Evelyn*, ed. by Mavis Batey (Surrey: Surrey Gardens Trust, 2007), pp. 22-51; Hunt (1986); Laird, pp. 171-221.

¹⁵ *Elysium*, p. 126, p. 195; p. 127, p. 128.

¹⁶ Jacques Boyceau, *Traité du jardinage, selon les raisons de la nature et de l'art...* (Paris: M. Vanlochem 1638); Claude Mollet, *Théâtre des plans et jardinages ...* (Paris: Charles de Sercy, 1652).

¹⁷ Allen S. Weiss, *Mirrors of Infinity: The French Formal Garden and 17th-Century Metaphysics* (New York: Princeton Architectural Press, 1995); Allen S. Weiss, *Unnatural Horizons: Paradox and Contradiction in Landscape Architecture* (New York: Princeton Architectural Press, 1998); Franklin Hamilton Hazelhurst, *Jacques Boyceau and the French Formal Garden* (Athens: University of Georgia Press, 1966), pp. 33-38; Franklin Hamilton Hazelhurst, *Gardens of Illusion: The Genius of Andre Le Nostre* (Nashville: Vanderbilt U.P., 1980); William Howard Adams, *The French Garden, 1500-1800* (London: Scholar Press, 1979), pp. 63-73; Thierry Mariage, *The World of André Le Nôtre* (Philadelphia: University of Pennsylvania Press, 1999), pp. 42-43; Georges Farhat, ‘Optical Instrumenta[liza]tion and Modernity at Versailles’, in *Technology and the Garden*, ed. by Michael G. Lee, and Kenneth I. Helphand (Washington, D.C.: Dumbarton Oaks, 2014), pp. 25-55.

¹⁸ Alberto Pérez-Gómez, *Architecture and the Crisis of Modern Science* (Cambridge, Mass: MIT press, 1983), pp. 174-175.

does not offer any extended interpretation.¹⁹ Weiss and Pérez-Gómez on the other hand, though also interested in the technical and spatial aspects of perspectival garden design, both offer metaphorical interpretations of these spatial structures.²⁰ In this they follow a direction established by Erwin Panofsky in his seminal essay *Perspective as Symbolic Form*, wherein perspective is established as a metaphor for both ‘Cartesian’ epistemology and ‘Cartesian’ space.²¹ This is of interest to us here since Evelyn was acquainted with the thought of Descartes from the early 1650s and, sometime in the late 1650s, made a fairly thorough study of his optics, the details of which are given below.

The metaphorical association of perspective with Cartesianism, which in its most banal form ends in a simple association of the orthogonal spatial grid ‘with the activity of thinking itself, the “rational space” of Descartes thought’,²² has been a dominant interpretative direction in perspective studies as over the past century, extending into other areas of art history and indeed philosophy, particularly in the phenomenological school.²³ The ‘Cartesian’ nature of perspective in such ‘metaphorical’ interpretations, is not Cartesian in the strict sense of emerging specifically in response to Descartes’s thought (some see Alberti as Cartesian).²⁴ Pérez-Gómez, for example, ultimately presents ‘Cartesian’ perspectival space as the space of modern scientific positivism and the spaces of seventeenth-century gardens as an early step towards that ultimate destination. For Pérez-Gómez, in perspective the disembodied eye of the subject is positioned at the centre of a mathematically defined spatial extensivity - a Cartesian grid that is posited as an emblem of the radical dematerialisation of the subjective viewer and his separation from the

¹⁹ Hazlehurst (1980), pp.17-45, pp. 136-147.

²⁰ Weiss (1995), pp. 33-66; Weiss (1998), pp. 45-63; Pérez-Gómez (1983), pp. 174-175.

²¹ Erwin Panofsky, *Perspective as Symbolic Form* (New York: Zone Books, 1991), translated from the original essay ‘Die Perspektive als “symbolische Form”’ in *Vorträge der Bibliothek Wargerg 1924-1925* (Leipzig & Berlin, 1927), pp. 258-380.

²² James Elkins, *The Poetics of Perspective* (Ithaca, N.Y.; London: Cornell University Press, 1994), quoted in Lyle Massey, *Picturing Space, Displacing Bodies: Anamorphosis in Early Modern Theories of Perspective* (University Park, Pa.: Pennsylvania State University Press, 2007); see also Weiss (1995) pp. 33-34.

²³ For an excellent summary of the history of the ‘Cartesian’ metaphor and its philosophical foundations in the work of Martin Heidegger and Henri Bergson, together with a review of recent literature see Massey (2007), pp. 23-35; for a history of the Cartesian metaphor and a detailed critique of Panofsky, see Elkins (1994), pp. 1-44, pp. 190-205.

²⁴ Norman Bryson, *Vision and Painting: The Logic of the Gaze* (New Haven: Yale University Press, 1983), p. 103, cited in Massey (2007), p. 23.

world.²⁵ He provides a particularly clear example of one who follows this interpretative line in relation to seventeenth-century gardens.

Pérez-Gómez tells us that, in their ‘perspectivity’, the spaces of the seventeenth-century garden are: ‘necessarily concerned with the fundamental [Cartesian] problem of philosophy; the reconciliation between subject and object’. He describes perspective as ‘an ideal organisation of external reality’, that ‘correspond[s] [...] to Cartesianism and impl[ies] the imposition of a geometrical scheme on reality in order to establish a relation between *res cogitans* and *res extensa*’.²⁶ The perspectival figuration of these gardens consequently ‘implicitly demonstrated the belief in the transcendent nature of the new geometrical knowledge’.²⁷ In short, the perspectively ordered spaces of a seventeenth-century garden with their very apparent, grid-like, optically corrected spatial structuring are seen, if not exclusively, at least predominantly in terms of their potential to represent a ‘Cartesian’ epistemology.

If we are not to parody Pérez-Gómez’s nuanced argument, it must be acknowledged that he is well aware that there were other aspects to the spaces of French gardens than those that can be encompassed in the Cartesian metaphor. He states that, whilst we can see a geometrically defined extensivity in their grand axes, it is not an extensivity voided of qualities.²⁸ Ultimately, Pérez-Gómez’s point is to critique the spatial reductivism he sees in Cartesian perspectivisation in an attempt to reinstate the full phenomenological richness of the world to our modern understanding of space. He presents Baroque culture as one which still honoured the immediately perceptible qualities of space, a culture in which creative artists ‘managed to synthesize the dimensions of qualitative, preconceptual spatiality and geometrical conceptual space’. As he says: ‘Baroque space also retained its qualities,

²⁵ Pérez-Gómez (1983), p. 174-181.

²⁶ Pérez-Gómez (1983), p. 174; Edward Slowik, ‘Descartes’ Physics’, *The Stanford Encyclopaedia of Philosophy*, ed. by Edward N. Zalta Online edition Summer 2014, <<http://plato.stanford.edu/archives/sum2014/entries/descartes-physics/>> [Accessed 14 05 2016]; Alexandre Koyré, *From the Closed World to the Infinite Universe* (Baltimore; London: Johns Hopkins University Press, 1957), pp. 55-77, (p. 64).

²⁷ Pérez-Gómez (1983), p. 174.

²⁸ Pérez-Gómez (1983), p. 174.

its character as place'.²⁹ However, his argument is constructed around a polar opposition constructed between Aristotelian and Cartesian space. In this picture, the Hermetic Neoplatonic vision of the chymists, which so influenced Evelyn, is nowhere to be found, though Pérez-Gómez might well have found a place for it in those parts of his argument that address the resistance to Cartesianism in the seventeenth century.³⁰

In recent years the Panofskian school of interpretation has been the topic of considerable nuanced and insightful critique within the field of perspective studies, in works such as James Elkins's *The Poetics of Perspective* and Lyle Massey's *Picturing Space, Displacing Bodies*.³¹ Both authors disallow loose interpretations and applications of 'Cartesianism' to perspective and are at pains to point out how this metaphor does violence to past cultures, distorting the intentions of the artists and theoreticians of the Renaissance and seventeenth century, including Descartes himself. Both authors are concerned with how we may reach back across the centuries and see the work of the Early Modern period more in its own terms. They are circumspect in their approach to metaphor and neither is concerned to establish earlier forms of perspective as precursors in a grand narrative of the emergence of a distrusted positivism. In garden studies this direction is embraced (with considerably less attention to theoretical issues) by Thierry Mariage, who emphasises the continuity of French seventeenth-century gardens with their Renaissance precursors, and by George Farhat, who calls for a reassessment of the scope of 'perspective' in garden studies – a re-situation of the discourse of linear perspective within the broader field of optics, practical surveying techniques and estate management.³²

Though rather more tolerant of the far reaching aspirations of authors like Pérez-Gómez than these revisionist authors, this thesis is sympathetic to the exactitude of approaches such as those of Elkins and Massey. By looking closely at the way that Evelyn incorporates perspective into his discussion of the spaces and structures of the garden, and relating his thinking on optics to his theories of nature,

²⁹ Pérez-Gómez (1983), p.175.

³⁰ Pérez-Gómez (1983), p.174-175.

³¹ Elkins, pp. 32-40; Massey (2007), pp. 23-29.

³² Mariage, p. 54; George Farhat, 'Great Vistas in the work of Le Nôtre' in *Andre Le Notre in Perspective*, ed. by Patricia Bouchenot-Dechin and George Farhat (New Haven and London: Hazan, Yale University Press, 2014), pp. 170-187.

we can read the spaces of his Royal Garden with greater accuracy. So where, if at all, might Descartes fit into this picture?

Evelyn was not entirely dismissive of Descartes, indeed there is evidence to show that that he made a study of his optics, towards the end of the 1650s, for he made extensive notes in his 'Tomus Tertius' commonplace book from Descartes's *La Dioptrique*.³³ These notes show a theory of vision in which light is understood in terms of material 'rays' or 'effluvias' – a standard seventeenth-century conception of light, reconcilable to the atomistic, elemental and material side of Evelyn's thought.³⁴ In a sequence of tiny diagrams, Evelyn's shows the 'effluvias' being refracted in the course of their passage through lenses of various shapes, he also includes, on the same page, an accurate copy of Descartes's section through an eye (FIG. 4.5).³⁵ Another minute drawing explains how a small or large retinal image is formed, depending on the distance between eye and object, for: 'as the object is farr or neare so dos the pyramid appear straighten'd or widen'd' – the diagram shows diminishing visual pyramids projecting from the eye. Evelyn notes that the faintness of a distant object can be accounted for by considering the number of light particles entering the eye - in a distant object the visual pyramid is more 'straightened' (i.e. narrowed), and consequently fewer 'rays' impinge on the retina, so the image is dimmer.³⁶ But an interest in Descartes's treatment of the mechanics of vision does not, in Evelyn's case, imply an acceptance of his metaphysics.

A better derivation for the metaphysical ideas that underpin Evelyn's idea of perspective might be found in the Neoplatonic 'alchemical' tradition in optics and perspective, recently elaborated by Urszula Szulakowska in her study of the writings

³³ In 1651, Evelyn received as a gift from his father-in-law, Sir Richard Browne, a copy of René Descartes, *Discours de la méthode pour bien conduire sa raison et chercher la vérité dans les science, Plus La Dioptrique, Les Météores et La Géométrie qui sont des essais de cette méthode* (Leyde, 1637), see Christie's Sale Catalogue, 'The Evelyn Library', IV parts (1977-1978) part II, p. 14, item 456.

³⁴ Olivier Darrigol, 'The Analogy between Light and Sound in the History of Optics from the Ancient Greeks to Isaac Newton, Part 1', *Centaurus* 52 (2010), 117-55; Olivier Darrigol, 'The Analogy between Light and Sound in the History of Optics from the Ancient Greeks to Isaac Newton. Part 2', *Centaurus* 52 (2010), 206-257; *Elysium*, p. 37.

³⁵ John Evelyn, 'Tomus Tertius', London, British Library, Evelyn Papers, Add 78330, fol. 133^r.

³⁶ Add 78330, fols. 132^v - 133^r.

of John Dee, Robert Fludd, Johan Danielus Mylius and others.³⁷ In this chapter we exemplify this Hermetic strain of thought, through the concise statements on perspective made by Dee, in his widely read ‘Mathematical Preface’ to Euclid’s *Elements of Geometrie*.³⁸ There is no evidence that Evelyn made a close study of Dee’s work in particular, though he was clearly prepared to approach him as an authoritative point of reference, for the name, ‘Johannes Dee’, appears on the list of ‘Writers of Chymistry’ in the ‘Barlet notebook’, and the ‘Tomus Tertius’ contains a brief reference to Dee’s *Monas Hieroglyphica*.³⁹ If Dee can be seen as a more appropriate reference point for understanding Evelyn’s approach to light and perspective than Descartes, there is no implication that Evelyn embraced the more arcane optical techniques that Dee engaged in his attempts to contact angels.⁴⁰ Evelyn almost certainly knew of these activities, for as noted in the last chapter, an account of Dee’s angel conversations was published in 1659, giving Dee a certain notoriety, not least amongst the members of the Royal Society.⁴¹ Here, our concern with Dee focuses on the more temperate, if not always exactly mundane aspects of perspective, which for Dee entailed not only the study of light, but the study and manipulation of invisible stellar ‘emanations’.⁴²

Dee’s ‘Mathematical Preface’ to Euclid was originally published in 1570, and reprinted both in 1651 and 1661.⁴³ The ‘preface’ is largely an argument for the importance of applied mathematics in a variety of arts, some familiar and still current (Perspective, Geography, Architecture, Navigation, ‘Statike’), others more arcane and now entirely or largely or entirely defunct (‘Thaumaturgike’, ‘Archemastrie’,

³⁷ Urszula Szulakowska, *The Alchemy of Light: Geometry and Optics in Late Renaissance Alchemical Illustration* (Leiden: Brill, 2000), pp. 55-78, pp. 167-182, p. 179.

³⁸ John Dee, ‘Preface’ to *The Elements of Geometrie of the most ancient philosopher EUCLIDE of Megara. Trs. by H. Billingsley* (London: John Daye, 1570); John Dee, ‘Mathematicall Preface’ to *Euclides Elements of Geometry: The First vi Books: In a Compendious Form Contracted and Demonstrated. By Captain Thomas Rudd, Chiefe Engineer to His Late Majesty...* (London: Richard Tomlins and Robert Boydell, 1651); John Dee, ‘Mathematicall Preface’ to *Euclid’s Elements of Geometry*. In xv [or Rather 16] Books,...(London: Printed by R. & W. Leybourne, for George Sawbridge, 1661); Commentary see Szulakowska, pp. 153-182; Frances Yates, *Theatre of the World* (London: Routledge & Kegan Paul, 1969), pp. 1-79; Nicholas H. Clulee, *John Dee’s Natural Philosophy: Between Science and Religion* (London: Routledge, 1988), pp. 45-52.

³⁹ John Evelyn, ‘Barlet notebook’, London, British Library, Evelyn Papers, Add 78335, fol. 5^v; John Dee, *Monas Hieroglyphica* (Antuerpiæ: Excudebat Gulielmus Silvius, 1564); Add 78330, fol. 144.

⁴⁰ Deborah Harkness, *John Dee’s Conversations with Angels: Cabala, Alchemy, and the End of Nature* (Cambridge: Cambridge University Press, 1999), pp. 73-77.

⁴¹ Harkness, p. 223, and *passim*.

⁴² Szulakowska, pp. 55-78; p. 135.

⁴³ See n. 38. References hereafter are to the 1571 edition.

‘Astrologie’ etc.) (FIG. 4.1).⁴⁴ Dee also considers the ontology of mathematics, which he describes as an art that mediates between the divine realm of pure intellection and the material sensory world.⁴⁵ He divides the cosmos into three ascending regions – the terrestrial, celestial and supercelestial zones – the structure with which we are familiar from both Mylius’s allegorical landscape and Evelyn’s Harvard furnace drawing.⁴⁶ For Dee, at the immediate terrestrial level, knowledge of perspective saves us from being duped by optical illusion. Casting the eye heavenwards, perspective is vital in observational astronomy, for without some understanding of lenses, distortions will be incorporated in measurements. Finally, perspective moves beyond the visible to embrace the study of the invisible emanations of the stars, the ‘Radiall emanations’, of the *spiritus mundi* and thus bridges between the terrestrial and celestial levels of existence.⁴⁷ Dee’s brief account of this spiritual dimension of perspective is founded on the idea that spiritual emanations behave in the same way as light.

Dee’s idea of the relevance of perspective to both light and spirit, though not explicitly embraced by Evelyn, is at least congruent with his *Elysium* account of Nature, for he draws a close parallel between the visible fire of the sun and the invisible fire, the Universal Spirit. In the opening of the *Elysium* chapter, ‘Of the Celestiall influences, particularly, the Sun, and moon: and of Climates’, Evelyn writes:

We have already shewed how there is an invisible fire which is the Soule of the Universe [the Universal Spirit]. But there is also {a} visible fire which we may call the Soule of our Gardens, of all the Celestial inhabitants the most vigourous and active instrument...the very life of nature herself; for it renews, nurses, augments, changes, fecundates, & vivifies the Seedes and the plants; the virtue of its beames transpierces the Earth, comforts her womb [...] & sets the part in motion.⁴⁸

⁴⁴ The full list reads: Perspective, Astronomie, Musike, Cosmographie, Astrologie, Statike, Anthropographie, Trochilike, Helicosophie, Pneumatithmie, Menadrie, Hypogeiodie, Hydragogie, Horometrie, Zographie, Architecture, Nauigation, Thaumaturgike and Archemastrie, Dee (1570); Clulee, pp. 159-162.

⁴⁵ Clulee, pp. 162-163.

⁴⁶ Clulee, pp. 150-151. This structure is also found in Pico della Mirandola, see Frances Amelia Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge, 2002, 1964), p. 134.

⁴⁷ Dee (1571), p. bj-bij; Clulee, p.140.

⁴⁸ *Elysium*, p. 55.

In this passage, not only does Evelyn draw a close parallel between the visible fire (light) of this ‘splendid starr of starrs’ and the invisible Universal Spirit, he also says that the sun ‘fecundates, & vivifies the Seedes and the plants’, a function which he elsewhere reserves for the action of the Universal Spirit.⁴⁹ The ‘beames’ of the sun, which ‘transpierces the Earth’, thus include this immaterial emanation. We may further reflect that, although Evelyn describes sensory perception partly in mechanical atomistic terms in the *Elysium* (he refers taste and hearing back to the effect of ‘atomes’ and probably understood sight in similar terms, at least to some extent), this is not the whole story.⁵⁰ He writes that the ‘powerfull emanation’ of the Universal Spirit is ‘seene by few, but felt by every body’ and, given that in his conception this Spirit is immaterial, how can it be ‘seene’ by the ‘few’ who are possessed of greater acuity, if sight depends only on material ‘rays’?⁵¹ It appears that, in Evelyn’s conception, there is a continuity between the perception of the material and the immaterial. The implication is that particulate light ‘effluvias’ notwithstanding, perspective may embrace the manipulation and understanding of invisible ‘emanations’ along with the visible. Consequently, though we cannot be certain that Dee was a specific formative influence on Evelyn’s conception of perspective, his articulation of perspective as an art ‘which demonstrateth the maner, and properties, of all Radiations Direct, Broken, and Reflected’, including the ‘invisible’ ‘beames’ of the *spiritus mundi*, appears to be relevant to Evelyn.⁵² If we are to speculate on the metaphysical structures that underpin the perspectives of the *Elysium*, the chymico-spiritual understanding of perspective expressed by Dee provides a more pertinent ground for an argument than the work of Descartes.

Evelyn’s Studies in Perspective

Evelyn’s expertise in the use of perspective was formed in part through his practical engagement with drawing, as demonstrated by his prospects of Wotton, the topic of

⁴⁹ *Elysium*, p. 38.

⁵⁰ Taste, *Elysium*, p. 40; hearing, *Elysium*, p 306.

⁵¹ *Elysium*, p. 38.

⁵² Dee (1571), p. bj.

chapter 6 in this thesis, but it was also supported by theoretical reading.⁵³ A brief review of this area of study, as registered in Evelyn's library and reading notes, provides some further theoretical context. In the *Elysium*, approaching the topic of illusionistic perspective through the treatment of garden *trompe l'oeil*, Evelyn refers his reader to the 'various' methods of 'the exquisite Masters of this rare Arte', but states no particular preference for one 'Master' over another.⁵⁴ He possessed a number of books on the perspective, including both contemporary and older works. The British Library holds his copies of two works by his friend Abraham Bosse (1604 – 1676), authored in collaboration with the prodigiously talented and original mathematician Girard Desargues (1591 – 1661).⁵⁵ Evelyn certainly referred to them, for they bear his marginal markings and a partial working through of one of Bosse's perspective constructions.⁵⁶ Evelyn also owned a copy of François Niceron's (1613 – 1646) *Thaumaturgus Opticus*, which is kept in the British Library and is similarly annotated, though less extensively.⁵⁷ Niceron was the first to publish a system for the accurate geometric construction of those curious prodigies of perspectival art, anamorphic projections, which he described first in his *Perspective curieuse*, later translated into the *Thaumaturgus Opticus*.⁵⁸ Evelyn also owned a copy of Gaspar Schotti's (1608 – 1666) *Magia Universalis*, a book that brought together the treatment of curious acoustic musical phenomena with 'magical' optical techniques

⁵³ Antony Griffiths, 'John Evelyn and the Print', in *John Evelyn and His Milieu*, ed. by Michael Hunter and Frances Harris (London: British Library, 2003), pp. 95-115.

⁵⁴ *Elysium*, p. 215.

⁵⁵ For Bosse and Evelyn, see Sheila McTighe, 'Abraham Bosse and the Language of Artisans; Genre and Perspective in the Academie Royale De Peinture Et De Sculpture, 1648-1670,' *Oxford Art Journal* 21 (1998), 1-26; for commentary on Desargues see J. V. Field and J. J. Gray, *The Geometrical Work of Girard Desargues* (New York: Springer-Verlag, 1987); J. V. Field, *The Invention of Infinity: Mathematics and Art in the Renaissance* (Oxford: Oxford University Press, 1997), pp. 190-234; Robin Evans, *The Projective Cast: Architecture and Its Three Geometries* (Cambridge, Mass.: MIT Press, 1995), pp. 256-258; Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge, Mass: MIT press, 1997), pp. 201-208; Abraham Bosse, and Girard Desargues, *Maniere vniuerselle de Mr. Desargues, pour pratiquer la perspectiue par petit-pied, ...* (P. Des-Hayes: Paris, 1648); Abraham Bosse, *Moyen vniuersel de pratiquer la perspectiue sur les tableaux ou surfaces irregulieres. ...* (Paris: Chez Bosse, 1653).

⁵⁶ In Bosse (1648), Evelyn makes a drawing that follows the start of Bosse's series of plates 63-66 and his accompanying explanations on pp. 121-124; he also translates the terms associated with plate 46, explained on p.104, see back flyleaf; Bosse (1653) is less extensively marked with marginalia.

⁵⁷ Jean François Niceron, *Thaumaturgus Opticus, Seu Admiranda Optices ... Pars Prima, Etc.* (Paris: Francisci Langlois, 1646).

⁵⁸ Jean François Niceron, *La Perspective curieuse ou magie artificielle des effets merveilleux, ... La Façon de ... construire toute [sic] sortes de figures diffornes, etc* (Paris: P. Billaine, 1638); Niceron (1646); for commentary on Niceron, see Pérez-Gómez and Pelletier (1997), pp. 143-144; Jurgis Baltrušaitis, *Anamorphic Art*, trs. by W. J. Strachan (Cambridge: Chadwyck-Healey Ltd, 1976), pp. 37-60; Massey (2007), pp. 39-69.

including Niceron-like visual deceits (FIG. 4.6).⁵⁹ These works by Niceron and Schotti exemplify a concern that reached new heights in the seventeenth century – the creation of visual deceptions, wrought by the careful manipulation of the geometric structure of the image, in relation to the embodied position of the spectator’s eye. In addition to these contemporary works, Evelyn also owned Barozzi di Vignola (1507 –1573), *Le Due Regole della Prospettiva Pratica*.⁶⁰ He had, in sum, is a serious library of perspectival learning at his disposal, including key works that reflect the increasing mathematisation of perspective accomplished during the first half of the seventeenth century. Note, however, that Evelyn was not an accomplished mathematician and it is extremely unlikely that he was able to follow the more abstruse mathematical reasoning that accompanied many of these works.

It is also likely that Evelyn was familiar with the English tradition in perspective, which developed in the early Stuart court, in a culture centred on the designers Inigo Jones and Salomon de Caus.⁶¹ Perspective came late to England in any form. John Dee’s ‘Mathematical Preface’ provides an important early theoretical statement, but texts in English that elaborate of the techniques he names came somewhat later. The English translation of Serlio’s book on perspective appeared in 1611 and shortly thereafter, in 1612, another perspective treatise was published in England, though in French - Salomon de Caus’s *La Perspective*.⁶² In parallel with these theoretical manifestations, perspective was important in the early Stuart court in the design of both gardens and theatrical settings, and indeed in designs where the two media combined, media that John Dixon Hunt has described as virtually

⁵⁹ Gaspar Schott, *Magia Universalis Naturæ et Artis ... Opus Quadripartitum. Pars. I. Continet Optica. Ii. Acoustica. Iii. Mathematica. Iv. Physica ... Cum Figuris, etc* (Rome: Herbipoli, 1657); Christie’s Sale Catalogue, ‘The Evelyn Library’, IV parts (1977-1978), part III, item 1316; Schotti, was the first to coin the term ‘Anamorphosis’, Baltrušaitis, p. 86.

⁶⁰ Vignola, Giacomo Barozzi, called Il Vignola, ... *Le Due Regole della Prospettiva Pratica ...* (Roma: Nella Stamparia Camerale, 1611); Christie’s Sale Catalogue, ‘The Evelyn Library’, IV parts (1977-1978) part IV, item 1521.

⁶¹ Christy Anderson, ‘The Secrets of Vision in Renaissance England’, in *The Treatise on Perspective*, ed. by Lyle Massey (New Haven; London: Yale university Press, 2003), pp. 323-347; Roy C. Strong, *The Renaissance Garden in England* (London: Thames and Hudson, 1979), pp. 188-189, pp. 191-197.

⁶² Sebastiano Serlio, *The First Booke of Architecture, Made by Sebastian Serly, Entreating of Geometrie...* trs. by Sir Robert Peake (London: Robert Peake..., 1611); Salomon de Caus, *La Perspective, Auec La Raison des ombres et miroirs* (Londres: Jan Norton, 1612); Evelyn owned a copy of Serlio and it is quite possible that he knew de Caus’s work, see Christie’s Sale Catalogue, ‘The Evelyn Library’, IV parts (1977-1978) part III, p. 151, item 1349; Evelyn refers to Salomon de Caus several times in the *Elysium*, though not specifically with respect to perspective, and only in later annotations, see *Elysium* p. 169. p. 223, p. 327, p. 429.

indistinguishable during this period.⁶³ The masques designed by Inigo Jones are a prime example of this courtly art and, since both Jones and Evelyn were a part of the circle of Thomas Howard, Earl of Arundel (admittedly at different times), we may assume these ephemeral manifestations of perspective art, the masque and the play, were a part of the tacit artistic background on which Evelyn relied.⁶⁴ During the interregnum the courtly high arts of both gardening and theatre temporarily vanished from English culture, or went abroad, as did Evelyn.⁶⁵ Composing his British *Elysium* on the eve of the Restoration, Evelyn drew extensively on the considerable intellectual resources he acquired during his extended European education, including a largely French appreciation of the art of perspectival gardening.

Picturing the Garden

The lack of any drawing showing Evelyn's imagined overall layout for the Royal Garden presents an obstacle in approaching Evelyn's use of perspective in the *Elysium*. The surviving text contains two drawings that reinforce the idea that Evelyn intended his gardens to be axially ordered – both the Philosophico-Medicall Ichonimse and his rendition of the semi-circular termination to the main axis of the Tuileries garden suggest this (FIGS. 2.1, 4.3) – but these two sketches can tell us nothing more about the plan for the wider gardens.⁶⁶

Reference to two exemplary precedents, which Evelyn refers to repeatedly in the *Elysium* in the context of perspective, may help to supply this want of an overall

⁶³ Hunt (1986), pp. 59-72; Adams, pp. 63-73.

⁶⁴ Stephen Orgel and Roy Strong, *Inigo Jones: The Theatre of the Stuart Court. Including the Complete Designs for Productions at Court, ...* (London: Sotheby Parke Bernet; Berkeley & Los Angeles: University of California Press, 1973); Roy C. Strong, *Splendour at Court, Art and Power: Renaissance Festivals 1450-1650* (Woodbridge: Boydell, 1984); Edward Chaney, 'Evelyn, Inigo Jones, and the Collector Earl of Arundel,' in *John Evelyn and His Milieu* ed. by Frances Harris and Michael Hunter (London: British Library, 2003), pp. 37-60; Douglas Chambers, 'The Tomb in the Landscape: John Evelyn's Garden at Albury', *Journal of Garden History* 1 (1981), 37-54; Vaughan Hart, *Inigo Jones: The Architect of Kings* (New Haven; London: Yale University Press, 2011), pp. 247-252; for theatricality of Stuart monarchy, Anna Keay, *The Magnificent Monarch: Charles II and the Ceremonies of Power* (London: Continuum, 2008); and in urban setting Christine Stevenson, *The City and the King: Architecture and Politics in Restoration London* (New Haven: Yale University Press, 2013), pp. 63-80, pp. 95-117.

⁶⁵ For 'formal' gardening during the Interregnum see Timothy Mowl, 'New Science, Old Order: The Gardens of the Great Rebellion', *Journal of Garden History* (1993), 16-35.

⁶⁶ *Elysium*, p. 228, p. 410.

plan. These are the Jardin des Tuileries and the Jardin de Luxembourg, which we should imagine as they appear in Gomboust's 'Plan de Paris' of 1652, the year that Evelyn left France for good (FIG. 4.3, 4.4). Although the great seventeenth-century gardener, André le Nôtre, worked on both gardens, as they stand in Gomboust's 'Plan' they are the product of the cumulative, collaborative efforts of three earlier generations of gardeners. The Tuileries is the work of the Mollet, le Nôtre, and Desgots families, during the reigns of Henri IV and Louis XIII; the Luxembourg employed Jacques Boyceau, amongst others.⁶⁷ Although Evelyn was an almost exact contemporary of André Le Nôtre, he left France too early to have seen either of Le Nôtre's great virtuosic perspectival gardens at Vaux-le-Vicomte and at Versailles - gardens which, with their peripatetic and illusionistic perspectivity, have justly been described in terms of anamorphism.⁶⁸ Evelyn never saw these elaborate later 'gardens of illusion', but he was familiar with the earlier gardens of the Tuileries and Luxembourg, which incorporated a more moderate perspectival manipulation in the elongation of individual garden plots along the axis of the main views, which was intended to compensate for optical foreshortening.⁶⁹

The Tuileries and the Luxembourg gardens, as they appear on Gomboust's 'Plan', are axially ordered in a way that is consistent with the intentions described by Evelyn in the *Elysium*.⁷⁰ Both show a well-known pattern in which the parterres, contained within a grid of orthogonal walks, are close to the mansion and are thus displayed to uninterrupted view from the house; beyond these lie similarly formal and orthogonal *bosquets* or groves; and beyond that (particularly in the Luxembourg), more 'wild' enclosures, in which paths develop into radial patterns. Both gardens are composed in symmetry around a central axis - though this is fractured and displaced through ninety degrees in the Jardin du Luxembourg, or the '*Palace of Orleans at Paris*' as Evelyn calls it, where the axis is brought to an abrupt halt against the wall of the neighbouring Carthusian convent. Evelyn judges this contingency to be 'a very considerable defect'.⁷¹ Both gardens conform to what

⁶⁷ Kenneth Woodbridge, *Princely Gardens: The Origins and Development of the French Formal Style* (London: Thames & Hudson, 1986), pp. 117-118; pp. 134-138; Hazlehurst (1980), pp. 167-185.

⁶⁸ Weiss (1998), p. 47; Weiss (1995), pp. 33-46; Farhat (2014), pp. 172-187.

⁶⁹ Farhat (2014), pp. 181-182.

⁷⁰ Principally Chapters III, V, VI and VII of the *Elysium*, pp. 100-101, pp. 123-125, pp. 126-128, pp. 132-186.

⁷¹ *Elysium*, p. 126.

Kenneth Woodbridge has referred to as ‘the archetypal French garden plan, as formulated by André Mollet in his *Le Jardin de plaisir*, itself an idealized Tuileries’.⁷² In Mollet’s published illustration of this ‘ideal’, the entire composition is framed within a structure of tree-lined walks (FIG. 4.7).

Evelyn’s description of the layout of the Royal Garden emerges in fragments over the course of chapters III to VII of the second book of the *Elysium*.⁷³ The garden that he describes, like his Parisian precedents, develops from parterre, to formal grove, to wilderness. Those areas nearest the house are the most ‘clipped’ and those furthest away the least so. The progression from house to horizon is characterised by a minute attention to the relief both of the terrain and of the ‘relievos’ (the vertical structural elements of the garden), predicated on the visibility of the garden elements as they appear in the primary axial view taken from the ‘roomes of Entertainment’ on the first floor of the house.⁷⁴ Immediately adjoining the mansion Evelyn describes ‘The flattest Embelishments of the Garden’, which he intends should be seen primarily from the first floor ‘in *plano*’ - the highly regularised and geometricised ‘Parterrs, Knotts, Bordures & Compartiments’ surrounded by ‘Walkes, Alles and Terraces’.⁷⁵ From the parterres the eye moves to the ‘more principall’ parts of the garden, the ‘relievos’ - the ‘*Viridaria, Vireta, Vireta, Walkes, Mounts, Groves, Fountaines* [etc.]’ and the ‘noble, sollumne and divertissant [...] Groves, Wildernesses, Summerhouses, Closewalkes, etc’.⁷⁶ These he says should be ‘raised on the flankes of the Parterre, somewhat in Front, Collaterall to the longest Walkes [...] but at some distance’.⁷⁷ They are at one further remove from the house and they are taller. Finally, in contrast to these ‘*Groves, Walkes, & other Relievos*’ Evelyn distinguishes the:

⁷² Woodbridge, p. 188; André Mollet (1651); see also David Leatherbarrow, *Uncommon Ground: Architecture, Technology, and Topography* (Cambridge, Mass.: MIT Press, 2000), pp.131-168.

⁷³ Principally Chapter III, ‘Of Fencing, Enclosing, plotting and disposing the ground’, *Elysium*, pp. 95 -101; Chapter V, *Elysium*, ‘Of knotts, {Fretts} Parterrs, [etc.]’, pp. 123-125; Chapter VI, ‘Of Walkes [etc.]’, *Elysium*, pp. 126-138; Chapter VII, *Elysium*, ‘Of Groves, Labyrinths [...] and other Relievos’, pp. 139-160.

⁷⁴ *Elysium*, p. 131.

⁷⁵ *Elysium*, p. 123, p. 139.

⁷⁶ ‘*Viridaria*’ and ‘*Vireta*’ denote evergreen plantations, see Laird (1998), p. 192, n. 6.

⁷⁷ *Elysium*, p. 125, p.139.

stately & majesticall shades of huge Oakes & other goodly trees ~~crowning the~~ adorning our *Elysium* & crowning the brows of lofty hills, such as were never prophaned by the inhumanity of edge tooles.⁷⁸

The hills and artificial mounts that he refers to here are ‘the highest and most aspiring Relievos of Gardens’ and are to be placed ‘towards the remoter parts’ of the *Elysium*, bordering on the countryside.⁷⁹

Evelyn writes that on the garden front of the house the door should open directly onto the level of the parterre, as it does at the Luxembourg gardens, rather than onto a raised terrace and that:

the prospect below should be free to the *Fountaines*, and the view universall from the *Galleries* and roomes of Entertainment; otherwise, the Garden seemes like a pit, the *Cascade* of the *Tarrac* and descent of stepps, drowning both the fabrick and the *Parterr*.⁸⁰

The spatial structure of the garden that he envisages resembles a vastly elongated classical *odeon*, a theatrical bowl in which the facade of the mansion is the *scaenae frons*; the parterres form a shallow stage and dance floor of the theatre; whilst the further reaches of the garden rise in tiers to greet the eye of the actor/ spectator. The whole is ordered around the primary axial view from the mansion, which extends along a central walk, leading from the garden front of the house to ‘stretch itself {*a perte di vieue*} quite through the whole enclosure’.⁸¹ In our two Parisian examples the extension of this axis stops at the garden wall, but there are other gardens from the same period - the Chateau at Richelieu, for example, which Evelyn both knew and admired - where the axis extends indefinitely into the countryside beyond the boundary of the garden proper (FIG. 4.8).⁸²

⁷⁸ *Elysium*, p. 150.

⁷⁹ *Elysium*, p. 150.

⁸⁰ *Elysium*, p. 131.

⁸¹ *Elysium*, p. 126.

⁸² Jeffery (2007), p. 25; *Diary*, vol. II, 27th Feb 1644, pp. 108-110.

The Harmonious Prospect

Having evoked the obviously geometric Tuileries and Luxembourg gardens as Evelyn's exemplary precedents, it is perhaps surprising to find that the first mention in the *Elysium* of the overall prospect of a garden is not a description of the geometrically constructed view taken along the axis of symmetry from the mansion, but a pair of views from the periphery - the one over the countryside, the other over the garden itself. Here Evelyn's emphasis is not on the geometrical composition of the completed garden, but on the naturally diverse conditions offered by an unadorned site. The relevant passages occur in the much discussed opening pages of the third chapter of the second book, 'Of Fencing, Enclosing, plotting and disposing the ground', which Evelyn based on a description sent to him by his prolific correspondent, Dr. John Beale (c.1608 – 1683), a member of the Hartlib circle and early colleague at the Royal Society.⁸³ Evelyn begins by describing the ascent of the hill from which the prospect will be taken - a 'reall place' near Hereford, named Backbury Hill. He describes the gentle climb through sheltered paths bordered by flowers and the arrival at the summit, which is 'crowned with thicketts of Oakes'. Finally he describes the prospects. To one side there is view over a 'vale of misery', and to the other a view over a tranquil valley, in which the house stands at the foot of the hill, surrounded by gardens and rich pastures and watered by a natural stream.⁸⁴ In Evelyn's description, the natural potency of place, the idea of the affectivity of contrasting prospects, and the importance of the peripatetic experience of terrain are all established before we reach the topic of the geometric layout, or the 'plotting and disposing the ground'.

Some garden historians have taken this striking description of Backbury Hill and its prospects as sufficient evidence from which to argue that Evelyn was an early advocate of an 'informal naturalistic' gardening style of pastoral scenes and boscaje,

⁸³ *Elysium*, pp. 95-101; Michael Leslie, 'The Spiritual Husbandry of John Beale,' in *Culture and Cultivation in Early Modern England: Writing and the Land* ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 151-172; Peter H. Goodchild, "No Phantasticall Utopia, but a Real Place": John Evelyn, John Beale and Blackbury Hill, Herefordshire', *Garden History* 19 (1991), 105-27.

⁸⁴ *Elysium*, p. 97.

untrammelled by geometric constraint.⁸⁵ This, however, is not the case.⁸⁶ Though Evelyn regrets the folly of those who go to the expense of ‘filling up hollows, plaining of precipices, and raising mole-hills in comparison’, and explicitly rejects gardens of ‘a stiff uniformity’, he nonetheless makes an artful *geometrical* structuring of the garden an absolute requirement.⁸⁷ Geometric ordering and attention to the natural potentials of site are not opposites for Evelyn, they are complementary. The gardener’s art lies not in eschewing figural geometry but in knowing how to apply it. Thus, he says:

At no hand there{fore} let our Gardiner {Workman} enforce his plot to any particular Phantsy, but, contrive rather how to apply to it the best shape that will agree with the nature of the Place.⁸⁸

This is not an argument for the banishment of ‘shape’, but an argument for reconciling ‘shape’ to place. Indeed, in setting out the required qualifications for a gardener, Evelyn makes much of geometric skills, saying that:

[the gardener should] be skillfull in Drawing and Designing; in *Geometrie*, the *Opticks*, *Astrologie*, and *Medicine*; and if not in all these accurate, at least should he be *leviter imbutus*; especialy, in the facultie of Drawing, that he may be capable to invente, and imitate *Compartiments*, *Trayle-Workes*, *Moresqu’s*, *Foliage* etc. for the furniture and ornaments of plots, and the severall ordinances of his parterrers; [...]Truely, this of Drawing and the rest, are of so high importance, that what *Plato* caused to be inscribed upon the *Architrave* of his Schoole dore, would be set with as much reason over that of our Garden, ‘*Ἀγεωμέτρητος νemo*’; especialy, so far as concernes the modell, proportion and Discipline of those many singularities which enter into this {incomparable} Arte. The *Optic* is an assiduous attendant upon the Former, and instructs out Gardiner in *Perspective*, of extraordinary use for the proportions Symmetrie, breadth, and altitude of Wales, Palisades, Walkes, and innumerable other pleasant and noble diversions.⁸⁹

Geometric ‘symmetrie’, or balance, is an essential quality of the garden and, to Evelyn, it is a perspectival concern.

⁸⁵ Douglas Chambers, ““Wild Pastoral Encounter””: John Evelyn, John Beale and the Renegotiation of Pastoral in the Mid-Seventeenth Century”, in *Culture and Cultivation in Early Modern England: Writing and the Land*, ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp.173-194; Mowl (1993).

⁸⁶ Compare Chambers (1991) and Mowl (1993), with Hunt (1998), pp. 276-277.

⁸⁷ *Elysium*, p. 99.

⁸⁸ *Elysium*, p. 96.

⁸⁹ *Elysium*, p. 33.

Once Evelyn has established the virtues of a naturally diverse terrain, he arrives at the issue of the geometric layout of the garden, again approaching his topic through a description of a view, this time the paradigmatic central prospect of the garden. He writes:

Howbeit there ought to be great regard had of the Symmetrie and intermixture of these Varieties; least in stead of a Garden we make a Wildernesse onely { & } that it be contrived so as a prospect being had of the *whole* from the first stage of the Mansion. There may result a sweete & agreeable correspondency in the parts, though considered by themselves, they ~~are~~ { seeme } altogether irregular & heterogene: Such a plot has a perfect resemblance of the Universe it selfe, of which contemplative men & such as best skill how to enjoy the virtuous delights of Gardens are never sated ~~withall~~, but find always something of new and extraordinary to entertaine their thoughts withall.⁹⁰

The passage establishes one of Evelyn's central intentions for the garden - that it should display a visual variety within harmony and thus reflect the variety and harmony of the created world. The importance of the revelation of harmony in the scenography of the garden is most clearly stated here, but it recurs in Evelyn's treatment of the other views of the garden.

From this introductory passage, Evelyn moves directly into a discussion of the detailed layout of the garden, considering the 'shapes' of the plan. Here perspectival issues come to the fore. He starts with a discussion of the choice of figure, first considering the estate as a whole and then the individual components within it. For the overall boundary he says 'Square' is the 'most usuall', but oblong or 'parallelogram' is better 'because of protracting the Walkes, Allyes, and prospects'.⁹¹ Advising his reader that when choosing a figure for one of the individual gardens:

in case you affect the quadrangular, you give it (if possible) some what more of longitude then latitude; because an effect of natural perspective will else too much contract and foreshorten it at the front, & from ~~any~~ { all the } more superiour views & avenues which ~~it~~ { would be } a very greate error in a Garden of Pleasure.⁹²

⁹⁰ *Elysium*, p. 99.

⁹¹ *Elysium*, p. 100.

⁹² *Elysium*, p. 100.

Evelyn could have found a variety of suitable elongated garden figures in Claude Mollet's *Jardin du plaisir* or Boyceau's *Traité du jardinage*; whilst his own translation of Nicolas de Bonnefons's *The French Gardiner*, a book devoted to the cultivation of fruit trees, includes a plate with an elongated parterre inserted between melon beds and the garden at large (FIG. 4.9 a, b, c).⁹³ For Evelyn's generation the perspectivalisation of the ground plot was emerging as an essential of garden design. In the *Elysium*, perspectival intent is most obviously found in the primary axial prospect of the garden, but it also infuses other parts of the garden, other spectacles and prospects.

Peripatetic Perspectives

As Evelyn moves from the static prospect of the *Elysium* to the sequential experience of the garden he keeps the aesthetic principle of variety within harmony in play, but casts the theme somewhat differently. Now, as the spectator moves from scene to scene, the contrast between one scene and the next provides an important ingredient of aesthetic pleasure. Evelyn expresses this idea most directly in the opening of his chapter, 'Of Rocks, Grotts, Crypta's, Mounts, Precipices, Porticoes and Ventiducts', where he writes:

~~There~~ {Nor}is {there} certainly {any} ~~no~~thing more agreeable then after the eye has bin entertained with the pleasure & refreshments of Verdures, {the fragrant} Flowers, {the christall Fountaines} and other delicious and sense-ravishing objects, to be unexpectedly surprised with the ~~eon~~ horror and confusion of naturall or artificiall *Rocks, Grotts, Caverns, Mounts Precipices* well reppresented.⁹⁴

The horror of such scenes can be integrated into Evelyn's understanding of harmony, again through the metaphor of the garden as an image of the universe, for according to Evelyn's *History of Religion* the desolate and painful have a place in God's creation. Here Evelyn addresses the topic of the beauty of the 'structure and fabric of the world', writing:

⁹³ Laird (1998), p. 187; Claude Mollet (1652); Boyceau; Nicolas de Bonnefons, *The French Gardiner, Instructing How to Cultivate All Sorts of Fruit Trees and Herbs for the Garden ...* trs. by John Evelyn (London: John Crooke, 1658).

⁹⁴ *Elysium*, p. 187.

Let its parts be compared together with the whole, and we shall also find nothing but harmony and beauty in it, displaying a variety, and constant in all its revolutions and seasons, which are useful and necessary, not only for us, but for all other creatures: so that what perhaps may be noxious to one is health and medicine to another.⁹⁵

Individual instances of horror or pain can be integrated into the harmonious whole for, employing a musical metaphor (a topic we return to in the next chapter at greater length), Evelyn writes, ‘Nor is there any music grateful but has its discords’.⁹⁶ In the tour of the garden, harmony has a durational aspect, and depends on the idea of dramatic contrast, as in a piece of music or a play.

The juxtaposition of verdant garden scenes and horrid prospects of *Rocks*, *Grotts*, and *Precipices* is highly reminiscent of the sort of theatrical sequence typical of the masques of Inigo Jones, the dramatic impact of which is established, at least in part, through contrast as one scene is replaced by the next through the movement of illusionistic ‘perspectives’ (FIG. 4.10).⁹⁷ Making a comparison across the porous boundary between theatre and garden - in Jones’s theatre, movement is provided by actors, dance, marvellous moving sets, but the design of the perspective set is marked by a characteristic frontality. Jones’s sets are ideally observed from an axial fixed position. In Evelyn’s gardens, it is the ‘spectator’ himself who moves, establishing a dynamic relationship with the visual experience of the garden, which only occasionally resolves into a ‘perspective’ at specific privileged points.

Evelyn’s idea of the dynamic discovery of perspective is most apparent in his treatment of what he describes as ‘one of the principall mysteries of the gardiner’ – tree lined walks, or avenues.⁹⁸ He writes:

Let the proportions of {long} Walkes be so ordered, as that what in *Perspective* we name the *poynnt principall*, may as one walkes continue without straightening the area; for there is nothing more August then to behold a Walke

⁹⁵ John Evelyn, *The History of Religion. A Rational Account of the True Religion ... Now First Published ... From the Original Ms. ...*, ed. by R. M. Evanson, 2 vols. (London: Henry Colburn, 1850), vol. 1, p. 289.

⁹⁶ Evelyn (1850), vol. 1, p. 289.

⁹⁷ John Harris, *Inigo Jones: Complete Architectural Drawings* (London: Zwemmer, 1989), pp. 270-281; see also Orgel and Strong (1973).

⁹⁸ *Elysium*, p. 126; Evelyn does not use the word ‘avenue’ in the *Elysium*.

so contracted after one is a little engaged {& that hides the gaping} ~~then to see it gape~~ at both the extremes.⁹⁹

Clearly Evelyn had a change of heart on the issue of ‘gaping’ whilst composing this passage, but whichever way the question is settled, it is clear that only as the spectator advances into the walk does the desired perspective effect appear, only to dissolve as he or she approaches the far end.

In the above passage, Evelyn makes the perspectivity of his intent explicit by engaging the technical vocabulary of artificial perspective. But, even when Evelyn makes no explicit use of such terms such as ‘*poynt principall*’, a more general perspectivity informs his descriptions of the garden, as for example in his treatment of the profile of an ‘*Embossement*’ of flowers or turf. Evelyn writes:

Embossements, [...] are made with a gracefull swelling and *Relievo*; either by themselves, or, as we sayd, intermixed in the *parterrs* in which they succede perfectly well: But they should by no meanes be layed too high, halfe a foote is sufficient in the very ridge, unlesse the *Bordure*, or Circle is for Cammomile, or Carpets of turfe.

Camomile and lawn grow to no height and should therefore be planted on more elevated beds in order to assume appropriate prominence...

...but for Flowers a lesser declivity, [...] seing the designe is onely to bring such flowers in sight at once, as in *plano*, could not appeare to one that were walking at any reasonable distance.¹⁰⁰

The spectator must be well *above* the parterre in order to enjoy the pattern, or presumably close enough to enjoy an individual flower, but walking at any ‘reasonable distance’ a parterre becomes background. The experience of the spectator is understood to be dynamic and to come into focus at quite specific perspectively constructed moments when moving around the garden.

Though it would be stretching a point to refer to Evelyn’s perspectively corrected parterres, or carefully crafted perspectival avenues as anamorphic (they are not intended to deceive so much as to ‘correct’ vision and establish harmony), there

⁹⁹ *Elysium*, p. 127. ‘Straightening’ means narrowing.

¹⁰⁰ *Elysium*, p. 124.

is some similarity between Evelyn's garden perspectives, particularly the avenues, and the large scale anamorphic perspectives described by Nicéron *et al.* Consider how the anamorphic image of 'Saint John the Apostle at Patmos', in a famous fresco by Nicéron, appears only from the extremely oblique view point of the doorway, disappearing as the spectator moves to the centre of the room to take up a more 'normal' viewing position (FIG. 4.6).¹⁰¹ If the spectator never moves the 'wonder' of the image never becomes truly apparent. Whilst the perspective of Evelyn's august avenues attempts neither to deceive, nor to present a figural image, there is an underlying similarity in the instability of the perspective moment and the corresponding motility of the spectator's eye. Perspective is not a constant way of seeing in Evelyn's garden, but rather a transient wonder that appears and disappears as the spectator moves from scene to scene.¹⁰²

Here a contrast may be drawn with the work of Evelyn's friend and correspondent, the illustrator and perspectivist Abraham Bosse. One famous image by Bosse shows a trio of booted and hatted cavaliers in three different postures, each casting a geometrically defined glance towards a square of ground (FIG. 4.12).¹⁰³ The 'Les Perspectiveurs' tether themselves to the ground with strings that define the visual pyramids of their attention, whilst they pause, or seemingly strolling from left to right across the picture. Whilst this image admirably sums up the peripatetic nature of the spectator, Bosse's cavalier places himself perpetually at the centre of his own 'perspective', implying a conception of perspective seeing which differs from the episodic perspective enactments that Evelyn imagines for his *Elysium* spectator. Bosse's cavalier may discover perspective in any sideways glance, he does not require 'a perspective' to be framed for him in an axially defined view. In this he differs from the rather less mathematically sophisticated cavalier who appears with his lady on the frontispiece to Evelyn's *The French Gardiner*. Here the couple are about to proceed into the garden, the cavalier indicating the perspective to his companion, an axial composition framed by the doorway (FIG. 4.11).

¹⁰¹ The painting no longer exists, but is known to us through Nicéron illustrations in the *Thaumaturgus Opticus*, see Massey (2007), pp. 37-109, (p. 98); Baltrušaitis, pp. 56-57.

¹⁰² For motility of Baroque perspective see Christine Buci-Glucksmann, *The Madness of Vision: On Baroque Aesthetics*, trs. by Dorothy Zayatz Baker (Ohio University Press: Athens, 2013); Lyle Massey (2007); Weiss (1995), pp. 21-46; Weiss (1998), p. 47; Farhat (2014).

¹⁰³ Abraham Bosse (1648), Planche 2, p. 60.

Experimental Sites

The final class of ‘perspective’ addressed in the *Elysium* are the *trompe l’oeil*, which Evelyn describes as ‘Pleasant deceptions’, designed to ‘tempt & divertise the eye of the Spectator’.¹⁰⁴ They are ornaments capable of delivery ‘extraordinary {& stupendious} effects’.¹⁰⁵ As Evelyn explains, a *trompe l’oeil* may be a three dimensional construction, or a simple illusionistic wall painting. He includes examples, first describing a painting executed on an entirely flat wall (FIG. 4.13):

The *Triumphal Arch of Constantine* in the *Cardinals Villa at Ruell* [...] is a noble instance of the wonderfull effects of Perspective, where the eye (otherwise bounded by a dead wall) [...] after it has been entertained with the historical Relievs, & Architecture of the piece, passes through the Overtures & Arches into a most delightful prospect, which is terminated with a far distant horizon.†

†birds fly aginst the well desembled skye¹⁰⁶

Such ‘perspectives’ are, he says:

most naturall [...] & properly erected [...] at the {entrances} of short Walkes, & *Nil Ultras*’, where ‘*Perspective* ~~do~~ can do wonders, & is able to give the Eye a {Lycean} passage {even} through a stone wall.’¹⁰⁷

In remedying the defect of an unfortunately curtailed walk, a perspective such as this again contributes to Evelyn’s primary intent of establishing the visual harmony of the garden, but this does not exhaust its potential, for Evelyn also presents the *trompe l’oeil* as a site of visual experiment, a characteristic shared with the stately tree lined walks of the garden.

Evelyn describes another ‘stately instance’ of hortulan *trompe l’oeil*, composed of two parallel walls, one behind the other.¹⁰⁸ A cloudy sky was painted at

¹⁰⁴ *Elysium*, p. 215.

¹⁰⁵ *Elysium*, p. 215.

¹⁰⁶ *Elysium*, p. 216; for commentary on this *trompe l’oeil* in its original setting see Woodbridge, pp. 148-158.

¹⁰⁷ *Elysium*, p. 215.

¹⁰⁸ *Elysium*, p. 216.

high level on the wall furthest from the spectators, and was screened by a wall of equal height in the foreground. The near wall was painted to resemble antique ruins and was pierced with windows and arches. Clouds and sky, painted on the back wall, could be glimpsed through these openings, which ‘as the Spectators walked or changed their steps, represent the motions, or rack of the Clowdes, seeming to flye before the wind’.¹⁰⁹ Evelyn frames this little drama as an experiment in relative motion and parallax, quoting verses from Lucretius in his own translation to explain the principle:

...
 When through the Aire Winds cary in the night
 Thin Clouds; the bright starrs seeme to glide & goe
 ‘Gainst them, in Course oppos’d to what they doe
 By Nature:

...
 Ships which transport us move, when fix’d they seeme,
 And those at Anker, under Saile we deeme,
 And t̄ {towards} the Barke, Hills, & Fields seeme to flie,
 Where as, in truth, we Saile and passe them bye.¹¹⁰

Again the visual perception of space is dependent on a moving spectator. The declared purpose of Evelyn’s *trompe l’oeil* may be to restore visual harmony to the *Elysium*, but Evelyn also frames the optical ‘deceit’ as an experiment of the most theatrical sort. Encountering the trick, the spectators are first deceived and then undeceived, becoming actors in their own drama as they see themselves seeing.

The principal walks of the garden also present sites of optical experiment. Evelyn tells his reader that they:

with their length alone aford a pleasant and most gracious perspective, whilst they serve to decline and concurr in a poynt especially if planted with {tall} trees, then which nothing can be more ravishing and agreable.¹¹¹

Though he casts this view down the length of an avenue as ‘a perspective’, the self-evident nature of this characterisation can easily be disrupted. An avenue has a very

¹⁰⁹ *Elysium*, p. 216.

¹¹⁰ *Elysium*, p. 216.

¹¹¹ *Elysium*, p. 100.

simple layout. It is a straight piece of ground, enclosed by parallel rows of trees on either side, either single or double. The trees are evenly spaced along the length of the walk, in a gridded pattern. Evelyn tells his reader that the trees lining any particular walk will all be of the same species, suggesting ‘*Elmes, Limes, {Platan, Horsechestnut}, Pines* etc’.¹¹² Consequently, though he does not state this, if planted at the same time the trees of an avenue should all reach the same height simultaneously and their canopies should start at the same level – ‘edging tools’ might help in achieving this effect. Trees thus planted and cultivated effectively mark out a three dimensional, orthogonal, gridded territory within the garden, which can quite easily be perceived and understood as such. But why do they afford ‘perspectives’?

The simple answer is that such a view is ‘a perspective’ to one who thinks of it in perspectival terms, which Evelyn undoubtedly did, but the designation depends on a cultural background and a visual skill. A hunting alleé has a similar layout, but does not necessarily attract the same designation.¹¹³ To one who has some familiarity with the step-by-step build-up of perspective constructions, such as those presented in Abraham Bosse’s *Manière universelle*, or indeed in the three simple perspective construction drawings that Evelyn includes in the *Elysium* as guides for creating a *trompe l’oeil*, the grid-like structure of avenues makes them easily appreciable as geometrically defined spaces, which can be seen to give rise to a ‘perspective’ (FIGS. 4.14, 4.15).¹¹⁴ To be able to ‘see’ this is, however, a sophisticated operation that relies on the spectator having a suitable grounding in the ‘rare *Arte*’. The view down a tree lined walk is ‘a perspective’ only to the initiated.

This initiatory aspect of perspective is something that Evelyn hints at when he talks of the skill of proportioning an avenue as a ‘mysterie’, thus:

we esteeme one of the principall mysteries of our Gardiner to be able to make and proportion [walks] skillfully; that their length and breadth ~~are~~ hold an agreeable corespondency; so as they neither seeme too narrow. broad, flat, ~~or~~

¹¹² *Elysium*, p. 127.

¹¹³ *Mariage*, p. 55.

¹¹⁴ Bosse (1643), plates 64-66; *Elysium*, pp. 217-218.

round or uneven, which all of them are vices {sedulously} to be prevented by the Artist.¹¹⁵

He also writes of the width to height ratio of a walk, which should alter according to whether the branches of the trees touch at the top or leave a space open to the sky (if closed the walk appears squatter and should be a little taller), but it is the ratio of breadth to length that preoccupies him the most.¹¹⁶ This is the heart of the ‘mysterious’ endeavour to achieve an ‘august’ effect and, given that it is a perspectival task, we might expect the task to be a highly mathematical operation, but Evelyn’s advice to the gardener proves the case to be otherwise. His instructions centre on the ‘generall & positive Rule’ expressed in the passage quoted above. This relies on the experience of seeing the avenue ‘contracted’ at its ends so as to hide the ‘gaping’ - accomplish this and you have achieved an agreeable and harmonious perspective.¹¹⁷ What is remarkable about the ‘positive Rule’ is that although Evelyn couches it in the language of mathematical perspective, he actually instructs the gardener to establish the proportions of the walk ‘experimentally’. He describes the desired effect and leaves the practice to the individual’s experiential artistic judgement.

There is of course an inherent problem in the method described in the ‘generall & positive Rule’, given the period of time needed to cultivate a mature avenue. The gardener would either have to mock up the avenue in question (which would be a costly measure indeed), or more likely base his planting scheme on some observed precedent. Consequently, Evelyn obligingly supplements the Rule with relevant ‘experiences’ - descriptions of the exemplary walks of the Tuileries and the Luxembourg gardens - whilst further suggesting a range of suitable measurements. He tells us, for example, that a walk of 1200 foot long walk should be 30 -35 feet wide; if 600 long it should be 22 or 22.5 feet wide; and if only 300 feet in length he recommends 20 feet and so on.¹¹⁸ These measures cannot be reduced to a series, they are arrived at through discrete observations –the ‘experiences’ of the gardener. The experiences are not those of Evelyn alone, for he relies on the established French

¹¹⁵ *Elysium*, p. 126.

¹¹⁶ *Elysium*, pp. 126-127.

¹¹⁷ *Elysium*, p. 127.

¹¹⁸ *Elysium*, pp. 127-128.

tradition, encoded in Claude Mollet's *Théâtre des plans et jardinages* and Jacques Boyceau's *Traité du jardinage*, indeed, several of his proposed measurements correspond exactly those recommended by these authors.¹¹⁹ Furthermore Evelyn's 'positive Rule' is closely based on Boyceau's text, though Boyceau likes an avenue that gapes at both ends, whereas Evelyn (on reflection) prefers the opposite.¹²⁰

What we have in Evelyn's text is effectively the transmission of a well-established artistic tradition that proposes an engagement with geometric optics and artificial perspective whilst in no way relying on the application of mathematics to govern practice. Assuredly the gardener would need some fairly competent 'mathematical' surveying skills in order to achieve the required evenness of terrain and planting grid, but although Evelyn conceived of his walks as perspectives, in order to design them, or to set them out, there would be no absolute need to have a mastery of geometric perspective techniques as such. Perspective is present in these avenues as a skilful way of seeing and, importantly, as an object of representation itself – an accomplishment that the philosophically minded gardener may wish to attain. The avenues of the garden are the site of optical 'experiment', conceived as the observation of aesthetic effect, conducted within a territory that may be mathematically defined, but which is designed in dialogue with artistic tradition.

The End of Vision

It is easy to see how, given their grid like nature, the optical laboratories represented by Evelyn's avenues might be equated with a 'Cartesian' extensivity, if one were inclined to seek out grounds for such a metaphor.¹²¹ Imagine the grid as a neutral delineation of extent that encompasses not only the avenue, but the whole garden,

¹¹⁹ Three out of seven suggested proportional measures given by Evelyn, in *Elysium*, pp. 127-128, correspond exactly to measures found either in Claude Mollet, *Théâtre des plans et jardinages [...]* (Paris: Charles de Sercy, 1652), pp. 113-114, or in Boyceau, Book III, chapter 4, 'Des allées et longs promenours', pp. 72-74. For a translation of the relevant passages from Boyceau see Frank Hamilton Hazlehurst (1966), pp. 35-36; a toise = approx. 6ft.

¹²⁰ cf. *Elysium* p. 127 with Boyceau, p.72, translated in Hazlehurst (1966), p. 36.

¹²¹ Edward Slowik, 'Descartes' Physics', *The Stanford Encyclopedia of Philosophy*, ed. by Edward N. Zalta Online edition Summer 2014. <<http://plato.stanford.edu/archives/sum2014/entries/descartes-physics/>> [accessed 14 05 2016]; Alexandre Koyré, *From the Closed World to the Infinite Universe* (Baltimore; London: Johns Hopkins University Press, 1957), pp. 55-77, (p. 64).

the country beyond, the world, the universe. But though Descartes's explanations of the mechanisms of sight may be seen to have some relevance to Evelyn as an explanatory scaffold for some of the techniques of perspectival gardening that he recommended, Evelyn disagreed fundamentally with Descartes, or as he has it 'the Cartesians', on what was for him a fundamental issue - the hierarchical nature of the creation. A comment from Evelyn's *History of Religion* establishes this as a religious concern and one which has a spatial expression. Whilst it has not been possible to date the following passage with any accuracy, its direction is consistent with what we read of Nature in the first book of the *Elysium*. Evelyn writes:

The Cartesians tell us that there is no such thing as substantial life any where; and that even human volition is mechanically produced from certain *effluvia* and exurious membranes, as it were. They will not endure any scale or degree of entities lest they should find a link or chain which should bring them to a First Being.¹²²

It is clear that Descartes's conception of the inherent identity of spatial extension and corporeal matter, its non-hierarchical uniformity and the correlative total banishment of the idea of a mediating incorporeal Spirit was an anathema to Evelyn. In Evelyn's chymico-mechanical understanding of Nature, both matter and Spirit had spatial extension. Furthermore he understood the spatial structure of the world to be both differentiated and hierarchical. In the *Elysium*, he posits the Universal Spirit as 'the first li{n}ke to the ~~divine~~ {sublimest} Throne', the start of a chain of descent that, according to a later manuscript fragment, links 'the most glorious Angels to the meanest Clod of Earth'.¹²³ It is the banishment of 'substantial life' - a pervasive spiritual vitality that he saw as the fundamental stratum of created Nature - and the levelling of space into the non-hierarchical homogeneity of material extension that Evelyn really objected to in Cartesianism. It posed a threat to religion. No such problems were presented by the hierarchically ordered and spiritually infused space, which Dee outlined in his 'Mathematical Preface'. But how might this spiritual dimension of perspective inform our reading of the garden? To attempt an answer to this question, we return to the central prospect of the garden, taken from the first floor of the mansion.

¹²² Evelyn (1850), vol 1, p. 283.

¹²³ *Elysium*, p. 37; John Evelyn, London, British Library, Evelyn Papers, Add 78343, fol. 10.

From this vantage point Evelyn's spectators would have seen the little world of the garden ranged before them in full variety and harmony - the perspectively ordered ranks of ornamental parterres leading the eye first to the clipped ornamental groves, and thence, along the central axial walk that extended beyond the garden wall, its lines leading '*à perte de vue*'. As the eye of the spectator moved towards the horizon it would, to use another of Evelyn's phrases, experience the 'losse of its object', a phenomenon he describes as affording a particular pleasure.¹²⁴ It would be possible to see this 'losse of its object' in terms of those principles of geometric optics which Evelyn noted in his '*Tomus Tertius*'. Thus, as the spectator seeks his object of vision further and further away, the pyramid of visual attention attached to this object becomes more and more 'straightened', narrowing eventually so as to admit only a negligibly small number of light 'effluvias', at which point, the object of sight is 'lost'.¹²⁵ The converging lines of the central avenue might then be construed as a geometric frame for this experience, a bringing to visibility of the geometric artistry which frames the pleasurable dissolution of distinct vision. Is this where the pleasure of the 'losse of object' lies – in intellectual understanding of the visual phenomenon through recourse to mathematics?

In some commentaries on the French garden, the perspectival 'vanishing point' of the central paradigmatic view is presented as a mathematico-spatial representation of infinity, and thus as a spatial representation of the relationship of the created world to the divine, since the spatially infinite, along with the temporal eternal were commonly conceived to be attributed of God – a concept that Evelyn shared.¹²⁶ But for all the importance that Evelyn gives to the indefinite extension of the central walk, and for all that he presents this prospect as a contemplation of the harmony of the created world 'of which contemplative men [...] are never sated' (a contemplation which is one step away from a contemplation of the goodness of the creator), there is little basis for proposing that he encompassed a perspectival description of the infinite in this contemplation. Quite apart from his lack of

¹²⁴ *Elysium*, p. 126, p. 195.

¹²⁵ Add 78330, fol. 132^v.

¹²⁶ Weiss (1998), p. 47; see also Weiss (1995), p.50, p. 61; Panofsky (1991), p. 65; Pérez-Gómez and Pelletier, p. 56; Evelyn on infinity and eternity see Michael M. Repetzki, 'John Evelyn: Virtuoso and the venture of Atomism' in *John Evelyn's Translation of Titus Lucretius Carus De Rerum Natura: An Old-Spelling Critical Edition* trs. by Michael M. Repetzki (Frankfurt am Main; New York: Peter Lang, 2000), p. xvi, p. xxxi.

mathematical sophistication, the point is supported by Evelyn's drawing of the 'Prospect of Wotton', drawn from the roof of the grotto, in 1653, the closest we have to the paradigmatic axial prospect of a noble garden (FIG. 6.1).

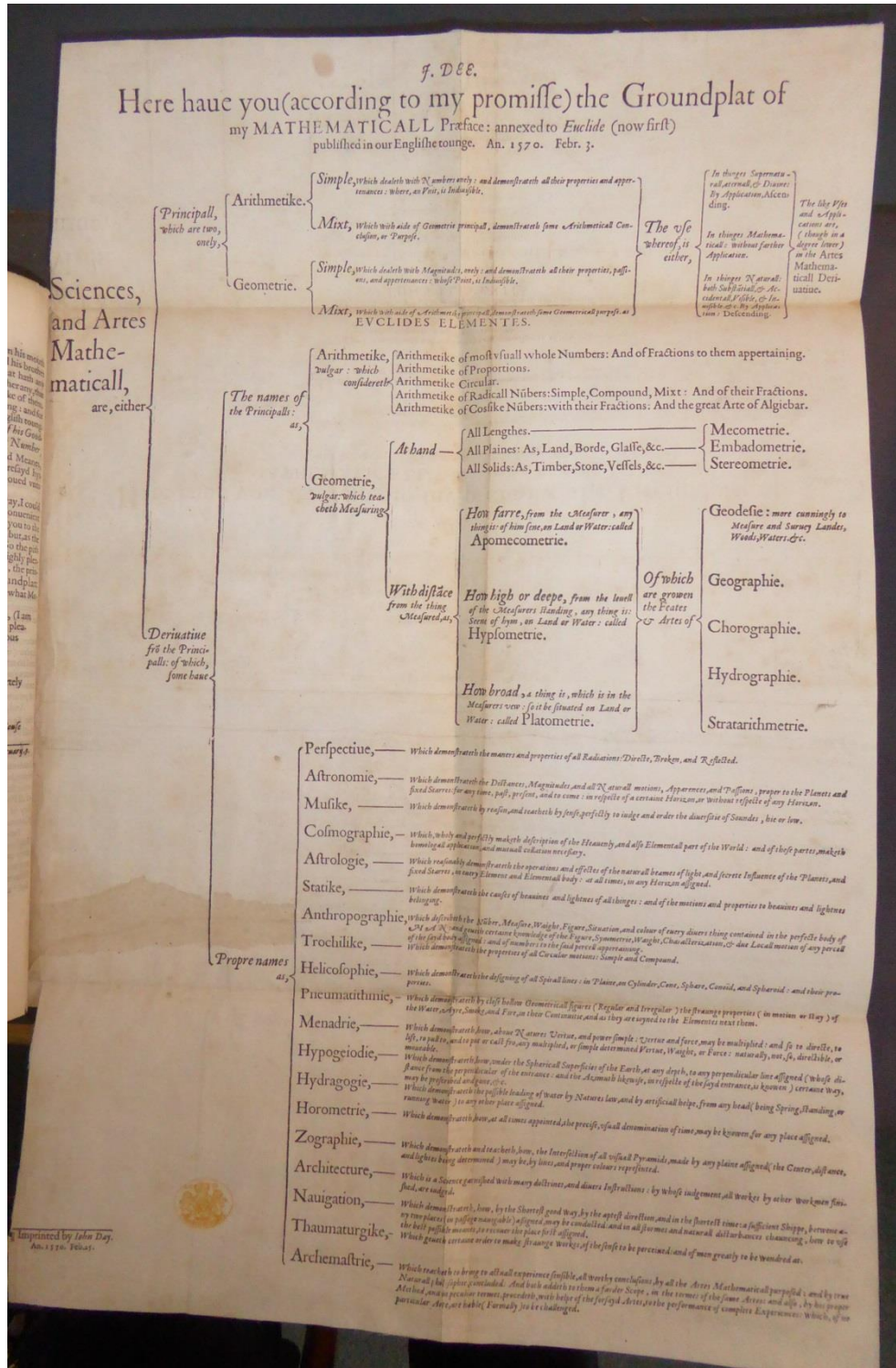
This image is undoubtedly perspectival, but it shows a singular lack of consistency in the rendering of both the parallel lines of the roofs of the mansion and the simpler lineaments of the parterre in the foreground. These do not converge to a vanishing point as they 'should' and surely would have, had the mathematical construction of the view been of overriding importance to its author. It seems probable that the image was produced with the aid of some form of gridded view-finding device, for though the perspective is divergent, the proportioning of the parts is quite accurate, and this is by no means an easy thing to achieve in such a complex drawing. Perspective informs the image, but perspective does not arise out of mathematical construction so much as craft technique, probably mediated by a mechanical contrivance. Any consistent 'vanishing point' is far from obvious - the perspectivity of the 'Prospect' is held in balance with, and appears secondary to, the delight in the detailed particulars of the view. As Evelyn says when arguing for the importance of setting out a garden around the given conditions of the site, 'Physics are ever before Mathematicks'.¹²⁷

We remember that the alchemical landscapes, encountered in the last chapter, were structured vertically into three zones of ascent (the terrestrial, celestial and supercelestial), first one horizon and then another separating/uniting each zone and the next. This structure, which is shared between Mylius's landscape, the Philosophico-Medicall garden Ichonimse, the Harvard furnace drawing and Dee's textual description of cosmic order in the 'Mathematical Preface', offers a conceptual frame which we might apply in reading Evelyn's delight in the far reaching prospect and the experience of the limits of sight. As the eye seeks and fails to distinguish a distant object near the horizon, we may imagine the pleasurable relinquishment of effortful focus, a release of breath as sight relaxes to take in the broad horizon and expanse of the sky - the attention expanding to include other sensorial perceptions (sounds, scents, the 'feeling' of Spirit). We may imagine the

¹²⁷ *Elysium*, p. 96.

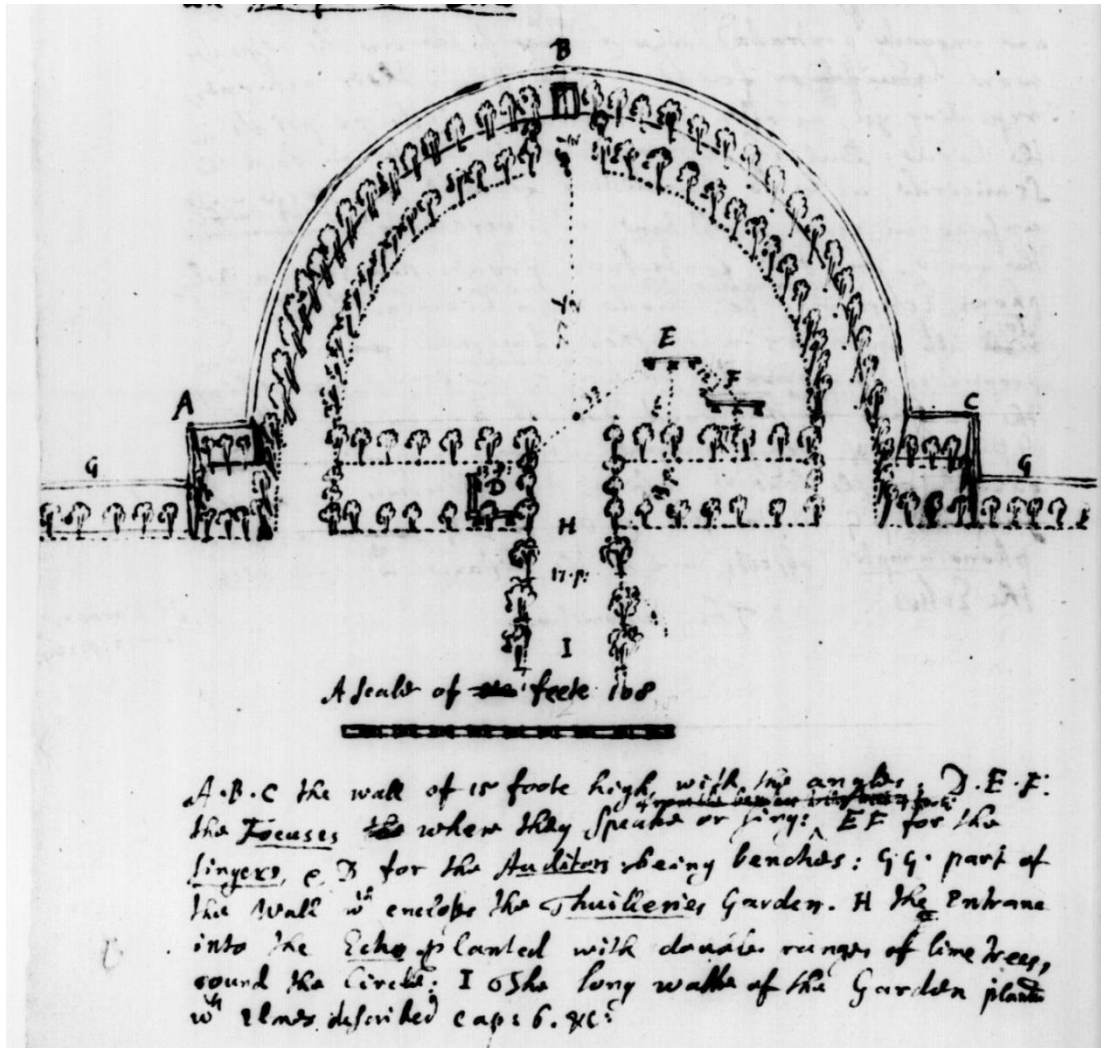
encounter with the limit of sight initiating a movement in attention, in an ascent from the visible material to the invisible immaterial and so on, reaching towards the ultimate boundary with the *lux metaphysica*, the destination that lies beyond the stars and beyond the highest link in the chain of creation – an infinite that may be, but need not be mathematically described.

Evelyn does not offer any clear or extended statements on the role or ontology of mathematics in general, or perspective in particular and consequently it is difficult to judge the precise role that he gave to the mathematical understanding of Nature. There is, however, some further evidence of his engagement with the idea of the harmony of the world, which touches on this issues. This we address in the next chapter, which focuses on the *Elysium*'s experiments in sound and in music.



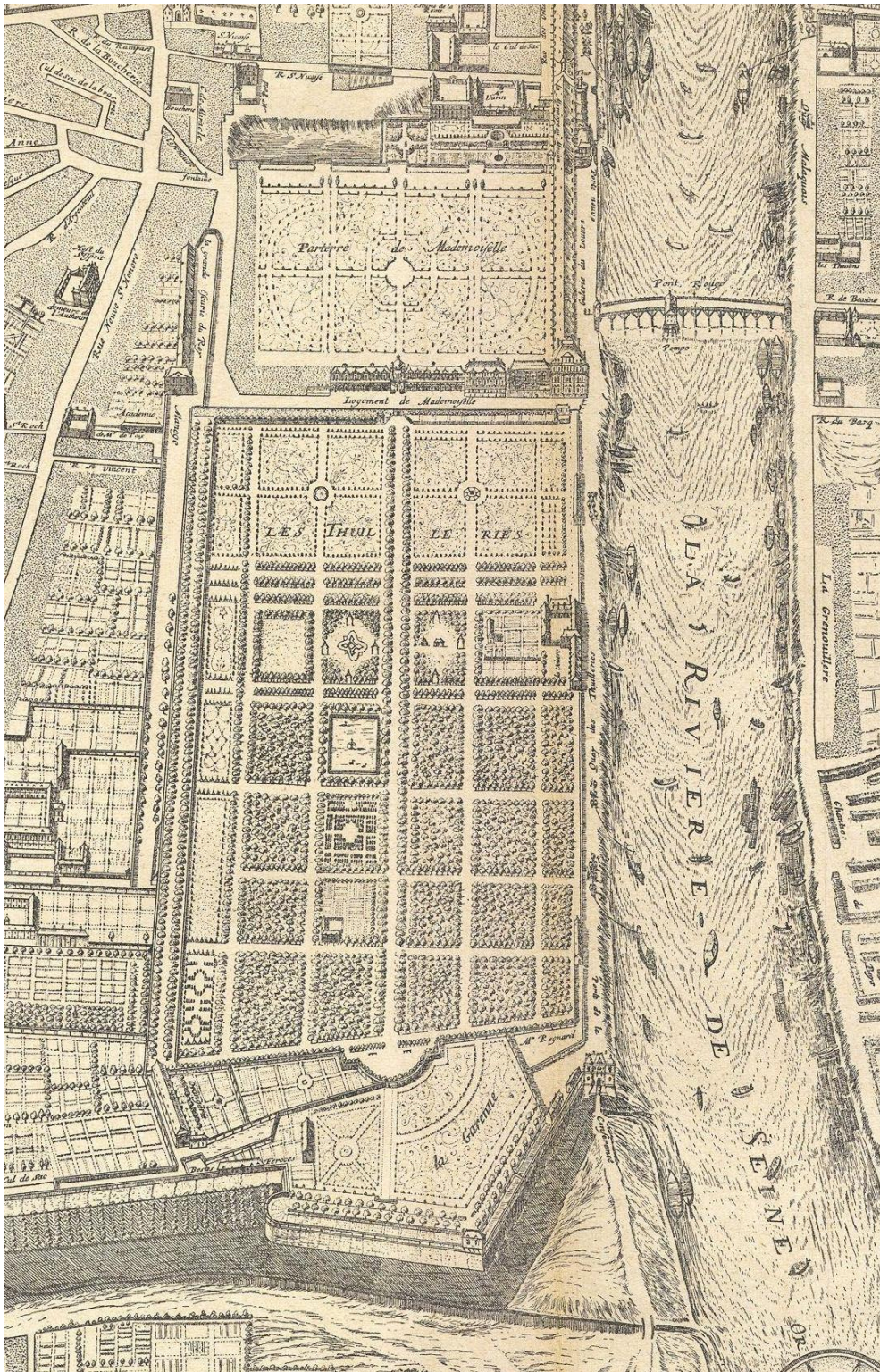
4. 1

‘Groundplat’ showing perspective in relation to the other mathematical arts, from John Dee’s ‘Mathematical Preface’ to Euclid’s *Elements of Geometrie* (1570) © Author.



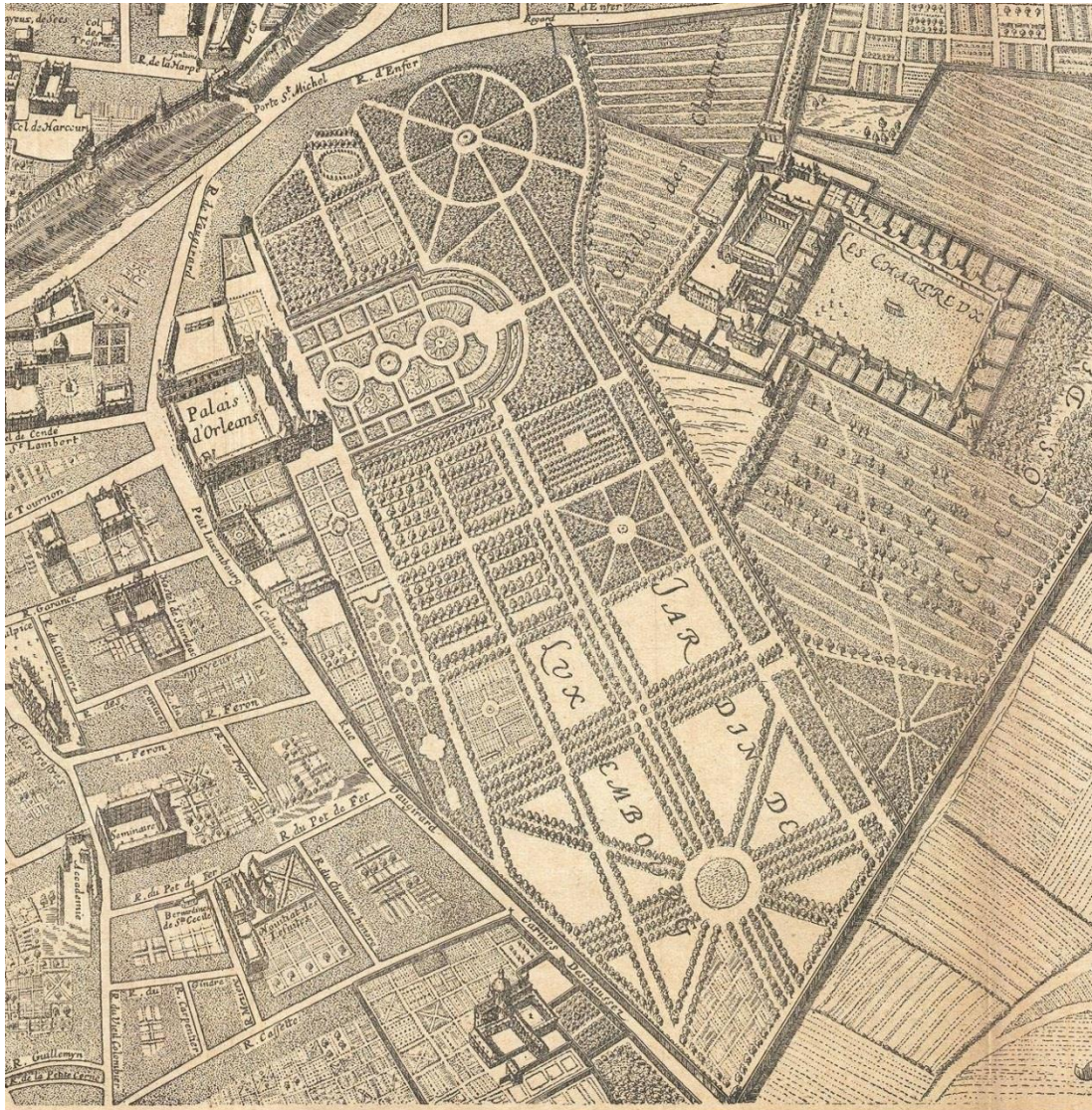
4.2

John Evelyn's sketch of the theatrical termination of the central axis at the Tuileries garden from the 'Elysium Britannicum' manuscript © British Library, Add 78342, fol. 171.



4.3


Jacques Gomboust, 'Plan de Paris' (1652), detail showing the Jardin des Tuileries. Public Domain, [{{PD-old}}](#) [User:Example / Wikimedia Commons / Geographicus-source](#).



4.4

Jacques Gomboust, 'Plan de Paris' (1652), detail showing the Jardin du Luxembourg
 {{PD-old}} [User:Example](#) / [Wikimedia Commons](#) / Geographicus-source.

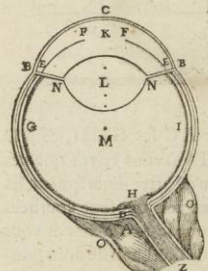
in the middle of the parallel, but then what use of eyes...
 On plains glasses the rays pass perpendicular...
 It convex... the point deflects all the rays but one: & as the rays
 enter nearer or deeper into of pore, so is the angle more acute, or obtuse, it) men
 shape near the focus, from of broad & middle focus...
 Not by reflections and of the same contrary...
 reflected perpendicular rays & continues...
 Thus then, a flat glass...
 & this more than the section of a circle...
 of various effects of the Dioptrical, which...
 For if looking through a plain glass, the image appears the same as to of eye...
 because it passes by direct rays...
 In the contrary & amplified in a Convex lens, because the angle is obtuse, then
 of the breadth. Thus this by applying the Dioptrical glasses to a hole in a dark
 room, we receive the greater or lesser.



The fabric of the eye...
 parts: The horny membrane (A. B.)
 the Choroides (C.) The Vitreous
 the vitreous humor trapped to
 the coat; & the convex
 united surface, and the vitreous
 which has the fibres meeting in
 the middle. Then the
 of the choroides, which appears
 a stone called the Iris; & the
 of the Iris, but also; in the middle
 can be seen a contract, for of motion
 has a movement, for both: the inward
 because fulcrum, but some in
 found opinion is, that the rays of light
 these extending to the convex
 which appears, it confound; for then part
 the choroides, which figure is convex,
 the choroides; yet something oval, towards
 the choroides; or some filamentous
 the middle of the eye, & is
 of a soft require. This form is
 the iris, & not comparable
 than in it, as Galen & most
 species are inverted, but the
 of eye & than the section, & lastly
 the Choroides, & not in of retina
 that the object would appear inverted;
 find it reversed in the Dioptrical
 composed of many diaphanous
 the aqueous humor (E. F. F. F.)
 (H. & H. M. I. N.) through which are
 the Amphiblastroides or network
 Figure, for of congregation of
 might be fortified in many rays,
 the retina; so just as all the
 vitreous humor, or a certain part
 papillosa (E. F. F.) is dispersed
 & when given a body, even in
 a thin a part of light, but as
 the retina is lined with a con
 has a movement, for both: the inward
 because fulcrum, but some in
 found opinion is, that the rays of light
 these extending to the convex
 which appears, it confound; for then part
 the choroides, which figure is convex,
 the choroides; yet something oval, towards
 the choroides; or some filamentous
 the middle of the eye, & is
 of a soft require. This form is
 the iris, & not comparable
 than in it, as Galen & most
 species are inverted, but the
 of eye & than the section, & lastly
 the Choroides, & not in of retina
 that the object would appear inverted;
 find it reversed in the Dioptrical

Dioptric.
 Catoptric.
 Oculus.

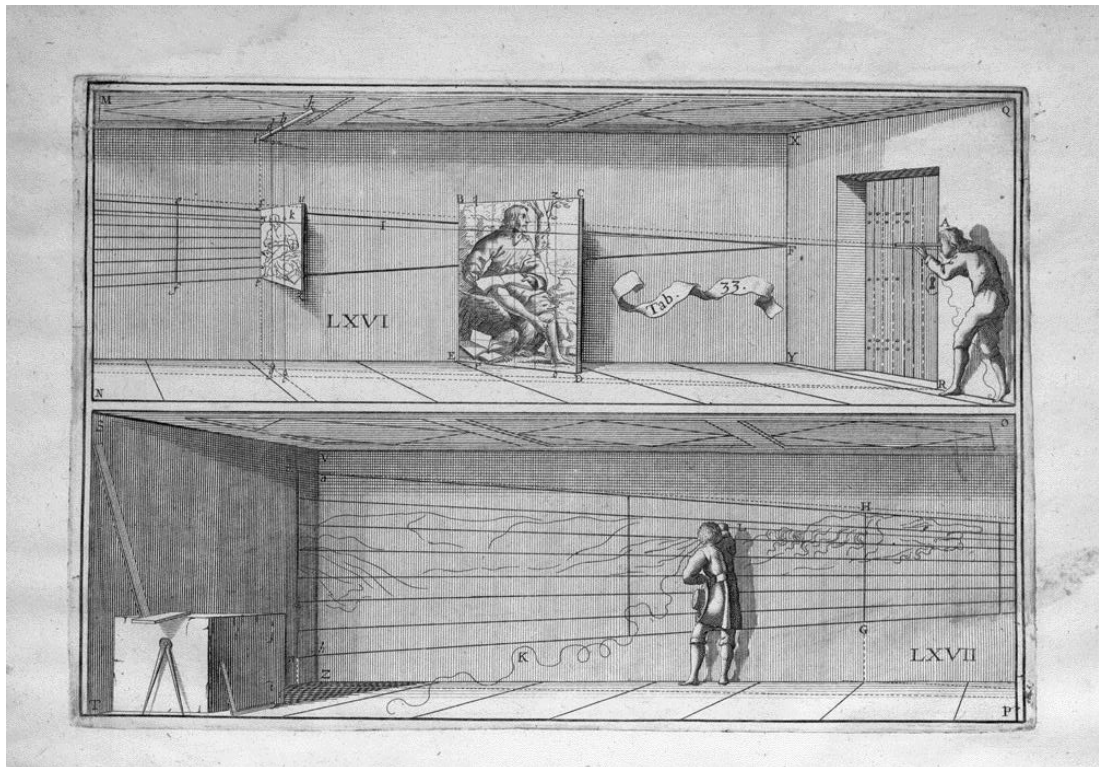
prunelle, il paroistroit tel qu'il
 figure. A B C B, est vne peau a
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4.5.

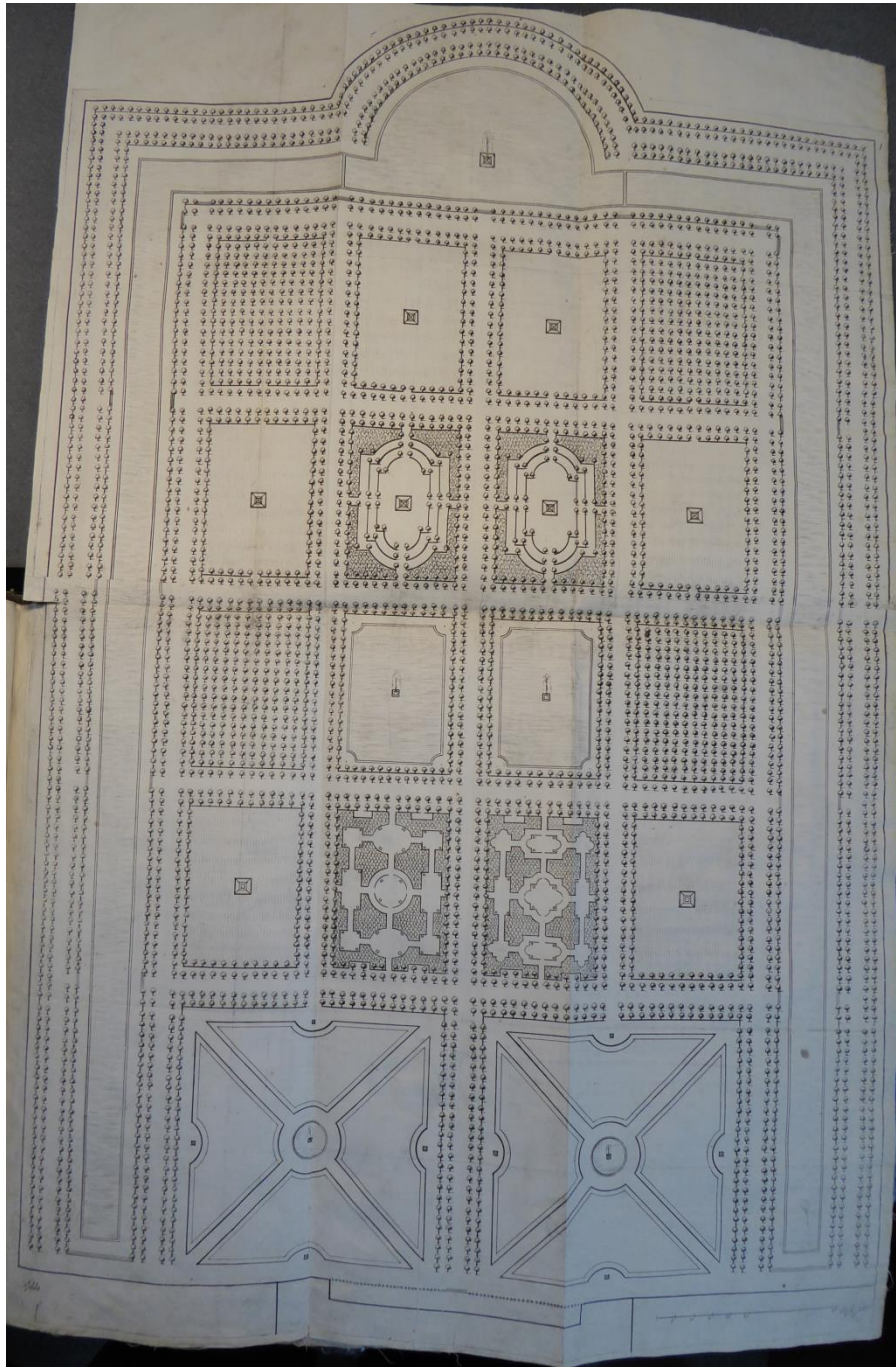
A John Evelyn's notes from René Descartes, *La Dioptrique* in 'Tomus Tertius' commonplace book © The British Library Board, Add 78330, fol. 133.

B Detail of Evelyn's source in René Descartes, *Discours de la methode ...* (1637), p. 26 of *La Dioptrique*.



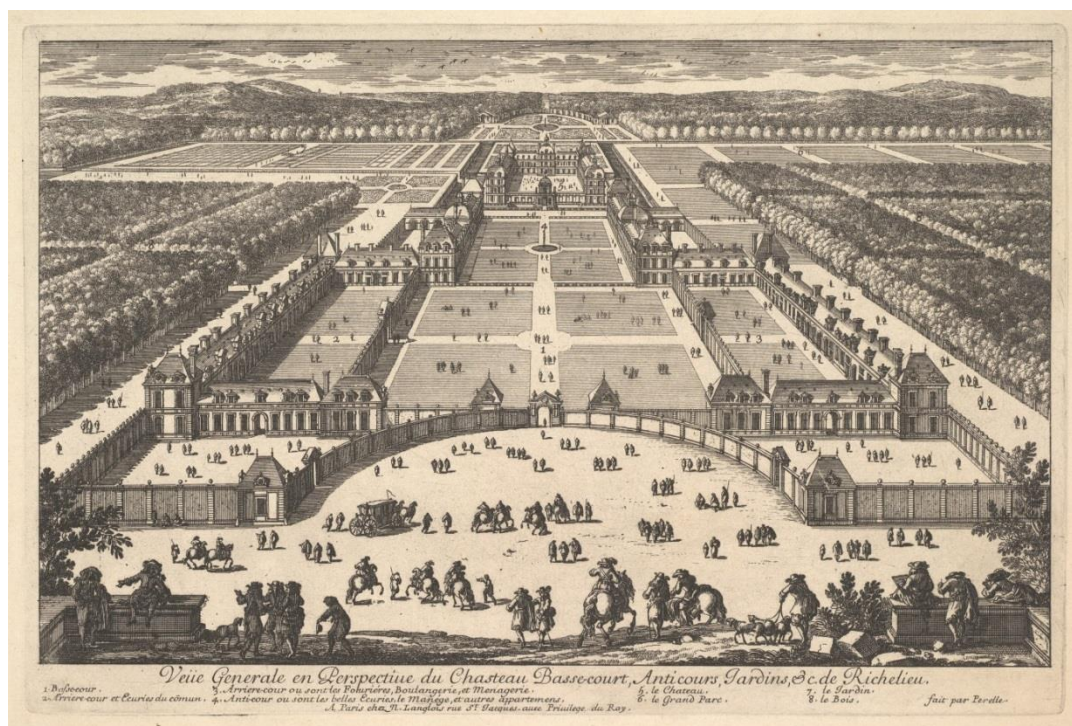
4.6

Jean François Nicéron, Anamorphic image projection explained in *La perspective curieuse* [...] (Paris: Jean Du Puis, 1663), Plate 33 © Centre d'Études Supérieures de la Renaissance, Tours.



4.7

André Mollet, ideal layout of the central part of a French formal garden, *Jardin du plaisir* (1651) © Author.

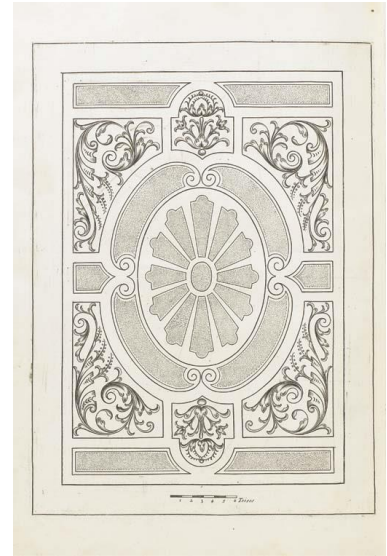


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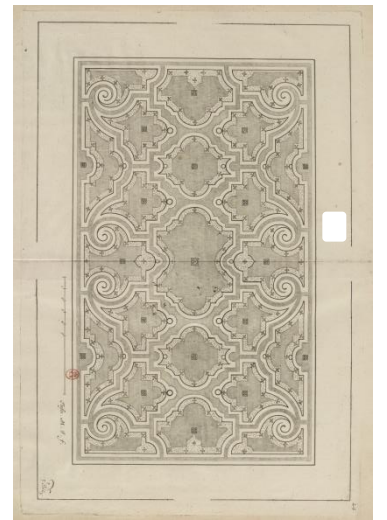
Adam Perelle, views of the Château de Richelieu, showing the extended central axis: Grand Parterre de le Demi-Lune (above) general view (below), *Venues des belles maisons de France*, (c. 1650) © The Metropolitan Museum of Art, Bequest of Phyllis Massar, 2011. URL www.metmuseum.org.



A



B



C

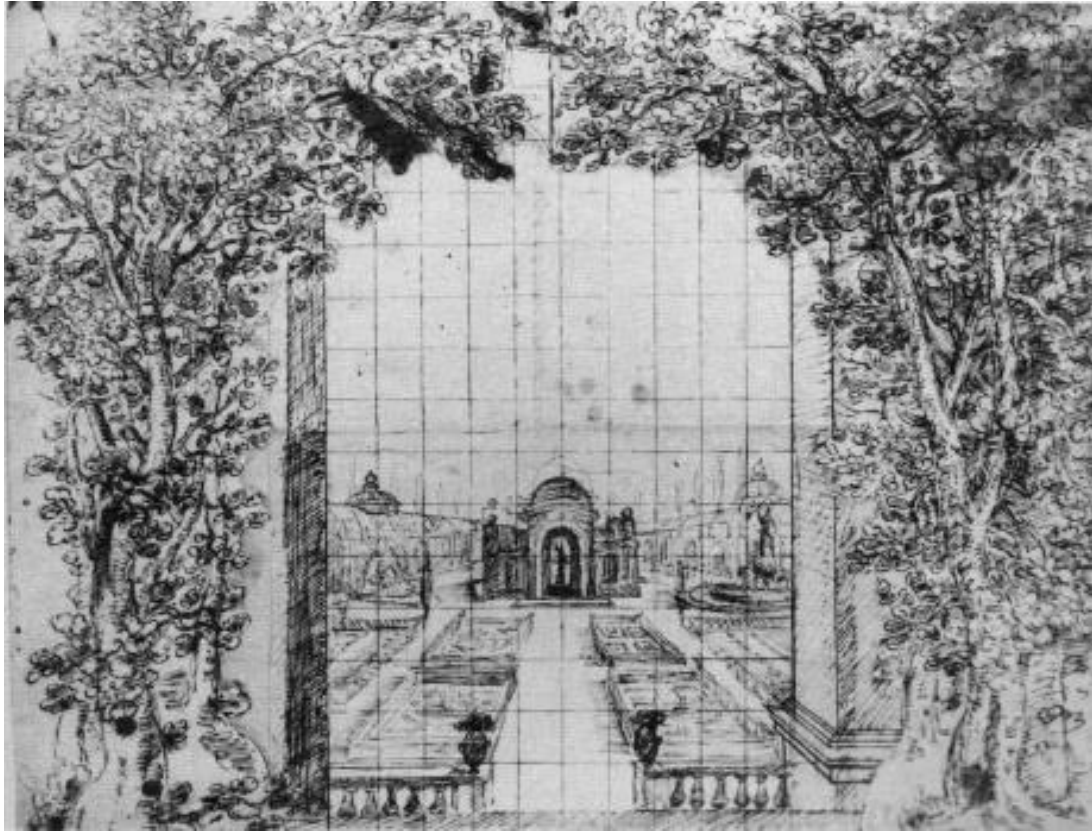
4.9

The elongation of the parterre, in examples from:

A Nicholas de Bonnefons, *The French Gardiner*, trs. by John Evelyn (1658) © Author.

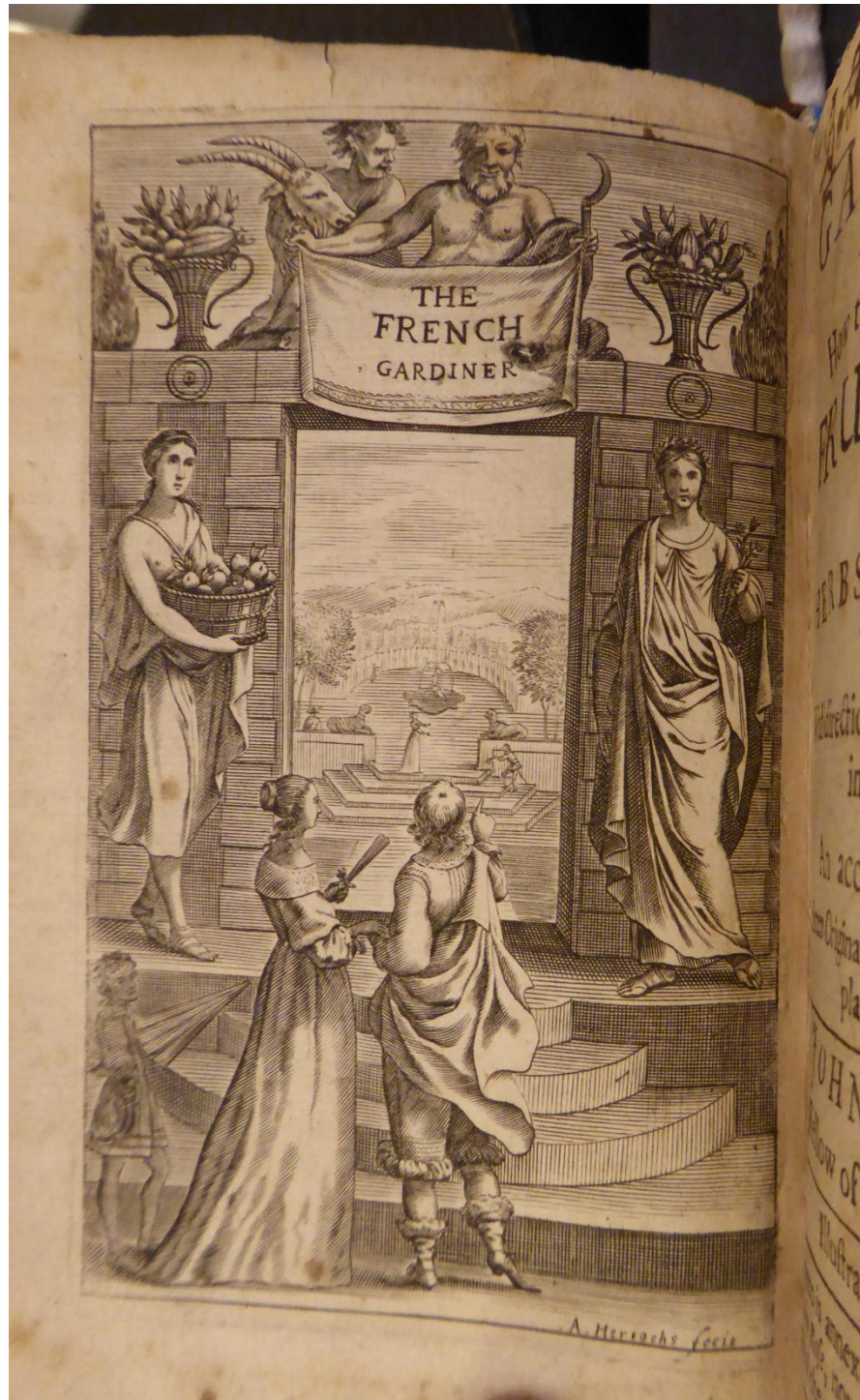
B Jacques Boyceau, *Traité du jardinage* (1638) © Gallica.bnf.fr, Bibliothèque Nationale de France.

C André Mollet, *Jardin du plaisir* (1651) © Gallica.bnf.fr, Bibliothèque Nationale de France.



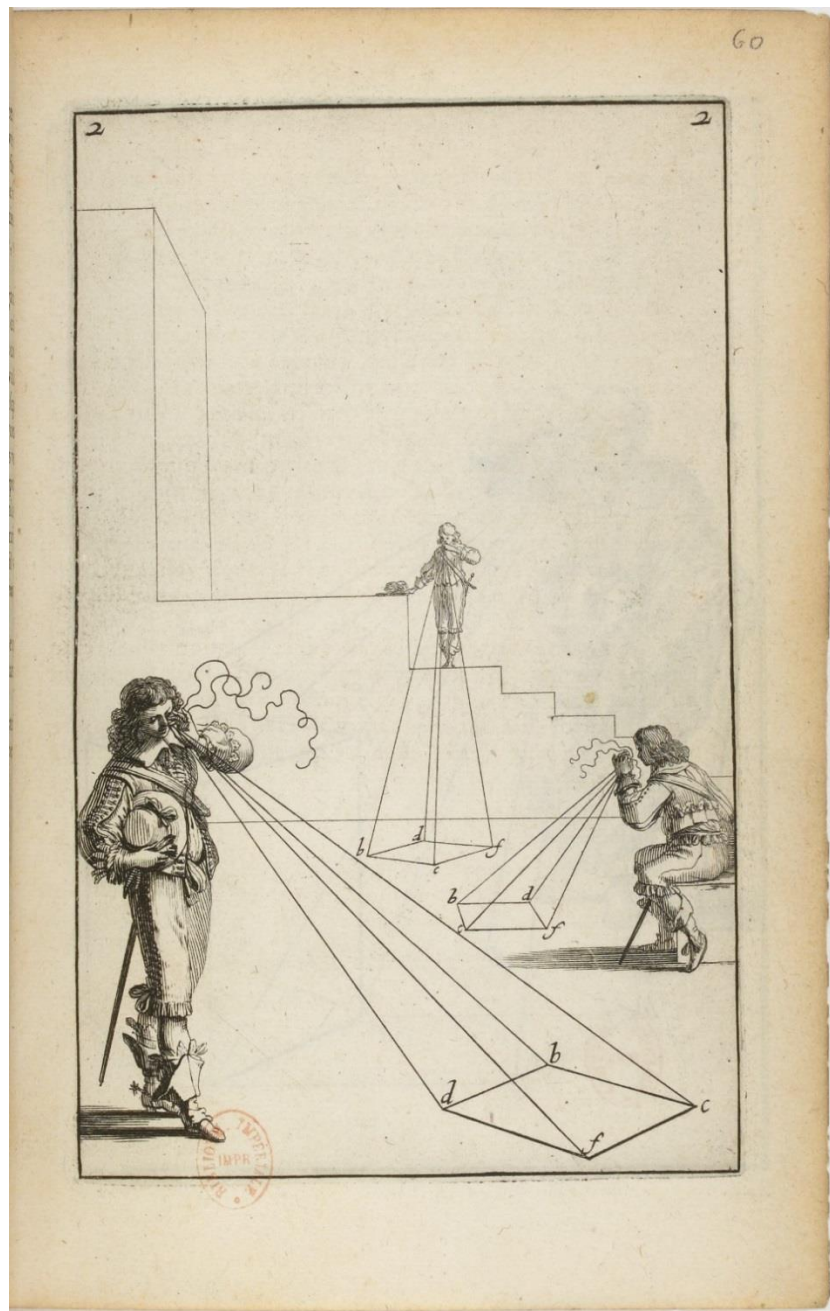
4.10

Inigo Jones, design for stage set 'perspective' of a villa in 'Coelum Britannicum' (1634), reproduced in Roy Strong, *Art and Power* (1984), fig. 113 © The Trustees of the Chatsworth settlement.



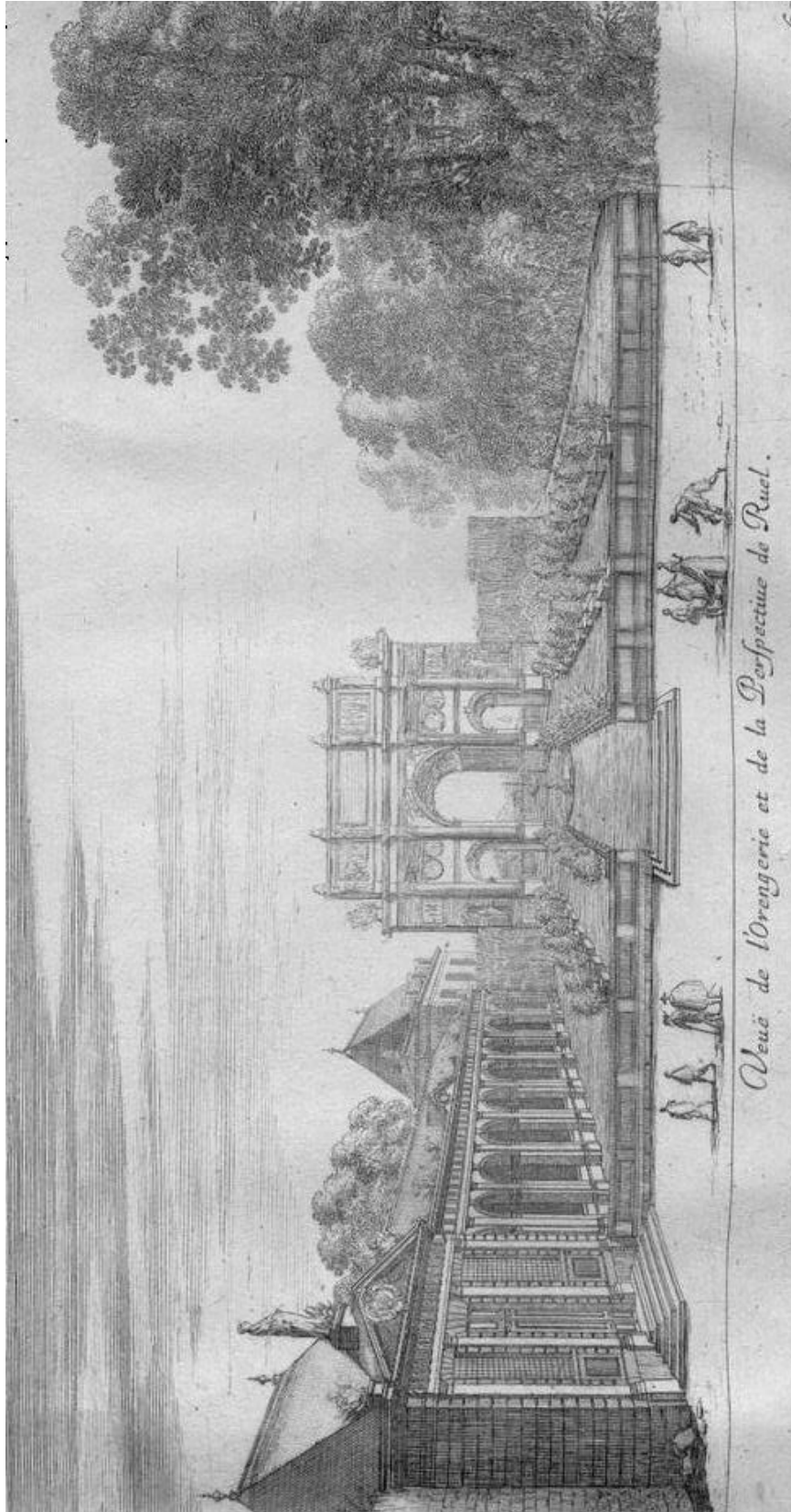
4.11

A. Herrocks, Frontispiece to Nicholas de Bonnefons, *The French Gardiner*, trs. by John Evelyn (1658) © Author.

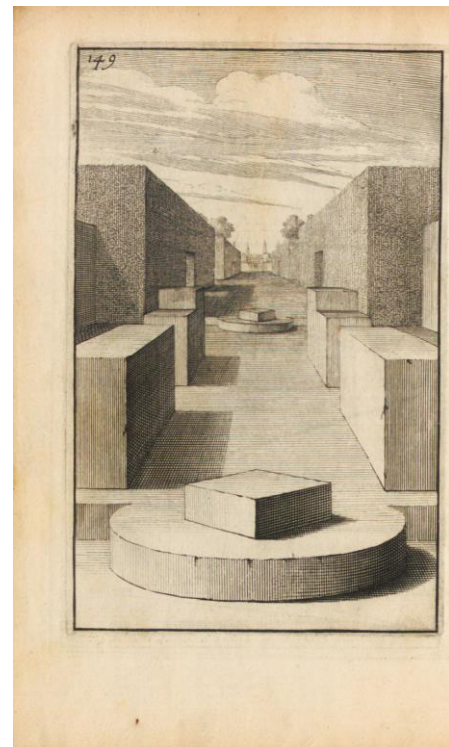
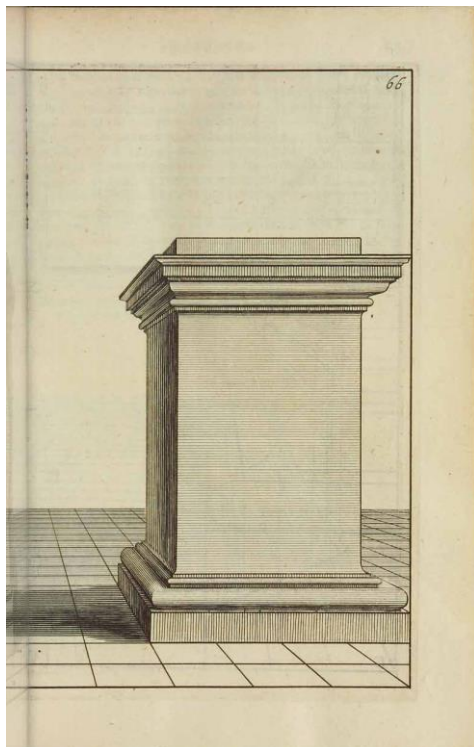
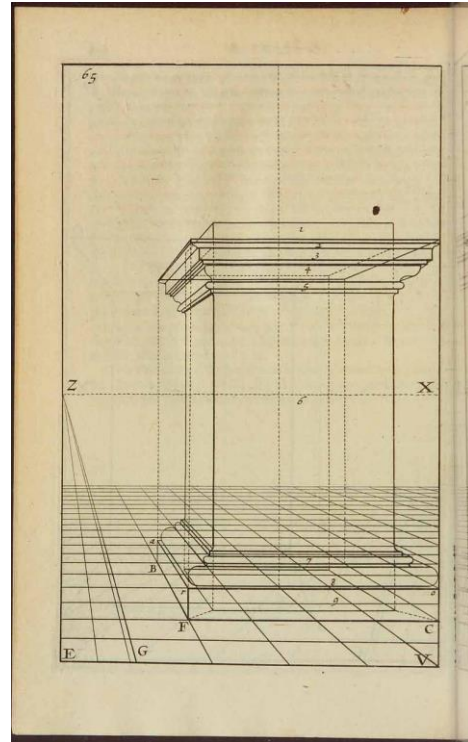
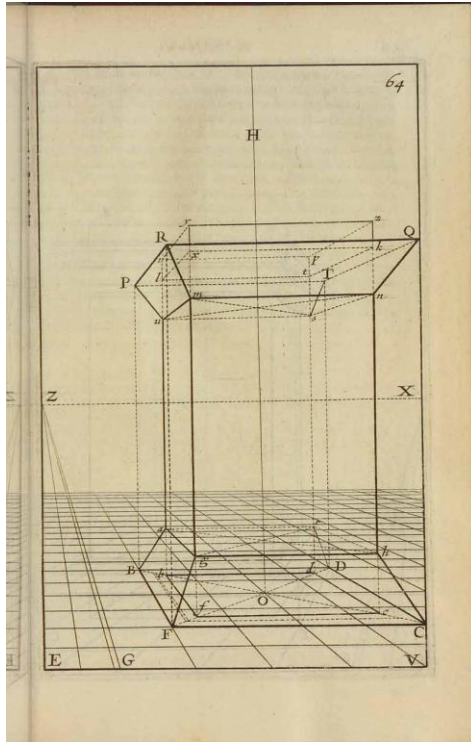


4.12

Abraham Bosse: 'Les Perspecteurs' from *Manière universelle* (1648), Plate 2, p. 60
© gallica.bnf.fr, Bibliothèque Nationale de France.



4.13 The *trompe l'oeil* Arch of Constantine, painted by Jean Lamaire at the Duc de Richelieu's, Chateau de Rueil, near Paris. Original held in *Cabinet des Edtampes, Bibliothèque Nationale*, Paris, reproduced in Luke Morgan, "The Early Modern 'Trompe L'Oeil' Garden" (2005), p. 287.



4.14 Abraham Bosse, plates 64-66, and 149 from *Manière universelle*, (1643)
 © gallica.bnf.fr. Bibliothèque Nationale de France.

Chapter 5: The Enchanted Garden: Operational Acoustic and Harmonic Cures.

This chapter addresses Evelyn's concern with music and sound in the garden, further exploring his conception of harmony and its manifestation in the Elysium. Music is not conceived only as a performative or compositional art, but as the discipline of cosmic harmonics, an important element of the seventeenth century's inheritance from the traditions of Renaissance Neoplatonic Hermeticism. The chapter develops around three experimental episodes from the Elysium – Evelyn's description of two artificial echoes and his extended account of the musical cure of spider bite – all of which he appropriates from the writings of Athanasius Kircher. Transported into the Elysium, these experiments form a nexus between musical harmonics (cosmic and human), mathematics and experiment. They are both predicated on the acceptance of a harmonious world, and presume to offer empirical evidence of that harmony – a harmony that implies the fundamental interdependence and connectivity of the parts of creation and the possibility of artistic participation in the creation of an order that encompasses both the garden and its occupants.

If the Divell had a body, Musick would certainly vanquish him: [...] whoever is a friend to Music is (therein) an enemy to Sin: nay some have not doubted to say, that to delight in Harmony was a morall signe of our Predestination; Sin having onely discompos'd all the consonances of man, even to the Separating of Soule and body.

John Evelyn, 'Tomus Tertius'¹

Introduction and Historiography

At the start of chapter XII of the *Elysium*, 'Of artifiical Echo's, Musick, & Hydraulick motions', Evelyn presents his readers with a description of hortulan bliss, describing the pleasures of a garden, as follows:

¹ Evelyn cites 'Malvezzi Davide Perseq' as his source, see 'Tomus Tertius', London, British Library, Evelyn Papers, Add 78330, fol. 72.

The tinctures of its flowers [...] are able to make all the most beautifull colours of the painter to blush for shame [...]; What artificial perfume, or most precious extract will compare with the Redolency of the purple Violet, the Orange, the Gesamine, & the precious Nard! and dos not the productions of {its} fruite entertaine the most ~~luxurious~~ {curious} [...] palat with the rich Melon & the juicy Grape [...] And when the *Poets* would describe the utmost delight of the touch, they present us with a Prospect of the *Golden Age*, when the [...] whole world was but one Garden, [...] in which we see the tendernesse of the Grasse & flowry bankes invites every body to lye downe, and enjoy the easinesse of those soft & fragrant beds whilst the murmuring of the {chrystall} streames and warbling of the musicall birds, charm'd them to repose, as if this last ~~alone~~ were alone able, to vanquish, & captivate all the rest of the senses.²

If the colours, perfumes, tastes and textures all contribute to the ‘enraptured’ repose to be found in the Royal Garden, Evelyn makes it clear that it is the sounds of the garden that are the primary cause of ‘enchantment’. Compared with the sights of the garden, its sounds are relatively fleeting, but for Evelyn they are an essential ingredient of the affecting potentialities of hortulan space. Sound, and more particularly music, is also form primary loci for the exploration of harmony, an experimental concern that forms the focus of this chapter.

Following his description of sensory delights, Evelyn goes on to preface his extensive treatment of music-making hydraulic automata with a passage that specifically addresses music (FIG. 1.7).³ He says that a garden should be furnished:

as *Pythagoras* has the Heavens {over it} with {its} harmonical proportions And if it {that} be true ~~that~~ {when} *Quintilian* writes [...] citing *Timayes* for the first author of *Muscik*, affirming it to be the most antient of all sciences and that *Strabo* tells us that *Philosophy & Musique* signified for so long a time the same thing: How can our Gardiner be ignorant of it, to accomplish ~~the~~ {his} Character: `Twas not then for nothing that the divine *Plato* held the soule it {selfe} to consist of Harmony, and that all the world was made by it & subsisted of it: [...]Musique [...] in consort with the Voice or it selfe, may upon all occasions give us the diversion of a pleasure so ~~divi-eelestial~~ {divine} & abstracted, [...] and greatly conducive{ng} to extasy & the most heavenly raptures, whilst [...] {our soules being drawn as it were out of our bodys} the waters seeme to dance out of the Fountaines’.⁴

² *Elysium*, pp. 225-252, (p.225).

³ *Elysium*, pp. 231-252.

⁴ *Elysium*, p. 231.

Locating the enchanting power of sound and music in Neopythagorean and Neoplatonic context, Evelyn declares that music operates in the human soul, and the harmony that resides therein is a reflection of the ‘harmonical’ proportions of the heavens. The ‘*Musick*’ that Evelyn evokes here is not only the performed, audible music made by his ‘Hydraulick motions’ or the human ‘Vocall and instrumental consorts’, that frequent the Elysium, but the unheard music of Pythagoras, the harmonic, mathematical proportioning of cosmos - the *musica mundana*.⁵

In the last chapter we established the importance that Evelyn attached to the manifestation of harmony in the carefully staged visual spectacle of the *Elysium*. Here we continue the discussion, initially through sound and music, although the topic ultimately expands beyond the boundary of sound. We approach the discussion through a presentation of three experiments detailed in the *Elysium* - two concern artificial echoes, the third concerns the musical cure of the bite of the tarantula spider. Each is derived from the works of the Jesuit polymath, Athanasius Kircher.⁶

The importance of Kircher as a source from which Evelyn derived many of his experiments and mechanical contrivances has not previously been recognised in full. In her brief overview of the *Elysium*, Therese O’Malley has pointed out that Evelyn owned Kircher’s *Prodomus Coptus Sive Aegypticus* and the *Magia Universalis Naturae et Artis*, a work by Kircher’s assistant and close collaborator, Gaspar Schotti (1608 – 1666).⁷ She does not, however, mention Evelyn’s citation of several other works by Kircher, the most relevant of which to the current argument

⁵ See also a long poem ‘...when Apollo’s golden haire | Are fan’d and frizels, in wanton ayres Of his owne breath: which married to his Lyre | Doth tune the *Spheares*, and make the heavens selfe look higher...etc’ *Elysium* pp. 263; Penelope Gouk, *Music, Science and Natural Magic in Seventeenth-Century England* (New Haven; London: Yale University Press 1999), p. 81; Manfred F. Bukofzer, *Music in the Baroque Era: From Monteverdi to Bach* (New York: W. W. Norton and Co, 1947), p. 370, p. 392; R. Wittkower, *Architectural Principles in the Age of Humanism* (New York: Norton, 1971, first published 1949), pp. 101-142.

⁶ cf. *Elysium*, pp. 226-231, p. 303-306, with Athanasius Kircher, *Musurgia Universalis, Sive Ars Magna Consoni et Dissoni in X. Libros Digesta. Qua Universa Sonorum Doctrina, & Philosophia, Musicaeque Tam Theoricae, Quam Practicae Scientia, Summa Varietate Traditur*, 2 vols (Romæ: ex typographia haeredum Francisci Corbelletti, 1650), vol 2, pp. 264 -266, and Athanasius Kircher, *Magnes: Sive de Arte Magnetica Opus Tripartitum, Etc.* (Romae, 1641), pp. 755-777.

⁷ Therese O’Malley, ‘Introduction to John Evelyn and the “Elysium Britannicum”’, in *John Evelyn’s “Elysium Britannicum” And European Gardening*, ed. by Therese O’Malley, and Joachim Wolschke-Bulmahn (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), pp. 9-33, (p. 19); Athanasius Kircher, *Prodomus Coptus sive Aegypticus* (Rome: 1636); Gaspar Schottti, *Magia Universalis Naturae et Artis* (Wurtzberg: 1658).

are his *De Arte Magnetica* and the *Musurgia Universalis*, for these are the sources of the experiments that we will be examining.⁸

O'Malley also notes Evelyn's inclusion in the *Elysium* of both the echoes and the musical cure of spider bite, characterising the latter as 'emblematic of the powers of certain harmonious proportions, which are the basis of musical structure in nature', a passing observation that prompted the direction of the current chapter.⁹ Beyond O'Malley's brief comments, no one has as yet devoted any attention to Evelyn's experiments in sound. By looking at these in some detail we can begin to characterise how Evelyn sought to understand and to work with the 'proportionable' harmony of the universe; how he sought to validate the Neopythagorean-Platonic tradition of cosmic harmonics through experiment; and how he sought to institute a harmony in the Elysium that ultimately transcends the boundaries of its particular expressions in any single sensory perception - be it hearing, vision, smell or touch. As we shall see, for Evelyn, colours correlate with sounds, and musical modes relate closely to poetic tropes, which in turn relate to the character of space. Each of these correlations is a manifestation of the broader all-embracing interrelatedness of cosmos, a structure which Evelyn seeks to validate 'experimentally' through his account of the spider bite cure, an operative manipulation of the 'sympathetic' and 'antipathetic' relations that he understood to exist between particular beings. The 'Noble experiment' in the cure of tarantula bite is rooted in the traditions of Renaissance Neoplatonism (transmitted to Evelyn via Kircher's writings), but, as we shall see, whilst Evelyn's acceptance of the Neoplatonic conception of the harmony of cosmos is not in doubt, his appropriation of the tradition appears to have been nuanced by experimentalist critiques, including that of Francis Bacon.

The chapter is structured to address context first, briefly considering: the seventeenth-century reception of the tradition of cosmic harmony through the writings of the Hermetic authors Dee, Fludd and Kircher; the challenge to the tradition mounted by Francis Bacon; and its revalidation through experiment in the

⁸ Kircher, *Magnes* (1641) cited *Elysium*, p. 214; Athanasius Kircher, *A. Kircheri ... Oedipus Ægyptiacus; hoc est, Universalis Hieroglyphicæ Veterum Doctrinæ Temporum ...* (Romæ: Ex Typographia V. Mascardi, 1652- 1655), cited *Elysium*, p. 185; Athanasius Kircher, *Obeliscus Pamphilius hoc est, Interpretatio...Obelisci Hieroglyphici...* (Rome, 1650), cited *Elysium*, p. 213; Athanasius Kircher, *Ars Magna Lusitica et Umbrae in Mundo* (Rome, 1646), cited *Elysium*, p. 215.

⁹ O'Malley, p. 24, p. 30.

work of Marin Mersenne (1588 – 1648). This provides a theoretical field in which we can position Evelyn and against which we can read his Kircherean experiments. At the end of the chapter we broaden the discussion to encompass the multisensory and transcendent harmonies of the garden.

Context: Cosmic Harmonics and Acoustic Experiment

The primary work referred to in establishing the contemporary context of ‘musical’ harmony is Penelope Gouk’s book, *Music, Science and Natural Magic in Seventeenth-Century England*.¹⁰ In this work, Gouk details the complex interrelations of traditional cosmic harmonics, with performed and composed music, and with experiment in sound. She explains how, during the half-century that preceded the establishment of the Royal Society, the Neopythagorean-Platonic tradition of the harmony of the world was further developed from its Renaissance roots, but was also contested as new roles for mathematics were developed in relation to the experiment and to physics. Gouk uses Dee, Fludd, Kircher and Schotti, to represent the more traditional ‘magical’ aspects of the tradition that were transmitted to the later seventeenth century (Fludd depends on Dee, whilst Kircher integrates both Dee and Fludd). She uses Francis Bacon and Marin Mersenne, amongst others, to represent the early ‘experimentalist’ critique of that tradition.¹¹

¹⁰ Gouk, see n. 5; for Hermetic Neoplatonic tradition see D.P. Walker, *Spiritual and Demonic Magic from Ficino to Campanella, Magic in History* (Pennsylvania: Pennsylvania State University Press, 2000), pp. 25-29; Frances Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge, 2002, [1964]), p.161-175; for experimentalist transformation see Paolo Manoscu, ‘Acoustics and Optics’ in, *Early Modern Science, The Cambridge History of Science*, vol 3, ed. by Katherine Park and Lorraine Daston (Cambridge: Cambridge University Press, 2006), pp. 596-630; Alexandre Koyré, *From the Closed World to the Infinite Universe* (Baltimore; London: Johns Hopkins University Press, 1957); Paolo Rossi, *Philosophy, Technology, and the Arts in the Early Modern Era*, trs. by G. Feltrinelli (New York, Evanston, London: Harper & Rowe, 1970), pp. 100-136; John Henry, *The Scientific Revolution and the Origins of Modern Science*, 3rd ed. (Basingstoke: Palgrave Macmillan, 2008), pp. 18-32; Eduard Jan Dijksterhuis, *The Mechanization of the World Picture: Pythagoras to Newton*, trs. by C. Dickshoorn (Princeton: Princeton University Press, 1961), pp. 287-491.

¹¹ For Dee, see Gouk, p. 110, pp. 74-79, pp. 85-88; for Fludd, see Gouk, p. 88, pp. 95-101, pp. 110-111, pp. 146-151; for Kircher, see Gouk, pp. 96-98, pp. 101-111; for Schotti, see Gouk, pp. 107-111; for Bacon, see Gouk, p. 110, pp. 157-171; for Mersenne, see Gouk, pp. 171-176; for Fludd’s dependence on Dee, see Frances Yates, *Theatre of the World* (London: Routledge & Kegan Paul, 1969), pp. 46-59; for Kircher’s dependence on Fludd and Dee, see Joscelyn Godwin, *Athanasius Kircher’s Theatre of the World* (London: Thames & Hudson, 2009), p. 171, p.177; p. 280, p. 282.

To summarise, Dee, Fludd and Kircher all employ the image of a musical instrument to represent the fundamental harmoniousness of the cosmos.¹² Thus (quoting a primary authority on Dee, Nicholas Clulee), for Dee the cosmos is a lyre:

whose harmonious relation of notes and chords best exemplifies the way in which the infinite variety of the parts of the universe are interrelated among themselves in accord and unity, so that occurrences in one part influence all other parts through sympathy, or consonance, and antipathy, or dissonance.¹³

For Dee, harmonious proportion is embodied in audible sounds, whilst the ‘meruailous Harmonie, of *Pythagoras*’ - the transcendent, inaudible, immaterial mathematical proportioning of cosmos - is available only to the mind, through mathematics. Music touches ‘a certaine Meane, and *Harmonious Spiritualitie*’ in man, which mediates between the grossness of bodily perception and the purity of intellection.¹⁴

Fludd, similarly, envisages the cosmos as a musical instrument, in his case a lyre-like monochord. The famous diagrams, which appear in Fludd’s *Utriusque Cosmi Historia*, give expression to the musical structure common to both microcosm and macrocosm.¹⁵ In one diagram, Fludd shows the monochord occupying the central axis of the musically proportioned cosmos – it reaches from the heaven to earth and the spaces between the planetary orbits are ordered according to the primary musical intervals (FIG. 5.1).¹⁶ In another he shows the musical string reaching from crown to feet of the human microcosm, and inscribes the same simple arithmetic musical proportions over the human frame, setting the figure against the cosmic backdrop of the musically proportioned world (FIG. 5.2).¹⁷ The string

¹² Gouk, p. 87; p. 98; p. 105.

¹³ Nicholas H. Clulee, *John Dee’s Natural Philosophy: Between Science and Religion*: Routledge, 1988), pp. 43-44, quoted in Gouk, p. 87.

¹⁴ John Dee, ‘Preface’ to Euclid, *The Elements of Geometrie of the most ancient Philosopher Euclide of Megara*, trs. by H. Billingsley (London: John Daye, 1570), p. bij verso.

¹⁵ Robert Fludd, *Utriusque Cosmi Majoris Scilicet et Minoris Metaphysica Atque Technica Historia in Duo Volumina Secundum Cosmi Differentiam Divisa* (Oppenheimii; Francofurti, 1617); for general comment see Jocelyn Godwin, *Robert Fludd: Hermetic Philosopher and Surveyor of Two Worlds* (London: Thames and Hudson, 1979), pp. 42-53; Ursula Szulakowska, *The Alchemy of Light: Geometry and Optics in Late Renaissance Alchemical Illustration* (Leiden: Brill, 2000), pp. 167-182; Yates (1969), pp. 42-79.

¹⁶ Fludd (1617), Tractatus I, Book III p. 90.

¹⁷ Fludd (1617), Tractatus I, Book VIII, p. 275.

represents the '*spiritus mundi*', the agent that links the parts of the cosmos one to another, and which binds the body and soul of man together. As Fludd says:

the wonderful harmony of these two extremes is brought about by the Spiritus Mundi, the limpid spirit, represented here by a string. It extends from God to the Earth, and participates in both extremes. On it are marked the stages of the soul's descent into the body, and its re-ascent after death.¹⁸

For Fludd, when human 'medical spirits' and the spirit of the world correspond, harmony between body and soul result. This is his rationale for the healing power of music.

Kircher's primary treatment of the harmony of the world is found in his *Musurgia Universalis*, the book from which Evelyn derived his echo experiments.¹⁹ In the tenth and final book of this work, Kircher emblematises the harmonious creation through the image of a 'cosmic' organ, which has six registers, each one representing a day of the creation (FIG. 5.4).²⁰ As Gouk says, Kircher saw the world as 'a network of correspondences which linked the different parts of the natural world' – a network of unseen or 'occult' forces, which could be manipulated to bring about 'predictable effects'.²¹ This, as we shall see, is also the underlying rationale that also informs Evelyn's account of Kircher's experiments, though there is some difference in presentation, probably as a result of Bacon's influence.

Francis Bacon was an early critic of the Neopythagorean-Platonic position represented by Dee, Fludd and Kircher.²² He did not deny the reality of the experience of harmony, nor the importance of proportion in manifesting harmony, neither did he dismiss the affective and healing powers of music. But he but argued against the idea that arithmetic ratio could be useful in understanding either music, or the structuring of cosmos and, as a correlative, dismissed the idea of attributing any intrinsic efficacious potency to number itself.²³ Thus he writes:

¹⁸ Fludd, pp. 274-275, see translation in Godwin (1979), p. 46.

¹⁹ Kircher, *Musurgia* (1650), pp. 264-266; Evelyn writes: 'Se: Kerker: Tom: 2: p: 264.', *Elysium*, p. 228.

²⁰ Kircher, Liber X, Tomo II, *Musurgia* (1650), pp. 364-462; Gouk, p. 149, p. 145.

²¹ Gouk, p.103.

²² Gouk, p. 110, pp. 74-79, pp. 85-88; William H. Huffman, *Robert Fludd and the End of the Renaissance* (London: Routledge, 1988), pp. 171-173.

²³ Gouk, p. 95, p. 167; Walker, pp. 200-201.

It should be noted (the rather lest any Man should think, that there is any thing in this *Number of Eight*, to create the *Diapason*) that this Computation of *Eight*, is a thing rather received, than any true Computation.²⁴

Bacon was famously dismissive of the idea that the order of nature was intrinsically mathematical - for him mathematics was a secondary concern, 'attendant' on physics.²⁵ Thus, in a comment which referred to John Dee's 'Mathematical Preface', Bacon wrote:

that *Pythagoricall & Mysticall Arithmetique*, which is begun to be revived out of *Proclus*, and some remaines of *Euclide*, is a spacious field of speculation: *For such is the nature of Man, that if it be not able to comprehend solids, it wasts it selfe on unprofitable niceties.*²⁶

Fludd's work on the harmony of the world attracted similar condemnation from Bacon, though he was never named in the Lord Chancellor's attacks, and no doubt Kircher would have received similar treatment.²⁷ Bacon proposed that - rather than indulging in 'wasteful' speculative arithmetical rationalisations of acoustic phenomena - music, harmony and sound be approached through an experimental programme. Effectively diverting attention away from the investigation of musical proportionality and towards a broader field, which he referred to as the 'Acoustique art', Bacon proposed experiments in the production of sound; its general properties; its 'majoration' (how it can be made louder or propagated); how sound can be conveyed over distance; and curious and unusual sound effects, such as echoes.²⁸ He detailed this programme in the *Sylva Sylvarum*, and more succinctly in the experiments of the *Salomon's House*, where the Fathers, '*practise and demonstrate all Sounds*', including:

²⁴ Francis Bacon, *Sylva Sylvarum*... 6th ed. (London: J. F., for William Lee, 1651), p. 30 item 104. Evelyn owned this edition, his copy is currently held in the British Library, Eve.b.30.

²⁵ Sachiko Kusukawa, 'Bacon's classification of Knowledge' in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996) pp. 47-74, (pp. 59-60); Dijksterhuis, p. 401; Perez Zagorin, *Francis Bacon* (Princeton, N.J.; Chichester: Princeton University Press, 1998), p. 65.

²⁶ Francis Bacon, 'Of the great Appendix of Natural Philosophy (Mathematics)' in *Of the Advancement and Proficiency of Learning; or, the Partitions of Sciences ...* (Oxford: Printed by Leon: Lichfield, printer to the University, for Rob: Young & Ed: Forrest, 1640), pp. 172-175, (p. 174); Gouk, p. 94, p. 160.

²⁷ Huffman (1988), pp. 171-173.

²⁸ Gouk, pp. 157-170.

*diverse tremblings and Warblings of Sounds, which in their Original are Entire. We represent and imitate all Articulate sounds and Letters, and the Voices and Notes of Beasts and Birds. We have certain Helps, which set to the Eare do further the Hearing greatly. We have also diverse strange and Artificial Ecchoes Reflecting the Voice many times, and as it were tossing it: And some that give back the Voice Lower than it came, some shriller, and some Deeper...*²⁹

Other seventeenth-century experimentalists were less sceptical than Bacon of the validity of the tradition of cosmic harmony, but nonetheless sought to subject it to a rigorous programme of experimental investigation. Marin Mersenne is the most important figure in this regard. Inspection of the ‘Tomus Tertius’ reading notes reveals that Mersenne’s work was known to Evelyn in the digested form offered by Kircher in his *Musurgia Universalis*.³⁰ The thrust of Mersenne’s work was to uphold the tradition of cosmic harmony, by offering experimental evidence, gathered through his detailed measured observations of the vibration of musical strings. In his early work, he accepted ‘the Platonic idea that consonances simply arise from the correspondence between the numbers representing musical ratios and the archetypal ratios inherent in the soul’, a position that is reminiscent of Fludd, but despite this apparent congruence, Mersenne was highly critical of Robert Fludd.³¹ For Mersenne, Fludd’s mystically predicated discussion of cosmic harmonies had no other foundation than his ‘imagination’, whereas his own discussion and validation of cosmic harmony was based in valid observations of the world.³² The numerous, considerably less exacting and precise ‘experiments’ that Kircher gathered together in his lavishly illustrated publications also performed a validating role, though, in contrast to Mersenne, Kircher enthusiastically accommodated, and even plagiarised, Fludd’s work.³³

²⁹ Bacon, *Sylva* (1651), pp. 29-47, pp. 49-66; Francis Bacon, *New Atlantis a Work Unfinished / Written by the Right Honourable Francis, Lord Verulam* ([London?]: 1658), p. 31.

³⁰ Mersenne appears in the notes Evelyn made from this work, in Add 78330, fol. 135; for influence of Mersenne on Kircher, see Gouk, p. 105.

³¹ Gouk, p. 173.

³² Gouk, p. 170-178; Peter Dear, *Discipline & Experience: The Mathematical Way in the Scientific Revolution* (Chicago; London: University of Chicago Press, 1995), pp. 132-136; pp. 174-175.

³³ For a full bibliography of Kircher’s writings see, Godwin (2009), p. 289; for commentary on Kircher’s experiments see Godwin (2009); Paula Findlen, ‘Introduction: The last man who knew everything...or Did he?’ in *Athanasius Kircher: The Last Man Who Knew Everything*, ed. by Paula Findlen (New York; London: Routledge, 2004), pp. 1-50; Carlos Ziller Camenietzki, ‘Baroque Science between the Old and the New World’, in *Athanasius Kircher: The Last Man Who Knew Everything*, ed. by Paula Findlen (New York; London: Routledge, 2004), pp. 311-328.

So where did Evelyn stand on these issues? He certainly had some awareness of all of the authors summarised above, but given the limited evidence available, it is difficult to see precisely what he made of these sources.³⁴ Consequently, what follows is somewhat speculative. Given his enthusiastic evocation of Pythagoras and Plato in the *Elysium*, and given the ‘philosophical’ status he ascribes to music, Evelyn’s seems to have been less sceptical than Bacon of the received tradition that sought to describe musical harmony in terms of mathematical ratio. It also seems probable, however, that he was influenced by Bacon’s warnings about the dangers of the ‘spacious field of speculation’ offered by the self-referential ‘mathematical’ system building common to Dee and Fludd (not ‘self-referential’ so much as mystically revealed to its proponents). If the harmony of the world and its final cause in God’s will was not in doubt, it seems that, for Evelyn, the understanding of the specifics of this ordering were in need of further investigation, for nowhere in his work do we find anything resembling the proportional systematisations of macrocosm and microcosm so prominent in Fludd. The nearest that Evelyn comes to the school of Fludd is in his adaptation of Davidson’s cosmic scheme in the Harvard Furnace drawing and, with the exception of the ascending scale of seven numbers up the left hand side of the image, Evelyn entirely omits the mathematical elements of Davidson’s thinking (FIG. 2.4). For Evelyn it seems that the process of enquiry into the harmony of the world was not to lead from the purity of mathematical speculation to the phenomenal world, but rather from the fragments of ‘experimentally’ observed phenomena to an eventual deeper understanding of harmonic order. As Evelyn notes in his ‘Tomus Tertius’: ‘What it is that makes harmony to please is a very hard thing to find out’, but progress could be made, through experiment.³⁵

Evelyn may have been inspired by Bacon’s recommendations for experiments in acoustics, which appear not only in the *New Atlantis*, but also in more

³⁴ Fludd appears as an authority on ‘perpetual motions’ in the *Elysium*, p. 252; Evelyn records notes from ‘Dr. R: Flou: De Philos: Moysaica’, i.e. Robert Fludd, *Philosophia Moysaica. In qua Sapiencia et Scientia Creationis et Creaturarum Sacra Vereque Christiana ... Ad Amussim et Enuceate Explicatur*: Goudæ, 1638), in Add 78330, fol. 88^v; for Dee see Chapter 4 of this thesis.

³⁵ Against this observation Evelyn cites ‘Fracastorius Confessei p. 170’, Add 78330, fol. 93.

detail in the *Sylva Sylvarum*, for he owned a copy of this work.³⁶ However, Kircher's lavishly illustrated works were an equally possible inspiration, and had the added advantage of providing exemplary experiments, which addressed a range of concerns as wide as those suggested by Bacon. In an atmosphere of flamboyance and wonder, the prodigiously productive Kircher constructed, described and illustrated hearing trumpets, speaking tubes, echoes, loud speakers, secret listening devices, both in his books and in the laboratory-museum that Evelyn had visited in Rome in 1644 (FIG. 5.3).³⁷ Kircher investigated the mechanisms of human speech and animal sound; the design of musical instruments, and automata, as well as curious sonic phenomena, such as sympathetic resonance, and the healing powers of music, though never with the single minded exactitude of Mersenne.³⁸ Evelyn freely absorbed this material into his *Elysium*, but he also turned to Kircher as a primary authority on acoustics and sound in general. He mentions another Jesuit, Giuseppe Biancani (1566 – 1624) as an authority on these issues, but, in his own words, it is to 'Kerkeres [...] we [...] {aknowledge} infinite obligation'.³⁹

There is one aspect of Kircher's work which provides a marked contrast to Baconian approaches and which deserves mention here, for it is not a characteristic shared by Evelyn's writing. In presenting his work, Kircher always sought to integrate the plenitude of worldly 'appearances' into an overarching, complete and coherent system. This was not a question of searching for universal 'laws' of nature, but rather a drive to accommodate discrete particular occurrences within a harmonious and all-embracing system of sympathetic and antipathetic correspondence. In the words of Paula Findlen, Kircher 'took delight in finding unlikely connections in the service of a unified grand theory of absolutely everything', the details of which he described again and again in his numerous works. In this he was not atypical of the mid-seventeenth century.⁴⁰ A greater contrast with Bacon's emphasis on the accumulation of fragmentary observation and

³⁶ Evelyn owned Francis Bacon, *Sylva Sylvarum...* 6th ed. (London: J. F., for William Lee, 1651), British Library Call number Eve.b.30.

³⁷ *Diary*, vol II, 8th November 1644, p. 230.

³⁸ Godwin (2009), pp. 157-178.

³⁹ *Elysium*, p. 230; Evelyn's 'Tomus Tertius' reading notes from Kircher address acoustics, see Add 78330, fols. 134^v-135^v.

⁴⁰ Findlen, pp. 1-50 *passim*, (p. 8); On 'laws of nature', see Lynn S. Joy, 'Scientific Explanation from Formal Causes to Laws of Nature' in *The Cambridge History of Science*, vol 3, pp. 70-106; Zagorin, p. 95.

the deferral of theorisation, could scarcely be imagined.⁴¹ The prioritisation of empirically gathered factual particulars is an aspect of Bacon's thought that Evelyn embraced (we consider this further in the next chapter), but it did not overturn his interest in, and respect for, the tradition of the harmony of the world.

In Evelyn's retelling of Kircher's experiments in the *Elysium* (particularly the spider bite cure), we find a muted echo of Kircher's more fulsome articulation of a world held together by sympathetic correspondences, which may be manipulated in operational practice. This is not his only articulation of this way of thinking. Another example is found in the evocation of medical 'Signatures' in the theoretical chapter, entitled 'Of the Fire', which appears in the first book of the *Elysium*. A Signature was understood to be a sign, purportedly set by God in Nature that indicates the curative potentials of some object through the resemblance that it bears to the part of the human body it is supposed to treat.⁴² The classic example is the walnut and its resemblance to the brain. When Evelyn writes of Signature in the *Elysium*, he places the concept in an explicitly Hermetic context, writing:

[The] Constellations, whose number and lustre we so much admire { & contemplate } are no other that so many receptacles in which the universall Soule as an *homogeneous* Substance, assumes a most perfect *Idea* before it descends to be corporified in the particular matrices of the inferiour Elements, from whence we come to comprehend that abstruse *Maxime* of the *Smargadine* Table: *Nihil est Sup{inferius, quod non fit superius, and è contra, that every thing hath its star and Signature, which knowingly applied reflect {produce} wonders as the learned Gaffarel { & others } has{ve} shewed in stupendious instances...and effects so considerable, that did men, and especially, Gardiners well examine they would emerge the most accomplished physitians in the World.*⁴³

Once again the agent of correspondence is the Universal Spirit – or 'Soule' in this context.⁴⁴ If Evelyn shows none of Kircher's drive to complete a detailed

⁴¹ Paolo Rossi, 'Bacon's Idea of Science', in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996), pp. 25-46, (p. 33); Zagorin, pp. 74-128.

⁴² See also Appendix 4.

⁴³ *Elysium*, p. 42.

⁴⁴ In connection with Signatures Evelyn cites Jacques Gaffarel, *Unheard of Curiosities Concerning the Talismanical Sculpture of the Persians ...* trs.by E. Chilmead (London: G. D. for H. Moseley, 1650) in which work *Signature* cures arise from sympathetic 'resemblance' between parts of the creation see, Juliet Odgers, 'Resemblance and Figure in Garden and Laboratory: Gaffarel's Influence

systematisation of the whole cosmic network of correspondences, the whole is not banished from the picture. Rather, in the *Elysium*, harmony and correspondence, sympathy and antipathy are assumed characteristics of the world, but the articulation of the whole system is held in suspense, pending validation and through the experimental programme.

The Experiments

(i) The ‘Heptaphone echo’

In the *Elysium*, Evelyn describes four acoustically tempered artificial ‘Echoes’.⁴⁵ One is the open-air auditorium from the ‘*Thulleries Garden*’, the terminus of the central axis, mentioned in the last chapter and seen clearly on Gomboust’s *Plan de Paris* (FIGS. 4.3, 5.5). Evelyn describes this as a place ‘which rarely suits those beautiful Ladys which that frequent it’, and where, ‘without much stresse of voice [one] mainetaines an Heroick Verse well’.⁴⁶ The Tuileries echo can easily be imagined to serve as a formal theatrical setting, comprising as it does a semi-circular enclosing wall, planted with lime trees and furnished with benches. Though there is a theatrical element to the other echoes that Evelyn describes, they have the character more of experimental curiosities. One is an elliptical ‘*Whispering-place*’, which Evelyn credits to ‘*Dr: Browne of Norwich*’, the famous author, Sir Thomas Browne with whom he was engaged in correspondence from 1659 (FIG. 5.5);⁴⁷ but Evelyn devotes considerably more space and discussion to the two echoes that he derives from Kircher’s *Musurgia Universalis*. He includes very faint marginal sketches of these constructions, which clearly follow Kircher’s original illustrations, though slightly inaccurately. He also includes ‘explanations’ of the principles that support the acoustic phenomena they supposedly produce (FIG. 5.6A, 5.6 B, 5.6 C).⁴⁸

on John Evelyn’, in *Jacques Gaffarel: Between Magic and Science.*, ed. Hiro Hirai (Rome, Pisa: Serra, 2014), pp. 85-109.

⁴⁵ *Elysium*, pp. 226-230.

⁴⁶ *Elysium*, p. 228.

⁴⁷ *Elysium*, p. 229.

⁴⁸ *Elysium*, p. 225-228; cf. Kircher, *Musurgia* (1650), pp. 264-266.

Evelyn first describes the ‘*Heptaphone echo*’. This consists of a straight, smooth wall with seven buttresses emerging from it, spaced so that if an experimenting ‘Echotect’, to use Evelyn’s word, pronounces a verse towards the construction, his voice will be returned to him in distinct echoing waves.⁴⁹ Evelyn explains that the buttresses should be placed so that ‘the perfect reddition of a syllable or word’ is reflected back. He describes a trial and error method for establishing their placing, ‘for there is no mathematicall & definite {certain} distance to be otherwise defined’.⁵⁰ The method involves pronouncing a verse at the wall, whilst advancing on it and retreating from it. Where a single syllable word is returned to the Echotect, the place is marked and the distance from the wall measured. The process is repeated for a double syllable word, and for three, four, five, six and seven syllables. Each time a marker is placed to record the correct spot. How exactly this is supposed to be carried out is not a topic that Evelyn approaches, but clearly the process would have required the support of a patient brick layer and demolition team. Evelyn includes Kircher’s table of approximations for the placing of the buttresses, explaining that ‘the proportions being altogether uncertaine, *mechanically* explored ~~will~~ {may} ~~sometimes~~ {probably} resemble this Accompt’:

Monosyllable -----	100 foote
Dissyllab: -----	190 “
Trisyllab: -----	270 “
Tetrasyllab:-----	350 “
Pentasyllab; -----	430 “
Hectasyllab: -----	515 “
Heptasyllab: -----	600 “ ⁵¹

The whole process has obvious similarities to Evelyn’s method for sizing the length to breadth ratio of an avenue to attain a suitably harmonious effect in perspective. His table of suggested measures serves as a preliminary guide to construction, but trial and error is left to settle the case.

⁴⁹ *Elysium*, pp. 226-227, (p. 226).

⁵⁰ *Elysium*, p. 226.

⁵¹ *Elysium*, p. 226.

Evelyn thought the echo both intellectually stimulating and affecting, for, as he writes, an echo ‘renders ~~the~~ a place (by we know not what kind of ~~magick~~ {charm}) seeme more sollemne & majesticall’.⁵² His *Heptaphone* echo characteristically combines experiment with theatricality and he incorporates hints towards interpretation of the echo phenomenon in the design of the construction. It is surely not accidental that, rather than proposing say a ninefold, or sixfold echo, Evelyn follows Kircher in demonstrating a *sevenfold* echo, given the cosmic significance attached to the number seven and the ‘musical’ manifestation of this in the seven notes of the diatonic scale.⁵³ Evelyn even supplies a seven syllable phrase for the Echotect to declaim at the buttresses – ‘*clamore amore re*’. The words are inscribed faintly along the top of his sketch (FIG. 5.6 B). The echo was, in effect, to serve as the locus of a performance celebrating the ‘musical numbers’ of poetic rhythm, inherent in the verse and ‘complicated’ by the echoing contrivance. It is a theatrical conceit developed around the inherent ‘musical’ proportionality of Nature.⁵⁴

(ii) The ‘Polyphon Circle’

Evelyn calls his second Kircherean echo the ‘*Polyphon Circle*’ (FIG. 5.6 C).⁵⁵ The implied method of design, in this case, is entirely different from the trial and error used in establishing the Heptaphone echo, for the setting out of the structure is predicated on a geometric formula, which is in turn presented as a model for the movement of sound around the construction. Following Kircher, though somewhat inexactly, Evelyn’s illustration shows supposed lines of ‘vocal raies’ as they proceed from the mouth of the experimenter (standing at point A – the letters are the same on Kircher’s drawing and Evelyn’s copy) and bounce around the sonic device from surface to surface. Evelyn offers ‘16 *Element: {Euclid} L: 4*’ as a guide to the geometries entailed, saying: ‘the Angles in a semicircle being right, the lines drawn

⁵² *Elysium*, p. 225.

⁵³ Gouk, p. 92.

⁵⁴ On poetic numbers, see S. K. Heninger, *The Subtext of Form in the English Renaissance: Proportion Poetical* (University Park, Pa.: Pennsylvania State University Press, 1994), pp. 69-118, (pp. 92-93).

⁵⁵ *Elysium*, pp. 227-228.

from G to the sonorous lines (drawne at A) shall be perpedicular...'.⁵⁶ Whilst this formula tallies with the layout of the slanted, reflecting, buttress-like walls (always assuming that point A is on the circumference of the circle, which is not the case in Evelyn's inaccurate rendition), the idea that it also models the trajectory of the supposed 'vocal raies', is a contemplation on an imagined phenomenon. Evelyn proposes that the 'raies' are reflected back to the speaker from the slanted walls, just as mirrors placed in the same positions would reflect a visual image of the Echotect back to himself. The logic of the explanation rests on the idea that light and sound behave in essentially the same way and that vocal 'raies' can be understood according to the optical geometrics of mirrors - sound 'raies' behaving according to 'Catoptricks [...] & the operations of ~~G~~s *Specular* reflections [...] which multiply by succession', in Evelyn's words.⁵⁷ This mistaken proposition was common during the seventeenth century.⁵⁸ The '*Polyphon Circle*' becomes no more convincing in the transcription from Kircher's *Musurgia* to the pages of the *Elysium*. As Jocelyn Godwin comments on Kircher's invention, it is a 'step from experience to fantasy' - it could not possibly have worked.⁵⁹

Evelyn is quite vague in presenting the mathematical model of the supposed phenomenon, and makes mistakes in his appropriation of Kircher.⁶⁰ But despite these errors, it seems that in relating Euclid's theorem to the 'admirable properties of the motion of the figure, expressing the Langour {& decaidance} of the Sound' Evelyn is attempting a mathematical 'explanation' of the behaviour of the sound, however incompetent the mathematics and however fictional the phenomena.⁶¹ Precisely how he might have understood the mathematics to relate to the supposed acoustic phenomenon is, however, unsure. The interface between 'experiment' and

⁵⁶ *Elysium*, p. 227.

⁵⁷ *Elysium*, p. 229, p. 225.

⁵⁸ Oona Leganovic, 'The Analogies of Light and Sound in Athanasius Kircher's *Phonurgia Nova* (1673)', (Masters thesis, Technische Universität Berlin), <<http://www.playinprogress.net/kram/Magisterarbeit.pdf>> [accessed 06/10/ 2015]; Ulf Scharlau, 'Zur Einführung in Athanasius Kircher *Musurgia Universalis*', in *Athanasius Kircher, Musurgia Universalis, Reprografischer Nachdruck der Ausgabe Rom 1650* (Hildesheim, New York: Georg Olms Verlag, 1970), pp. i-xi.

⁵⁹ Godwin (2009), p. 164.

⁶⁰ Evelyn mistakenly writes that the lines GD.EF.HI.KL are 'perpendicular to the sonorous [lines] described from A, the Echos founded on them, dos likewise repercusse the Voice to A'. These lines are *not* perpendicular to the supposed 'sonorous' lines from A. He must mean the lines GD.GF.GF etc., see *Elysium* p. 227.

⁶¹ *Elysium*, p. 228.

mathematics was an area of thought undergoing considerable and rapid transformation at this date.⁶² Whilst it is tempting to accommodate Evelyn's intentions to our modern understanding of experiment as the testing of hypothesis in search of universal mathematically described laws of nature, it would be anachronistic to do so.⁶³ Kircher, for example, was quite averse to the idea that there might be anything as limiting as a 'law' of nature, and regarded mathematical expression of any natural occurrence as an 'artifice, a piece of *a posteriori* knowledge that was not connected to the natural world itself.'⁶⁴ It is possible that Evelyn presented his literary *Polyphon* circle as a locus for the discussion of this interface of mathematics and experiment, this time served up without the dressing of poetic harmonics which accompanied the Heptaphone echo, but he left no extended comment on how he understood the two concerns to intersect, so the situation remains ambiguous.

(iii) Tarantula

Given the exceedingly small chances of encountering a tarantula spider in seventeenth-century Britain, Evelyn's inclusion of the '*Tarantella*' cure in his *Elysium Britannicum* requires some explanation, for clearly his account of this 'Noble experiment' would have been of no immediate use to most of his readers.⁶⁵ It seems that he included it for its 'philosophical' potentials. The fact that his account occupies fully four manuscript pages and is by far the most elaborate account of any experiment contained within the pages of the *Elysium*, attests to its importance.⁶⁶ Evelyn gives his reader a sample '*Antidotum Tarantulæ*' tune in three part harmony; pen drawings of tarantulas and descriptions of the physiological mechanism of the cure, which makes recourse to Kircher's theory of universal 'magnetisme affecting the fantasy & sympathizing with it', along with other observations on the bodily response to sound (FIG. 5.7).⁶⁷ The account comes shortly after Evelyn's statement

⁶² Dear, particularly Chapter 6, 'Art, Nature, Metaphor: The growth of Physico-Mathematics', pp. 151-179.

⁶³ Zagorin, p. 90.

⁶⁴ Camenietzki, p. 320.

⁶⁵ *Elysium*, pp. 303-306.

⁶⁶ London, British Library, Evelyn Papers, Add 78342, fols. 248-252.

⁶⁷ cf. Kircher, *Magnes* (1641), pp. 755-777, with *Elysium* pp. 303-306; *Elysium* p. 306.

that he ‘pretend{s} truth & usefull information onely’, so it is not possible to dismiss the *Tarantella* as an entertaining fable.⁶⁸ On the contrary, it is included as the primary demonstration of the underlying harmonies of nature through the application of what we might refer to as ‘operative harmonics’.

Evelyn writes with horrified fascination that ‘there are Spiders in Hispaniola as bigg as Tennis balles’ and those in Apulia have a bite that ‘initiates the symptombs of all sorts of madnesse’.⁶⁹ As for the cure:

it is generally found that there is never happens a perfect cure, unlesse Musique be an chief Ingredient & the composition of that too, correspondent proportionable to the qualitie of the poyson.⁷⁰

Techniques for discovering the right ‘proportionable’ music for each case of poisoning include playing music to the spider in question (or one found in the same field) and seeing how it responds. If the spider dances, you have the right curative tune, which will resonate not only with the offending spider, but with the infected ‘spirits’ of the patient. When the tune is played, the patient will dance along with the offending arachnid and, as he perspires, the poison will be driven out of his body and a cure effected as harmony is restored.

If harmonies may be used to restore health and ease, disharmony can have the opposite effect. Thus the *Tarantella* musicians may ease the state of their spider-bitten patient, calming him with appropriate harmonies or, ‘if either out of ignorance, or studiously sometimes, the Musitian put in a discord, you shall perceive ~~them~~ the patient grow mad againe’.⁷¹ As Evelyn observes, strong bodily reaction is commonly experienced in response to sound - ‘the teeth are sett on edge’ by certain sounds, ‘whilst the diapason, Diapente, & fourth & thirds compose us againe & make their owne unisones to tremble’, an observation that establishes a parallel between the phenomenon we now call sympathetic resonance, and the sympathetic affective response of the human frame to music.⁷² It is not just humans that respond to music; besides the tarantulas, Evelyn evokes the myth of Orpheus taming the wild beasts

⁶⁸ *Elysium*, p. 303.

⁶⁹ *Elysium*, p. 303.

⁷⁰ *Elysium*, p. 304.

⁷¹ *Elysium*, p. 305.

⁷² *Elysium*, p. 306.

with his harp and notes that fishes: ‘are delighted with the voice & {affect} Musique’.⁷³

Evelyn’s description of the tarantula bite cure is centred in musical sound, but the ‘harmony’ that it addresses extends beyond the boundaries of music, to embrace other phenomena. He describes a second technique for determining which of the musicians’ curative tunes will ease the state of the patient - show him different colours to see which he prefers, for:

Those which are ~~bitt~~ affected with greene, are cured with songs ~~made~~ composd in praise of Gardens, flowers, & {the } glorious objects of the inamelled fields: those that love the redd, with the martial musique, Iambicks, dithyrambicks & bacchicall ~~musi~~ {tunes}...⁷⁴

The rationale for this procedure is that the temper of each individual spider (or group of spiders) and their poison, corresponds not only with particular music, but also with particular colours and poetic *topoi*. The implication is that any observed sympathy or antipathy is a part of the wider field of correlations that expand through the harmonious cosmos. These correlations may be harnessed by the skilful artist to tune and temper the world around him.⁷⁵ Any particular harmonious phenomenon may be manifest and perceived in many different ways: it may may be perceived in sound and colour, but also in rhythm of poetic metre, the tenor of poetic tropes such as the evocation of place, and, finally, in the character of the actual places of the garden.

When concluding his treatment of subterranean theatrical grottos, which he recommends should be furnished with automated ‘*Birds, Satyres & other {vocal} Creatures*’, Evelyn addresses the choice of music that might be produced by ingenious ‘hydraulick automats’, to further enliven the scene. He says:

And for the ~~Harmony~~ {composition} itselfe, such truely we esteeme the most proper, harmonious, & best sorting with the sollemne murmur of the water, &

⁷³ *Elysium*, p. 271.

⁷⁴ *Elysium*, p. 305.

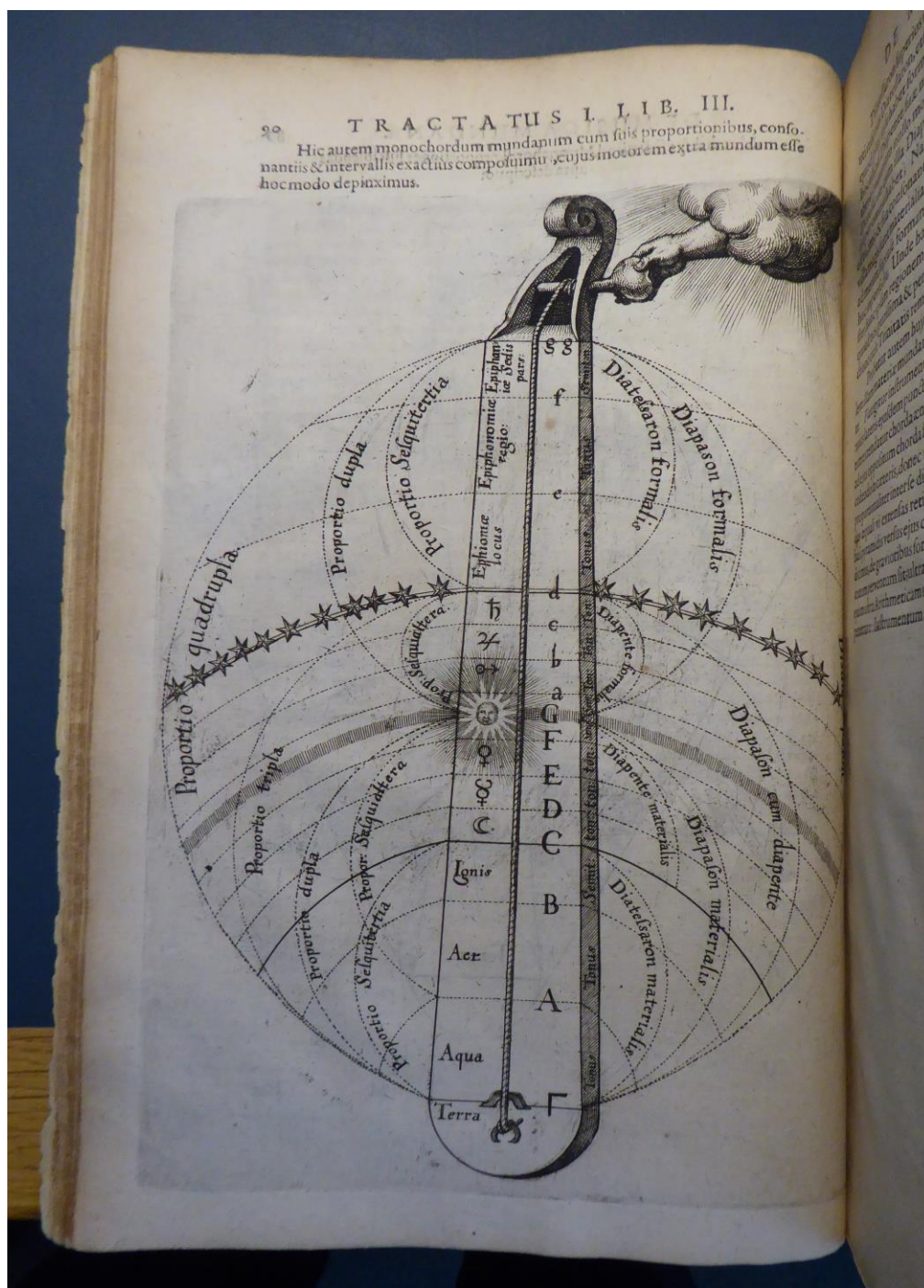
⁷⁵ *Elysium*, p. 96.

solitude of the place, which is grave & lesse *Chromatic*, in the Lydian, Dorique and Phrygian *moodes*.⁷⁶

Harmonic ‘proportionality’ is found in the *moode* of music, in the complexities of spatial quality, it informs the visual proportioning of the garden, and the equilibrium of the human frame. Harmony transcends its particular manifestations to the individual human and animal senses and this, perhaps, explains why Evelyn opens the *Elysium* chapter devoted to sound and music, with an evocation of pleasures of the garden that draws on not only sight and hearing, but also smell, taste and touch – the passage quoted at the start of this chapter. Ultimately, harmony goes beyond the sensory realm and is best ‘represented’ in the transcendent stability of the heavens, traditionally understood to be ordered by God in ‘number, measure and weight’, according to a passage in Wisdom.⁷⁷ Evelyn’s understanding of how this ‘harmonical’ proportionality might be manifest in the immanent ordering of the fallen world is somewhat ambiguous, but appears to have entailed both an acceptance of the received Neoplatonic tradition (both at the level of theory and the level of practice), and a sceptical caution towards the particularities of explanations based in self-sufficient rationality (or mystical revelation) – he owes debts to both the Dee-Fludd-Kircher tradition and to the profoundly differently oriented experimentalism of Bacon.

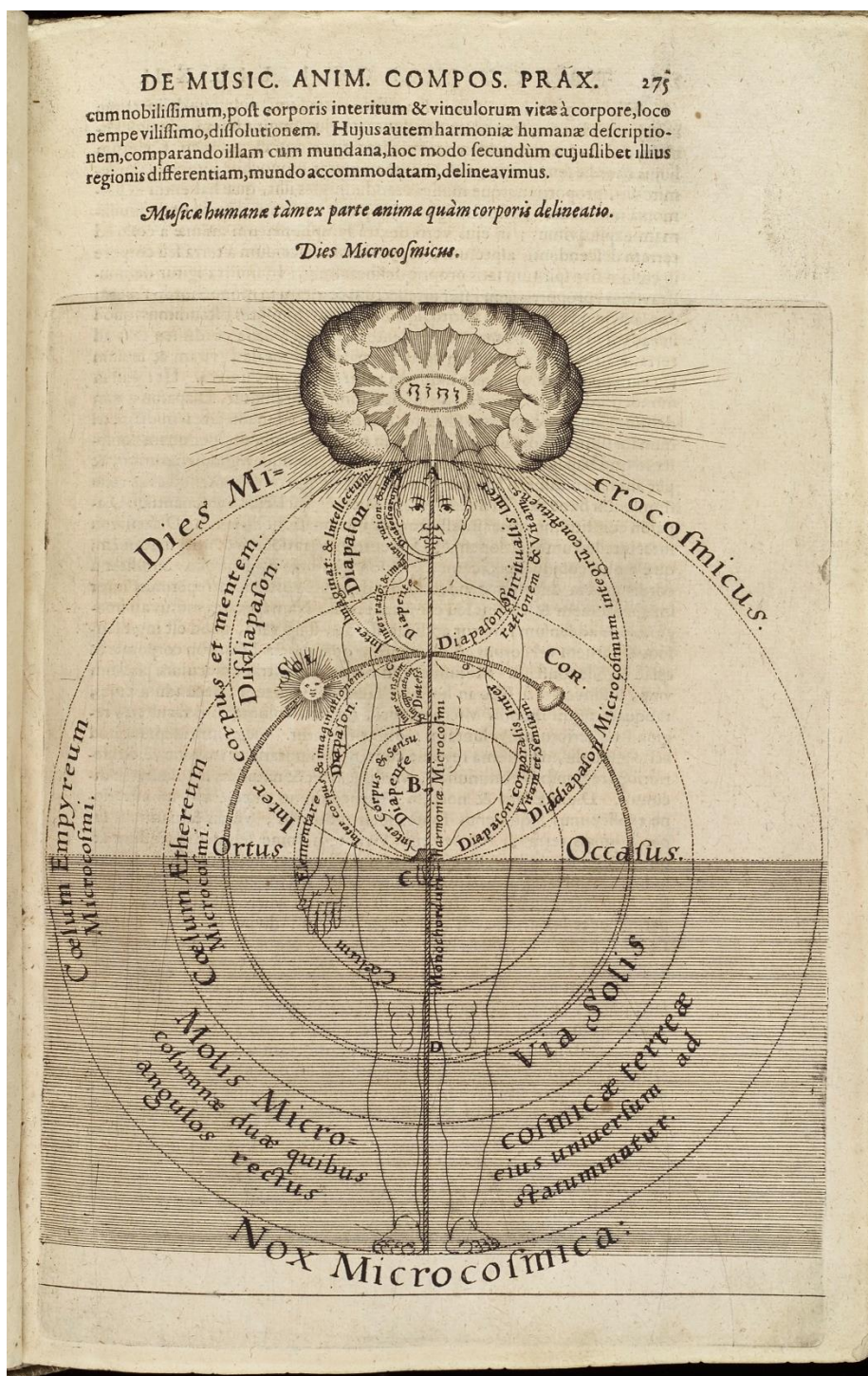
⁷⁶ *Elysium*, p. 243.

⁷⁷ Wisdom 11. 21.



5.1

Robert Fludd, Illustration depicting the harmony of the macrocosm through the metaphor of the monochord lyre, in 'Microcosm Historia ...' (1617), Tractatus I, Book III, p. 90 © Author.

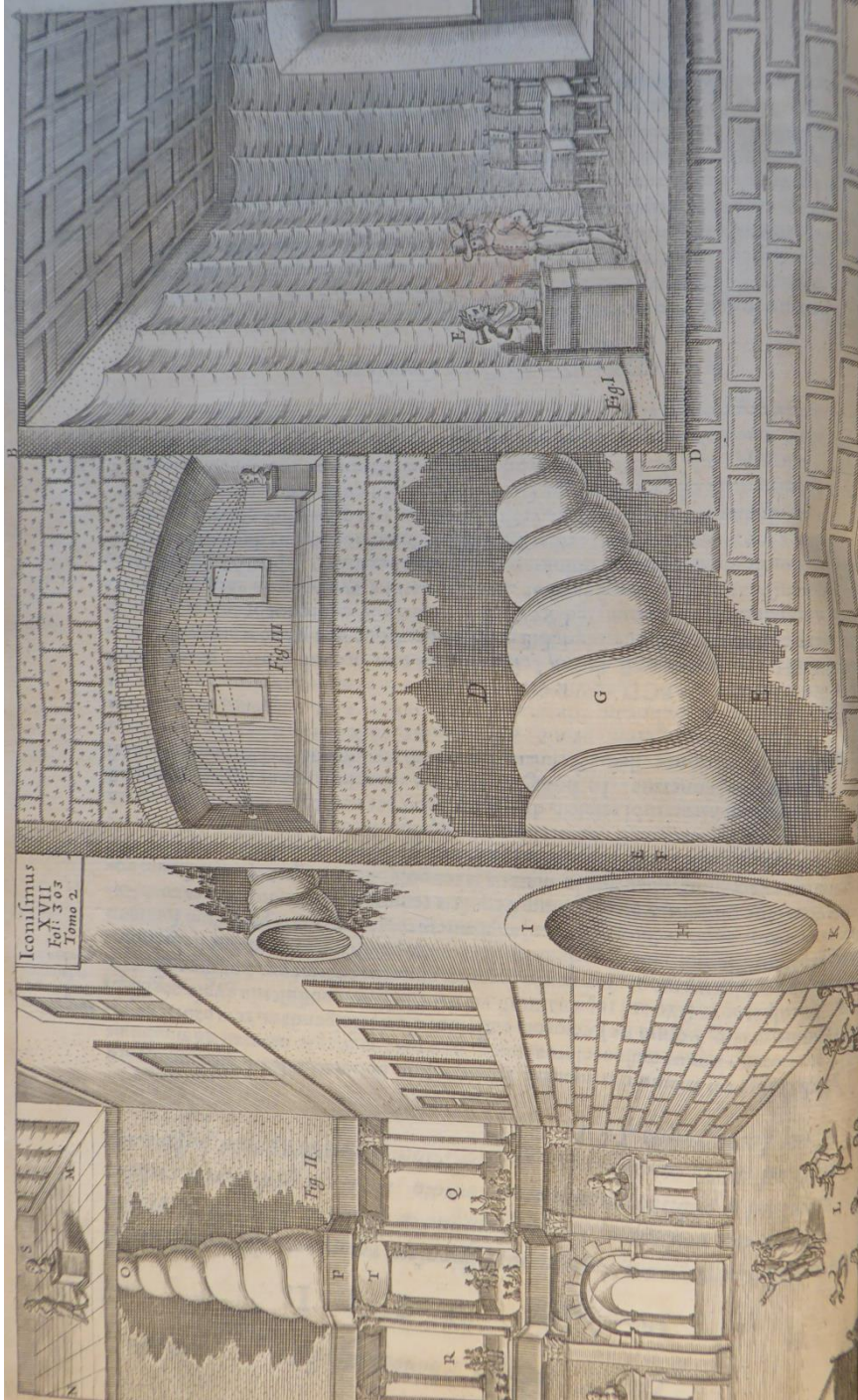


5.2

Robert Fludd, Illustration depicting a human figure as the microcosm from 'Microcosm Historia ...' (1617), Tractatus I, Book VIII, p. 275.

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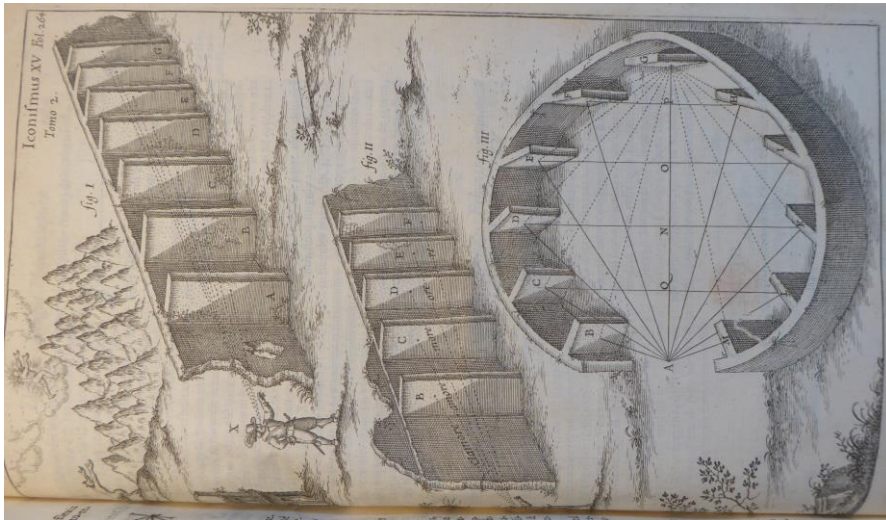
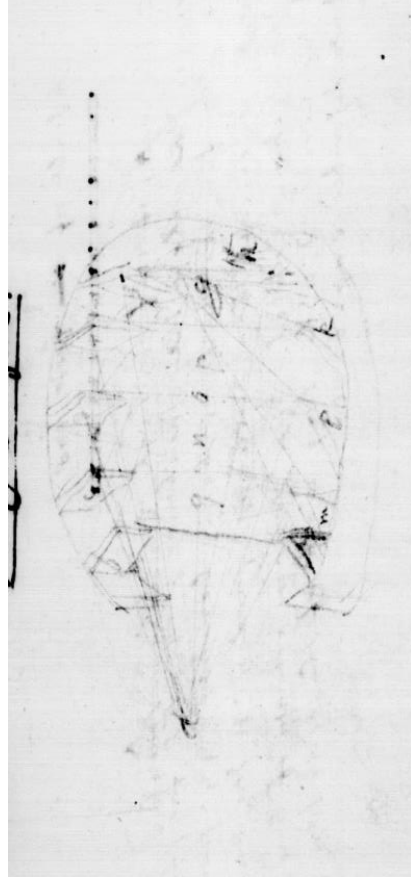


5.3

Athanasius Kircher, listening device from *Musurgia Universalis*, Book II, p. 303, Plate XVII © Author.

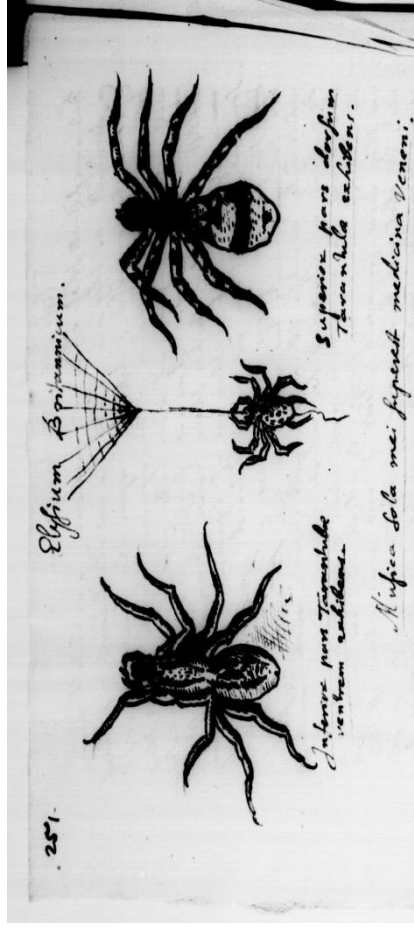
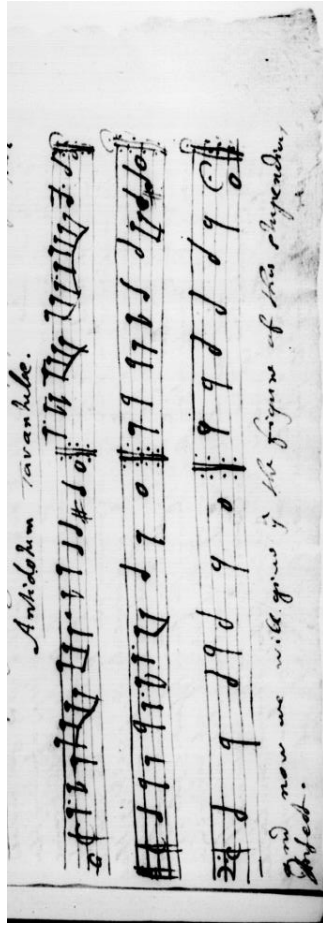


5.4 Athanasius Kircher, Organ of the days of creation from *Musurgia Universalis* (1650), book II, p. 366, Plate XXII © Author.



5.6

A Athanasius Kircher's echoes, from *Musurgia Universalis*(1650) book II, p. 264 © Author.
B, C John Evelyn sketches from Kircher in the 'Elysium Britannicum' manuscript: the 'Heptaphone echo' and the 'polyphone circle'.
© The British Library Board, Add 78342, fol. 173^v, 174.



5.7

A Athanasius Kircher's tarantella illustrations, in *Magnes; Sive de Arte Magnetica Opus Tripartitum*, etc (1641), p. 763 © Author.
B, C John Evelyn copies of Kircher's drawings in the 'Elysiu^m Britannicum' © The British Library Board, Add 78342, fols 234, 234^v

Chapter 6: The Harmonious Order of an Experimental Landscape: Wotton and the History of Trades.

This chapter is the first which considers a real landscape rather than the theoretical propositions of the Elysium. It addresses Wotton House, in Surrey, the Evelyn family estate where between c. 1650 and 1653, George Evelyn (John Evelyn's older brother) made a new garden, collaborating on the designs with John and their cousin, Captain George Evelyn, who, it seems, was the primary designer. John Evelyn recorded these transformations in a series of prospects that show the house, the gardens, and the surrounding landscape of pasture, woodland, millstreams and workshops. This chapter argues that Evelyn's drawings picture both a prosperous household, hierarchically ordered according to his conception of the harmonious microcosm, and an extensive laboratory. The laboratory theme is developed through a discussion of Evelyn's engagement with the Baconian project to compile a 'History of Trades', a project which, in Evelyn's hands takes on some of the hierarchical characteristics that he ascribes to the ideal household.¹

But if my judgment be of any weight, the use of history mechanical is of all others the most radical and fundamental towards natural philosophy; such natural philosophy as shall not vanish in the fume of subtle, sublime, or delectable speculation, but such as shall be operative to the endowment and benefit of man's life.

Francis Bacon, *Advancement of Learning* (1605).

Introduction

In June 1653, the young medical doctor, Jasper Needham (1622 - 1679), received a letter from his good friend, John Evelyn, who wrote from his home in Sayes Court. Needham was staying at Wotton House at the time, as the guest of George Evelyn

¹ This chapter depends in part on Juliet Odgers, 'Water in Use and Philosophy at Wotton House: John Evelyn and the History of the Trades', *arg: Architectural Research Quarterly* 15 (2011), 237-247.

(John Evelyn's older brother and the owner of the Wotton estate). Regretting his absence from the party, Evelyn wrote to his friend:

Imagine yet, how ~~He~~ my thoughts waite on you into the groves, and about the fountaines; how they assent in your preferring of that Tulip, or this Anemonie; that I breathe the same ayre, commend the same prospect, philosophize in the same P[e]ristyle, upon that artificial Iris which the Sunn so refelct from the watry girondda below it, or the beauties of the faire Nymphs which admire it.²

The setting of this imaginary scene is the newly completed formal gardens at Wotton - the 'Peristyle' is the Doric portico, or 'grotto', designed by Evelyn's cousin, the military engineer, Captain George Evelyn; the imagined rainbow is reflected off a fountain in the parterre below, one of the new ornamental 'waters' that John Evelyn had helped to design. This letter perfectly illustrates how a young virtuoso might aspire to integrate a philosophical reflection into the flow of a cultured social exchange. It also suggests Wotton as a site of 'philosophical' investigation, which is the topic of this chapter.

As his letter proceeds, Evelyn suggests further topics for his imagined conversation with Needham - 'a rare *Spagyric*al present I have for our next encounter' (that is to say some chymical preparation or perhaps recipe), and the 'Airs, Waters and Places' of the estate, which is a medical concern. We might imagine further topics developing from the sun's reflection on the fountain waters - a 'chymical' consideration of the generative interpenetration of 'fire' and 'water', perhaps, or a discussion of optics. The friends might have discoursed on the harmony of the world, newly represented in the elegant 'Italian' gardens, with their fountains and parterres '... amenitys not frequent in the best Noble mens gardens in England', as Evelyn later records.³ In moving from the theoretical propositions of the *Elysium Britannicum* to the realised gardens at Wotton, we move back in time by eight or ten years, but for the most part the philosophical themes introduced in the preceding

² John Evelyn to Jasper Needham, 16th June 1653, in *The Letterbooks of John Evelyn*, ed. by Douglas Chambers and David Galbraith, 2 vols (Toronto: University of Toronto Press, Scholarly Publishing Division, 2014), vol1, letter 64, pp. 135-136; see Douglas Chambers, "'Excuse these impertinences": Evelyn in his Letterbooks', in *John Evelyn and his Milieu*, ed. by Frances Harris and Michael Hunter (London: The British Library, 2003), pp. 21-36, (p.29).

³ John Evelyn to John Aubrey, 8th February 1675 -76, in *The Miscellaneous Writings of John Evelyn*, Esq. F.R.S ed. by William Upcott (London: Henry Colburn, 1825), pp. 687-691, (p. 687).

chapters retain their relevance here, since they develop out of concerns that Evelyn had already established during his years in Paris, or even before. In this chapter, we revisit the theme of the harmony of the microcosm, whilst introducing a new slant to the discussion of Bacon's influence on Evelyn, through the project to compile a 'History of Trades'.⁴ This project was an important part of Bacon's programme for the reformation of natural philosophy along experimentalist lines and a new enthusiasm for Evelyn at the period when the structural works to the new gardens were reaching completion.⁵

The discussion is centred on six drawings of Wotton, made by John Evelyn between c. 1640 and 1653. These show the transformations wrought on the old, moated, Tudor manor, with its small knot garden, as both house and grounds were altered and expanded into a more outward looking scheme, organised around a newly instituted central axis (FIGS. 6.1A – 6.3B).⁶ Evelyn's drawings show a hierarchically constructed, operational and symbolic topography, which ranges from the formal elegancies of the new gardens, to the wider reaches of the productive estate beyond the garden walls – including its fields, woods and, importantly for the prosperity of the family, its mills. On one level Evelyn's drawings are estate portraits which represent the harmonious life of the 'villa', on another they are exacting representations of an operational domain of trade practice which, according to the Baconian 'History of Trades' project, can be seen as a latent domain of 'experiment', in which the work-sites of tradespeople serve as laboratories. Examining the gardens

⁴ Walter E. Houghton Jr., 'The History of Trades: Its Relation to Seventeenth-Century Thought: As Seen in Bacon, Petty, Evelyn, and Boyle', *Journal of the History of Ideas*, 2 (1941), pp. 33-60; Michael Hunter, *Science and Society in Restoration England*, 2nd ed. (Cambridge: Cambridge University Press, 1992, [1981]), pp. 87-112; A. F. Sieveking, 'Evelyn's "Circle of Mechanical Trades"', *Transactions of the Newcomen Society* 4 (1923), 40-47; Kathleen H. Ochs, 'The Royal Society of London's History of Trades Programme: An Early Episode in Applied Science', *Notes and Records of the Royal Society of London* (1985), 129-158; Sheila McTighe, 'Abraham Bosse and the Language of Artisans: Genre and Perspective in the *Academie Royale de Peinture et de Sculpture*, 1648-1670,' *Oxford Art Journal* 21 (1998), 1-26; Michael Hunter, 'John Evelyn in the 1650s', in *John Evelyn's Elysium Britannicum and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 79-106, (pp. 86-91); Michael Leslie, "'Bringing Ingenuity into Fashion": the "Elysium Britannicum" and the Reformation of Husbandry', in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Therese O'Malley, and Joachim Wolschke-Bulmahn (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), pp. 131-152, (pp. 143-145).

⁵ Hunter (1998), p. 88.

⁶ John Evelyn, London, British Library, Evelyn papers, Add 78610, fols. A, B, C, F, G, H; for general context see Nicholas Cooper, *Houses of the Gentry, 1480-1680* (New Haven, Conn.; London: Published for The Paul Mellon Centre for Studies in British Art in association with English Heritage by Yale University Press, 1999), pp. 93-107.

and surrounding trade landscape in this light we see an experimental landscape emerging through the texture of the harmonious microcosm – an idea that also informs Evelyn’s presentation of the *Elysium Britannicum*, though here experiment is not encountered in court dress, it wears the everyday garb appropriate for walking through the gardens and fields of the estate.

Historiography

Recent discussion of the Wotton estate by other commentators has centred on two issues, the first of which is the degree to which it is possible to attribute any design input to John Evelyn, in relation to the major garden works executed there between c.1650 and c. 1653.⁷ It is now understood that these were the result of a collaboration between the three cousins - George Evelyn, the owner; John Evelyn, the largely absent younger brother, still resident in Paris until February 1652; and their cousin, Captain George Evelyn, a military engineer. In her detailed and scholarly account of this issue, Frances Harris argues that it was Captain George Evelyn, the military cousin, who was almost certainly the principal agent in both the design and the supervision of the works, and that John Evelyn’s input was negligible.⁸ There is some truth in this assertion since John Evelyn himself credits his cousin with the design of the portico that fronted the new grotto, carved out of the hill behind the house (FIGS. 6.1C, 6.2B, 6.3B).⁹ It is clear, however, that John Evelyn gave his advice on planting, on the ‘waters’ (which might mean the decorative form of the water or the hydraulics that enabled them), on the decoration of the grotto (which was largely ignored in the execution), and possibly on layout, offering his opinion both by letter and in person on his visits from Paris in the late 1640s and on his return to live in England in 1652.¹⁰ Harris perhaps overstates the case in claiming that ‘the most important connection between John Evelyn and Wotton was not his influence on the

⁷ Frances Harris, “‘My most Cherished Place on Earth’: John Evelyn and Wotton”, in *A Celebration of John Evelyn: Proceedings of a conference to mark the tercentenary of his death*, ed. by Mavis Batey (Wotton: Surrey, 2006), pp. 53-73; see also Carola and Alastair Small, ‘John Evelyn and the Gardens of Epicurius’, *Journal of the Warburg and Courtauld Institutes* 60 (1997), 194-214.

⁸ Harris (2006), p. 57.

⁹ Harris (2006), pp. 63-64.

¹⁰ Harris (2006), pp. 59-64.

garden, but the influence of the whole topography on him'.¹¹ The dynamics of collaboration in design are complicated enough to accommodate a considerable creative input from a largely absent partner. This issue of authorship, however, is not the crux of our concern, for the topic of this chapter is not so much the design of the gardens, as Evelyn's understanding and presentation of the Wotton estate through his drawings and through some surviving texts. We are concerned more, in Harris's formulation, with 'the influence of the whole topography on him'.

The influence of Wotton on Evelyn has been addressed in some detail by Peter Brandon, who describes the Wotton estate primarily in terms of the water-powered industry it sustained in the seventeenth century.¹² Wotton House lies in a valley at the foot of the chalk and clay ridge of the North Downs and is situated at the confluence of two streams, the main one, the Tillingbourne, was a mill stream of considerable economic importance in the seventeenth century. John Evelyn's grandfather obtained a licence from Elizabeth I to manufacture gun-powder, which he did at several sites in Surrey, including Wotton, thus establishing the Evelyn family's fortunes.¹³ Later generations continued the practice, but also introduced other trades - particularly brass-milling and wire-pulling. Brandon notes Evelyn's attraction 'to aspects of industrial technology' and his bent towards 'the popularising of the arts and sciences that he first learnt at Wotton, notably applied hydraulics, geology and engineering'.¹⁴ He also relates Evelyn's interest in forestry to the Wotton landscape (the Wotton milling works consumed vast quantities of fuel), advancing his argument in part through a consideration of a famous letter written by Evelyn to John Aubrey (1626 – 1697) in 1676, an important source which we return to below. But he does not mention the project to compile a History of Trades.¹⁵ Approaching Evelyn's representation of Wotton through this project, allows us to place Evelyn's interest in the 'technologies' of Wotton as a 'philosophical' interest. The idea that Evelyn conceived the garden at Wotton as a locus of philosophical

¹¹ Harris (2006), p. 66.

¹² P.F. Brandon, 'Land, Technology and Water Management in the Tillingbourne Valley, Surrey, 1560-1760', *Southern History* 6 (1984), 75-103; P. F. Brandon, *The Tillingbourne Story* (Shere, Gomershall & Peaslake Local History Society, 1984).

¹³ Esmond de Beer, 'Introduction: Evelyn: Life and Character', in *The Diary of John Evelyn*, ed. by E.S. de Beer, 6 vols, vol 1(Oxford: Oxford University Press, 1955), pp. 1-43, (p.1).

¹⁴ Brandon, 'Land ...' (1984), p. 78.

¹⁵ Brandon, 'Land ...' (1984), pp. 80-85; Evelyn to Aubrey, see note 3 above.

contemplation is not new, Alistair and Carola Small portray Evelyn's early gardens as loci of 'Epicurean' philosophical retirement, but the idea of casting the entire estate as an extended latent laboratory, a terrain into which Evelyn inscribed his emerging Baconian intentions, is original.¹⁶

The History of Trades

Evelyn's engagement with the History of Trades was first established by Walter Houghton, in his foundational study of the reception of the project during the Interregnum and Restoration periods. Houghton's article is a primary reference point in what follows, though his work has more recently been supplemented by several contributions from others.¹⁷ The term, a 'History of Trades', is not Bacon's, who referred to this comprehensive description of all trades and craft practises as a history of 'nature altered or wrought'.¹⁸ It was one of the three categories of Natural Histories that Bacon cast as essential in providing the secure foundation of philosophy in experiment - the others were the history of 'nature in course'; and the history of 'Marvels', or nature 'erring'.¹⁹ According to Bacon's method, experimental 'facts' were to be gathered and ordered in these histories and then submitted to the scrutiny of 'one mans minde', the 'philosopher', whose cogitations were expected to result in 'reall illumination concerning Causes and Axiomes' – that is to say, philosophical insights into the operations of nature. The hoped for consequences of this philosophical scrutiny also included improvements in the trade practice themselves, 'by a connexion and transferring of the observations of one Arte, to the use of another'.²⁰ Whilst several Early Modern thinkers placed a new emphasis on the compilation and dissemination and trade secrets (mechanical

¹⁶ Small and Small, pp. 198-202.

¹⁷ see note 4 above.

¹⁸ Houghton (1941), p. 34.

¹⁹ These categories appear as 'Generations'; 'Pretergenerations' and 'Arts Mechanique' in Evelyn's copy of Francis Bacon, *Of the Advancement and Proficiency of Learning; or, the Partitions of Sciences IX Bookes, Written by the Most Eminent, Illustrious, & Famous Lord Francis Bacon Baron of Verulam, Vicont St Alban, Counsilour of Estate and Lord Chancellor of England;* Interpreted by Gilbert Wats (Oxford: Printed by Leon: Lichfield, printer to the University, for Rob: Young & Ed: Forrest, 1640), p. †^v, this edition is a re-translation of the *Novum Organon*; on Baconian method see Eduard Jan Dijksterhuis, *The Mechanization of the World Picture* (1961), p. 399-402; John Henry, *The Scientific revolution and the Origins of Modern Science*, 3rd ed. (London: Palgrave, 2008), p.39-40.

²⁰ Bacon, *Advancement* (1640), p. 83-84; Quoted in Houghton (1941), p. 35.

devices, recipes, processes, and so on), Bacon was exceptional in proposing that trade secrets might be harnessed to serve philosophical ends. The History of Trades served an essential, structural function in Bacon's experimental programme.²¹

The importance that Bacon ascribed to the History of Trades was grounded in his idea that: 'nature provoked and vexed by Art, doth more cleerely appear, than when she is left free to hir selfe'.²² Thus the 'Arts mechanicall', in which nature was routinely subjected to many 'vexations', was especially valuable to the philosopher as the source of experimentally produced facts.²³ But beyond this, there was the question of the lack of dedicated experimental laboratories, which only began to appear in England in significant numbers towards the middle of the seventeenth century - Evelyn's own, purpose-built chymical laboratory at Sayes Court, planned c. 1652 was one such; Thomas Henshaw's laboratory at his home in Kensington is another.²⁴ In the absence of formal experimental facilities, the *loci* of trade practice (kitchens, brew-houses, gardens and so on) were made to substitute for the laboratory, the trade practices themselves substituting for more formal experiments. As the century progressed, the philosophical dimension of the History of Trades inevitably declined as 'experiment' became more often and more conveniently located in dedicated laboratory spaces, where it could be better controlled and the gentleman philosopher's reliance on tradespeople for his 'facts' could be much reduced.²⁵

Some mid-century followers of Bacon stressed the useful improvements and dissemination of trade practices attendant on the History (principally those gathered around Samuel Hartlib), whilst others were more interested in the service it might

²¹ Houghton (1941), p. 34.

²² Bacon, *Advancement* (1640), p. 84; Houghton (1941), p. 36.

²³ Houghton (1941), p. 58; Steven Shapin, 'The House of Experiment in Seventeenth-Century England', *Isis* 79 (1988), 373-404.

²⁴ Stephen Passmore, 'Thomas Henshaw and the Manor of West Town, Kensington', *Annual Report of the Kensington Society* (1964-5), 30-35; Donald R. Dickson, 'Thomas Henshaw and Sir Robert Paston's Pursuit of the Red Elixir: An Early Collaboration between Fellows of the Royal Society', *Notes and records of the Royal Society* 51 (1997), 57-76; John Evelyn, London, British Library, Evelyn Papers, Add 15950, fol. A.

²⁵ Shapin (1988), pp. 377-378.

render to natural philosophy.²⁶ Houghton places Evelyn with the ‘improvers’, though, as he acknowledges, no rigid distinction between the two camps can be meaningfully maintained. Evelyn may not have possessed the talents of the more rigorous Baconian ‘scientists’, who Houghton exemplifies in the figure of Robert Boyle, but it would be wrong to exclude ‘philosophical’ concerns from Evelyn’s motivations in studying the trades.²⁷ For Evelyn, experimental knowledge was both a useful and a philosophical concern and reference to the ‘Tomus Tertius’ reading notes that he took from Bacon’s *Advancement of Learning* shows that he was familiar with the philosophical programme that Bacon outlined in this text, and that he was aware of the place that the trades occupied in his scheme.²⁸

Evelyn’s notes record Bacon’s thought that the natural histories are the basis of ‘physique’ and ‘Metaphysique’; and refer to the ‘platformes’ of Bacon’s design - charts which show the interrelation of the branches of human learning one to another (FIG. 6.4). In these the ‘Arts Mechanick’ find their place beside ‘Generations’ (or nature in her course), and ‘Pretergenerations’, (‘monsters, marvels and Magick’).²⁹ Evelyn was aware that, in Bacon’s proposals, the trades and ‘philosophy’ were supposed to be mutually informing – that axioms were to be raised on the foundation of experimental facts, derived in part from the History of Trades, whilst ‘Axioms rightly invented, draw after them the whole troupe of operations &c.: p:32’.³⁰ Though it is not possible to date Evelyn’s ‘Tomus Tertius’ entries on Bacon accurately, they all occur near the beginning of the chapters in which they are entered and are written in Evelyn’s youthful hand. Thus they probably date from the early 1650s, the period when the works to Wotton garden were being carried out (FIG. 6.5).

²⁶ On Baconian ‘Improvement’ see Charles Webster, chapter V, ‘Dominion over Nature’, in *The Great Instauration: Science, Medicine and Reform, 1626-1660* (London: Duckworth, 1975), pp. 324-483.

²⁷ Houghton (1941), p. 39.

²⁸ Hunter (1998), p. 86; Evelyn worked from Bacon, *Advancement*, trs. by Wats (1640); for Evelyn’s notes form this work see, ‘Tomus Tertius’, ‘Cap III Historia Universalis Chronologia Vitae &c.’, London, British Library, Evelyn papers, Add 78330, fols. 98-125^v, (fols. 101-101^v); ‘Cap III: MEDICINA, Morbi, Alchymia, Pharmaca, Chyrurgia’, Add 78330, fol. 142-149^v, (fols. 142^v-143); ‘Hist: Philos: Scient: Mathem: Med: &c.’, Add 78330, fols. 72-87^v (fol. 72^v-fol. 73^v).

²⁹ Add 78330, fol. 101^v; Bacon, *Advancement*, ed. by Wats (1640), p. †2^v, follows p. 60.

³⁰ Add 78330, fol. 72^v; Paolo Rossi, ‘Bacon’s Idea of Science’, in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge: Cambridge University Press, 1996), pp. 25-46, (pp. 36-37).

The start of Evelyn's early attempts to compile a History of Trades coincide quite precisely with the completion stages of the works to the gardens at Wotton for, according to Michael Hunter, his most intensive application to the project dates from the years between 1652-56.³¹ In the summer of 1653, the year of Evelyn's letter to Needham and the year in which he made two of his drawings of the finished gardens (FIG. 6.1 B, 6.2B), the Commonwealth Intelligencer, Samuel Hartlib recorded in his 'Ephemerides' that Evelyn had 'studied and collected a great Worke of all Trades, and wants no more to it but the description of 3 Trades'.³² Hunter has identified a document that constituted this early attempt at the History, a manuscript that survives in the British Library, entitled '*Trades. Seacrets & Receipts Mechanical. as they came casualy to hand*', and comments that, judging by the far from complete state of this compilation, Hartlib's estimation was vastly overoptimistic.³³ Evelyn did, however, make a start on the project, dividing his manuscript volume into sections in anticipation of making entries. He also completed a few items, principally on various virtuoso arts. He made several entries on topics such as: 'Pastes for Artificial pearled, stones, marbles &c'; 'Moasaic worke'; 'Pierre-comessa'; and 'Dying of wood, stones, Horne, metals, &c'.³⁴ He also made two forays into less refined territories, with a substantial entry on the pricing of timber and the construction of a naval vessel, and another, illustrating how to make a lime-kiln (FIG.6.9). As Hunter remarks, the former was quite probably based on information which Evelyn gathered in Deptford, for Sayes Court was adjacent to the dockyard.³⁵ But Evelyn's knowledge of arboriculture and timber pricing might well have been supported by his family activities at the Wotton estate. Similarly the entry on lime kilns probably derived from his contact with the family estate, for Evelyn's father ran lime-kilns as a commercial operation at Wotton, supplying lime based fertilizer to neighbouring farmers (FIG. 6.4B).³⁶ The Wotton estate accommodated many trades, some of them domestic, some of them agricultural, and some attached to the mills placed along the banks of the Tillingbourne which ran through the estate. Evelyn's drawings allow us to place some of these activities.

³¹ Hunter (1998), pp. 86-91, (p. 88).

³² Sheffield, Sheffield University Library, 'Ephemerides' 28/2/71B, quoted in Hunter (1998), p. 87.

³³ Hunter (1998), p. 88; London, British Library, Evelyn Papers, Add 78339, formerly MS 65.

³⁴ Add 78339, fol. 553; fol. 519; fol. 522; fol. 552. See Appendix 5.

³⁵ Add 78339, fols. 361-69, fol. 448; fols. 247-48; Hunter (1998), pp. 87-88.

³⁶ Brandon, 'Land...' (1984), p. 95.

Drawing the Ordered Estate

John Evelyn's drawings of Wotton are held together in a single portfolio in the British Library. The first nine sheets of the folder 'Add 78610 A-I' show the garden as it developed in stages from 1640, through Evelyn's first minor intervention (a tree house that he build over a triangular pond in 1643), (FIG. 6.3A), to the major works completed in 1653 under the direction of the three cousins.³⁷ Here we consider just six of Evelyn's images, which can be seen as pairs – one drawing before the works, one after. Thus, fol. A, 'A Rude draught of Wotton Garden before my Bro: altered it & as it was 1640: South' shows the moated Tudor house and small enclosed garden, drawn from a point of the wooded hill immediately to the south of the house (FIG.6.1A), and can be paired with the well-known etching, fol. G, which shows the house and grounds in 1653 from a similar vantage point, now the roof of the grotto that has been excavated from the hill (FIG. 6.1B). In this later image the moat has been filled and a large formal parterre with a central fountain created on the plateau made by the excavation of the hillside. The parterre is flanked by two raised walks and enclosed by walls. What the drawing does not show clearly is the cut and fill terracing of the hillside which turned the gentle hill above the grotto into a stepped mount. This is revealed in the next pair of drawings.

Fol. C 'Prospect of Wotton Gardens & house towards the east.[...] as altred by my Bro: 1646', shows some preliminary works to the gardens – the enclosure of an area in the foreground to the south-east of the house, and the treehouse study and small triangular pond that John Evelyn had made in 1643 (FIG. 6.2A). The terraces of the mount, however, are yet to be formed from the hill, but can be seen in fol. F, which is taken from the same direction, but slightly closer in (FIG. 6.2B). In this drawing Evelyn shows a side view of the newly terraced mount sculpted out of the hill and the classical 'peristyle', or 'grotto', which fronts onto the higher of two parterres; whilst a lower parterre adjoins the house on the ground created by filling the moat (FIG. 6.5). These new works are enclosed by what appears to be partly wall and partly fencing. In addition, it is possible to make out some alterations to the

³⁷ London, British Library, Evelyn papers, Add 78610, fols. A – I.

grounds at the other side of the house – the entrance front to the north. These are better explained through the final pair of drawings.

Fol. B ‘The Prospect of Wotton 1640 from Broome field’ to the north-west shows the unaltered, walled and gated Tudor manor house (FIG. 6.3A). The Tillingbourne stream is shown in the foreground, flowing from left to right across the drawing and filling the ‘pigeonhouse pond’ – the pigeonhouse is the small square building with a pyramidal roof standing on its banks. This drawing is paired with fol. H which shows the whole extent of the alterations both on the entrance front and to the rear of the house (FIG. 6.3B). The pigeonhouse pond is now partially filled and the Tillingbourne canalised, thus allowing a more formal and partially symmetrical arrangement to be made of the entrance approach. Flanking the main entrance gate two large volumes have been given new Dutch gables (these appear to be barns), and the entry bridge and drive have been moved to an axial position.³⁸ The general tendency of all these alterations is to drain and canalise, to geometricise the layout of house and grounds and to focus the whole around a central axis. With his alterations, George Evelyn was gradually transforming Wotton into something approaching an ideal working ‘villa’ – a phenomenon that had both formal and cultural antecedents in Renaissance Europe.³⁹ To realise the villa scheme fully would have required much more sweeping changes, or even wholesale demolition of the buildings, a possibility Evelyn seriously considered late in life, probably after he inherited Wotton in 1701 (FIGS. 6.6, 6.7A, 6.7B), but nonetheless those alterations that were made are consistent in their direction.⁴⁰

Following Evelyn’s characterisation of the gardens at Wotton as ‘Italian’, we might look for the antecedents to the formalising direction of the improvements to the house, gardens and outbuildings at Wotton in the villas of Palladio, one potent expression of the much wider phenomenon (FIG. 6.8).⁴¹ Evelyn was acquainted with

³⁸ Brandon describes some of these developments, but includes the wrong illustration in his article. He shows an etching of Albury Park (Plate One, p. 81), where he intends to show a view of Wotton from the North West, probably Add fol. H, see Brandon, ‘Land...’ (1984).

³⁹ The ‘villa’ could mean a place of retirement, essentially a place of leisure, or it could mean a working estate, see Paul Holberton, *Palladio's Villas: Life in the Renaissance Countryside* (London: Murray, 1990), pp. 103-128.

⁴⁰ Add 78610, fol. J; Brandon, ‘Land...’ (1984), p. 88.

⁴¹ On ideal villa in France and England see, Woodbridge, Kenneth, *Princely Gardens: The Origins and Development of the French Formal Style* (London: Thames & Hudson, 1986), pp. 30-36; pp. 97-

Palladio's work, having visited some of his buildings on the recommendation of his mentor Thomas Howard, the Earl of Arundel, when in the Veneto in the mid-1640s. But the important point for the current argument is that if there is a formal continuity between the works at Wotton and European precedents, there is also a continuity of ideas. In Palladio, who took the idea from the work of Leon Battista Alberti (1404 – 1472) the physical 'harmony' of the villa was intended as an expression of the harmony of the 'family'.⁴²

Evelyn gives an extended development of the idea of the harmonious family in his writings on the management of the household, a topic that he addressed several times over the course of his life, the earliest attempt being his 'Instructions Oeconomique', composed as a wedding present for his wife in 1648.⁴³ In this document he takes the proper ordering of relations between the members of the family – husband, wife, children and servants – as a primary theme, setting out his ideas with repeated recourse to microcosmic metaphors. Thus Evelyn writes:

materially and formally ...this Domestique Society resembleth the Bodie: whose soule is Veritie; whose head the Husband: whose heart the Wife and Children; whose hands and feet are the Servants and whose possessions are the food and raiment that nourish and manitain it.⁴⁴

or again:

A Family may truly be called that Inferior Celestiall Spheare, wherein the Master and Mistress resemble the *Primum Mobile* their Children the *Fixed Starres* where Gravity, Prudence, Fortitude, Religion, Humanity, Industry and Plenty make up the seven planets whose benigne Influence complicate that ravishing Conscent and Harmony of the whole family wch consists under these as an immovable and indissoluble centre.⁴⁵

100; Nicholas Cooper, 'The English Villa: Sources, Forms and Functions', in *The Renaissance Villa in Britain 1500 - 1700*, ed. by Malcolm Airs and Geoffrey Tyack (Reading Spire Books, 2007), pp. 9-24; Cooper (1999), pp. 74-91.

⁴² Holberton, p. 108; Leon Battista Alberti, *The Family in Renaissance Florence. A Translation of I Libri della Famiglia ...* trs. by Renée Neu Watkins (Columbia, S.C.: University of South Carolina Press, 1969), pp.182-185; Leon Battista Alberti, *On the Art of Building in Ten Books*, trs. by Neil Leach, Joseph Rykwert, Robert Tavenor (Cambridge, Mass.; London: MIT, 1988), p. 23, p. 140.

⁴³ Juliet Odgers, 'John Evelyn's Villa at Sayes Court: A Microcosm of Labour and Love', in *Economy and Architecture*, ed. by Mhairi McVicar and Stephen Kite (London: Routledge, 2015), pp. 59-69. John Evelyn, 'Instructions Oeconomique', 1648, London, British Library, Evelyn papers, Add 78430; 'Oeconomics To a newly married friend'; [1676], London, British Library, Evelyn papers, Add 78386; John Evelyn, *Memoires for My Grand-Son ...* Transcribed and Furnished with a Preface and Notes by Geoffrey Keynes (London: Nonesuch Press, 1926 [1927]).

⁴⁴ Add 78430, fol. 13.

⁴⁵ Add 78430, fol. 20^v.

Finally, the family is ‘an Image and prototype of a more considerable society, even a city and Republique’. Within this ‘Republique’ the patriarch commands and must consequently ‘be personally present in all places’; the wife’s domain is the house; the servants are ranked along with ‘animals’ as ‘moveable possessions’, as opposed to the ‘naturall possessions which consist in Lands, Rivers, fountains, lakes and the like’.⁴⁶ If the human inhabitants are largely missing from Evelyn’s drawings of Wotton, their ‘places’ are inscribed in socially ordered, and harmoniously composed terrain of the estate, which may be read as analogous to the human microcosm.

When he drew his paradigmatic prospect of Wotton, ‘taken in perspective from the top of the Grotto’, Evelyn must have stationed himself above the gardens in axial position, at the ‘head’ of his composition. Below him, lay the parterre and fountain, places associated with the ladies of the family - the ‘heart’ of the garden, where, in his letter to Needham, Evelyn imagined the ‘faire Nymphs’ admiring the ‘watry girondles’ (FIG. 6.1B).⁴⁷ The places devoted primarily to production, where the ‘hands’ laboured at their various trades, are spread to the periphery of the drawing.⁴⁸ The estate is one body, one world and it is within this world that the endeavor of experimental laboratory emerges, attached to the loci of the trade operations of the estate.

Evelyn had a deep personal knowledge of Wotton and, as his draftsmanship improved over the passing years, this is registered with increasing accuracy in his drawings of the estate. In each of the six drawings presented here, excepting the earliest which focuses closely on the house (FIG. 6.1A), Evelyn paid particular attention to the arrangement of outbuildings, the lie of the land, the fields and woods, the course of the streams - an attention that accords well with the priority that he gives in the *Elysium*, to the reading of site as a preliminary to ‘plotting and disposing’ the ground.⁴⁹ The concern with topography registered in these drawings goes beyond aesthetic considerations – it also indicates an engagement with the

⁴⁶ Add 78430, fol. 17^v-18, cf. Alberti, *On the Art of Building* (1988), p. 23, p. 140.

⁴⁷ For ‘masculine’ parts of the garden, beyond the parterre, see *Elysium*, p. 140.

⁴⁸ Odgers (2015), p. 61; Mark Girouard, *Life in the English Country House: A Social and Architectural History* (Harmondsworth: Penguin, 1980), pp. 120-162.

⁴⁹ See Chapter 4 above; *Elysium*, pp. 95-99.

operative potentials of the terrain. The streams are not just refreshing and brilliant, they are there to water the gardens, power the mills, and so on. Similarly, the tall stands of trees that crown the hills are both atmospheric ‘nemourous’ groves and vital sources of fuel and timber (FIG. 6.3A, B).⁵⁰ To penetrate Evelyn’s attitudes towards the landscape of Wotton in more detail, we can refer to a well-known letter that he wrote to his friend, John Aubrey, in 1676. Though this is a retrospective account it deals in part with observations made at an earlier period.

Letter to Aubrey

The purpose of Evelyn’s letter was to furnish Aubrey with material for inclusion in his *Natural History of Surrey*.⁵¹ Evelyn includes a curious miscellany of fragmentary ‘chorographic’ observations of Wotton and the surrounding country.⁵² He opens with a statement that the ‘fine water’ of Wotton, is ‘capable of furnishing all the amoenities of a villa and garden after the Italian manner, as running fifty foot higher than the area of the first parterre.’⁵³ From thence, he relates various facts about the region, which might readily be ordered under Bacon’s rubric of ‘natural’, ‘preternatural’ and ‘mechanical’. Though Evelyn does not mention this categorisation, it may have been implied, and certainly would have been appreciated by Aubrey, for whom Bacon was an important reference point.⁵⁴ Evelyn remarks on the ‘jeate’ and rag-stone found in the area; and on the ‘trogladytic miartines’ that inhabit the sandy banks of the stream at Albury – examples of nature in her unimpeded course.⁵⁵ He observes the ‘cockle-shells’ and ‘periwinkels’ found on the Downs near ‘Darking’, which he probably thought of as ‘preternatural’ - given their

⁵⁰ John Evelyn, F. R. S., *Sylva, or a Discourse of Forest-Trees ... To Which Is Annexed Pomona; or, an Appendix Concerning Fruit-Trees ... Also Kalendarium Hortense ... Second Edition Much Inlarged and Improved*: London: printed for Jo. Martyn & Ja. Allestry, 1670), pp. 225-247; Graham Parry, ‘John Evelyn as Hortual Saint’, in *Culture and Cultivation in Early Modern England: Writing and the Land* ed. by and Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 130-50, (pp. 142-143).

⁵¹ Evelyn to Aubrey, in Upcott, ed., pp. 687–91; John Aubrey, and Richard L. L. D. Rawlinson, *The Natural History and Antiquities of the County of Surrey, Begun in the Year 1673, by John Aubrey ... Continued to the Present Time*. 5 vols (London: E. Curll, 1719); Brandon, ‘Land...’ (1984), p 80-85.

⁵² On chorography see Michael Hunter, *John Aubrey and the Realm of Learning* (London: Duckworth, 1975), pp. 112-121; Cooper, p. 21.

⁵³ Upcott ed. (1825), p. 687.

⁵⁴ Hunter (1975), pp. 29-92, (p. 41).

⁵⁵ Upcott ed. (1825), p. 688, p. 690.

location miles from the sea (what we now know to be fossils were commonly thought of as ‘anomalous’ generations in the seventeenth century).⁵⁶ The ‘entire skeleton of gigantic stature’ that he reports being dug up in the graveyard at Wotton would certainly have fit into this ‘preternatural’ category.⁵⁷ Evelyn also describes trade practices: a local technique of field improvement called ‘Devonshiring’ (sometimes ‘denshiring’); and the successive planting and cropping of oak, beech and birch in the woods at Wotton; he mentions an ingenious ‘smoake-jack’, installed at Wotton some hundred years previously (he implies that this turns a spit); and a Roman way, worthy of observation as one of the ‘arts mechanical’, for its construction and materials had ‘continu'd so firm in so rotten and deep a country for so many years’.⁵⁸ Finally, he describes the milling trades.

Casting his mind back, Evelyn describes the hydraulically powered trades stationed along the banks of the Tillingbourne as he remembers them from earlier years, saying:

I do not remember to have seen such variety of mills and works upon so narrow a brook, and in so little compass; there being mills for corn, cloth, brass, iron, powder, &c.⁵⁹

He also observes that:

Not far from my brothers house, upon the ponds since fill'd up and drain'd, stood formerly many powder-mills, erected by my ancestors, who were the first who brought that invention into England; before which we had all our powder out of Flanders.⁶⁰

From his letter, it seems that at least some of the powder mills at Wotton were sited close to the house, for at some time in the early seventeenth century, ‘a huge beam of fifteen or sixteen inches diameter in my brothers house (and since cramp'd with a dog of iron)’ was broken in an accidental explosion.⁶¹ In addition to gunpowder-milling, George Evelyn established brass and iron works at Wotton in the late 1620s. The brass wire works were sited on the banks of the pigeonhouse pond, and may

⁵⁶ Peter J. Bowler, *The Earth Encompassed: A History of the Environmental Sciences*. (New York: Norton, 1992), pp. 118-119.

⁵⁷ Upcott ed. (1825), p. 688.

⁵⁸ Upcott ed. (1825), p. 689, p. 690.

⁵⁹ Upcott ed. (1825), p. 690.

⁶⁰ Upcott ed. (1825), p. 689.

⁶¹ Upcott ed. (1825), p. 689.

perhaps be seen in the foreground of Evelyn's drawing, fol. B (FIG. 6.3B).⁶² Evelyn's letter to Aubrey also includes a description of a wire-pulling process, which presumably dates from this period. He writes:

[...] first they drew the wyre by men sitting harness'd in certain swings, taking hold of the brass thongs fitted into holes, with pincers fasten'd to a girdle which bent about them; and then with stretching forth their feet against a stump, they shot their bodies from it, closing with the plate again; but afterwards this was quite left off, and the effect performed by an *Ingenio* brought out of Sweden.⁶³

Though he did not on this occasion include a description of the Swedish *Ingenio*, a device of this kind was precisely the sort of 'fruitful' improvement that was one of the ultimate purposes of the History of Trades.

Ordering the Trades

Though Evelyn never completed his manuscript '*Trades. Seacrets & Receipts Mechanical. as they came casualy to hand*', this document nonetheless offers some information which we can relate to the ordering of the landscape at Wotton, recorded in Evelyn's drawings. At the start of the manuscript, Evelyn listed the trades that he expected to include in his compilation and included many trades engaged at Wotton. He recorded trades engaged in transforming the gardens: 'Masson', 'Enginere'; 'Fontaniere'; 'Sculptor'; 'Lutations'; 'Fish-ponds, Canales'; and trades that contributed to the productive prosperity of the estate: 'Miller'; 'Mill-wright': 'Wyer-drawer': 'Lime burner'; 'Powder-maker'; 'Collyer'; 'Gardner'; 'Grasier', 'Warrens' and so on.⁶⁴ But it is the overall structure that Evelyn gives to his list of trades which is of most interest, for it has some resonance with the order that underpins the harmonious microcosm of the estate.

The ordering rational that Evelyn adopted for his compilation of trades is partially alphabetical, but also has strong overtones of social rank and distinction. He starts the compilation with a long, untitled general section,

⁶² Brandon, 'Land...' (1984), pp. 84-84; Brandon, 'The Tillingbourne Story' (1984), p.16.

⁶³ Upcott ed. (1825), p. 689.

⁶⁴ Add 78339, fols. 5-5^v. See Appendix 5 of this thesis.

which he follows with shorter sections devoted to ‘Meane & Frippery Trades’; ‘Servile Trades’, ‘Polite Arts & Trades’, ‘Exotick Arts & Trades’, ‘Trades more Librall’, ‘Femal trades & Arts’, and ‘Occupations in & about the County’. The categorisation is predicated on a combination of the social rank of the practitioner, the elegance of the eventual product, location, and the likelihood of any particular trade inspiring the ‘curiosity’ of the virtuoso – its ‘rarity’ and elegance.⁶⁵ Thus ‘Glassworker’ is merely listed under the general category, whereas ‘Enamelling’ is ‘Polite’, and therefore more elevated. Or, more tellingly, in a later elaboration of this list, produced in 1661 for the Royal Society, ‘Engraving, Etching, etc’ are ‘curious’, whereas ‘Pr: Rupert’s new way of Engraving’ occupies a place under the final and the most exalted heading as an ‘Exotick & very rare seacrett’ – its place assured not only by its rareness, but also, it seems, because it is practiced by royalty.⁶⁶

If Evelyn’s compilation of Trade secrets was intended to serve the purposes of Bacon’s philosophical programme, as argued above, we might justifiably expect to find some influence from Bacon in Evelyn’s ordering scheme. Francis Bacon believed some trades to have more potential to serve philosophical ends than others. The more useful trades were those:

which exhibit, alter, and prepare natural bodies and materials of things; such as agriculture, cookery, chemistry, dyeing; the manufacture of glass, enamel, sugar, gunpowder, artificial fires, paper, and the like.

whilst others, which ‘consist principally in the subtle motion of the hands or instruments are of less use’ – trades such as: ‘weaving, carpentry, architecture, manufacture of mills, clocks, and the like’.⁶⁷ There is, however, no apparent accommodation of this hierarchy in Evelyn’s scheme, nor does Evelyns follow Bacon’s own groupings of trades, as Hunter points out. He

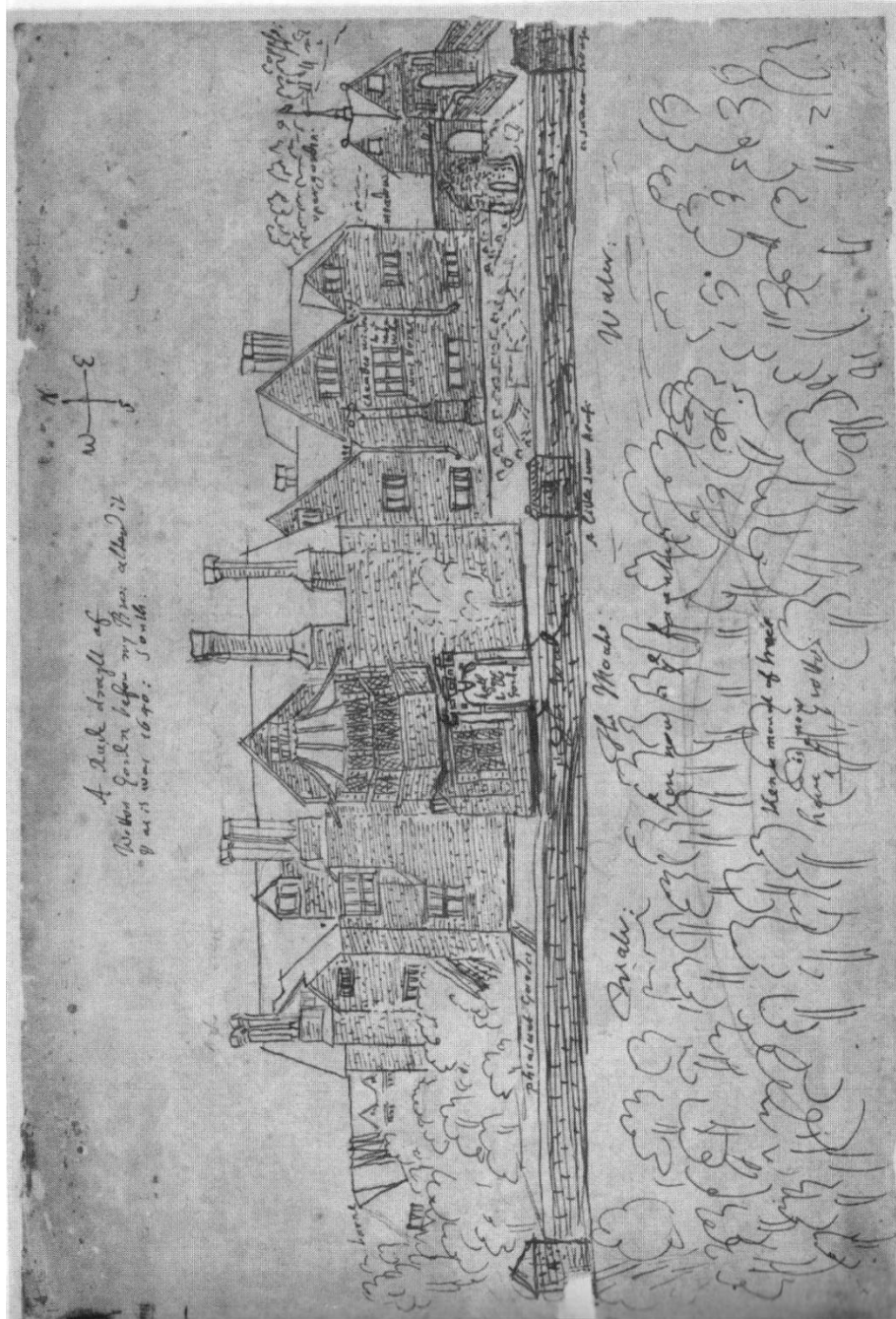
⁶⁵ Walter E. Jr. Houghton, ‘The English Virtuoso in the Seventeenth Century: Part II’, *Journal of the History of Ideas* 3 (1942), 190-219, (pp. 190-201); William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture* (Princeton, N.J.: Princeton University Press, 1994), pp. 301-322.

⁶⁶ London, Royal Society Library, Guard Book, vol 3, ‘Mechanics and trades’, IMA, no. 1. The list is transcribed in Sieveking, pp. 43-46.

⁶⁷ Francis Bacon, *Parasceve, 1620, The Works of Francis Bacon*, ed. by J. Spedding, R. L. Ellis, and D. D. Heath, 14 vols, vol IV (1857-1859), pp. 257-258, quoted in Houghton (1941), p. 38.

suggests the possibility of some European source for Evelyn's scheme.⁶⁸ It is also possible that Evelyn devised what is after all scarcely a complicated list of headings from his own lived experience. What is certain is that the order that Evelyn gives to his compilation of '*Trades. Seacrets & Receipts Mechanical*' shares its hierarchical rational with the societal order that informs his vision of the well-ordered family. Both defer to what Evelyn saw as the divinely appointed hierarchical and 'harmoniously' constructed world, which is represented and embodied in the spatial order of the estate. If Evelyn's engagement with Bacon's project allows us to see the entire landscape of Wotton, from the rainbow fountains of the parterre, to the lime-kilns concealed in the distant woods as a latent laboratory, it is a laboratory that emerges within a primary spatial order that is rooted in the tradition of the harmony of the world.

⁶⁸ Hunter (1998), p. 88.



6.1 A

John Evelyn, 'A Rude draught of Wotton Garden before my Bro: alter'd it, as it was 1640: South, [looking northwards from the hill which was to become the stepped mount], Etching © The British Library Board, Add 78610, fol. A.



6.1 B

John Evelyn, 'Wotton in Surrey, The House of Geo: Evelyn Esqr., taken in perspective from the top of the Grotto by Jo: Evelyn, 1653' (looking northwards), Etching © The British Library Board, Add 78610, fol. G.

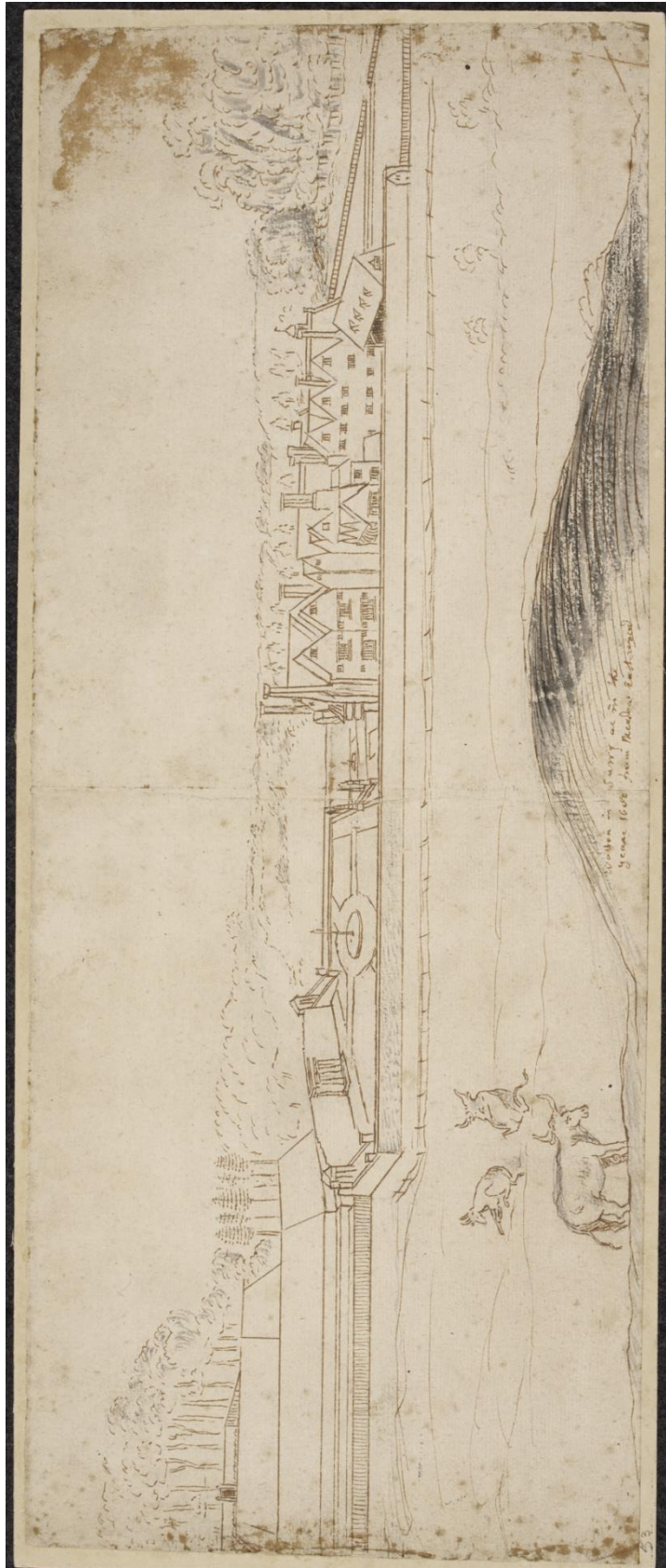


6.1C The grotto at Wotton today. © Author.



6.2 A

John Evelyn, 'Prospect of Wotton Gardens and house, towards the East from the Meadow by the Wood side: As altered by my Bro; 1646', (from the South East). © The British Library Board, Add 78610 fol. C.



6.2 B

John Evelyn, 'Wotton in Surrey as in the year 1653[?]' from the Meadow Eastwards'. © The British Library Board, Add 78610, fol. F.



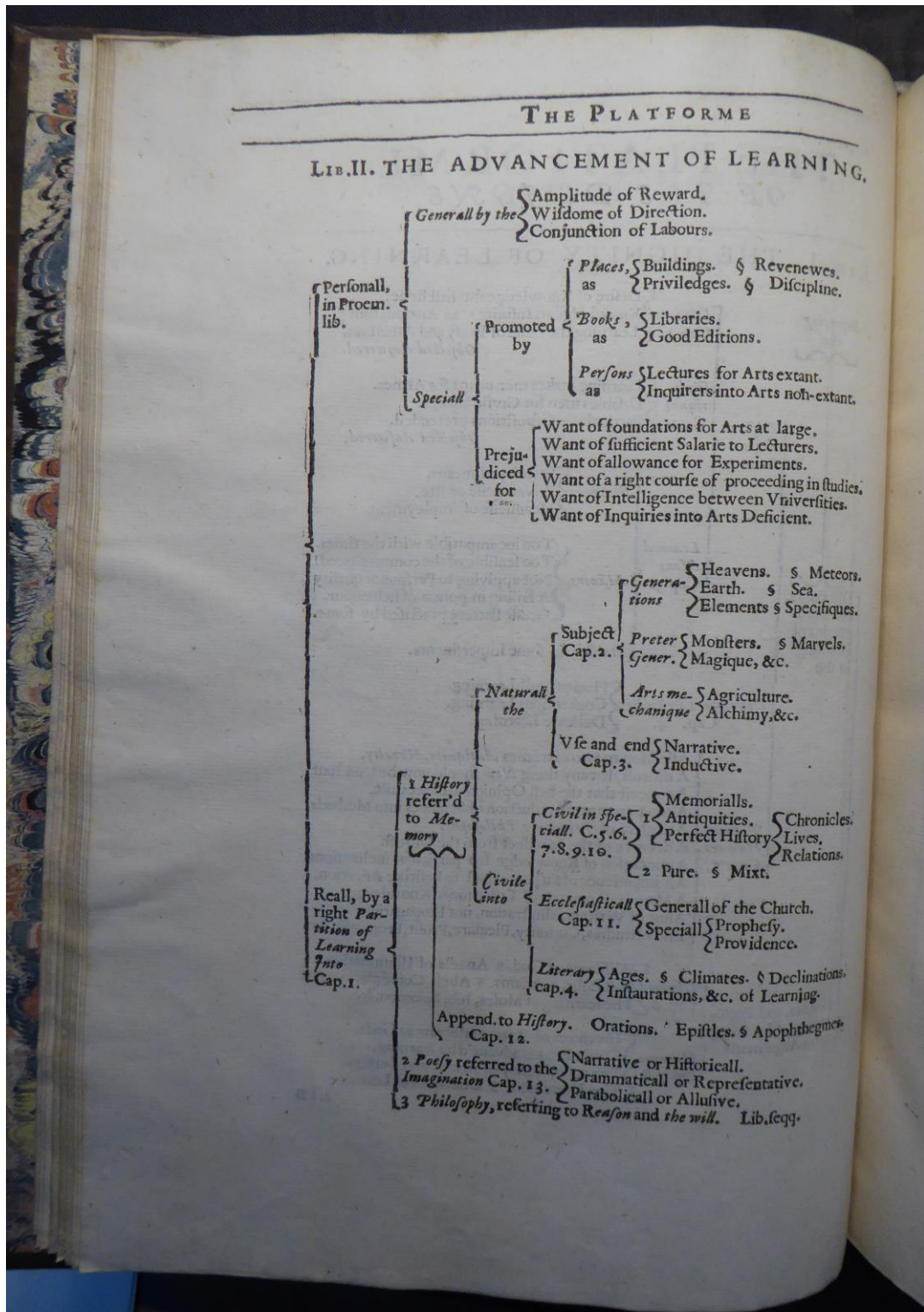
6.3 A

John Evelyn, 'Prospect of the old house at Wotton 1640, from the Broomefield', [from the North West] © The British Library Board, Add. 78610, fol. B.



6.3 B

John Evelyn, 'Prospect of Wotton House', from the North West after alterations to the gardens, c.1653 © The British Library Board, Add 78610, fol. H.



6.4

Francis Bacon, 'Platforme of the Design', from *Of the Advancement and Proficiencye of Learning*; trs. by Gilbert Wats (1640) p. †2^v, following p. 60. © Author.

Chapter 7: The Dial Garden at Sayes Court: a Theatre of the Sun and Moon.

This chapter is the first of two devoted to Evelyn's garden at Sayes Court. It develops an interpretation of the garden through a consideration of Evelyn's ideas of astral influence. The arguments build on ideas established in preceding chapters: that the garden is microcosm and a theatre; that figural and numerical emblematics are used by Evelyn to convey meaning; and that perspectival and optical considerations are important informants of the experience of the garden. Though the argument is extended to the whole garden at Sayes Court, it is centred on the most articulate of its plots, the 'Morin parterre', or 'dial garden'. The chapter argues that this enclosure can be seen as a theatre of the sun and moon.

Of a Gardiner, and how he is to be qualified...That he be skillfull in Drawing and Designing; in Geometrie, the Opticks,[and] Astrologie.

Evelyn, *Elysium Britannicum*.

Introduction

The idea that the family is a harmonious social microcosm, developed by Evelyn in his 'Instructions Oeconomique', his wedding gift to his wife, may be applicable to the landscape of Wotton, but is surely still more pertinent to the design of his own home at Sayes Court.¹ Evelyn's 'Villa' at Deptford, situated in the estuarine landscape of the Thames, was his family home for over forty years.² To use the words of Henry Wotton, the final name on the list of authors whom Evelyn consulted in composing his 'Instructions Oeconomique', Sayes Court can be seen as:

¹ Evelyn, John 'Instructions Oeconomique', London, British Library, Evelyn papers, Add 78430.

² Evelyn bought Sayes Court from his father-in-law in 1652, see Gillian Darley, *John Evelyn: Living for Ingenuity* (New Haven, Conn.; London: Yale University Press, 2006), p. 113. He left Sayes Court to live at Wotton in 1694, *Diary*, vol. I. pp 34-35.

the *Theater* of his *Hospitality*, the *Seate* of *Selfe-fruition*, the *Comfortablest* part of his owne *Life*, the *Noblest* of his *Sonnes Inheritance*, a kinde of private *Princedom*; Nay, to the *Possessors* thereof, an *Epitomie* of the whole *World*.³

The enduring currency of this image is reflected in a letter of thanks which Evelyn received in 1668, from his friend, the courtier and Hermetic chymist, Sir Robert Moray. This gives a slant to the trope, particularly pertinent to this chapter. Moray writes:

Were I at my own disposal, I could be as willing as you would have me to confine myself to that little world that goes under the name of Sayes Court, and choose, not covert, the most courted glories of our terrestrial planet, nay, nor envy those that inhabit the noble one that illuminates the rest, if any such people there be: and then, if the two luminaries that keep up a perpetual spring in that rich place did but shine perpetually on such an obscure guest, what sublunary things would be wanting to complete [my] happiness.⁴

The ‘two luminaries’ to whom he refers were, of course, John and Mary Evelyn (1634 – 1709) - the sun and moon who governed the paradise of Sayes Court, where by the time of Moray’s visit, Evelyn’s famous plantation of evergreen shrubs and trees had matured into a garden of perpetual spring.⁵ Moray elaborates a well-established courtly commonplace when he identifies his host and hostess as the sun and moon. We have only to reflect on the Stuart court’s use of this imagery (or indeed that of Louis XIV in France), to establish the broad cultural currency of the trope. As Vaughan Hart points out, Charles I and Henrietta Maria adopted the image of themselves as Apollo and Diana on many occasions.⁶

This chapter builds on the idea of the garden as a microcosm in an argument which embraces the garden as a whole, but which focuses on the most articulate of

³ Add 78430, fol. 5; Sir Henry Wotton, *The Elements of Architecture*, ... (London, 1624), p. 82.

⁴ Sir Robert Moray to John Evelyn, Yester, 14th June 1668, in *Diary and Correspondence of John Evelyn, F.R.S: To Which Is Subjoined the Private Correspondence between Charles I and Sir Edward Nicholas; and between Sir Edward Hyde, Afterwards Earl of Clarendon, and Sir Richard Browne*, ed. by William Bray (London; New York: George Routledge: E. P. Dutton, 1906), p. 633; for Evelyn and Moray see Frances Harris, *Transformations of Love: The Friendship of John Evelyn and Margaret Godolphin* (Oxford: Oxford University Press, 2003), p. 54, pp. 60-61; Darley, p. 180, pp. 207-208; for Moray generally, Alexander Robertson, *The Life of Sir Robert Moray ... 1608-1673*, ed. by Henry W. Meikle (London: Longmans, 1922).

⁵ Harris, *Transformations* (2003), p. 24, p. 29.

⁶ Stéphane Pincas, and Maryvonne Rocher-Gilotte, *Versailles: Un Jardin à la Française* (Paris: Editions de la Martinière, 1995), p. 22-23; Vaughan Hart, *Inigo Jones: The Architect of Kings* (New Haven; London: Yale University Press, 2011), p.87-89.

the ornamental plots – the oval parterre, referred to here as the ‘dial garden’, after the sun dial that stood at its centre.⁷ In the *Elysium*, Evelyn establishes the parterre as a privileged representational domain, saying that, in a parterre the gardener ‘may be able to compose Impressees, Mottos, Dials, Escutcheons, Cyphers and innumerable other devices with wonderfull felicity & effect’, all arranged ‘according to the fantasy, & judgement of the Gardiner Artist!’⁸ A parterre may show explicit meaning, but equally it may encompass a coded or hidden conception - a ‘fantasy’ that should be ‘neither too faint, nor too open’. In other words, the design of a parterre may go beyond the commonplace into an elaborate and particular design.⁹ This chapter suggests that Evelyn’s ‘Ovall Garden’ is built around the conceit of the dial, a ‘fantasy’ that is both elaborated through the emblematic numbers and figures embedded in its design; and supported by the orientation of the enclosure and its optical elongation. The argument is developed with reference to some familiar themes - that the garden is a theatre and that its spaces are perspectively or optically constructed. The main theme of the chapter is, however, the foundation of the calendrical conceit of Evelyn’s design in his ideas on astrological gardening. The principal source on this topic is chapter VIII of the first book of the *Elysium Britannicum*, ‘Of the Celestiall influences, particularly the Sun, and Moon; and the Climates’.¹⁰ Evelyn’s studies in contemporary astronomy, registered in the chapter on mathematics in the ‘Tomus Tertius’ commonplace book, are also taken into account. Building on these sources, this chapter argues that Evelyn’s understanding of the celestial bodies and the influences that they exert on the garden informed both his gardening routine and the emblematics of the dial garden, which may most fruitfully be interpreted as a theatre of the sun and moon.¹¹

⁷ Evelyn refers to this enclosure as his ‘Morin garden’, ‘Ovall Garden’, or ‘Oval Square’, see John Evelyn, Plan of Sayes Court, London, British Library, Evelyn papers, Add 78628, fol. A, item 40 on key; Diary, vol. III, 17 January 1653, p. 80; Prudence Leith-Ross, ‘A Seventeenth-Century Paris Garden’, *Garden History* 21 (1993), 50-57, (p. 153).

⁸ *Elysium*, p. 123.

⁹ *Elysium*, p. 214.

¹⁰ *Elysium*, pp. 55-59.

¹¹ John Evelyn, ‘Tomus Tertius’, London, British Library, Evelyn Papers, Add 78330, fols.88-95^v.

The Sayes Court Garden

We know of Evelyn's designs for the garden Sayes Court, primarily from the famous annotated plan-*cum*- elevation of the house and grounds, drawn c.1653, the year in which he started to lay out his design (FIGS. 7.1A, 7.1B, 7.1C).¹² The drawing is in Evelyn's own hand and is accompanied by a fine calligraphy key, of uncertain authorship.¹³ Each part of the house and grounds is carefully registered in the plan and listed in the one hundred and twenty six items of the key, which starts with '1. Porch, sustain'd with two Doricke Collumnes, paved underneath, over it my wives Closset of Collections'; and continues, naming all the domestic facilities and new garden feature pictured in the plan, from the bowling greens in the entry court; to the new kitchen chimney; the 'Hog-pen'; the 'saw-pitt'; 'The Great Orchard planted with 300 fruit trees'.¹⁴

The plan shows the Tudor manor house, sited in an awkward position, close to the wall of the dockyard that formed the eastern boundary to the site (south is at the top of the drawing).¹⁵ On this flat and exposed site and separated from the river front by the dockyard, the formal gardens were developed to the west of the house, the services spaces occupying a narrow strip of land to the east (FIG. 7.1A). The more public part of the ornamental gardens consisted primarily of the oval dial garden; the ornamental grove, composed in a criss-cross pattern; a raised mount walk running between the two; and a long grassy promenade running between the orchard on the west, and the parterre and grove on the east (FIG. 7.1C). The promenade connected a small 'banqueting house' at the south end, to an oblong island surrounded by a ditch, in the north. On the plan, Evelyn's private flower garden is overlooked by his

¹² Add 78628, fol. A; for a summary of the development of the garden see Prudence Leith-Ross, 'The Garden of John Evelyn at Deptford', *Garden History* 25 (1997), 138-152; and Frances Harris, *Transformations* (2003), pp. 18-30.

¹³ Mark Laird, 'Parterre, Grove, and Flower Garden: European Horticulture and Planting Design in John Evelyn's Time', in *John Evelyn's "Elysium Britannicum" And European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), pp. 171-221; p. 171, n. 2 claims that neither drawing nor key are in Evelyn's hand, but the drawing style is similar to other drawings by Evelyn, on which basis I propose that he made the drawing (though not the key) see for example, London, British Library, Evelyn Papers, Add 78628 fol. B (FIG. 7.3).

¹⁴ Add 78628, fol. A; the key is transcribed in Leith-Ross (1997), pp. 150-152.

¹⁵ Edward Watson, 'John Evelyn's House at Sayes Court', *Bygone Kent* X (1989), 290-296.

chymical ‘elaboratory’, to the west and beyond this lies the nursery garden.¹⁶ In this more private territory, lying between the grove and the house, Evelyn collected ornamental flowering plants; kept bees; and cultivated medical simples that might be distilled into remedies for the ‘cure of the family’.¹⁷

The garden shown on this plan developed substantially over ensuing decades. Evelyn first extended it, over the course of the 1650s and 60s, adding new groves and avenues that extended into the fields beyond the boundary; he removed the deciduous trees from his first planting of the grove, replanting with evergreens; and eventually, in 1685 replaced the oval parterre with a large semi-circular bowling green, double its size (FIG. 7.3). These changes are registered in survey drawings of the garden made in the early eighteenth century (FIG. 7.2).¹⁸ Our concern here is with the design registered in the plan drawn c.1653, further detail of which is supplied by three supplementary drawings, which show elaborated alternatives for the design of the oval parterre. One of these is held at the RIBA drawings collection, now at the Victoria and Albert Museum; the other two are held in the British Library (FIGS. 7.4, 7.5, 7.5A).¹⁹ The RIBA drawing and one of the two sketches from the British Library show the layout of the parterre as a whole, and differ slightly from the parterre shown in Evelyn’s 1653 plan in that they elaborate the area between the central circle and surrounding oval to include a series of crescent-moon shaped beds, which are missing from the general plan. It is uncertain whether Evelyn planted one of the lunar designs or the plainer scheme shown in the general plan. Whatever the case, the lunar planting designs are taken here as detailed representations of the scheme drawn on the overall plan and the interpretation offered in this chapter moves between the three drawings.

¹⁶ There is some doubt as to whether the elaboratory was actually constructed in this position, since later survey drawings, c. 1700, show no structure in this position, but do indicate a structure with a similar ground plan on the north edge of the garden (FIG. 7.2).

¹⁷ For Evelyn’s chymical receipts see 1659 onwards, London, British Library, Evelyn Papers, Add 78340; Evelyn later installed a ‘philosophical’ beehive received as a Dr. John Wilkins after the two men met on the occasion of Evelyn’s visit Wadham College, Oxford, in 1654, Leith-Ross (1997), p. 145.

¹⁸ Mark Laird, ‘Sayes Court Revisited’, in *John Evelyn and His Milieu*, ed. by Michael Hunter and Frances Harris (London: British Library, 2003), pp. 115-144, (pp. 117-122); ‘Manor of Sayes Court, c.1690’, [by John Grove?], London, British Library, Map Library, K. top. XVIII. 17.3.

¹⁹ Sketch plan of parterre, attributed to John Evelyn by William Upcott, but of uncertain draftsmanship, London, Victoria and Albert Museum, RIBA Drawings Collection, RIBA 20313; John Evelyn, London, British Library, Evelyn Papers, Add 15950, fol. 173, fol. 174, for discussion of authorship and relevance to Sayes Court see Laird (1998), p. 172, p. 184.

Historiography

Existing commentary on Sayes Court garden concentrates on three issues: the genealogy of Evelyn's designs; their formal originality; and the plantsmanship he displayed in cultivating the garden. Penelope Leith-Ross, Frances Harris and Mark Laird are the principal authorities on these topics.²⁰ Addressing the horticultural aspect of Evelyn's activities, these authors emphasise Evelyn's acquisition and acclimatisation of southern European plants for the gardens at Sayes Court, particularly the evergreens for which it eventually became famous - laurels, cypresses, fir, yew, holly, alaternus and phylaria.²¹ As Evelyn wrote to Sir Thomas Browne in 1659/60, 'my owne poore Garden may for its kind, perpetually greene, not be unworthy of mention', whilst in the *Elysium*, he tells his reader that, with evergreen planting, 'an English garden, even in the midst of Winter, shall appeare little inferiour to the Italian, where the Seasons are more [...] benigne, and the gardens almost perpetually florid'.²²

In addressing the formal composition of the garden, both Laird and Leith-Ross argue that French principles and precedents were, again, particularly important for Evelyn. The most influential precedent for the dial garden was the garden that the botanist, nurseryman, and collector, Pierre Morin, developed at his house in Paris.²³ This place was frequented by exiled English virtuosi, who came to admire not only Morin's garden, but also the extensive collections of his cabinet (FIG. 7.7).²⁴ Evelyn knew Morin's oval garden first hand and developed his own 'Morin garden' in conscious emulation of this precedent – even sending to his father-in-law for an interpretation of the 'thoise' measurement, so that he could check the dimensions of the oval garden at Sayes Court against those of the Parisian garden.²⁵ But, as Laird points out, Evelyn's design is more complex than its model, and draws inspiration from a broader range of precedents, including the parterre designs of Jacques

²⁰ Leith-Ross (1993); Leith-Ross (1997); Frances Harris (2003), pp. 18-30; Laird (1998).

²¹ Harris (2003), p. 24, p. 28; Laird (1998), pp. 196-197.

²² John Evelyn to Sir Thomas Browne, 28th Jan 1659/60 [mistakenly dated 1657/8 in Thomas Browne, *The Works of Sir Thomas Browne: Letters*, ed. by Geoffrey Keynes, vol. 6 (London: Faber and Faber, 1931), p. 305, quoted in Laird (1998), p. 196; for dating see E. S. de Beer, 'The Correspondence between Sir Thomas Browne and John Evelyn', *Library*, s4-XIX (1938), 102-106; *Elysium*, p. 313.

²³ Leith-Ross (1993).

²⁴ Leith-Ross (1993), p. 151.

²⁵ Leith-Ross (1997), p. 138.

Boyceau and André Mollet, which Evelyn approached in a creative and original way (FIGS. 7.8, 7.9). In a French formal garden of the period, the ornamental garden typical progresses from the mansion in a sequence that leads from the ‘*parterre en broderie*’, to the grass parterre, to the *bosquet* (FIG. 7.6). As Laird points out, Evelyn also uses these elements in his dial garden, but develops them into a design that radiates out from the centre. Thus, surrounding the central mount, first he plants a ‘*parterre en broderie*’ - the central ‘Round Parterre of Box with 12 Beds of flowers’ and its development into ornamental grotesque-work in box; next he lays out the grass parterre - the ‘Grass plotts sett about with a Border, in which flower plotts’ (the area which the detailed drawings show as crescent moons); and finally, the whole is enclosed within the ‘*bosquet*’ - the ‘evergreen thicket, for Birds private walkes, shades – and Cabinets’.²⁶

Laird’s work lays an important foundation for this chapter by detailing Evelyn’s design and identifying relevant material, particularly the two lunar parterre sketches. But if Evelyn displayed creativity in his formal composition of the dial garden, this chapter argues that the design is also supported by a conceptual creativity, shown in the particular way in which he develops the dial conceit. Laird offers a hint towards reading the enclosure as a dial, suggesting that the twelve central radial beds of Evelyn’s oval parterre (shown both in the c.1653 drawing and the two more detailed parterre drawings), may have been planted in calendrical fashion, with the flowers of each quarter coming into bloom in a different seasons. He proposes the ‘garden of the seasons’ at the Heidelberg *Hortus Palatinus* as a precedent for such a scheme (FIG. 7.10).²⁷ What he does not concern himself with, however, is the integration of this calendrical reading into a comprehensive spatial and emblematic scheme. The intention of this chapter is to explore the garden in terms of this primary conceit of the dial, elaborating the reading through the study of Evelyn’s understanding of the ‘celestiall influences’. To conclude this presentation of secondary literature, we note that Evelyn’s interest in astrology and astronomy has been acknowledged in passing by other scholars, but has received no sustained

²⁶ Laird (1998), p. 176-178; p. 184.

²⁷ Laird (1998), p. 186.

attention.²⁸ No one has thought to apply his ideas concerning the ‘celestial influences’ and the changing aspects of the sky, to any of his garden designs in a developed way.²⁹

The chapter is structured as follows. First we consider Evelyn’s engagement with astrology and astronomy, and his application of this knowledge to the routines of gardening. From this we move to the interpretation of the garden, first looking at the detailed design of the dial garden, and then the structure of the garden as a whole. Thus the argument progresses from the emblematic figures and numbers of the parterre design, to a more spatially situated interpretation, for Evelyn’s dial garden is not isolate, but is integrated into a larger spatial context and must be read as such.

Astrology

In the *Elysium Britannicum*, Evelyn places skill in astrology amongst the essential skill which must be possessed by a gardener, following Vitruvius’ idea of the qualifications needed to practice architecture.³⁰ This stipulation would not have been received as a mark of eccentricity by contemporary readers, for astrological practices of various sorts continued to have currency amongst intellectual elites throughout the seventeenth century, though as Ann Geneva says, ‘by mid-seventeenth century, astrology could claim no [...] leading scientific lights’ of a status equivalent to that of John Dee.³¹ Nonetheless, at the time when Evelyn was planting his garden, astrology was a credible concern in medicine and, as we have seen, was of central importance to Hermetic alchemists.³² As William Newman and Anthony Grafton comment in their treatment of the topic:

²⁸ Michael Hunter, ‘John Evelyn in the 1650s’, in *John Evelyn's Elysium Britannicum and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), pp. 79-106, (p. 86).

²⁹ Passing references to lunar planting at Sayes Court, Leith-Ross (1997), p. 145; Margaret Willes, *The Making of the English Gardener* (New Haven, Conn.; London: Yale University Press, 2012), pp. 196-218; Laird (2003), p. 127.

³⁰ *Elysium*, p. 33.

³¹ Jim Tester, *A History of Western Astrology* (Woodbridge, Suffolk: Boydell, 1987), pp. 204-243; Ann Geneva, *Astrology and the Seventeenth Century Mind: William Lilly and the Language of the Stars* (Manchester: Manchester University Press, 1995), p. 61.

³² Geneva, p. 70.

trying to understand the society and culture of early modern Europe without taking astrology into account is exactly as plausible as trying to understand modern society without examining the influence of economics and psychoanalysis.³³

To illustrate the context with reference to Evelyn's close associates, Elias Ashmole and John Aubrey were both enthusiastic practitioners of astrology, Ashmole being sufficiently convinced of the central importance of the discipline in alchemical practice, to include in the frontispiece to the *Theatrum Chemicum Britannicum*, a bust of the author (Ashmole himself) with his astrological birth chart in place of his head (FIG.7.11).³⁴ But there were others such as John Beale, Thomas Henshaw and Robert Boyle who practiced astrology in a more covert way.³⁵ Evelyn was not alone in recommending astrologically gardening routines, one possible precedent for his treatment of the topic is found in Claude Mollet's, *Théâtre des plans et jardinages* (a point of reference for Evelyn's treatment of 'Parteres & broderie' in the *Elysium*).³⁶

Astrology is now perhaps primarily conceived in terms of the casting of horoscopes as a way of seeing the course of future events. However, in the Early Modern period astrology encompassed a range of attitudes and practices – some of these insisted on precise prognostications of future events or determination of auspicious dates, whilst others took a more lax view of prognostication, merely seeking to discern the general tendency of the astral influences.³⁷ Consulting Evelyn's reading notes we find him considering various ways of approaching or

³³ William R. Newman and Anthony Grafton, *Secrets of Nature: Astrology and Alchemy in Early Modern Europe* (Cambridge, Mass.; London: MIT Press, 2001), p.14.

³⁴ On Aubrey, see Michael Cyril William Hunter, *John Aubrey and the Realm of Learning* (London: Duckworth, 1975), pp. 117-131; On Ashmole, see William R. Newman and Anthony Grafton, 'Introduction' in Newman and Grafton eds. (2001), pp. 15-16, pp. 19-21, pp. 25-26; Elias Ashmole and Robert Vaughan, *Theatrum Chemicum Britannicum. The First Part, Edited by Elias Ashmole* (London: Printed by J. Grismond for Nath: Brooke, at the Angel in Cornhill, MDCLII, 1652).

³⁵ Tester, p. 229.

³⁶ *Elysium*, p. 223; Claude Mollet, *Théâtre des plans et jardinages contenant des secrets et des inventions incognuës à tous ceux qui jusqu'à present se sont meslez d'escrire sur cette matière; Avec Un Traicté d'astrologie, propre pour toutes sortes de personnes et particulièrement pour ceux qui s'occupent à la culture des jardins* (Paris: Charles de Sercy, 1652), in later editions the section on astrology was omitted, see Sten Karling, 'The importance of André Mollet', in *The French Formal Garden*, 1974, ed. by Elizabeth B. MacDougall and F. Hamilton Hazlehurst (Dumbarton Oaks), pp. 3-25 (p. 6).

³⁷ Tester, p.2.

giving boundaries to the practice of astrology. He consulted Bacon's *Advancement of Learning*, recording the author's relatively cautious opinions thus:

The doctrine of Genethliacall positures of the Heavens to precise points of tyme, to it the distribution of howses, censured, and that those minute differences of postures have no force at all: p.148. Let therefore (sayth he) the greater Revolutions (who have yet but small influence) be retained; [...]Therefore prognostications of the temperatures of the yeare may be true, but upon particular dayes, vaine and idle. p.149.³⁸

He also notes from the same source that:

[...] all the planets as well as the Sun have their summers, their winters, wherein they dart downe more forceible, and feeble rayes: as the Moone in Leo more strong, than in Pisces: id: p: 155.³⁹

Then, on the following page of his notebook, Evelyn turns to the opinions of Paracelsus, recording that:

The stars are gouverned by a wise man, but compel an Animal & foolish man. for such a man knows not his owne strength, nor that he hath within him the universall Firmament: Paracelsus: Of the Nature of things: Lib: ix:p:109.

and noting:

How a man may withdraw himselfe from one starre, and bring himselfe under another: p:id:110.⁴⁰

finally he records:

Of casting a Figure be a devilish Astrology, to consult thereby, if wee find evill [towards], tis a Madnesse, if to find good from it, its a folly to believe, that the Divel will be the Author of it: Malvezzi. David perseq p.181.⁴¹

³⁸ John Evelyn, 'Tomus Tertius', London, British Library, Evelyn Papers, Add 78330, fol. 88^v.

³⁹ Add 78330, fol. 88^v.

⁴⁰ Add 78330, fol. 88^v.

⁴¹ Add 78330, fol. 88^v.

Such notes show a certain caution towards astrological determinism and the casting of horoscopes (the ‘devilish Figure’), but they are certainly not sceptical of the possible potency of astral influence, nor the possibility of predicting its variations.⁴²

Evelyn’s own compositions and communications reflect a range of attitudes towards astrology. Thus, in the ‘Instructions Oeconomique’, he writes of choosing a day for a wedding ceremony:

Astrologie

Those who insist on the day, whether auspicious or unfortunate, the Signe, Moone, and the like superstitious more than materiall Observations, let them in my Judgement passe for Lunatick indeed.⁴³

The implication of this statement is that success in marriage does not lie in the right choice of wedding day, but in the practice of those domestic virtues which he describes in this text.⁴⁴ Evelyn was not, however, entirely disapproving of astrological prognostication, for at the birth of his eldest son he sought a ‘geniture’, or birth chart, for the child, writing to his father-in-law that the child ‘came into the world at our Villa on the 24 of the currant, precisely at one a'clock, as I tooke the minute by my Qaudrant. [...] *Astra regunt homines, sed regit Astra Deus*’.⁴⁵ From these sources it seems that Evelyn’s attitudes towards astrology tended towards the cautious, embracing the idea that the stars have influence, but, rather as Bacon, denying the use and worth of minute prognostications of particular events. Within these bounds, the importance that Evelyn places on astrology as a concern for the gardener is beyond doubt. The evidence for this is found in the *Elysium Britannicum*.

As Evelyn understood it, through astrology the gardener can predict how the changing ‘Celestiall Influences’ work on the plants of the garden – how the rays of the sun, the moon, the great constellations of fixed stars, and the planets (which he also occasionally referred to as ‘stars’, a usage that is typical for the seventeenth

⁴² For the dangers of ‘devilish’ practices see Appendix 4 of this thesis.

⁴³ Add 78430, fol. 15.

⁴⁴ See Juliet Odgers, ‘John Evelyn’s villa at Sayes Court’, in *Economy and Architecture*, ed. by Juliet Odgers, Mhairi McVicar and Stephen Kite (London: Routledge, 2015), pp. 59-68.

⁴⁵ ‘The stars rule man, but God rules his stars’; John Evelyn to Sir Richard Browne, August 25th 1652, Letter 63, in *The Letterbooks of John Evelyn*, ed. by Douglas Chambers and David Galbraith (Toronto: University of Toronto Press, Scholarly Publishing Division, 2014), p. 131.

century), might nurture or hinder their growth. He introduces the topic in Chapter VIII of the first book of the *Elysium*, saying:

Touching the Influence of the *Celesiall Bodys*. They are certainly of grand importance, as to their effects and energies upon the Labours of our industrious *Gardiner*: For, as from them proceedes those healthfull and benigne *Aspects*, whilst they regard us in pure and amicable irradiations; So likewise their destructive and maligne ~~Syderations~~ {in} *blasts, mell dews, corruscations*, and other insalubrious *syderations*; ~~and~~ {for} the *Meteors* themselves which contribute to all this are no other then the maladies and indisposures of the *Macrocosme*, as well as of the lesser World.⁴⁶

The garden is subject to the fluxes and changes of the stars – their ‘*syderations*’. These govern the weather, the health of the plants, and indeed the health of gardener himself. Evelyn is explicit in stating that the constellations ‘operate’ on flowers and on other creatures – stones for example, ‘as the miraculous *Phases* of the *Selenites* and some other demonstrate’.⁴⁷ He does not place much faith in ‘the influence of particular *Starrs*, as they are fanci’d to governe, particular *plants*’, but:

the rising and setting of the *Fixed-Starrs* are cause of greate alterations.[...] it was altogether rediculous to denie that the *Hyades* and *Pliades* were not rainy and nebulous {or at least the forerunners of such seasons}: Leo and the Canicular fore {runners of } heate and drouth.⁴⁸

In the *Elysium*, when writing about the progress of the year Evelyn invariably refers to the twelve Zodiactal signs rather than the conventional months. He uses ‘the Goate’ (Aries) rather than April, and Taurus rather than May, and so on.⁴⁹ His calendar is measured not by counting days, but by watching the movement of the heavens.

Though each of the planets and constellations have their influence, for Evelyn, the sun and moon are the most important. The sun is of all ‘Celestial inhabitants the most vigorous and active instrument’, ‘he’ is ‘the Eye of the World;

⁴⁶ *Elysium*, ‘Of the Celestiall influences, particularly, the Sun, and Moon: and of the Climates’, pp. 55-59, (p. 55).

⁴⁷ *Elysium*, p. 58.

⁴⁸ *Elysium*, p. 58.

⁴⁹ *Elysium*, p. 58, pp. 61-63.

the gemme of heaven, [...] the measure of Tyme'; 'the Celestial *Genitor*'; 'husband' of the earth.⁵⁰ The moon, which he characterises as feminine, is as strong in her effects, being 'of all the rest neerest the *Earth*; so hath she a very greate influence on the Labours of our *Gardiner*, during the entire course of her periodic moneth'.⁵¹ Her influence waxes and wanes with nearness to and distance from the earth, 'in relation to *Excentricitys* and *Epicycles* in their [conjunction sign] and [opposition sign]'. Consequently the gardener should know the moon's course and consult her phases when he is deciding:

when to take up, cutt, Graffe, Transplant or Sow; for Seedes committed to the earth at the end of the end or beginning of the *Moone*, produce lusty and goodly plants, those in the full Low & shrubby.⁵²

Evelyn practiced what he preached, for he observed the phases of the moon when planting his own garden. The diary entry for the nineteenth of March 1653 reads: 'I planted the *Ortchard* at *Says-Court*, *New Moone*, wind *West*.'⁵³ Mary Evelyn, writing to a friend in 1664, tells wryly of her husband's 'New Almanack now under presse fortelling the disasters of plants if not sett just in such a face and minute of the *Moone*'. She refers to his *Kalenadarium Hortense*, which was printed as an appendix to *Sylva*, in which Evelyn advises on lunar planting, as for example: 'Shade your *Carnations* and *Gilly-flowers* after mid-day about this *Season*: Plant also your *Stock-gilly flowers* in beds, full Moon'.⁵⁴

Engagement with astrological practices was not limited to any particular milieu or necessarily underpinned by any particular natural philosophy during the seventeenth century, but Evelyn gives his understanding of astral influence a characteristically Hermetic gloss.⁵⁵ For Evelyn, the constellations 'above' provide 'various receptacles' in which the Universal Spirit comes to a temporarily rest in its unending rotation through the universe, before descending to fructify the material

⁵⁰ *Elysium*, p. 55-56.

⁵¹ *Elysium*, p. 57.

⁵² *Elysium*, p. 57.

⁵³ *Diary*, vol. III, 19th March 1653, p. 81.

⁵⁴ Mary Evelyn, 1663/4, London, British Library, Evelyn Papers, Letter book 4, quoted in Leith-Ross (1997), p. 147; John Evelyn, 'Kalendarium Hortense' in *Sylva, or a Discourse of Forest-Trees, and the Propagation of Timber in His Majesties Dominions...* (London: printed by Jo. Martyn & Ja. Allestry, 1664), p. 67.

⁵⁵ 'Hermetic' astrology, see Geneva, pp. 12-13.

matrices ‘below’, initiating new ‘productions’. The operation of the Universal Spirit is nuanced by the position of the ‘stars’.⁵⁶ Thus:

the greater *Constellations*,[...] inspire a various forme into the Creatures, {operating by various Effluxes both on the Earth & each other} they warme the Earth, and midwife ~~the~~ her productions; being with the rest of the *Planets* (the *Suns Coadjutor*) and deferrents of the universall Soule.⁵⁷

No doubt Evelyn took a characteristically ‘experimental’ attitude towards his astrological gardening routine, observing and reflecting on the success or failure of his various planting, cutting and grafting activities in relation to the lunar phases, for his *Kalendarium* reads as a work founded on personal experience and he occasionally exhorts his reader to ‘makes *Experiments*’ in their planting routines.⁵⁸ It seems that this experimentalism was informed by his reading in astronomy, an interest registered in his commonplace book, the ‘Tomus Tertius’.⁵⁹ Here, Evelyn recorded some lengthy excerpts from ‘the excellent Mathematicians of our Tymes’ and some of this information migrated to the pages of the *Elysium*, suggesting that Evelyn attempted to respond to the minutiae of astral data by integrating it into his lunar planting regime.⁶⁰

Astronomy

The primary object of Evelyn’s astronomical studies, registered in the ‘Tomus Tertius’ is the *Selenographia* of Joannes Hevelius.⁶¹ Evelyn’s notes from this work include five large meticulously copied diagrams, the first three of which describe competing ‘Hypotheses’ of cosmic systems: the geocentric ‘Hypothesis Ptolomaica Alphonsina’, the ‘Hypothesis Tychonica’ from Tycho Brahe; and finally the

⁵⁶ *Elysium*, p. 42; p. 41, ‘forme’ is one of Evelyn’s synonyms for the Universal Spirit.

⁵⁷ *Elysium*, p.58

⁵⁸ Evelyn, ‘Kalendarium’, in *Sylva* (1664), p.62.

⁵⁹ Add 78330, fol. 90.

⁶⁰ See below, n. 67, n.69.

⁶¹ Add 78330, fols. 88-93^v; Joannes Hevelius, *J. Hevelii Selenographia: Sive, Lunæ Descriptio. Addita Est, Lentis Expoliendi Nova Ratio; Ut et Telescopia Diversa Construendi* (Gedani [Gdansk]: Andreas Huenefeld for the author, 1647).

heliocentric ‘Hypothesis Copernicana’ (FIG. 7.12).⁶² Evelyn preferred the last of these, saying:

140 yeares sinc Nicholas Copernicus invented another Hypothesis or indeede, revived the Pythagorean Scheme againe, which opinion almost all the excellent Mathematicians of our Tymes have embraced: as rarely Solving all the phoenomena, motions, longitudes & Latitudes &c.⁶³

The most obvious connection between Evelyn’s astronomical studies and his gardening is found in the last two diagrams that he copied from Hevelius, which show the phases of the moon. The first of these describes the spatial relationship between sun, moon and earth, and depicts twelve different lunar phases (FIG. 7.13).⁶⁴ The second is much more detailed, describing the moon in thirty-six different phases, which chart the lunar appearance from the darkness of the ‘Interlunium’, through ‘*Luna Prima*’, ‘*Luna Corniculata*’, ‘*Luna Gibberosa*’, ‘*Luna ad Oppositione virgena*’, and so on, finally arriving at the ‘*Plenilunium*’ before waning through the same sequence, back into darkness (FIG. 7.13).⁶⁵ Each phase is shown by a drawing of the moon’s face placed in the appropriate part of the cycle. On the internal side of the circle Evelyn notes the ‘*Aspectus*’ of the moon as it moves through the cycle, from ‘*oppositio*’ to ‘*conjunctio*’. For a gardener concerned with the direct and important influences of the moon on plants this is all relevant information. The drawing also has a suggestive formal resonance with the lunar parterre sketches.

In addition to these diagrams, Evelyn copied quite extensive passages of numerical data from Johannes Hevelius (1611 – 1687). To quote a short extract, in relation to the *Hypothesis Copernicana* he made notes on the planetary phases, which read:

Mercury revolves in 87 days 23 howrs & 45 min; Venus something farther from the center in 224 days.17 h.26.m. Terra more remote in 365 days.5 h.49 m. [Mars symbol] in one Aegyptian yeare. 321 days. .22 h.21m. Jupiter in 11 Aegyptian yeares 315 days.h.17.m14.(i) julian years 11. mer: 10 Days.9.h.14.m.10. Saturne the most remote 29 Julian years 5 months. 4 days 12

⁶² Add 78330, fol. 89^v-90.

⁶³ Add 78330, fol. 90.

⁶⁴ Add 78330, fol. 90^v.

⁶⁵ Add 78330, fol. 91.

minutes. See his scheme. of all these 3 several Hyp: se Hevelius from pag: 158: ad 168.⁶⁶

Some of this type of information is found in the *Elysium* where he writes:

the lunary yeare consists of 12 Synodical moneths or 354 days, some odd hours & Scruples, eleven dayes lesse than the Solar; & it is not rectified till the cycle of 19 yeares is Effluxed.⁶⁷

Similarly, in the ‘Tomus Tertius’, Evelyn writes:

A perfect full moone [...] not above 2 howres before it begins to decrease so Vitellio & Keinholius. But Kepler denighs that it can be seene at all. *Astronomia optica* p. 237.⁶⁸

whilst in the *Elysium*, a marginal note records:

The illumination of the Moone begens from its first apparition, but the measure of it is uncertaine, because sometimes she appears from the 4th day after ~~capture~~ coition; sometimes from the 3d, yea & sometimes from the very first.⁶⁹

We will never know just how much of this ‘celestiall’ data Evelyn actually translated into his gardening routine, but we can be sure that he continued in his earnest concern to make sense and use of the precise measurements of the celestial revolutions that he gathered from his reading in astronomy into the 1660s, for some of the more precise notes on the passage of the moon, quoted above, appear in the *Elysium* as amendments to the first fair draft. It may be that Evelyn’s preoccupation with lunar gardening increased through the 1660s though, on the evidence of his diary entry, he was already preoccupied with lunar planting when in 1653, he ‘planted the *Ortchard* at *Says-Court*, *New Moone*, *wind West*.’⁷⁰ How then did Evelyn incorporated his understanding of the varying celestial influences into his schemes for the design of his garden?

⁶⁶ Add 78330, fol. 90.

⁶⁷ *Elysium*, p.57, n. 4.

⁶⁸ Add 78330, fol. 91.

⁶⁹ *Elysium*, p. 57, n. 3.

⁷⁰ *Diary*, vol. III, 19th March 1653, p. 81.

The Dial Garden

We start by considering the numbers implanted in Evelyn's design. In the overall layout of the garden shown in the plan of c. 1653, the dial garden is divided into four quarters by axial paths running north-south and east-west (FIG. 7.1A; 7.1B). It has four circular cabinets carved out of the evergreen thickets that occupy the quadrants between the rectangular outer limits of the plot and the central oval. Around the base of the mount twelve segmental flower beds, framed in box, radiate out from the centre. These are encircled by further ornamental grotesque work and what remains of the oval is planted with lawn, bordered by a strip with further ornamental grotesque work at the junctions with the paths. The framing strip that separates this lawn from the central patterned circular beds is punctuated with twenty-four flower pots, whilst slim standard cypresses stand at the principal junctions of the paths.⁷¹

At the most straightforward level, the figures and numbers that Evelyn uses in his design for the parterre can be seen as an inscription of spatial and temporal measure suggested by the dial theme - the quartering of the plot connoting the four seasons whilst also denoting the four quarters of the earth, especially given that the whole composition is oriented exactly to the cardinal directions, like the garden as a whole; the further sub-division of the central circle into twelve segments then signifies the twelve months and the hours; and the twenty-four plant pots placed in the band at the outer edge of the circle stand for the hours. In incorporating these numbers Evelyn is engaging with the emblematic numbers that signify cycles of completion, an idea we have already encountered in relation to the *Philosophico-Medicall* garden. The basic idea is commonplace, but what makes the Sayes Court design rather more interesting is a further elaboration of the dial conceit found in the two lunar parterre sketches. The interesting feature is Evelyn's use of the moon segments, the numbers of which register an interest in the niceties of the lunar and solar phases.

⁷¹ See key to Add 78628, fol. A.

On the British Library drawing Evelyn alternates seven and eight segmental moons per quarter, making a total of thirty for the whole cycle (FIG. 7.5); on the RIBA drawing he alternates twelve and thirteen moons per quarter, making a total of fifty (FIG. 7.4). Though we could see either or both of these alternating number patterns as a shoddiness born of un-professional draughtsmanship - drawing eight moons where seven were meant (the week), or, thirteen when twelve were intended (the months) - it is equally possible to see the alternating numbers both as a play on the dynamic relationship between the sun and moon over the course of the year, and as a move towards precision, a register of Evelyn's increasing interest in exact astronomical data.

The point is that there are two different ways of measuring the lunar year – twelve synodic months or twelve sidereal months, and neither coincides exactly with the ‘*Solary Yeare*’ which, as Evelyn writes, is ‘that intervall of Tyme in which the Sun doth with its *Seeming* proper motion pervade the 12 Signes of the *Zodiacque*’.⁷² This phenomenon was well understood from antiquity and is concisely explained in the classic of ancient numerology, Macrobius’ *Dream of Scipio*, a source which Evelyn refers to in his ‘Tomus Tertius’ reading notes.⁷³ Macrobius explains the phenomenon as follows:

The sun, you see, passes through one sign of the zodiac in a month’s time. Let us suppose that the sun is in the first part of Aries when the moon leaves its conjunction with it or, as we say, ‘is born.’ After twenty-seven days and nearly eight hours the moon returns to the first part of Aries but does not find the sun there, for it, meanwhile, has gone on, according to its own fixed course. Consequently we do not think of the moon as having yet returned to its starting point because our eyes saw it at that time not starting from that part of Aries, but leaving the sun. For two days, more or less, it pursues the sun, catches up with it, and then proceeds from it again, a new moon.⁷⁴

There are two ways of measuring the moon’s ‘annual’ passage – one is a measure of the passage of the moon against the zodiacal sky, the other is the measure of the

⁷² *Elysium*, p. 60.

⁷³ Add 78330, fol. 93.

⁷⁴ Ambrosius Aurelius Theodosius Macrobius, *Commentary on the Dream of Scipio*, ed. and trs. by William Harris Stahl (New York: Columbia University Press, 1990), pp. 109-110.

period between new moons. The second is longer than the first, they do not yield the same basic ‘numbers’.

By alternating seven moons per quarter with eight moons per quarter in his British Library parterre design, Evelyn registers the seven times four that ‘marks the number of days required by the moon to complete its course out and back across the zodiac’ (the ‘sidereal period’, which varies but can reach nearly 28 days), whilst, by including eight moons per quarter, he marks the ‘lunar synodic period’ (the interval from one new moon to another, which can be as long as thirty days).⁷⁵ A similar logic informs the RIBA sketch with its alternating twelve and thirteen moons, this time working around the difference between the solar year and lunar years (FIG. 7. 4). If, in this instance, each moon figure represents a week Evelyn gives two alternatives - a forty-eight week lunar year, with twelve sidereal moons per quarter; or a fifty-two week solar year with thirteen weeks per quarter - the rhythm that Evelyn adopts in the parterre design combines the two, alternating twelve and thirteen moons per quarter. Thus Evelyn incorporates a degree of observational accuracy into the emblematic numbers of his solar and lunar dial. But what of the other more spatial aspects of Evelyn’s design, what of the placing and alignment of the dial garden within the overall scheme of the garden and what of the spatial qualities of its oval figure?

Perspective, Spectacle and Axiality

Traditionally the perfection of the heavens was represented by the perfection of the circle, a conception that persisted through Copernicus (1473 – 1543) and Galileo (1564 – 1642). The diagrams that Evelyn copied from Hevelius each indicate the continuing currency of this idea into the 1650s, for each shows the heavenly bodies fixed in perfectly circular courses.⁷⁶ With the publication of Kepler’s (1571 – 1630) *Astronomia Nova*, in 1609, this was no longer the only possibility, for in this work

⁷⁵ Macrobius and Stahl, p.110, n. 53 and n. 54.

⁷⁶ Alexandre Koyré, *From the Closed World to the Infinite Universe* (Radford VA: Wilder Publications, 2008), pp. 10-39; Add 78330, fols. 89^v-90.

Kepler proposed that Mars followed an elliptical orbit.⁷⁷ Evelyn was aware of this development, for in his ‘Tomus Tertius’ notes he records:

And Kepler *Astronomia parte optica* p. 215.c.34 de motu martis 176. Se other opinions confirming this. Hevelius. p: 78.⁷⁸

Kepler’s work ushered in the possibility of incorporating the ellipse into the iconography of heavens as a straight forward expressions of an observable heavenly motion.⁷⁹

Such an iconographic intention would not invalidate the possibility of other equally important considerations playing into Evelyn’s choice of figure for the garden. The precedent provided by Morin’s garden should not be underestimated, for it gave Evelyn a lived experience of the spatial qualities of the oriented, yet smoothly embracing enclosure offered by an oval evergreen hedge. To provide an enclosure with these particular spatial qualities was no doubt a part of Evelyn’s intention. One might also presume that Evelyn’s choice of an oval, rather than a circle, was influenced by issues of perspectival composition, which were soon to play such a prominent part in his descriptions of the spectacle of the *Elysium*.⁸⁰ As we shall see, however, if ‘perspective’ experience was important in the composition of Sayes Court garden, so too was the play of light across its fabric as a register of the movement of the celestial bodies across the heavens. To address these optical themes, the dial garden must be viewed in its wider context, taking into account the larger structures of the garden, its view points, and its axes, as well as the challenges faced by Evelyn when first addressing the site.

⁷⁷ Johannes Kepler, Tycho Brahe, and Franciscus Gansneb Tegnagel, *Astronomia Nova Seu Physica Coelestis, Tradita Commentariis de Motibus Stellæ Martis ex Observationibus ... Tychoni Brahe Plurium Annorum Pertinaci Studis Elaborata Pragæ a Joanne Keplero. [with a Prefatory Epistle by F. G. Tegnagel.]* ([Prague]: 1609); Margaret C. Jacob, *The Scientific Revolution: A Brief History with Documents* (Boston: Bedford/St. Martin's, 2010), p. 135.

⁷⁸ Add 78330 fol. 88^v.

⁷⁹ George L. Hersey, *Architecture and Geometry in the Age of the Baroque* (Chicago: University of Chicago Press, 2000), pp. 133-155, (p. 135).

⁸⁰ See chapter 4 above.

When Evelyn moved to Sayes Court, he decided to retain the house, rather than to demolish and rebuild in a position more central to his land.⁸¹ Thus, at the outset of the works Evelyn accepted the impossibility of ordering the layout for his garden along a single central axis, leading from the house to the fields beyond the garden walls, in the manner that he recommended in the *Elysium*. In the grand plan of c.1653 there are axial structures, but they exist as fragments only (FIG. 7.1C). The first fragmentary axis is constituted by the approach to the house. This leads through the ‘Broome Fields’, where it is flanked by double rows of lime trees, into an entry court, which has a bowling green to either side of the central gravel walk and is bounded by brick walls set with fruit trees. Entering this court, the avenue of limes is displaced by rows of cypresses, arranged in a single file on either side of the path.⁸² The sequence terminates in the front door, with its new ‘porch, sustain’d by two Doricke Colimnes’.⁸³ In order to enter the garden through the house, the visitor must pass through the entrance hall, making a right hand turn into a suite of ground floor reception rooms, which occupy the west front and look into Evelyn’s private flower garden.⁸⁴ Privileged visitors and members of the family might enter the garden at large by passing through these rooms, first into Evelyn’s ‘Private Garden of choice flowers, and Simples’, and from thence passing through a door in its enclosing wall, positioned to the south of the garden elaboratory (FIG. 7.1C).⁸⁵ This door opened directly onto a short flight of steps leading up to the terrace walk, which ran between the dial garden and the grove.⁸⁶ Less familiar visitors could enter the garden through a door in the north west corner of the entry court. This opened onto a subsidiary axis marked by a path running between the thickets surrounding the dial garden on one side, and the holly hedge at the base of the mount walk on the other, continuing rather weakly through a gate into the orchards beyond.⁸⁷

The main organising axis of the garden as a whole runs parallel to the entry sequence along a grassy ‘Pourmenade’, twenty-one foot wide, which connects the

⁸¹ Harris (2003), p. 20; Leith-Ross (1997), p. 138.

⁸² Add 78628, fol. A, items 114, 121, 25; Leith-Ross (1997), p. 144.

⁸³ Add 78628, fol. A, item 1.

⁸⁴ Add 78628, fol. A, items 11-14.

⁸⁵ Add 78628, fol. A, items, 54, 62.

⁸⁶ Add 78628, fol. A, item 45.

⁸⁷ Add 78628, fol. A, item 92.

banqueting house to the island.⁸⁸ As the garden developed over ensuing decades, this walk was to become increasingly obvious as the central structure of the garden, as Evelyn planted new groves; extended further avenues into the surrounding fields; and following frost devastation in 1683-84, eventually ripped up the dial garden to replace it with a bowling green, twice the size (FIGS.7.2, 7.3).⁸⁹ The banqueting house, which is still present on a detailed plan of the new bowling green (FIG. 7.3 drawn by Evelyn in February 1684/5), eventually assumed the place usually occupied by the mansion in the classic scheme of a garden layout presented in the *Elysium* – it offered a modest elevation from which to view the garden as it develops around a primary axis of symmetry. But in the 1653 plan, this banqueting house axis already has some importance and it seems possible that Evelyn at one time envisaged planting a further parterre on the other side of the central promenade, to balance the first, just as he planted a further grove, to the west of the walk, to mirror that on the east.⁹⁰ In this way the prospect from the banqueting house would have shown a symmetrically composed garden, more after the French manner. This proposition is, however, undermined by the orientation of the dial garden, for, predicating the banqueting house as the primary viewpoint, we would expect the oval garden to be laid out with its long axis aligned to the length of the promenade. This would accord with Evelyn's recommendations in the *Elysium*, but the dial is laid out east-west.⁹¹ Why is this?

One possible answer to this question is that Evelyn had no intention of planning his garden at Sayes Court according to the sort of 'French' axial hierarchy that he describes in the *Elysium*. Taking this stance, there would be no reason for the dial garden to have been oriented to suit the overview of the garden from the vantage point of the banqueting house. Mark Laird makes this argument and suggests that the parterre was laid out to be viewed from the 'Terras walke or mount' which stood between the parterre and the grove.⁹² But whilst this terrace viewpoint may have worked well for the first few years after planting, by July 1658 Evelyn was already able to report to his father-in-law in that 'My oval garden is now as compleate as it

⁸⁸Add 78628, fol. A, item 43.

⁸⁹ London, British Library, King's Topographical Map Collection, K. top. XVIII. 17.3; Laird (2003), p. 127.

⁹⁰ Harris (2003), p. 28.

⁹¹ *Elysium*, p. 100.

⁹² Laird (1998), p. 185.

can be for 6 foote high'.⁹³ The six feet of growth refers to the 'evergreen thicket' planted in the corner quadrants around the oval enclosure and this alone must have made the view of the ornamental design of the parterre quite partial when viewed from the elevation offered by the mount walk, which appears to have been raised only by four or five steps. In addition, Evelyn's much prized holly hedge, which stood between the parterre and the south side of this walk, eventually grew to such prodigious dimensions that it would have greatly vitiated, or even completely obscured the view of the parterre.⁹⁴ It seems that Evelyn intended his dial garden to be enjoyed, not so much as a field of pattern to be viewed from an external vantage point as part of a larger composition, but as a room-like enclosure. As far as the garden engages with visual spectacle, it is the view of the peripatetic spectator which is important.

Moving from the expansive grass promenade, into the enclosure of the dial garden, with its fragrant, dark hedges and bright floral floor, the entry to the oval might be construed a point of 'experimental' reflection on perspective – a point at which the foreshortening of the oval figure or the apparent widening of the central circle into an ellipse might be considered (FIG. 7.14). No doubt Evelyn chose the flowers for his planting scheme, at least in part, for their proper height with respect to the tiering of the overall composition, and no doubt the beds were suitably embossed in a relief suited to the overall composition and scale of the spectacle, in the manner recommended in the *Elysium*.⁹⁵ Then, proceeding further into the enclosure and climbing the dial mount, the spectator would have reached the primary vantage point for viewing the pattern of the 'Trayle work', which radiated out from that centre.⁹⁶ From here, the spectator could have walked around the dial and taken a giddy view of the ornament 'in *Plano*'.⁹⁷ So, if the dial garden was composed as a part of a peripatetic sequence, rather than as a part of an overall prospect of the garden, we have a reason why it was *not* important that it be aligned north-south, parallel to the banqueting house promenade. But we still have no positive explanation for its east-west orientation.

⁹³ John Evelyn to Sir Richard Browne, July 1658, Evelyn Letterbooks 1433-1548, London, British Library, Evelyn Papers, Add 78298–78299, letter 1449, quoted in Leith-Ross (1997), p. 145.

⁹⁴ Leith-Ross (1997), p. 146.

⁹⁵ *Elysium*, p. 124.

⁹⁶ *Elysium*, p. 33.

⁹⁷ *Elysium*, p. 124.

It is possible that the alignment was influenced by site conditions, for we know that Evelyn retained the pre-existing holly hedge, which bordered the dial garden plot on its northern edge and it is possible that the other boundary, on the south side, reflects the line of a pre-existing field enclosure.⁹⁸ This, however, is conjecture and it is notable that Evelyn's initial scheme included planting trees around the edge of the entry field, to the south of the dial garden (a measure he carried out in 1654), so he clearly had no objection to intervening in this territory.⁹⁹ Given the scale of Evelyn's gardening endeavours, moving a hedge to accommodate a parterre that extended further southwards would not have been a significant extra expense – he bought in trees eight hundred at a time; he shipped plants from Oxford, from Essex, from London and Paris, often drawing on the good will of his father-in-law, Sir Richard Browne, in their purchase.¹⁰⁰ Laments over the expense of the gardens were a recurring theme in his wife's correspondence.¹⁰¹ Rather than seeing the orientation of the dial garden as a pragmatic response to site conditions (or even accepting that such considerations may have played their part), might we not see the dial 'fansty' as the primary reason for establishing the dial garden on an east-west axis? Evelyn placed eight slim cypresses at the junctions of the parterre paths, and these would have cast their shadows across the radial pattern of beds and smooth areas of lawn – shadows that lengthen at the rising and setting of the sun (or the moon on an unclouded night) and shortened at its zenith, a dynamic mirrored in the alignment of the enclosure.

The British Library parterre sketch, with its alternating pattern of seven and eight moons to a quarter, is bound into a volume, almost immediately before a bundle of 'Mathematical exercises' made by Mary Evelyn.¹⁰² These are, appropriately enough, sun-path diagrams (FIG. 7.15). The juxtaposition suggests that the planning and planting of the garden, the choosing of the sundial, and perhaps the mastery of the accompanying mathematics was a topic of discussion between

⁹⁸ Leith-Ross (1997), p. 138.

⁹⁹ Leith-Ross (1997), p. 144.

¹⁰⁰ Leith-Ross (1997), pp. 145-146.

¹⁰¹ Leith-Ross (1997), p. 147.

¹⁰² Mary Evelyn's 'Mathematical exercises at Paris, 1650', in 'MISCELLANEOUS Notes, Memoranda and Extracts, on historical, literary, and scientific subjects, chiefly in the handwriting of John Evelyn', London, British Library, Evelyn papers, Add 15950, fols. 178-188.

husband and wife, the ‘sun and moon’ of the ‘little world’ at Sayes Court. We do not know what sort of dial occupied the centre of the parterre. It may have been a simple sun dial such as the ‘*dubble Horizontal*’ dial, invented by Evelyn’s friend and Wotton neighbour, the mathematician William Oughtred; or a more complex piece that showed, as recommended in the *Elysium*, ‘the Babylonian and Easterne hourers, signes, & in summ a projection of the whole Spheare’.¹⁰³ Whatever the case, it is on the face of the dial that the detailed mathematical description of the heavenly motions must have been truly inscribed. But the design of the dial’s oval enclosure frames this exact inscription in a looser, or more emblematic description of the dynamic stability of cosmos, embedded in the patterning of the garden floor, the orientation of the enclosure to the cardinal directions, and its elongation along the east-west axis. The whole face of the garden thus provided a theatre for the enactment of the daily drama of the two great luminaries, its optical construction accommodating the changing pattern of light and shadow from the celestial bodies as much as the dynamic view of the peripatetic spectator.

Attached to many of the trees in the orchard, Evelyn has drawn a shadow, cast westward cross the turf as the sun rises in the east. It is morning in the garden, and both this first freshness and the perpetual verdure that Evelyn planned to cultivate at Sayes Court, place the garden in relation to the beginning of time, the morning of the world. Sayes Court is a paradise, where the sun and moon, husband and wife, rule in harmony - or more accurately, it is ‘a memorie of that delicious place’, to take a phrase from the opening sentence of the *Elysium*.¹⁰⁴

¹⁰³ *Elysium*, p. 213, p. 214; On Oughtred’s sundial, see Hester Highton, *Sundials at Greenwich: A Catalogue of the Sundials, Horary Quadrants and Nocturnals in the National Maritime Museum, Greenwich* (Oxford: Oxford University Press, 2002), pp. 58-59, p. 187; on Evelyn and Oughtred see Darley, p. 22, pp. 127-128.

¹⁰⁴ *Elysium*, p. 29.



A

7.1

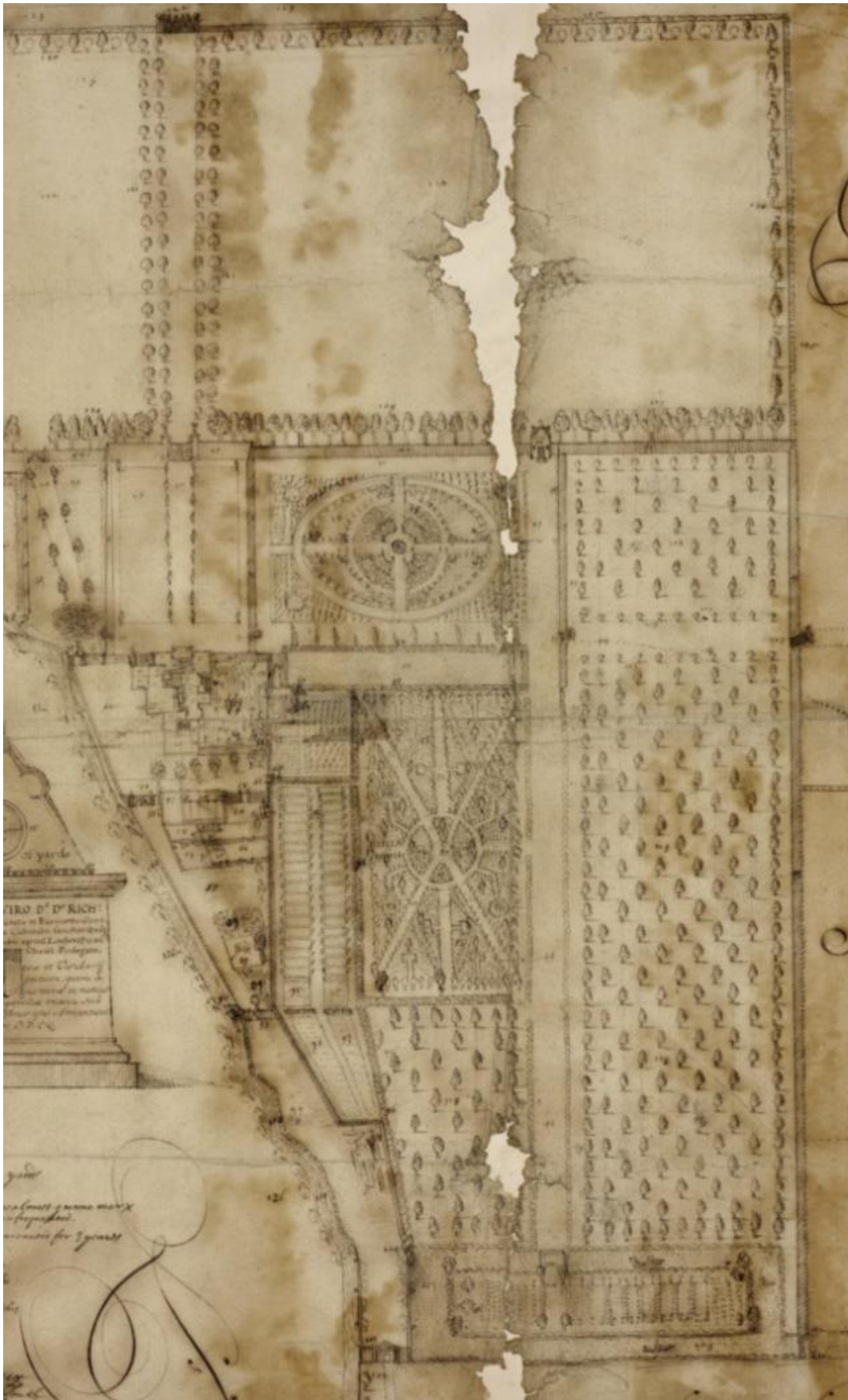


B

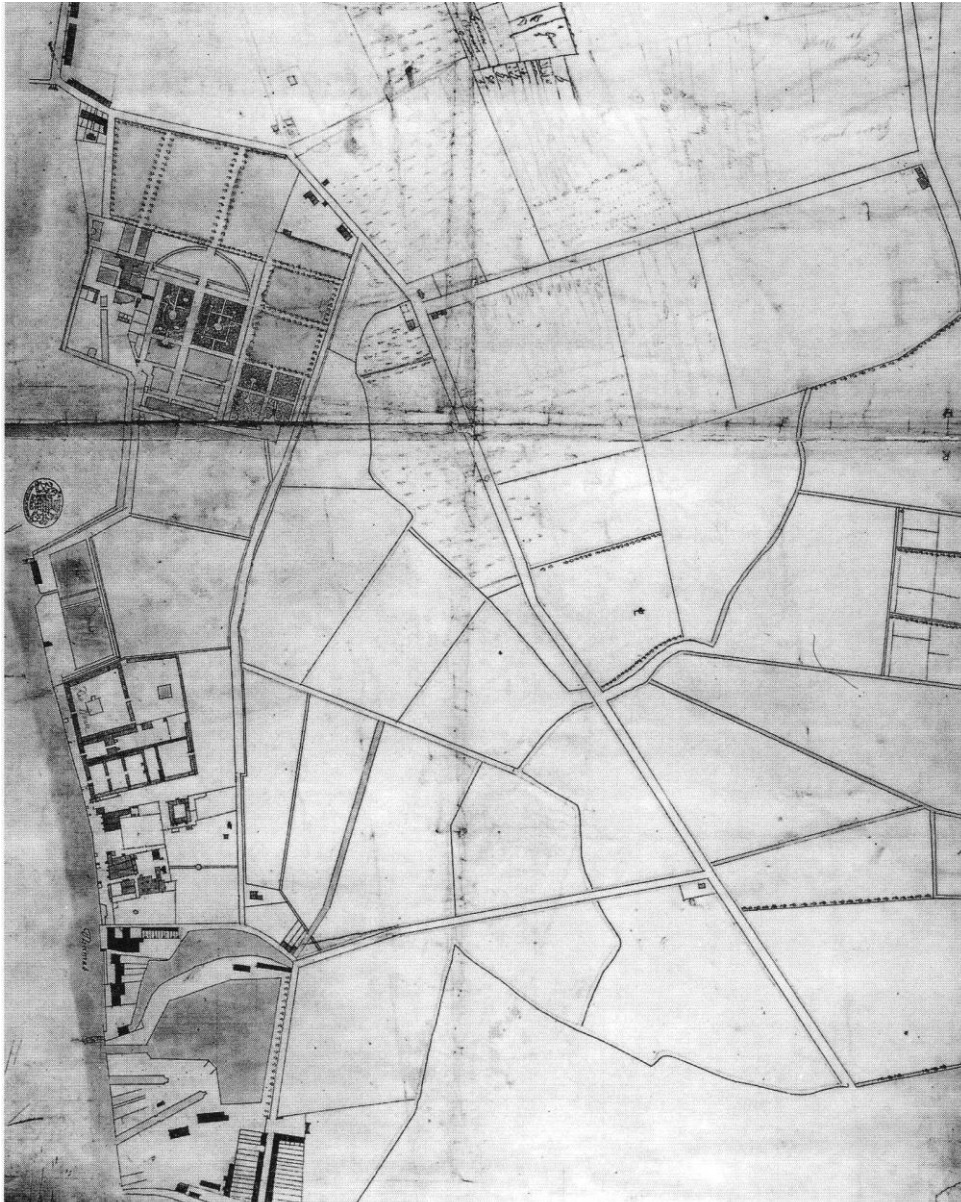
A John Evelyn, Plan of Sayes Court, c. 1653 © The British Library Board, Add 78628, fol. A.

B The Dial Garden, Add 78628, fol. A

C Overleaf, detail showing house, gardens and orchards Add 78628, fol. A

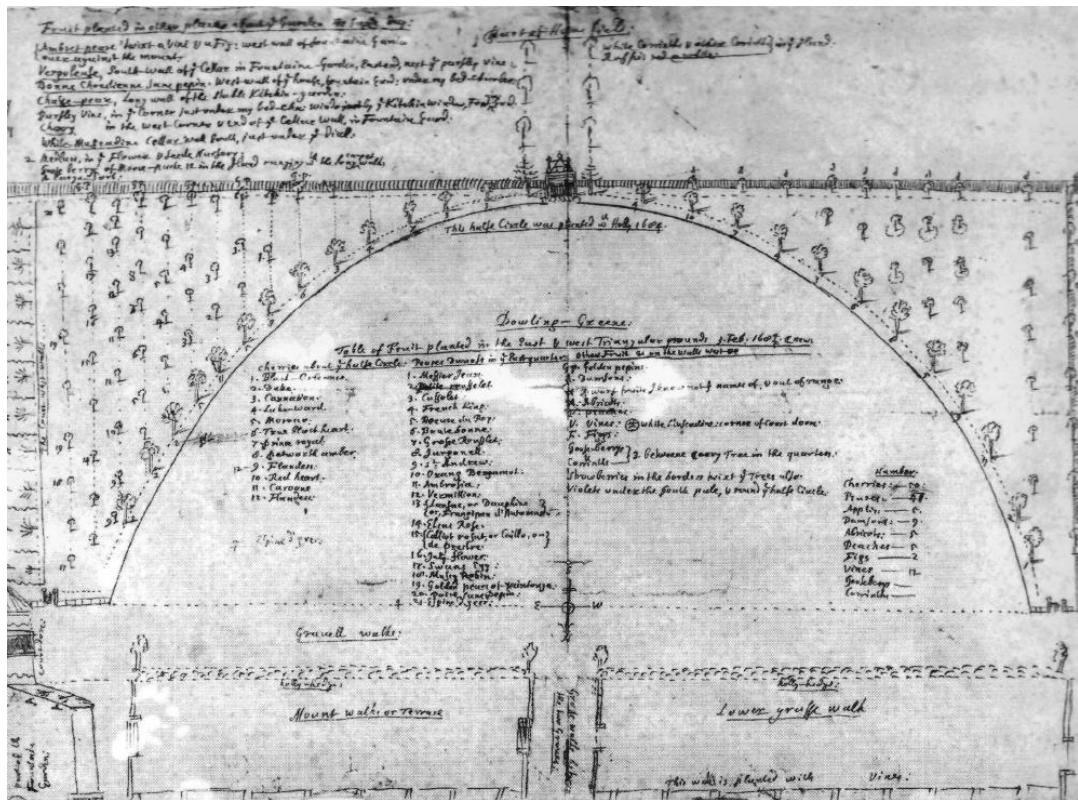


7.1 C



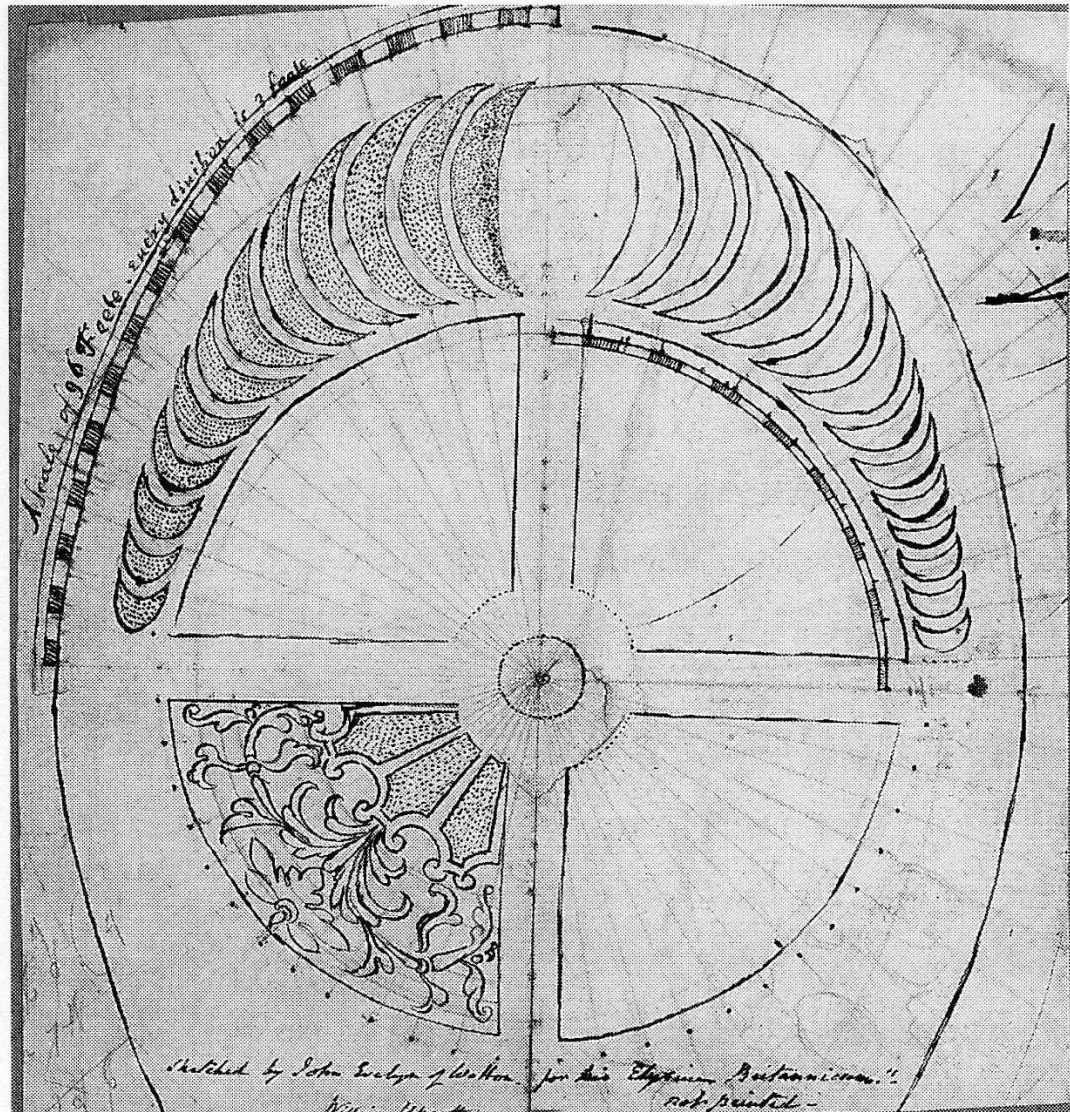
7.2

Detail of 'Manor of Sayes Court, c. 1690s', [by John Grove?] © The British Library Board, K. top. XVIII.17.3. Reproduced in Laird (1998), p. 120.



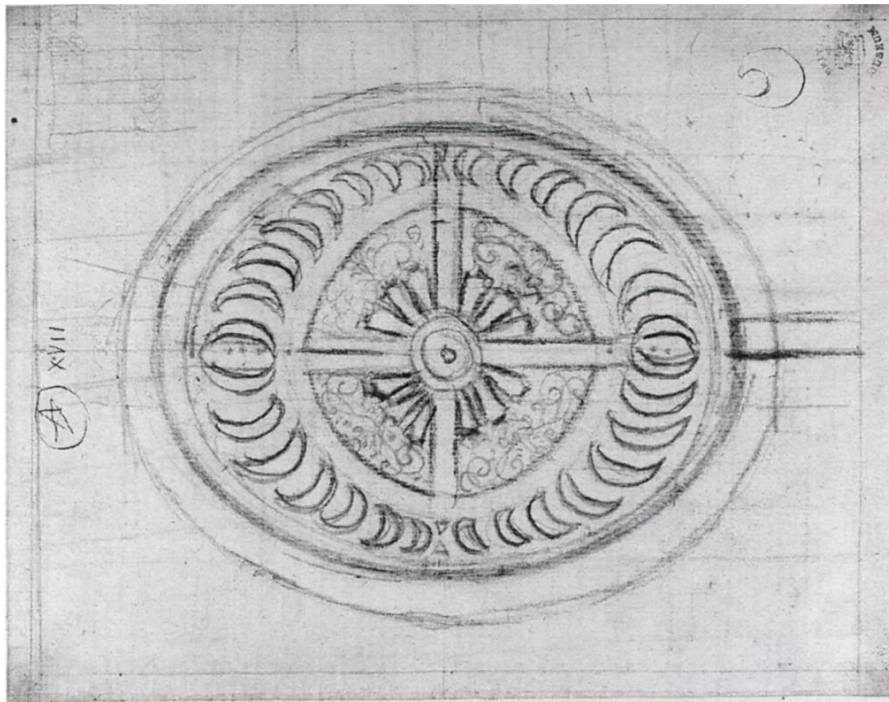
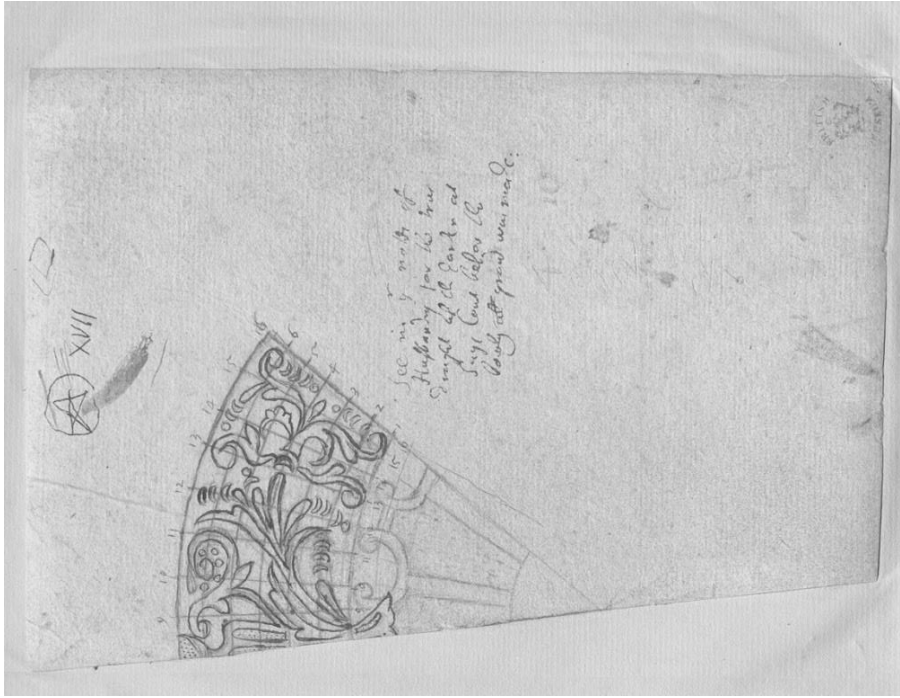
7.3

John Evelyn, plan of the south west corner of the garden at Sayes Court Feb 1684/5. The banqueting house is now on the central axis of the semicircular bowling green that was laid out on the plot of the dial garden and over a part of the orchard. © The British Library Board, Add 78628 fol. B. Reproduced in Laird (2003), p. 119.

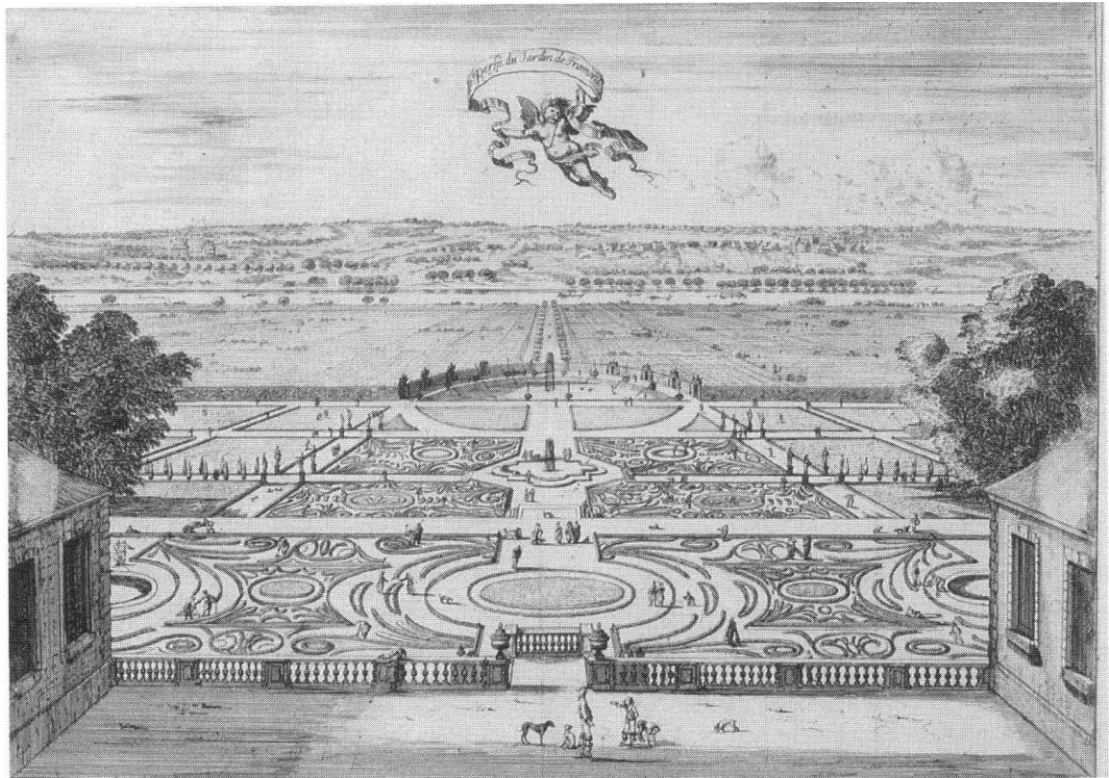


7.4

Sketch plan of parterre, attributed to John Evelyn by William Upcott, but of uncertain draftsmanship. London, Victoria and Albert Museum © RIBA Drawings Collection, RIBA 20313.

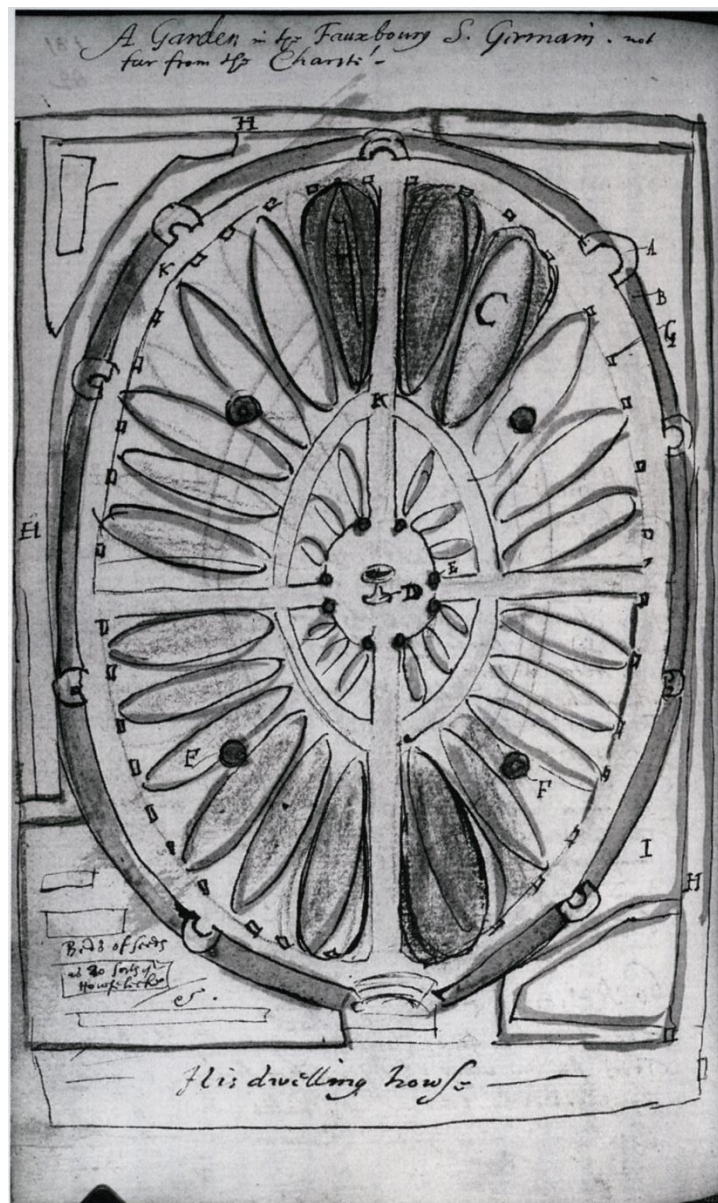


7.5, 7.5A John Evelyn, Sketches of an alternative design for Sayes Court parterre
© The British Library Board, Add 15950, fols. 173, 174.



7.6

Israel Sylvestre and Stefano della Bella, Etching of the garden at the Château de Fromont, c. 1649 © Dumbarton Oaks Research Library. Reproduced in Laird, (1998), p. 189.



7.7

Richard Symonds, The garden of Pierre Morin drawn in 1649 © The British Library Board, Harley MS 1278 f. 81^v. Reproduced in Leith-Ross, 'A Seventeenth-Century Paris Garden', (1993), p. 152.



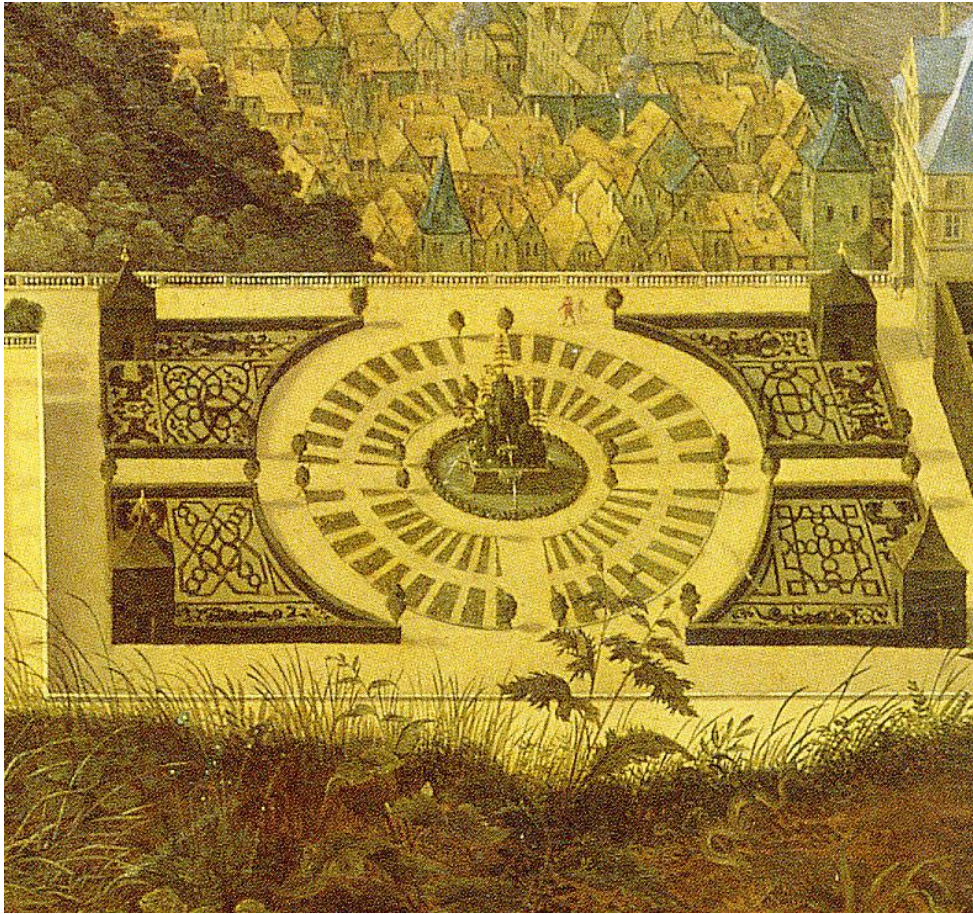
7.8.

Jacques Boyceau, design for parterres with broderie and flower beds, from *Traité du jardinage*, (1638), reproduced in Laird (1998), p. 187.



7.9

Jacques Mollet, design for a parterre with broderie, grass, and flower beds, for Claude Mollet, *Théâtre des plans et jardinages*, (1652), reproduced in Laird (1998), p. 187.



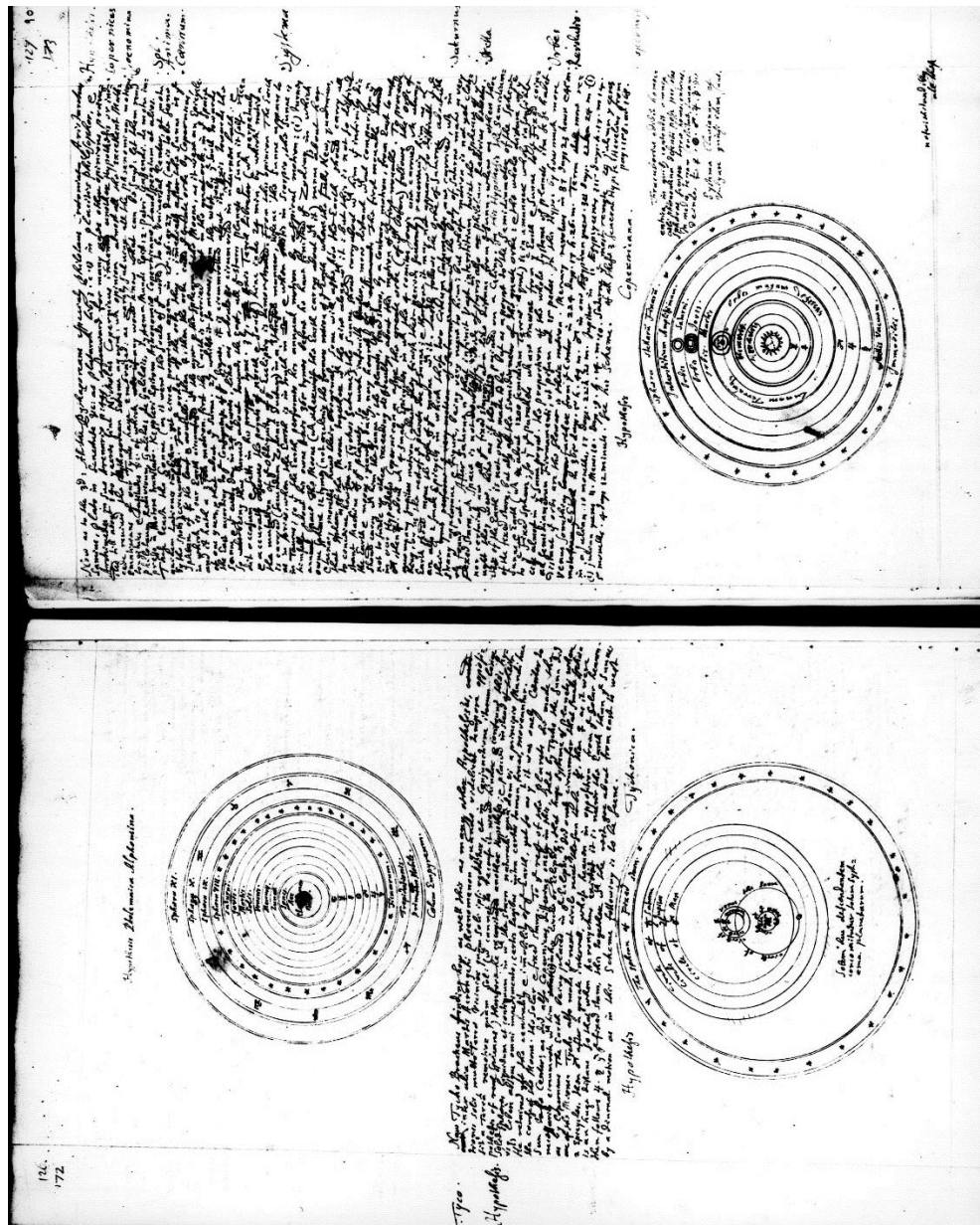
7.10

Jacques Fouquières, detail of *Hortus Palatinus*, showing the 'Garden of the Seasons', designed by Salomon de Caus. From the collection of Kurpfälzisches Museum, Heidelberg. Wikimedia Commons {{PD-old}} CC-PD-Mark



7.11

Frontispiece showing the bust of Elias Ashmole with his head replaced by his astrological birth chart, from *Fasciculus Chemicus* by James Hasolle (Elias Ashmole), 1650 © Author.

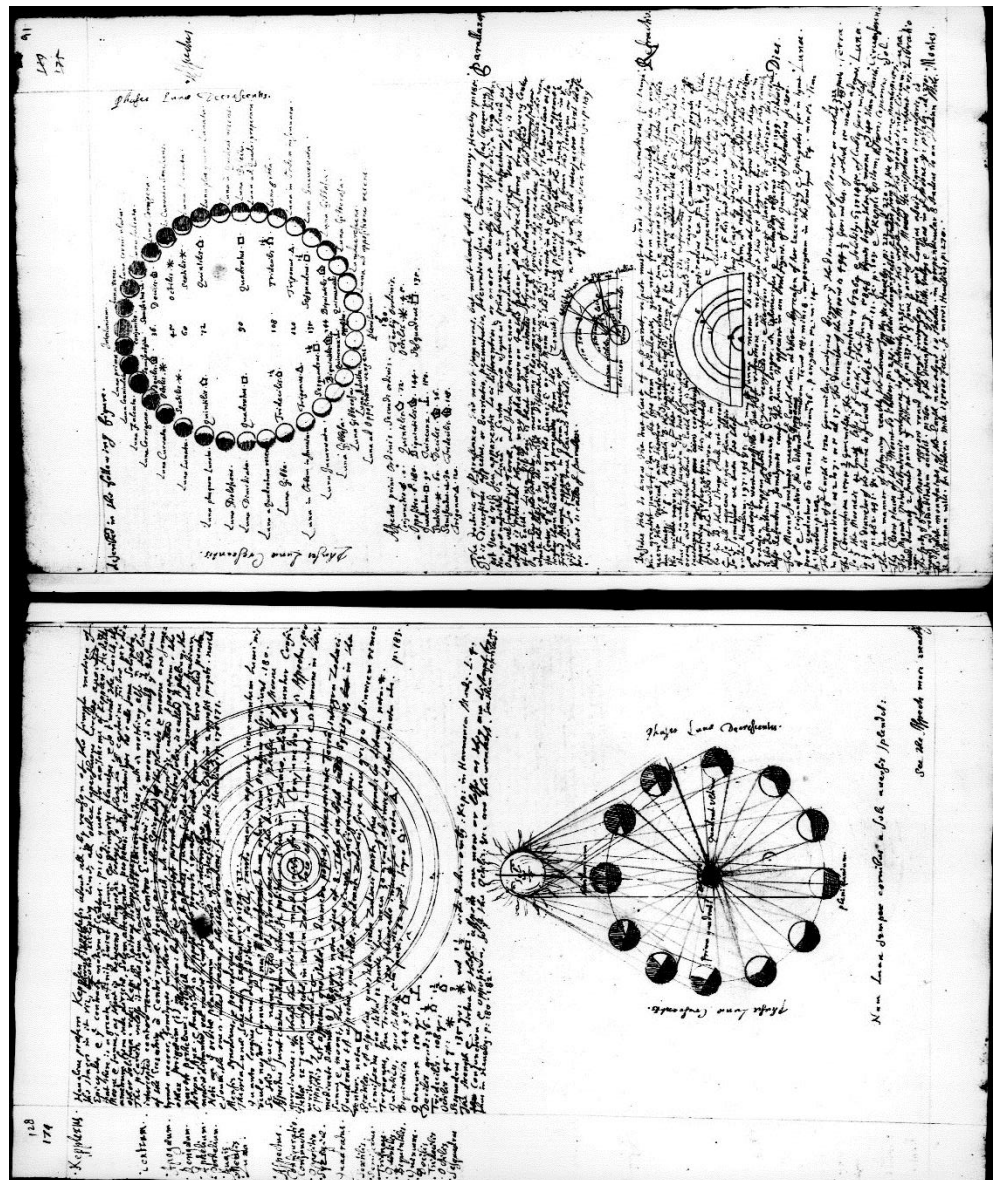


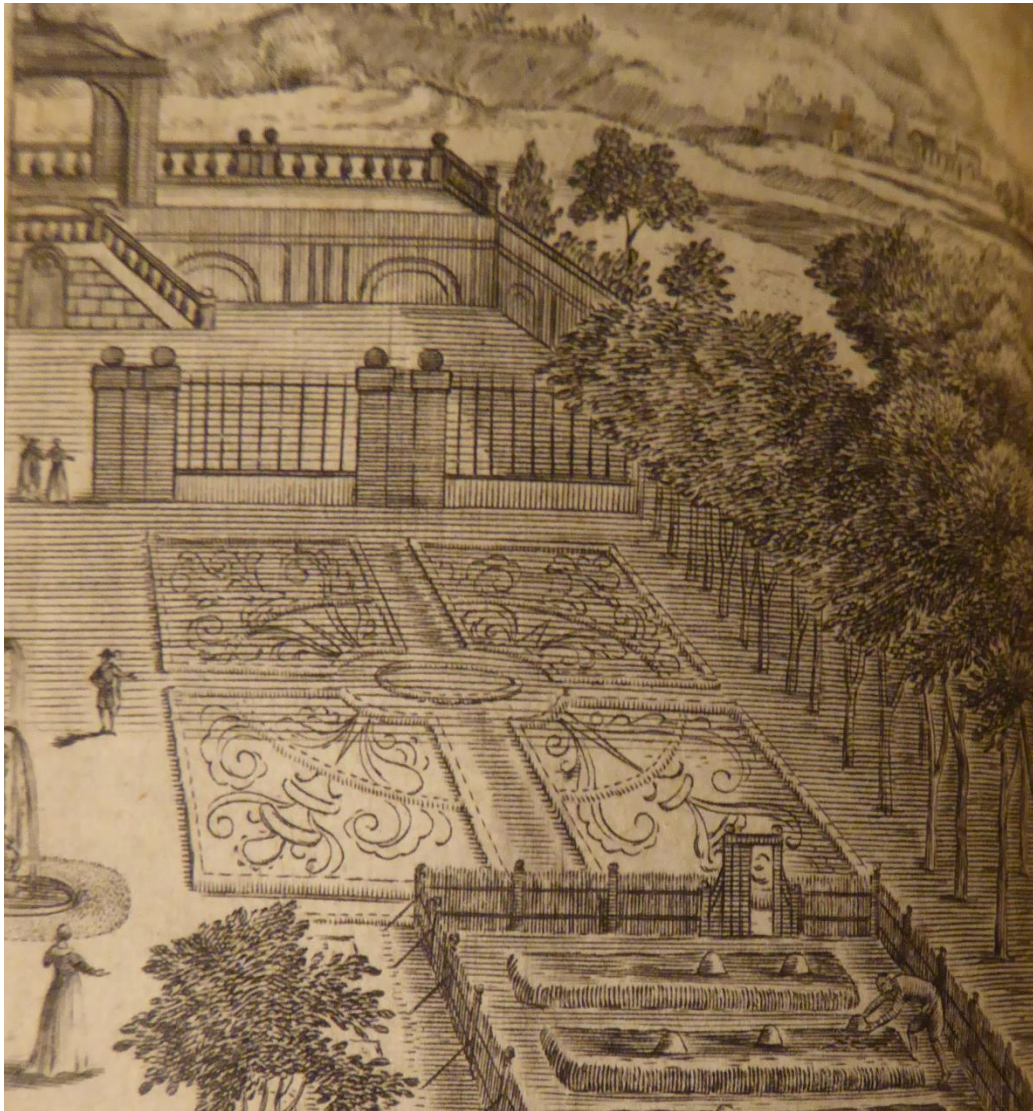
7.12

John Evelyn, diagrams of cosmic hypotheses after Hevelius, *Selenography* (1653), draw in the 'Tomus Tertius' commonplace book © The British Library Board, Add 78330, fols. 89^v, 90.

7.13

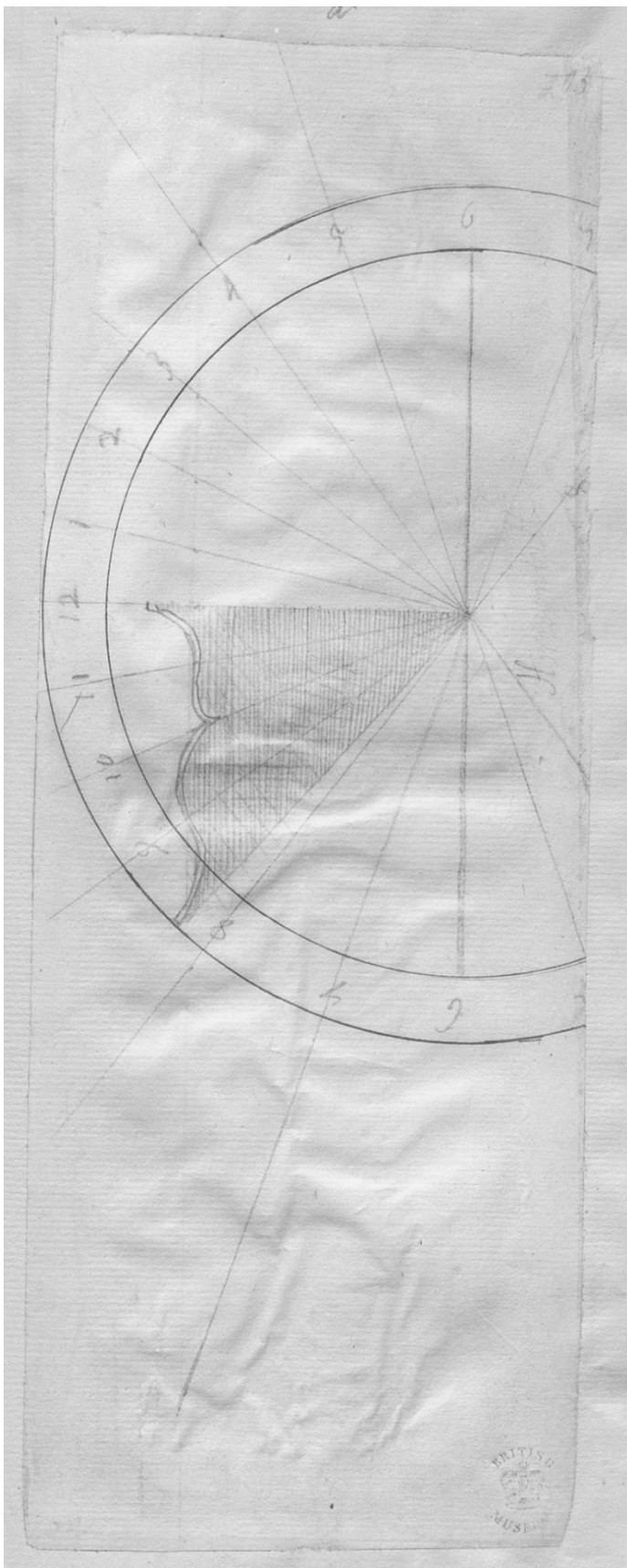
John Evelyn, diagrams of lunar phases, after Hevelius
Selenography (1653), drawn in
the 'Tomus Tertius'
commonplace book ©, The
British Library Board, Add
78330, fol. 90^v.





7.14

Detail of illustration from Evelyn's translation of Nicolas de Bonnefons, *The French Gardiner* (1658), showing the circle foreshortened to oval in a parterre figure, p. 134
© Author.



7.15

Mary Evelyn's 'Mathematical exercises at Paris, 1650', in 'MISCELLANEOUS Notes etc.' © The British Library Board, Add 15950, fol.180.

Chapter 8: Quincunxial Figures at Sayes Court: the Generative Potency of Five.

This chapter is devoted to a further reading of the figural articulation of the gardens and orchards at Sayes Court, focused on Evelyn's use of the quincunx, a figural expression of the number five. In the Christian Neoplatonic tradition of numerology, which informed both chymical visions of cosmos and practices of Biblical exegesis during the seventeenth century, the number five was often seen as an emblem of the generative power of nature. Reference to primary manuscript material suggests that Evelyn saw some merit in this tradition, and that this generative interpretation of the 'quinary' is relevant to his use of the quincunx at Sayes Court. The chapter also suggests that Evelyn used the quincunx in his orchards and flowerbed planting schemes as an operative device.

But it is a strange coincidence, if it was not intended that living creatures should be said to be made in the *Fift* and *Sixt* day, those Numbers according to the *Pythagorical mysterie* being so fitly significant of the nature of them. For *Five* is acknowledged by them to be *Male* and *Female*, consisting of *Three* and *Two*, the two first *Masculine* and *Feminine* numbers. It is also an Emblem of *Generation*, for the number *Five* drawn into *Five* brings about *Five* again, as you see in Five times Five, which is *Twenty Five*.

Henry More, *Conjectura Cabalistic* (1653)

And he that considers how most Blossoms of Trees, and the greatest number of Flowers, consist of five Leaves, and therein doth rest the settled Rule of Nature.

Sir Thomas Browne, *The Garden of Cyrus or the Quincunxiall Lozenge* (1658)

Introduction

This chapter continues the interpretation of the figural construction of Sayes Court garden, in a discussion of Evelyn's use of the quincunx - the figure of five on dice. The theme is suggested by the dominance of the quincunx in the layout of the

orchards and gardens, as shown in Evelyn's plan of Sayes Court from c.1653 (FIG. 7.1). The quincunx appears most obviously in the orchards, but it is also important in each of the ornamental enclosures. The dial garden encompasses an elongated quincunx, composed of the central mount, in relation to the four circular corner 'Cabinetts', the circular spaces carved out of the evergreen thickets that surround the central oval.¹ The grove also has a quincunx embedded in its complex pattern (four circular enclosures centred on a fifth circle in the form of a mount), whilst its decussive, criss-cross paths can be included in the 'quincunxial order', as a development of the primary figure, an interpretation sanctioned by contemporary usage (FIG.8.1).² At a smaller scale, it is likely that Evelyn planted the flower beds of his private coronary garden quincunxially, for though the scale of the c.1653 plan is too small to show this level of detail, in the *Elysium* Evelyn recommends quincunxial planting for coronary gardens and provides an illustrative layout (FIG. 8.2).³ He even produces amongst his list of gardening instruments two quincunxial tools: a planting lattice, 'the *French* have invented', to facilitate the regular geometric disposition of plants in this manner, and a pricking out device 'formed of flatt ~~teeth~~ & blount teenth in manner of a rake, yet so redubled as to stand in the Quincunx, make several holes at once'.⁴ The insistence with which Evelyn uses the quincunx prompts an enquiry into why it was important to him.

There is, of course, a European tradition of quincunxial planting with roots in antiquity, but by Evelyn's time it seems that the practice was of particular importance in France. Seventeenth-century French gardens display the quincunx in groves, orchards, flower beds and, to a lesser extent, ornamental grotesque work and parterre design (FIGS. 8.4, 8.5).⁵ Given the predominance of French formal influences on other aspects of Evelyn's garden design, it seems likely that this tradition informed his use of the figure, though further research would be needed to

¹ London, British Library, Evelyn Papers, Add 78628, fol. A.

² Sir Thomas Browne, *Hydriotaphia, Urne-Buriall, or, a Discourse of the Sepulchrall Urnes Lately Found in Norfolk. Together with the Garden of Cyrus, or the Quincunciall, Lozenge, or Network Plantations of the Ancients, Artificially, Naturally, Mystically Considered. With Sundry Observations.* (London: For Hen. Brome, 1658), p. 36.

³ *Elysium*, 340.

⁴ *Elysium*, p. 85, items 22 and 23.

⁵ Douglas Chambers, "'Wild Pastoral Encounter': John Evelyn, John Beale and the Renegotiation of Pastoral in the Mid-Seventeenth Century", in *Culture and Cultivation in Early Modern England: Writing and the Land*, ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 173-194, (p. 174).

substantiate or detail this claim, a task that lies outside the remit of this thesis.⁶ It would be possible to treat Evelyn's use of the quincunx solely as an aesthetic issue, but though formal concerns were undoubtedly important to him, as we have seen, his formal design decisions were typically informed by larger agenda that encompassed both representational and philosophical considerations. The intention of this chapter is to interpret the quincunxial figures that Evelyn uses in his design for Sayes Court according to its symbolic or representational meanings, and according to its operational potentials. As detailed below, both fields appear to have been informed by a traditional numerological understanding of 'five', or 'the quinary', as the 'number of generation'. The Christian Neoplatonic tradition of numerology retained some importance as a proper topic for natural philosophy throughout the seventeenth century, and reference to primary manuscript material shows that Evelyn engaged with this body of thought with some seriousness over the course of the 1650s.⁷

The chapter is organised as follows: first we consider Evelyn's attitude to numerology, setting this in contemporary context, and establishing a reading of the 'quinary' (the number five, the quincunx) as an emblem of generation. This is accomplished with reference to Evelyn's 'Tomus Tertius' reading notes and his Bible annotations. The latter show a positive engagement with numerological Biblical exegesis, focused on the first book of Genesis.⁸ Next we approach the emblematics of the quincunxial figure, looking at Evelyn's Sayes Court garden design against a group of chymical emblems, principally a cosmogonic diagram from Annibal Barlet and a frontispiece drawing by Mary Evelyn for her husband's translation of Lucretius's *De Rerum Natura*.⁹ Finally, we consider the practical or

⁶ For French influences see Chapter 4 above, also Mark Laird, 'Parterre, Grove, and Flower Garden: European Horticulture and Planting Design in John Evelyn's Time', in *John Evelyn's "Elysium Britannicum" and European Gardening*, ed. by Therese O'Malley and Joachim Wolschke-Bulmahn (Washington, DC: Dumbarton Oaks Research Library and Collection, 1998), pp. 171-221, (pp. 175-195).

⁷ John Henry, 'The Fragmentation of the Occult and the Decline of Magic', *History of Science* 47 (2008), 1-48, reprinted as chapter X, in John Henry, *Religion, Magic, and the Origins of Science in Early Modern England* (Farnham: Ashgate Variorum, 2012) with the same pagination.

⁸ Evelyn's *Bible*, 2 vols (Cambridge: Thomas Buck and Roger Daniel, 1638), London, British Library, Evelyn Papers, Add 78360, 78361, (Add 78360, fols. 1-14); John Evelyn, 'Tomus Tertius', London, British Library, Evelyn Papers, fols. 93-93'.

⁹ Annibal Barlet, *Le Vray et methodique cours de la physique resolutiue, vulgairement dite chymie ... pour connoistre la theotechnie ergocosmique, c'est à dire, l'art de Dieu, en l'ouurage de l'univers* (Paris : N. Charles, 1653), p. 48; Titus Lucretius Carus, and John Evelyn, *An Essay on the First Book of Lucretius, De Rerum Natura: Interpreted and Made English Verse by J. Evelyn, Esq. (Animadversions Upon the First Book, Etc.)* (London: G. Bedle and T. Collins, 1656).

‘operational’ benefits of planting according to the ‘quincunxial order’, a discussion informed by Evelyn’s reading of Sir Thomas Browne’s *The Garden of Cyrus or the Quincunxial Lozenge*, published in 1658, a work that is also of some use in helping to characterise a range of attitudes to numerology current amongst Evelyn’s experimentalist peers.¹⁰

The arguments of this chapter build on those of Chapter 3, where we saw Evelyn using number to articulate meaning in the alchemical emblematics of his design for the Philosophico-Medical garden. This previous discussion suggested that, whilst Evelyn was familiar with the alchemical tradition in which emblems were approached as potentially revelatory objects of contemplation, capable of delivering mystical insights to the pious initiate, he probably saw the numbered groupings and figures of his garden design - the twelve, seven, four, three, and two embedded in the elements of his garden - as conventional codes. Here we question the assumption that Evelyn dismissed the idea that number itself could have any intrinsic significance, suggesting that, on the contrary, he was prepared to embrace the ‘revelations’ of Neoplatonic Biblical numerology to some degree and that, consequently, in adopting the quincunx as a prominent motif in his garden design, he may have been influenced in part by its supposed ‘generative’ potentials.

Numerology remained an important and vital part of the Paracelsian tradition in which Evelyn received his first chymical education in Paris. Both Annibal Barlet and William Davidson, two of his three known early chymistry masters, took a mystical attitude to both number and figural geometry, which they unfolded in the elaborate speculative chymical cosmogonies, appended to their chymical text books.¹¹ Given Barlet and Davidson’s early tutelage, it seems unlikely that Evelyn was unversed in the specifically chymical aspect of the Neoplatonic tradition of numerology, though it is clear from his manuscript notes that his engagement with the tradition ranged beyond the boundaries of this context – in his ‘Tomus Tertius’ commonplace book he made substantial notes on numerology from ancient sources,

¹⁰ Browne (1658).

¹¹ Barlet (1653), pp. 19-102; For Davidson see Jole Shackelford, *A Philosophical Path for Paracelsian Medicine: The Ideas, Intellectual Context, and Influence of Petrus Severinus (1540/2-1602)* (Copenhagen: Museum Tusulanum Press, 2004), pp. 412-454, (pp. 402-417).

Henry More's *Conjectura Cabbalistica* and other texts.¹² The question addressed here is: how can an understanding of Evelyn's evident interest in this numerology inform our reading the quincunxial figures he used in his garden at Sayes Court?

The argument moves between Evelyn's own fragmentary writings on numerology and a characterisation of the context, established through the contemporary examples outlined above. One boundary of this terrain is represented by contemporary chymico-cosmic emblematics, exemplified in the work of Annibal Barlet, with its unstinting embrace of Christian Neoplatonic numerology and symbolic geometry. Another boundary is formed by Browne's *Garden of Cyrus*, a work which represents a semi-sceptical or agnostic reception of this tradition. Acknowledging the Pythagorean or Neoplatonic tradition of numerology and its development through readings of the first chapter of Genesis, whilst simultaneously calling it into question, Browne's work purports to be about the arboricultural use of the quincunx, but actually ranges much more widely. It is an exposition of the 'generative' quinary, experimentally disclosed through a study of natural and artificial morphology and, as such is one example of the continuing vitality of traditional numerological insights within the experimentalist circles in which Evelyn moved.¹³ Browne's book has relevance to our discussion, since it is evident from their correspondence that Evelyn held Browne in high esteem, and it is equally evident from the marginal notes that he made in his copy of *The Garden of Cyrus*, that he read Browne's work with some care.¹⁴

Context and Historiography: (i) Gardening and the Quincunx

The secondary literature on Evelyn's gardens contains no significant discussion of his use of quincunxial figures, though Douglas Chambers brings our attention to Evelyn's persistent use of the figure in the layout of groves, a practice that he

¹² Evelyn, 'Tomus Tertius', London, British Library, Evelyn Papers, Add 78330, fols. 93-93^v, fol. 144.

¹³ Claire Preston, *Thomas Browne and the Writing of Early Modern Science* (Cambridge: CUP, 2005), pp. 175-210; Frank L. Huntley 'The Garden of Cyrus as Prophecy', in *Approaches to Sir Thomas Browne* ed. by C.A. Patrides (Colombia and London: University of Missouri Press, 1982).

¹⁴ Evelyn's copy of the *Garden of Cyrus* is held in the British Library, Browne (1658), call number Eve.a.166.

continued to recommend into the later decades of the seventeenth century.¹⁵ Chambers's concern is to situate Evelyn's use of the quincunx within a 'contemporary discussion about the recreation of the gardens of antiquity', a conversation to which Sir Thomas Brown made a significant contribution with his *Garden of Cyrus*.¹⁶ Whilst Chambers suggestively juxtaposes Evelyn and Browne for their mutual interest in quincunxial planting, and brings our attention to the fact that Browne included the quincunxial diagrams from *The Garden of Cyrus* in his first letter to Evelyn, he does not pursue the reasons for Evelyn's interest in the quincunx, beyond this suggestion of antiquarianism; nor does he develop any specific suggestions about the influence of Browne, or his book, on Evelyn's understanding of the quincunx (FIG. 8.6).¹⁷ This last omission may be because it is impossible to support an argument that Browne introduced Evelyn to quincunxial gardening, or *vice versa*, for the dates disallow this. Evelyn was using the quincunx in his garden at Sayes Court long before Brown published *The Garden of Cyrus* in 1658; whilst Evelyn cannot have been a formative influence on Browne's work, for the *Garden of Cyrus* was published two years before the start of their correspondence, which began in 1660. Browne lived near Norwich and the two men did not meet until the 1671.¹⁸ It appears that their mutual interest in quincunxial planting was inspired by a broader contemporary interest in the practice.

According to one principal commentator on the writings of Sir Thomas Browne, Claire Preston, Browne effectively launched the word 'quincunx' into English, for the first time. She concedes only one precedent for its use, in *Herefordshire Orchards* of 1657, authored by 'IB'.¹⁹ Reference to the British Library catalogue identifies 'IB' as John Beale, Evelyn's avid correspondent and a major contributor to the *Elysium*, who uses 'quincunx' to describe the pattern of

¹⁵ Douglas Chambers, *The Planters of the English Landscape Garden: Botany, Trees, and the Georgics, Studies in British Art* (New Haven; London: Published for the Paul Mellon Centre for Studies in British Art by Yale University Press, 1993), p. 44.

¹⁶ Chambers (1992), p. 174.

¹⁷ Evelyn to Browne, 28th January 1660, in *The Letterbooks of John Evelyn*, 2 vols, ed. by Douglas Chambers and David Galbraith (Toronto: University of Toronto Press, Scholarly Publishing Division, 2014), vol 1, pp. 270-272 (p. 271, n. 12).

¹⁸ Esmond S. de Beer, 'The correspondence between Sir Thomas Browne and John Evelyn' in, *the Library*, 4/19 (1939), 102-6, (p. 102).

¹⁹ Preston (2005), p. 194, Preston mistakenly cites the author as 'R.B.', it is 'I.B'; John Beale, D. D., *Herefordshire Orchards, a Pattern for All England. Written in an Epistolary Address to Samuel Hartlib Esq; by I. B.* (London: R. Daniel, 1657).

orchard planting.²⁰ But, if translations are allowed to enter into this competition for the first prose mention in English, Evelyn can claim a joint second place with Browne, for the word quincunx appears in his 1658 translation of Nicolas de Bonnefons's *The French Gardiner*.²¹ The French edition of this work came out in 1651 and its illustrations, which are also present in Evelyn's translation, show quincunxial planting in use (FIG. 8.7).²² This clustering of uses of 'quincunx' by Browne, Beale and Evelyn, suggests that English gardeners began to theorise the practice of quincunxial gardening in the late 1650s, and that all three authors were responding to a broader cultural interest that reached England at this period, perhaps from France. But the practical application of the figure is not our only concern here – we are also interested in the emblematic significance of the quincunx, and this is rooted in numerology.

Context and Historiography: (ii) Numerology and Experiment

As John Henry has observed in his important essay, 'the fragmentation of Renaissance occultism and the decline of magic', very few historians of science, or of mathematics, have paid any sustained attention to the topic of numerology as it concerned natural philosophers in the Early Modern period and, consequently, the precise lines of this concern are poorly understood.²³ There is a common tacit assumption that numerological ideas were of little concern to serious seventeenth-century experimentalists and that any engagement with such marked a thinker of the period as a 'Neoplatonising fantasist'. Henry uses this phrase to characterise those who validated their numerology solely on the basis of self-sufficient mystical revelation, without recourse to experiment, pointing out that contemporary critiques

²⁰ On Beale and Evelyn see, Peter H. Goodchild, '“No Phantasticall Utopia, but a Real Place”: John Evelyn, John Beale and Blackbury Hill, Herefordshire', *Garden History*, 19 (1991), 105-27; Douglas Chambers, '“Wild Pastoral Encounter”: John Evelyn, John Beale and the Renegotiation of Pastoral in the Mid-Seventeenth Century', in *Culture and Cultivation in Early Modern England: Writing and the Land*, ed. by Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), pp. 173-94.

²¹ Nicolas de Bonnefons, *The French Gardiner, Instructing How to Cultivate All Sorts of Fruit Trees and Herbs for the Garden ... First Written by R. D. C. D. W. B. D. N., and Now Transplanted into English by Philocephos* [i.e. John Evelyn] (London, 1658), p. 52.

²² Nicolas de Bonnefons, *Le Jardinier François, qui enseigne à cultiver les arbres et herbes potagères; Avec la manière de conserver les fruits, etc* (Paris: Chez Pierre Des-Hayes, 1651).

²³ Henry, 'The Fragmentation of the Occult ...' (2008), p.21.

of numerology used such language in their attacks.²⁴ He does not mention Bacon amongst the sceptics, though he might legitimately have done so, for Bacon both dismissed the idea of attributing intrinsic formative or operational potential to numbers, and disapproved of the practice of using the scriptural account of the Creation as a guide to understanding the order of nature.²⁵ Both of these attitudes were an intrinsic part of the tradition of Christian Neoplatonic numerology, which in the English context may be exemplified in the work of Robert Fludd and John Dee.²⁶

For Henry, Fludd stands as the primary example of the ‘the arch-Neoplatonising fantasist’, a position that he also occupies in work of Brian Vickers. In his study of ‘Occult and scientific mentalities’, Vickers explains that Fludd had no interest in verifying his insights with reference to ‘data derived from experience’, but rather shows:

[A] lack of interest in the physical world [that] goes along with a positive distaste for quantification: Symbolic arithmetic, attributing moral values to numbers, was acceptable, but anything to do with measurement or computation was rejected as mundane or ephemeral.²⁷

Such attitudes are equally evident in the work of Barlet and Davidson, or the speculative numerological cosmographics of Dee, whose *Monas Hieroglyphica* Evelyn cites in his ‘Tomus Tertius’ reading notes.²⁸ These authors represent one extreme of a range of ways of engaging with numerology. But other natural philosophers from the seventeenth century took more moderate and experimentally nuanced approaches, which combine respect for the revelations of Christian Neoplatonic numerology, with an attitude that sought to validate traditional numerological insights through experiment, in practices recognisable as biology, or chemistry, or physics. Isaac Newton is one famous example (he thought of the seven

²⁴ Henry, ‘The Fragmentation of the Occult ...’ (2008), p.21.

²⁵ Penelope Gouk, *Music, Science and Natural Magic in Seventeenth-Century England* (New Haven; London: Yale University Press 1999), pp. 94-95; Perez Zagorin, *Francis Bacon* (Princeton, N.J.; Chichester: Princeton University Press, 1998), p. 128; see also Deborah Harkness, *John Dee's Conversations with Angels: Cabala, Alchemy, and the End of Nature* (Cambridge: Cambridge University Press, 1999), pp. 91-97.

²⁶ John Henry, ‘The Fragmentation of the Occult ...’ (2008), p. 21; Nicholas H. Clulee, *John Dee's Natural Philosophy: Between Science and Religion* (London Routledge, 1988), pp. 89-91; 102-103.

²⁷ Brian Vickers, *Occult and Scientific Mentalities in the Renaissance* (Cambridge: Cambridge University Press, 1984), p. 11.

²⁸ Evelyn, ‘Tomus Tertius’, London, British Library, Evelyn Papers, Add 78330, fol. 144; for Barlet and Davidson see n. 10 above.

colours that he saw in the rainbow as an expression of the mystical harmony of the creation, articulated in the seven tones of the diatonic scale), but there are others.²⁹ Vickers, for example, cites the examples of Walter Charleton, a Royal Society member and Evelyn's contemporary at Oxford; and the famous experimentalist and chymist Jan Baptist van Helmont, who appears on Evelyn's list of 'Writers of Chymistry'.³⁰

Sir Thomas Browne might be added to this list, as one who took a semi-sceptical and experimental attitude to numerology, evident in his *The Garden of Cyrus, or the Quincunciall Lozenge, or Network Plantations of the Ancients, Artificially, Naturally, Mystically Considered*, to give the full title. To give only a tiny sample of the exemplary quincunxes that Browne compiles in his copious observations of the quinary order as he finds it in art and nature, and citing only those passages marked with a marginal dash in Evelyn's copy, Browne includes: 'the Woof of the neat Retiarie Spider [...] which is beyond the common Art of Textury'; he regrets the loss of the antique chess board, which he sees as a coded expression of Hermetic mysteries 'figuring the whole World, the Motion of the Planets, with Eclipses of Sun and Moon'; he praises the antique practices of quincunxial planting and notes the quincunxial patterning of laurel crowns; he records ancient Jewish and Pagan rituals involving quincunxial gestures – 'the High-Priest was anointed decussatively or in the form of an X', and '*Cestius, Sylla, and Julius*. That they sat also crosse-legg'd'.³¹ Browne's examples 'declare how Nature Geometrized' in a quincunxial order, and how art follows nature in adopting the figure.³² But Browne is ambivalent in his attitude to the revelatory power of number. He starts the final chapter of the book (the fifth) with the phrase: 'To inlarge this Contemplation unto all the Mysteries and Secrets accommodable unto this Number, were inexcusable *Pythagorism*', before launching immediately into a geometrical conceit that frames 'Five' as the 'number of Justice... hanging in the Centre of Nine, described by Square numeration, which angularly divided will make the decussated Number', a conceit worthy of the Dee inspired metaphors of the court of James I, where the

²⁹ Henry, 'The Fragmentation of the Occult ...' (2008), p. 21; Vickers (1984), p.21.

³⁰ Vickers (1984), p. 16; Evelyn, 'Barlet Notebook', London, British Library, Evelyn Papers, Add 78335, fol. 5.

³¹ Browne (1658), p. 40; p.41; p.33; p. 39; p. 36; p. 39.

³² Browne (1658), p. 51.

cube, with its ‘Triple dimension of length, bredth, and depth’ was presented as the image of impartial judgement (in this context three is the number of justice, not five, but such is the malleability of numerological tropes).³³ To Preston, the underlying rationale of Browne’s concern with the quincunx is that it represents the generative ‘signature’ of creation, an understanding based on the traditional Neoplatonic reading of five, expressed here in the words of Henry More, as:

*Male and Female, consisting of Three and Two, the two first Masculine and Feminine numbers. It is also an Emblem of Generation, for the number Five drawn into Five brings about Five again, as you see in Five times Five, which is Twenty Five.*³⁴

But Browne plays a game with the tradition, both embracing and distancing himself from its ‘mysteries’.

This then gives some sense of the range of attitudes against which we might read Evelyn’s particular understanding of the validity of or otherwise of the numerological tradition. There is no secondary literature on Evelyn’s engagement with numerology, but there is some primary evidence from which we can begin to build up a picture of his attitudes and establish Evelyn’s familiarity with the generative significance of five.

Evelyn’s Approach to Numerology

Judging from the contents of his ‘Tomus Tertius’ and from the annotations he made in his Bible, Evelyn had some quite serious engagement with numerology over the course of the 1650s.³⁵ We treat these sources in sequence. The numerological content of the ‘Tomus Tertius’ is found in the chapter devoted to ‘MATHEMATICAE DISCIPLINAE’, and is drawn mostly from Henry More’s *Conjectura Cabbalistica* of 1653, an excursus in Christian Neoplatonic ‘cabbala’ applied to reading the Bible, by the famous author and member of the circle now known as the Cambridge

³³ Browne (1658), p. 66; G. Marcelline, *The Triumphs of King James the First* (1610), p. 31, quoted in Vaughan Hart, *Inigo Jones: The Architect of Kings* (New Haven; London: Yale University Press, 2011), p. 123.

³⁴ Preston (2005), p. 182, p. 205; More, p. 157.

³⁵ Add 78330, fol.93-93^v; Add 78360, fols. 12-14.

Platonists.³⁶ More is not the only author Evelyn consulted, he also refers the work of Isaac la Peyrère and to classical authors, recording observations that are supported with repeated reference to the combined authority of Patristic and classical authors - Eusebius and Clement of Alexandria; Matrianus Capella, Plato, Proclus, Plotinus, Lactantius, Euclid, Pythagoras and so on.³⁷ A few passages will show the tenor:

The Mystical proportion of numbers in the parts of eternity, applied to the creation of Creatures and of the proportion of tymes by numbers: Se: Euseb: Pamphili: Ovid etc.

and:

Of the efficacy of Unitie, which is the mother of Number, [...]: also Three, which number cannot be divided, how it represent Justice, see how and of the trinity.

and:

Much religion was put [by Pythagoras] on the number 4 the other 36 made of four first masculine numbers, & the 4 first feminine, viz : of : 1,3,5,7 & of 2,4,6,8 in which he taught that mysterie of the creation.³⁸

Evelyn probably took these notes during the mid-1650s, whilst working on his *Animadversions* on Lucretius where he makes admiring reference to ‘our *Cabbalistical* and ingenious *Moor*’.³⁹ The notes extend over two manuscript pages and are informed by the central idea that the numerology of Pythagoras, Plato *et al.* represented a mystical expression of the divinely instituted order of nature, originally received by the ‘Hagiograph, Moses’, who passed it down to Pythagoras and thence to others, whilst embedding the revealed knowledge into his account of the Creation in the book of Genesis.⁴⁰ The corollary of this proposition is that Pythagorean

³⁶ More; Allison P. Coudert, 'Henry More, the Kabbalah, and the Quakers', in *Philosophy, Science, and Religion in England 1640-1700*, ed. by Richard Kroll, Richard Ashcraft, and Perez Zagorin (Cambridge: Cambridge University Press, 1992), pp. 31-67.

³⁷ Isaac la Peyrère, *Prædamita, Sive Exercitatio Super Versibus Duodecimo, Decimotertio, et Decimoquarto, Capitis Quinti Epistolæ D. Pauli Ad Romanos, etc* (1655), published in English as Isaac de La Peyrère, *Men before Adam, or, a Discourse Upon the Twelfth, Thirteenth, and Fourteenth Verses of the Fifth Chapter of the Epistle of the Apostle Paul to the Romans by Which Are Prov'd That the First Men Were Created before Adam* (London : [s.n.], 1656). Evelyn also made entries relating to Macrobius's *Dream of Scipio*, Add, 78330, fol. 93-93^v.

³⁸ Add 78330, fol. 93.

³⁹ Evelyn, *Lucretius* (1656), p. 124.

⁴⁰ John Evelyn, *The History of Religion: A Rational Account of the True Religion*, ed. by R. M. Evanson, 2 vols (London: Henry Colburn, 1850), vol 1, p. 343.

numerology may be legitimately applied to the reading of Genesis - it could be used to decrypt the moral, ethical and natural truths presumed to be contained within the sacred text. This is the central tenet of More's book.⁴¹

Similar attitudes are reflected in Evelyn's Bible annotations, though these do not derive from More. Thus, Genesis I, verse 14, gives an account of the fourth day of Creation, which reads:

And God SAID, Let there be lights in the firmament of the heaven, to divide the day from the night: and let them be for signes, and for seasons, and for days, and years.

to which Evelyn adds:

Note the Sun was created the 4th Day, in the midst of 7: to signifie that Christ the Sun of night & day is the centre of the world Intellectual: ⁴²

This interrelates with further copious notes on the number seven, one of which is appended to Genesis, chapter II, verse 3:

And God blessed the seventh day, and sanctified it: because that in it he had rested from all his work, which God created and made.

against which Evelyn makes a long note, which includes the thought: '7: the number of perfection thro all the scriptures...'.⁴³ Turning to his notes from More, we find the numerological support for the 'perfection' of seven: 'The number 7 neither is begotten nor begets any number, it is a perfect Emblem of God se: how p: 161. Se Phaedo'. In this kind of Biblical interpretation, the numerological and the literal readings of the text are mutually supporting.

It is certain that Evelyn saw Genesis as a revelation of the order of created nature, for he was willing to go to print on the matter in the *Elysium*, where he argues for the importance of the Universal Spirit in the 'primerious specification' of

⁴¹ More, 'The Preface to the Reader' (1653), unpaginated.

⁴² Add 78360, fol. 12.

⁴³ Add 78360, fol. 12^v.

plants, by referring to the sequence of the Creation as told in Genesis I. Thus he writes:

Paradise being planted the third day of the Creation,* the maturity and perfection of the Earthly productions were before the Sun—and influences of the heavenly bodies.

*[marginal note]1. Gen: 1: 12. 13. Ambro: Hexam: L.3⁴⁴

His point is that the Universal Spirit is more important to plant life than the sun and moon, since plants were before the celestial bodies (and before, fish, birds, animals, man and woman, in that order).⁴⁵ Precisely how much faith he put in numerology as such is not so clear, though given his Bible annotations, it seems that when brought together with Biblical authority he understood traditional numerological insights to be valid. To take reading notes from a text does not imply acceptance of the tenets of that text, but the pages of a Bible are surely a highly charged space, and it seems unlikely that Evelyn made his notes lightly.

One of the traditional numerological insights that Evelyn records from More, is the passage concerning the generative potentials of the number five, quoted at the start of this chapter. He writes:

The quinary is male and female as of 3 and 2 the living creatures were created the 5th day. tis an emblem of generation, for five in five, produces five again viz 25. where that pythag: call it cytherea or venus – p: 157. 158 Euclid.⁴⁶

The generative potentials of five are indicated by its ‘arithmetical’ structure, as 5 x 5 ‘begets’ another 5 in its product, 25 (‘so an Eagle ingendring with an Eagle, brings forth an Eagle; and a Dolphin ingendring with a Dolphin, a Dolphin; and so in the rest’, writes More).⁴⁷ But the generative nature of five is also revealed in the ‘facts’ of Genesis. On the *fifth* day, God created the first ‘moving creatures that hath life’, those of the sea and air, blessing them and saying ‘Be fruitful, and multiply’.⁴⁸ Thus supported by Scriptural revelation, five is legitimately established as an emblem of

⁴⁴ *Elysium*, p. 38.

⁴⁵ The thought may well have been derived from More where similar ideas are expressed cf. More (1653), p. 35, item 5-6.

⁴⁶ Add 78330, fol. 93.

⁴⁷ More, p. 157.

⁴⁸ Genesis, 1. 20-22.

generation. Finally there is the association that Evelyn makes between five and Venus, in her ‘whorish’, salacious and procreative guise and it is through the figure of Venus that we can relate the emblematics of the generative quinary definitively to gardens.

Lucretius opens his *de Rerum Natura* with a hymn to Venus, which prompted Evelyn to comment in his *Animadversions*, that:

by *Venus*, we are to understand that inseparable appetite and inclination to propagate and engender; which (saith *Cicero*) is by Nature diffused into all living Creatures; for so the Etymologists *Venus à Venire*.

He continues, saying that in the ancient world, due to her prodigious fecundity, ‘*Venus* was feigned to preside in *Gardens*; whence, according to *Varro*, she was frequently stiled *hortensis*’.⁴⁹ In the *Elysium*, he lists *Venus* amongst a selection of those ‘fained and impure Deities which did formerly ~~deceare~~ {profane} the gardens of the superstitious *Ethnicks*’, who when properly interpreted as representations of natural forces, may be admitted ‘amongst Christians’.⁵⁰ The fecundity of *Venus*, he says, is indicated by the myth that she was:

born of the *Sea* [...] for that the salacious liquor aideth greatly to the generative vertue, inciting the inclinations, by its acrimonious mordacity. Lastly, she is supposed inamour'd with *Adonis*, who is taken for the Sun, because her embracements prove ineffectual, without the assistance of a generative and fermenting heat.⁵¹

In the grotto at Wotton, there is a statue of *Venus* holding a dolphin, which must be intended to encompass this meaning (FIG.8.8). We have no record of statues being included in the gardens at Sayes Court, but the generative potency attributed to *Venus* is amply represented instead through the repeated use of the quincunx - a figural embodiment of the generative number five. This reading may be further supported and elaborated with reference to contemporary chymico-cosmic emblematics.

⁴⁹ Evelyn, *Lucretius* (1656), p.98.

⁵⁰ *Elysium*, p. 207.

⁵¹ Evelyn, *Lucretius* (1656), p. 99.

Quincunxial Emblems

When entering the garden at Sayes Court via the suite of reception rooms ranged along the western flank of the house, one would pass first through Evelyn's private flower garden. This privileged enclosure, with its 'enamelled' beds of rare and beautiful flowers, was an extension of the formal social spaces of the house, intended to furnish flowers 'for Nosegays, for shew, for the House etc.', but it can also be seen as a domestic manifestation of the Philosophico-Medicall garden, its botanico-chymical experimental agenda extending to the chymical laboratory which overlooked the plot, and the nursery gardens beyond (FIG.8.9).⁵² Evelyn may be imagined moving about his garden and stills, tending 'with his owne hands' to his plants and chymical preparations, as the 'chymist' bees, lodged in a hive beneath the parlour window, laboured industriously about the flowers and hive, producing their natural 'elixir'.⁵³ Evelyn's private flower garden sets the scene for a chymical reading of the quincunxial cosmic emblematics embedded in the more public elements of the garden, which is entered via the door placed just to the south of the laboratory. We advance such a reading through a comparison of the figures of Evelyn's garden plots with a range of chymical emblems.

We start with Evelyn's dial garden, the 'oval square', where a quincunx is formed by the four circular corner 'Cabinetts', seen in relation to the circle of the central mount, proposing that both the form and emblematic meaning of this composition relate closely to a drawing which Mary Evelyn made for the frontispiece to her husband's translation of Lucretius, published in 1656, but started as early as 1651 (FIG. 8.10, 8.11).⁵⁴ The frontispiece may be read, not so much as an expression of Lucretius's thought, as an emblematic representation of the syncretic philosophy which Evelyn presents in the *Elysium*, in which 'the well restored doctrine of *Epicurus*' (represented in Lucretius's poem) is 'reconciled' to the

⁵² *Elysium*, p. 388.

⁵³ *Elysium*, p. 336.

⁵⁴ Michael Hunter, 'John Evelyn in the 1650s,' in *John Evelyn's Elysium Britannicum and European Gardening*, ed. Therese O'Malley and Joachim Wolschke-Bulmahn (Washington D.C.: Dumbarton Oaks, 1998), p. 96; Michael M. Repetzki, 'John Evelyn: *Virtuoso and the Venture of Atomism*', in *John Evelyn's Translation of Titus Lucretius Carus De Rerum Natura: An Old-Spelling Critical Edition*, ed. by Michael M. Repetzki (Frankfurt am Main; New York: Peter Lang, 2000), p. xlvii; Geoffrey Keynes, *John Evelyn: A Study in Bibliophily with a Bibliography of His Writings*. 2nd ed. (Clarendon Press: Oxford, 1968), p 42-45.

chymical idea of Nature as Universal Spirit.⁵⁵ Mary Evelyn modelled her design on an etching from Michel de Marolles's French translation of Lucretius, but made it her own by altering the details.⁵⁶ The figure of 'Nature herselfe', occupies the top of the drawing, where she is flanked by the 'two great luminaries', the sun and moon, as she pours forth jets of spirituous milk, which fall in pyramidal trajectory to fructify the earth below. At a lower level elemental Fire with flaming hair and a blacksmith's hammer, together with a winged personification of Air support an oval laurel wreath, which frames a profile bust of someone unnamed – probably Evelyn.⁵⁷ Two seated figures occupy the foreground - Water in the guise of Neptune and Earth as Ceres. The scene is animated by the movement of water as clouds form in the upper region, gathering the Spirit-bearing rain and dew, ready to fall on the elemental 'matrices' of the earth beneath. In the centre of the image a small snake, an alchemical symbol for the *prima materia* of the great work, raises its head as if to inspect the title of the work.

Clearly this image draws on the commonplace scheme, in which the four elements occupy the four quarters of a square composition. But if the central figure of Nature (or the Universal Spirit, or the 'quintessence'), is brought into relation with the four elements the scheme becomes a quinary, an expression of the primary generative union of opposites as Spirit unites with matter. Mary Evelyn's drawing is like a staged tableaux of cosmo-chymical balance in which the light, ethereal, elevated, mobile Spirit relates to the solid, heavy, base, static elements. If Nature were directed to advance a little and hover directly over the plinth, and Fire and Air asked to take one step towards stage-back, it would become possible to relate this composition quite directly to the design of the dial garden, for thus arranged the five figures would form a perfect quincunx, when viewed from above. Were Fire and Air to lay the wreath down flat on the plinth top, the quincunx would even be arranged around a central oval of evergreen leaves, as in the garden. In designing her

⁵⁵ *Elysium*, p. 40.

⁵⁶ Hunter (1998), p. 98; Michel de Marolles, *Titi Lucretii Cari De Rerum Natura Libri Sex ad Postremam Oberti Gifanii I.C. Emendationem Accuratissime Restituti cum Interpretatione Gallicae Lucrèce* (Paris, 1650); The frontispiece to Marolles is published in C. A. Gordon, *A Bibliography of Lucretius* (London: Rupert Hart-Davis, 1962), plate 16; (Mary Evelyn makes Earth into a younger figure, she moves the snake to centre stage, places Nature in a more central position, and introduces an urn, spilling water, into the foreground.

⁵⁷ Keynes (1968), p. 43.

frontispiece Mary Evelyn certainly depended on the precedent of the Marolles drawing, but she was also playing with a ‘quinary’ arrangement which had appreciable similarities, both in form and meaning, to the dial garden at her home in Sayes Court.

Similar quincunxial schemes frequently inform alchemical emblematics. In Chapter 3 we mentioned several emblems for their disposal of the four elements about the corners of a square: Mittelspacher’s ‘Mittel: Coniunctio’ emblem; the frontispiece to the *Musaeum Hermeticum*; and Ripley’s wheel (FIGS. 3.5, 3.11, 3.13).⁵⁸ In each case, the four elements are placed in the corners of a square, ranged around the central generative force, the Philosopher’s Stone, which is represented by the elevated phoenix, two interpenetrating triangles, and a second complex microcosmic quincunx, respectively.

In a somewhat different register, Annibal Barlet uses five and the quincunxial decussive cross as a part of his mystical chymical geometric cosmogony, which he refers to as ‘*La theotechnie ergocosmique*’, or ‘*l’art de Dieu, en l’ouurage de l’vniuers*’. Barlet illustrates this divine ‘art’ through a series of five diagrams and an accompanying text, included in his *Le vray et methodique cours de la physique resolutiue, vulgairement dite chymie*.⁵⁹ The third diagram, or ‘*figure cosmique*’, which was probably the most important to him for it is the only one reproduced in his approved abridged version of the *Cours*, shows the complex interrelation of forces, principles and elements, of the ‘sensible’ structure of the world (FIG. 8.12).⁶⁰ Following tradition, Barlet places the elements on the diagonals of the compositions, inscribing their details along the arms of the central decussive cross, but he also uses this development of the quincunx to represent the chymical Hermetic correspondence of ‘above’ and ‘below’. The two triangles on the ‘vertical’ axis of the drawing, are inscribed as follows. In the upper triangle:

⁵⁸ Add 78330, fol. 104.

⁵⁹ Annibal Barlet, *Le vray et methodique cours* (1653), pp. 19-102.

⁶⁰ Annibal Barlet, *Abregé des choses plus necessaires du vray et methodique cours de la physique resolutiue vulgairement dicte chymie, Etc.* [Paris?, 1653?].

*Essence ou
forme interne
Esprit
universel*

and in the lower:

*Sel
universel
existence, ou corps Sensible.*⁶¹

Thus Barlet harnesses the decussive cross to the common chymical motif of opposing triangles, used as a cypher for the generative interpenetration of opposites - here ‘Universal Spirit’ and the (salacious) ‘sensible body’. As the accompanying text explains, the two triangles meet at that internal ‘point of procreation’, the central point from which existence emerges and to which it will return. In a rather obscure numerological passage Barlet relates this point to the number five.⁶²

Evelyn’s use of the quincunx in the garden at Sayes Court is thus underpinned by the emblematics of the number five, which add another layer of meaning to the theatrical cosmic imagery embedded in the spatial and ornamental structures of the dial garden. The quincunx symbolises the fecund productivity of Nature, constantly renewed in the perpetually intercourse between the Universal Spirit and the various material matrices of the sublunary world. The play of light and shadow that pass across the face of the dial garden, as the celestial bodies move

⁶¹ ‘Essence or |internal form, |Universal Spirit: Universal Salt| existence, or sensible body’, Barlet, *Cours* (1653), p. 48.

⁶² The use of the ‘quincunxial decussation’ to indicate a generative potential was not limited to chymical environments. See for example, Otto van Veen, *Amorum Emblemata, Figuris Aeneis Incisa*, ... (Antverpiæ, 1608), (FIG. 8.14). In this, cupid, in the guise of a junior Vitruvian Man, kindles the fire in his loins by rubbing two sticks together, which he holds in such a way as to conceal his genitals – the ‘point of procreation’ to borrow Barlet’s phrase. Another oblique example might be found in Evelyn’s mathematician friend William Oughtred’s introduction of the symbol ‘x’ to indicate multiplication in mathematics. At base all of these ‘generative’ uses can be referred back to the cosmogonic moment in the *Timaeus* where two strips of world soul are formed into the letter x, Plato, *Timaeus and Critias*, trs. by Desmond Lee (London: Penguin 1977 [1st edition 1965]), section 36, p. 49, see Keith D. Lilley, *City and Cosmos: The Medieval World in Urban Form* (London: Reaktion, 2009), p. 33; Barlet, *Cours* (1653), p. 27.

across the sky, performs a visible dance, but this is accompanied by the more profound occult interchange of Spirit and matter, emblematised in the quincunx.

We might see the figures of the grove as embodying a similar layering of the patterns and meanings. In this enclosure, Evelyn had the criss-cross pathways laid out according to a pattern commonly used by his contemporaries for recording an astrological nativity - a square rotated within square and crossed on the diagonal (FIGS. 8.13, 7.11).⁶³ Taking the decussive pathways of the grove as a representation of the orderly pattern of the heavens, whilst walking in the grove the spectator would be pacing out the pattern of the stars, perhaps on a summer night pausing to look up at these celestial lights through the canopy of leaves. Evelyn drops a quincunx into the centre of this composition (distinguished by the grouping of five circular forms, the remaining eight cabinets are rectangular in plan), again emblematising the dynamic stability of cosmos through the generative quinary, the union of 'above' and 'below', Spirit and matter, Nature and the four elements.

These emblematic readings do not, of course, undermine the importance of other spatial imperatives, for the spaces of any garden are capable of accommodating multiple simultaneous intentions. Thus the decussive paths of the grove allow an easy diagonal circulation between the long grassy promenade and the gate into the nursery garden behind Evelyn's 'elaboratory', whilst the intricacy of the labyrinthine design adds a variety and complexity to the enclosure, enjoyable in purely aesthetic terms. Equally, the corner cabinets of the dial garden make good use of the otherwise somewhat redundant spaces of the quadrants, providing smaller retired spaces in which Mary Evelyn hung mottos, recalling absent friends.⁶⁴ An emblematic reading does not exhaust the meanings of the garden, nor adequately represent the full range of influences and intentions in play in its design.

⁶³ See for example, Heinrich Cornelius Agrippa von Nettesheim, *Three Books of Occult Philosophy Written by Henry Cornelius Agrippa of Nettesheim ...*; trs. by John French (London: Printed by R.W. for Gregory Moule ..., 1651), pp. 264-269.

⁶⁴ Frances Harris, *Transformations of Love: The Friendship of John Evelyn and Margaret Godolphin* (Oxford: Oxford University Press, 2003), p. 25.

Operation

Turning to the orchards, Evelyn's decision to plant in quincunxial pattern seems likely to have been made predominantly on 'operational' grounds. In the *Elysium* he makes one statement which seems applicable to the case. This concerns beehives, which he says: 'should be fixed in the *Qincunx* [sic] order for the freer enjoyment of the son [sun]'.⁶⁵ The rational seems equally applicable to the orchard trees, or indeed the planting of the flowers of the coronary garden in quincunxial pattern, which he recommends, though he saw the demand for exposure or shelter from the rays of the morning sun as a species specific concern – 'the morning Sun is best for the Gilly flo; both when you first plant them and when in flower', he observes, but other species have other preferences.⁶⁶

The marginal marks that Evelyn makes to his copy of the *Garden of Cyrus*, however, hint towards a further operational use of the quincunx. The relevant passage reads:

The rural Charm against Dodder, Tetter, and strangling Weeds, was contrived after this [quincunxial] Order, while they placed a chalked Tile at the four corners, and one in the middle of their Fields; which though ridiculous in the intention, was rational in the contrivance, and a good way to diffuse the Magick through all parts of the *Area*.⁶⁷

It is probable that what was 'ridiculous' for Browne was the idea that a group of chalked tiles might have an effect on weeds, whilst the noteworthy part of this rural practice was the use of the quincunxial figure as a technique effective in diffusing a natural, if hidden influence over an area - an influence which he calls 'Magick'. For Evelyn, this was a comment worth noting. It may be intuitively appreciated that an even disposition of objects about a field may enhance the efficient 'diffusion' of an 'influence' between them - pollen, insects, perfume. But the mention of 'Magick' suggests an understanding that this agricultural practice was intended to engage with a force beyond the material - an 'occult' dimension. It seems possible that the efficacy of the quincunxial arrangement of a field was understood, by author and

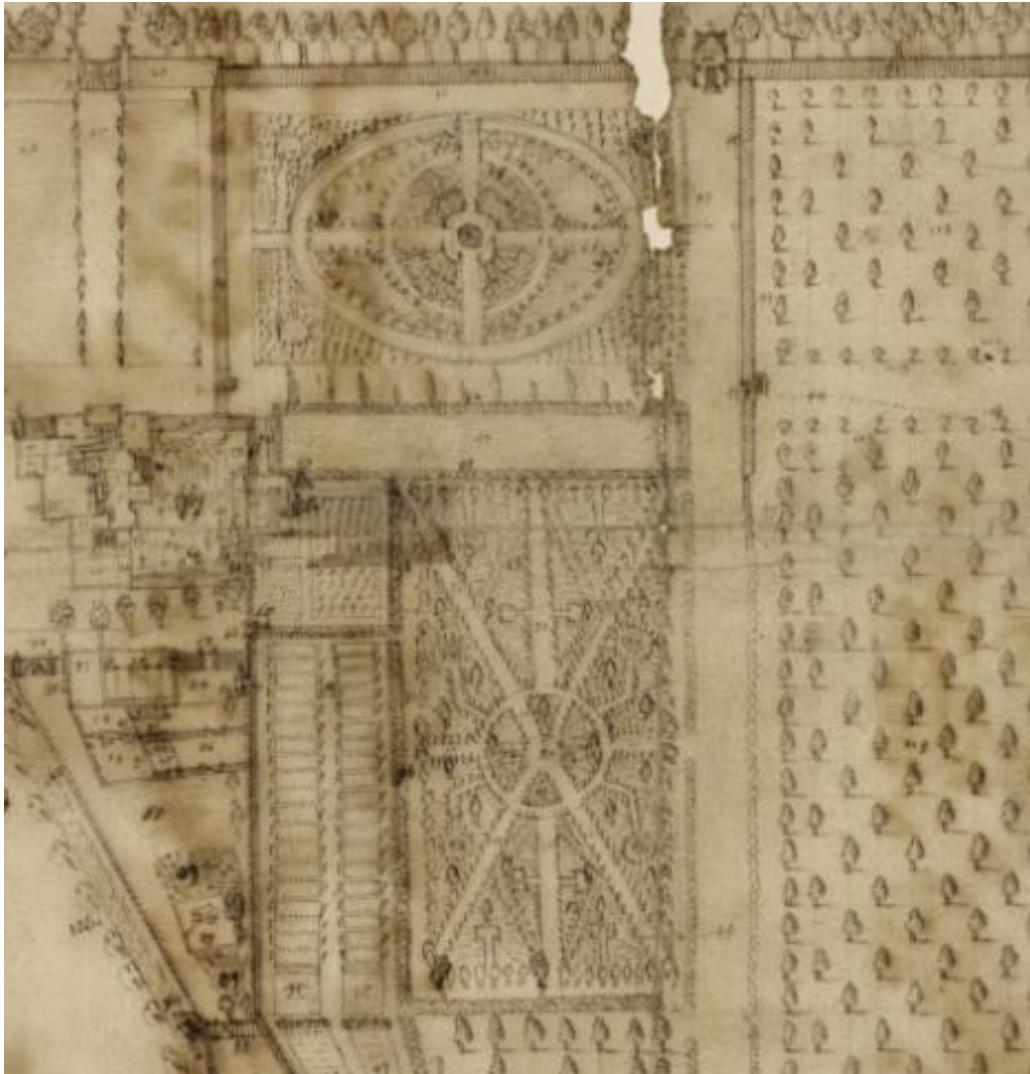
⁶⁵ *Elysium*, p. 285.

⁶⁶ *Elysium*, p. 361.

⁶⁷ Browne (1658), p. 40.

reader alike, to relate more to ‘diffusion’ of Spirit than the movement of material particles.

As Browne’s work moves seamlessly from the quincunx observed in nature (the beaver’s tail, the catkin), in art (the laurel wreath, the lattice work of a bed frame) and in ancient and sacred mysteries (‘even in Paradise itself the Tree of Knowledge was placed in the middle of the Garden, [...] there wanted not a Centre and rule of Decussation’) the categories of ‘Artificial Contrivances and manual Operations’, the ‘untaught finger of Nature’, and sacred ‘Mysteries not throughly [sic] understood’ are all conjoined under the rubric of the potency of the ‘quintuple order’. How far Evelyn acceded to Browne’s ruminations is unsure. But it seems credible to suggest that if the quincunxial emblematics of garden and grove at Sayes Court were intended to convey the generative significance attendant on the Venusian five, his use of the quincunxial figure as an operational device in the orchards was not arrived at solely through experiment within a tradition of hortulan practice. It may equally have been grounded in the mystical traditions of Neoplatonic numerology, supported by reading in God’s ‘two books’ – the book of nature and the book of Scripture – however curious such a rationale may be for one interested in the experimentalism of Francis Bacon.



8.1

John Evelyn, detail of Sayes Court Plan, showing quincunxial patterns in 'dial garden', grove and orchard © The British Library Board, Add 78628, fol. A

cap: 16. *Elysium Britannicum.* 335. 317. 321.

The Title of the first page, sheweth under what what
 Flower roots, ~~flower~~ the flor. exactly designed you plant
 in that range: Then in another page A. line: II &
 so of all the rest. Bed: B. line. I. II. III. IV. or V: by this
 means you shall have an immediate survey over your
 whole garden, & know what is plant in every Bed.
 The second Catalogue -- ~~the~~ Index shall contain
 the whole furniture of your Garden Alphabetically or=
 coded, with the like references: for for instance
 to make it most per spicuous: suppose the Coronary Gar=
 den to contain the first Bed:

make the bed
 to as to contain
 four lines.
 & the plot
 like the K
 garden in
 one end of
 the plot
 same
 Capt: 16.

We want find out the where we planted the Tulip
 Amaranth, which is the 6th of our Catalogue about
 Turn first to the lett: T. and find Amaranth un=
 oned the Tulips in the Bed A. line or range. II
 tally. 9. then seek for the tally you then go to the
 correspondent bed in your Coronary Garden in correspond
 to A in your plot, and there at the tally (9) you shall
 certainly find what you seek. By this, & the like

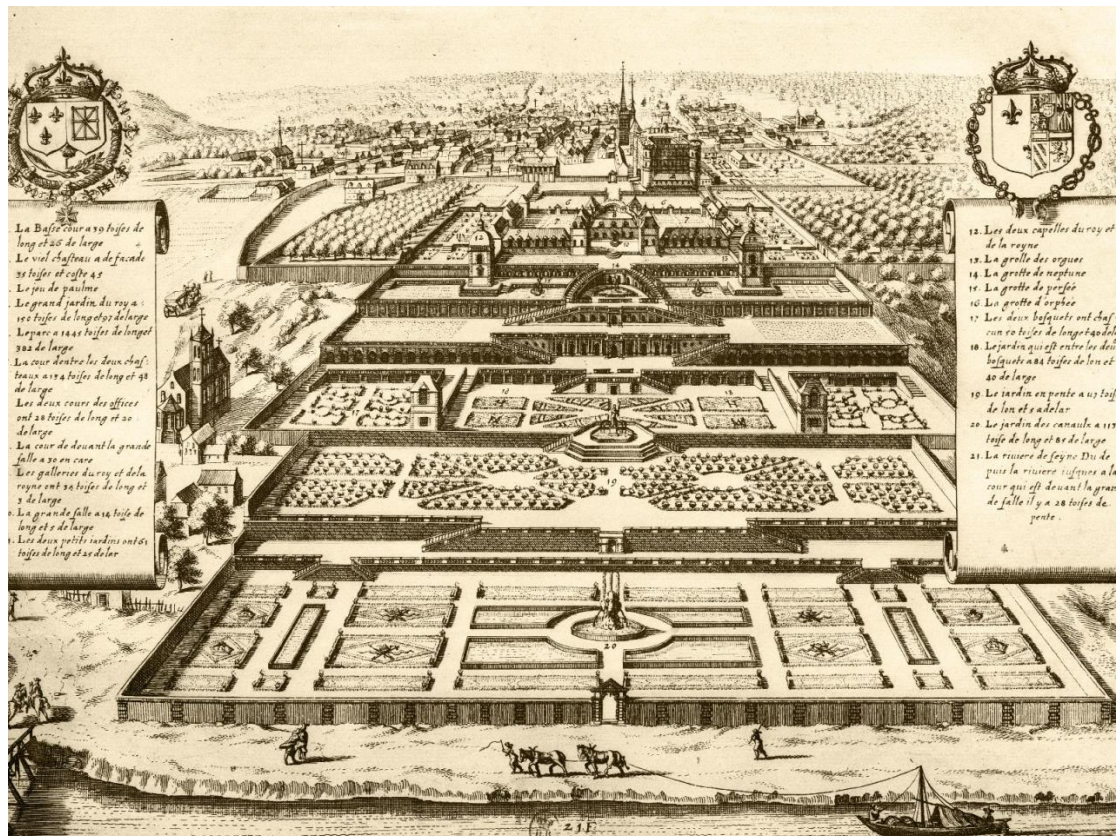
8.2

John Evelyn, quincunxial planting for the coronary garden, from the 'Elysium Britannicum' manuscript © The British Library Board, Add 78342, fol. 321.



8.3

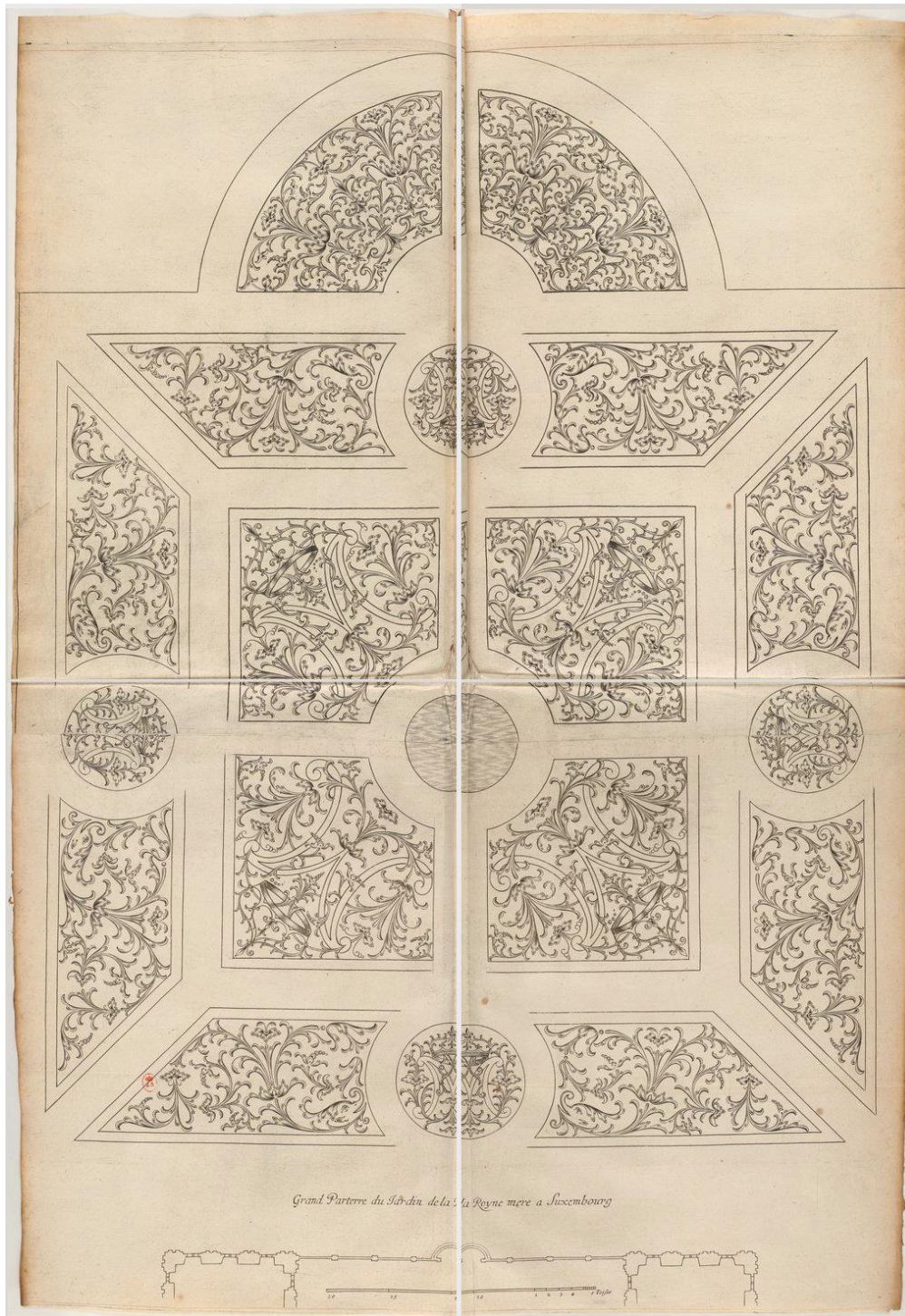
Giusto Utens, quincunxial planting at the Palazzo Pitti and Boboli Garden, Museo di Fierenze com'era, Florence, 1599. [CC-PD-Mark](#) [PD-Art \(PD-old-100\)](#)



8.4

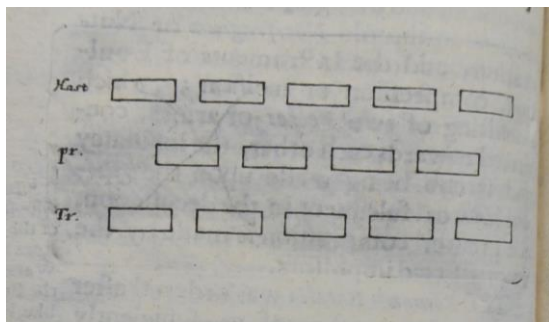
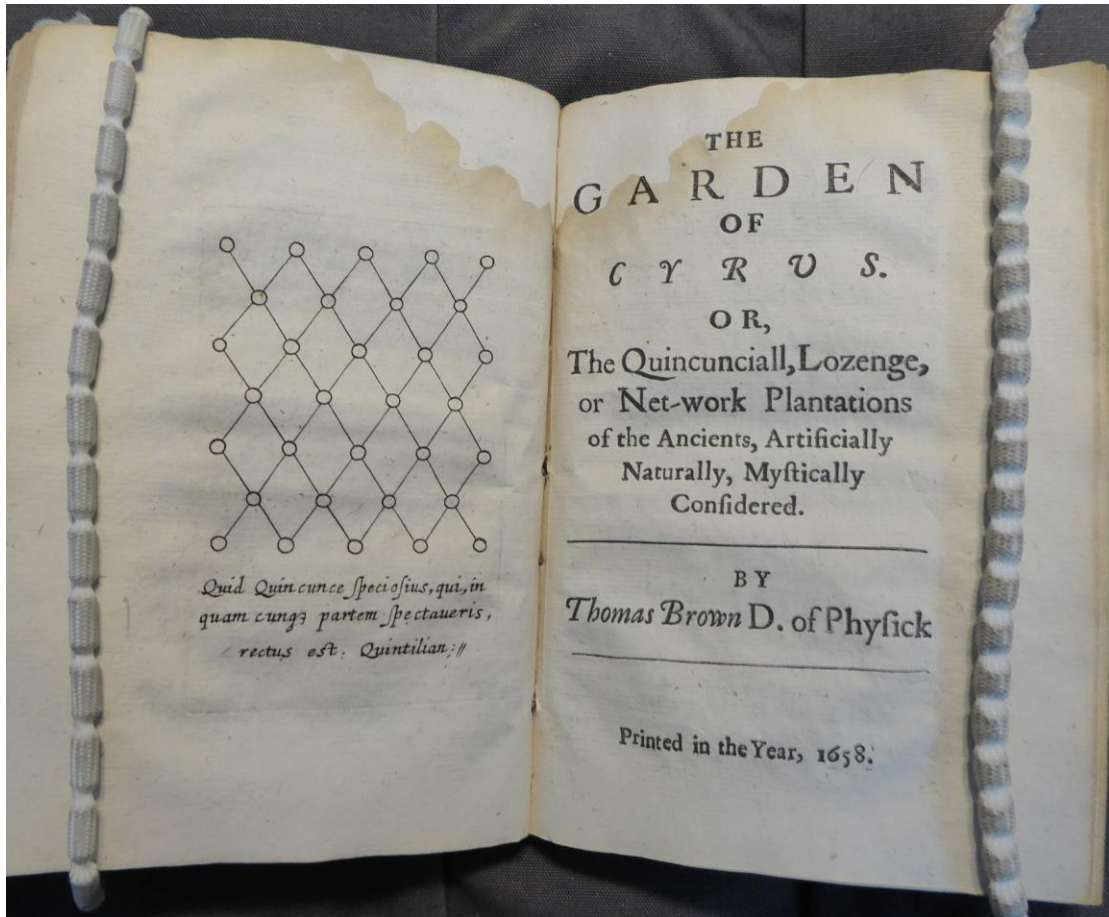
Claude Châtillon, the gardens at St Germain en Laye, etching late sixteenth century.

<<https://jfitzmaurice.files.wordpress.com/2015/09/st-germain-garden-plan.jpg?w=474&h=356>> [Accessed 26 05 2016] This file is licensed under the [Creative Commons Attribution-Share Alike 3.0 Unported](https://creativecommons.org/licenses/by-sa/3.0/) license.



8.5

Jacques Boyceau, parterre on a quincunxial theme from, *Traité du jardinage*, (1638) © www.gallica.bnf Bibliothèque Nationale de France.



8.6

Sir Thomas Browne quincunxial patterns in *The Garden of Cyrus* (1658) frontispiece and p. 114 © Author.



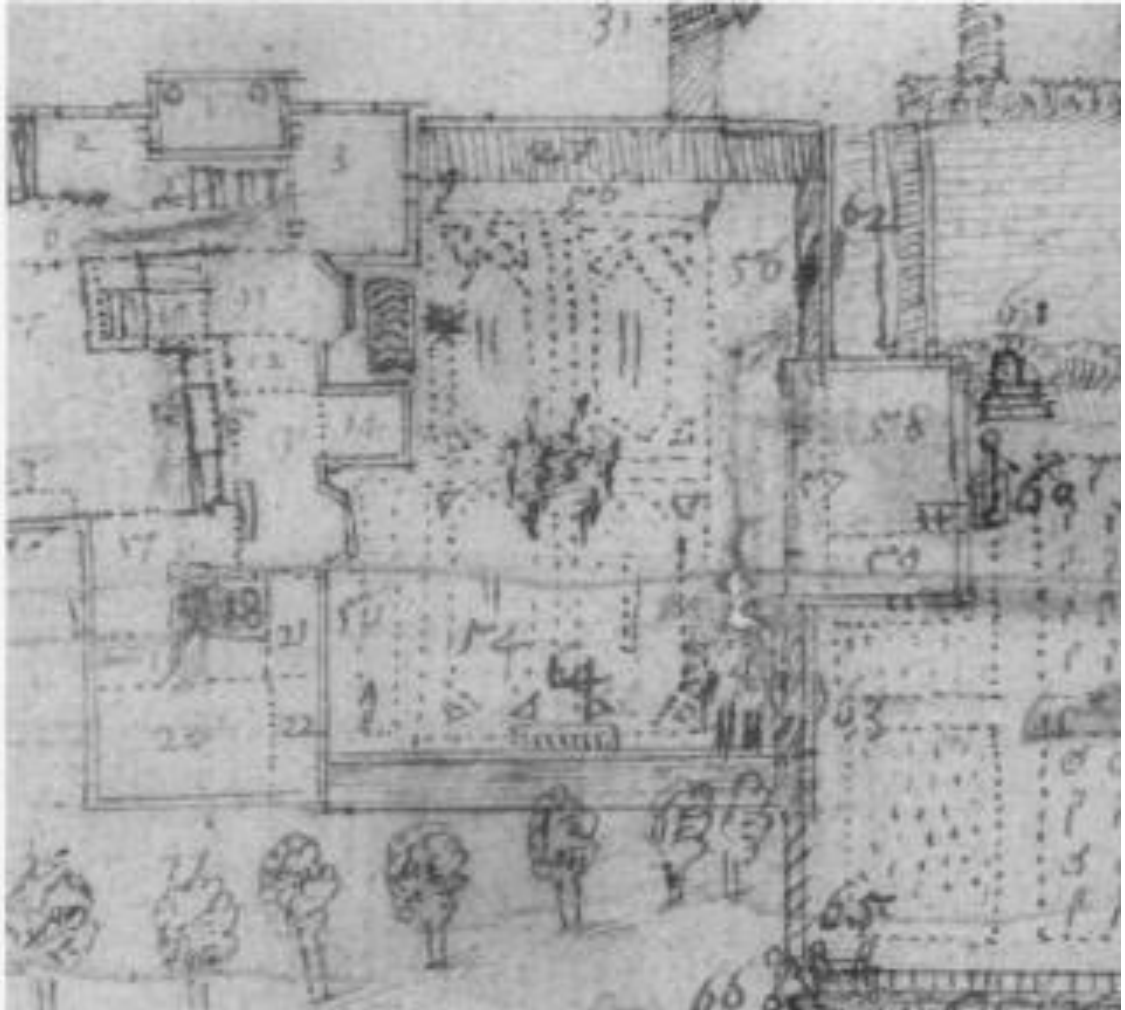
8.7

Quincunxial planting in Evelyn's translation of Nicolas de Bonnefons, *The French Gardiner* (1658), p. 134 © Author.



8.8

Figure of Venus holding a dolphin in the grotto of Wotton ©Author.



8.9

John Evelyn, detail plan of Sayes Court, c. 1653, showing the private flower garden adjoining the house, the nursery garden to the right and the garden elaboratory between the two © The British Library Board, Add 78628, fol. A. Reproduced in Leith-Ross (1997).



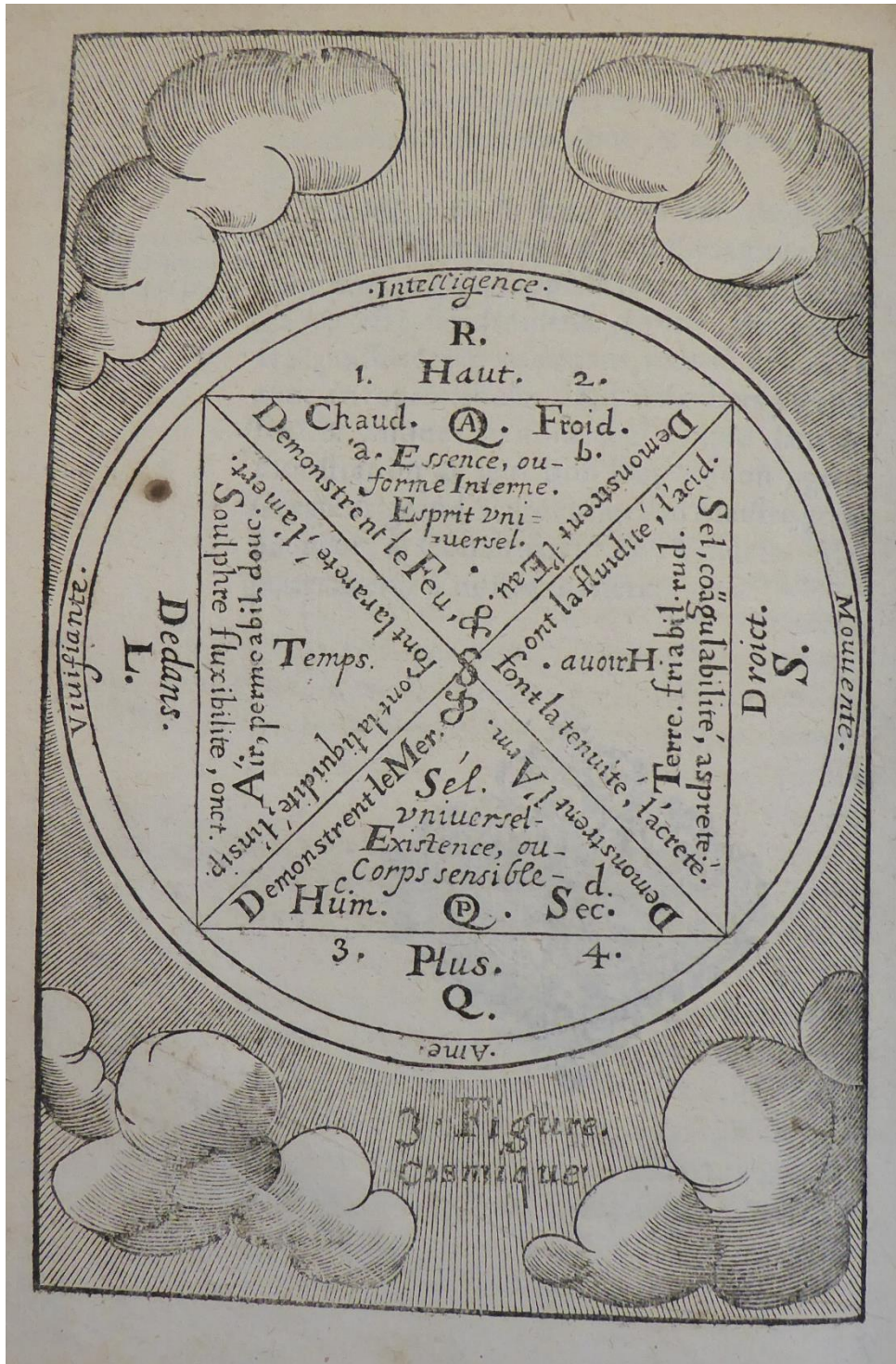
8.10

John Evelyn, detail of plan of c. 1653 showing the 'dial garden' at Sayes Court © The British Library Board, Add 78628 fol. A



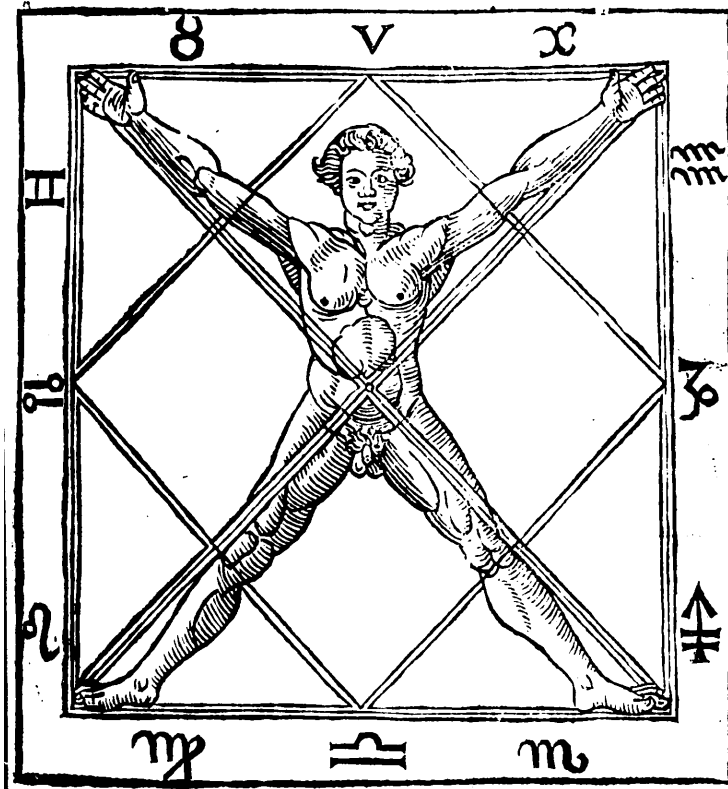
8.11

Mary Evelyn, frontispiece for Evelyn's translation of Lucretius' *De Rerum Natura* (1658) © Author.



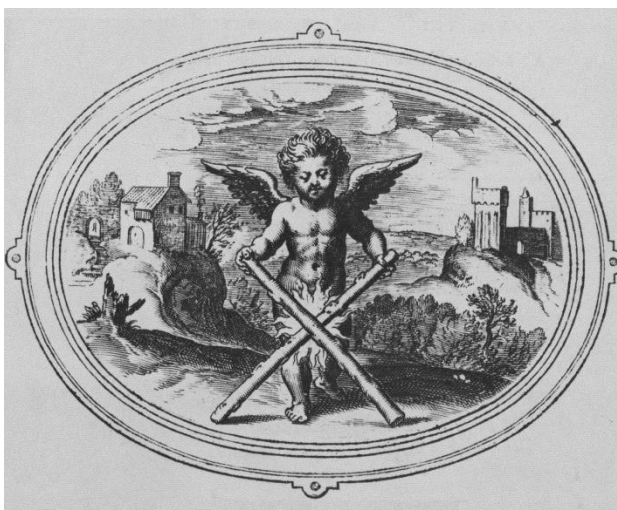
8.12

Annibal Barlet, 'Troisième Figure Cosmique', from *Le vray et methodique cours de la physique resolutiue, vulgairement dite chymie: Pour connoistre la theotechnie ergocosmique, c'est à dire, l'art de Dieu, en l'ouurage de l'vniuerse* (1653), p. 48 © Author.



8.13

Henricus Cornelius Agrippa, A quincunxial version of the 'Vitruvian man', registered against a diagrammatical representation of the zodiac, from *Three Books of Occult Philosophy*, trs. by J. F. [i.e. John French.] (1651). Reproduced with kind permission of Cardiff University Library.



8.14.

Otto van Veen, Cupid igniting quincunxial sticks, from *Amorum Emblemata*, (1608). Reproduced with kind permission of Cardiff University Library.

Conclusion

At some stage during the 1650s or 60s, Evelyn made a fair copy of a short literary ‘romance’ on the theme of the pious alchemist. The work is entitled ‘Coelum sanitatis. or, a Particular of the Vegetable & Animal Dissolvant’ and is well known, though it has not been the topic of any significant commentary.¹ Evelyn composed at least a part of the document, the ‘romantic preface’ in which he introduces the *dramatis personae* and sets the scene - a chymical laboratory situated in the far reaches of a garden. The rest is probably Evelyn’s translation of an unidentified French work, judging from his own flyleaf note.² The story develops around a friendship between the narrator, an aspiring philosopher, and a pious philosophical chymist, who first appears, glimpsed through the window of his laboratory, ‘pouring of a certaine Liquor, red as a Rubie, into a long neck’d glasse’.³ The narrator tells us that at the time of his story he was dissatisfied with the uncertain ‘Dictats of the Vulgar Schooles’ and, under the tutelage of his friend, he finds a more fulfilling philosophical path in the ‘Art of Chymistry’.⁴ In the beginning, their relationship is one of civil acquaintance, but by the final page, the narrator is referring to his friend as ‘Father’, whilst he has become the ‘Sonn’ - standard forms of address between initiates in the tradition of alchemy. At this point the Sonn has been instructed in ‘the most abstruse, and recondite mysteries of Nature’ and has received from his Father a sample of the ‘Catholic Elixir’, with instructions in its preparation and use.⁵ This ‘Celestiall Medicine’ is an ‘Elixir’, a ‘quintessence’, which:

has a faculty to afford repose to the most wearied body, moderating the excesse of heate and cold, in youth, or Age, prolonging the dayes of Life, to the utmost limits of nature, and to the glory of our Omnipotent Maker.⁶

¹ London, British Library, Evelyn Papers, Add 78346; Frances Harris, *Transformations of Love: The Friendship of John Evelyn and Margaret Godolphin* (Oxford: Oxford University Press, 2003), p. 24.

² This misleading light hearted disclaimer reads: ‘A copy of this in French which I have seene has not a word of this romantic praeface, who ever he was who wrote it, & translated the rest ill enough’, Add 78346, fol.1^v

³ Add 78346, fol. 7.

⁴ Add 78346, fol. 2.

⁵ Add 78346, fol. 42

⁶ Add 78346, fol. 52.

As the alchemical tale progresses it exhibits many of Evelyn's key preoccupations, frequently registering ideas that we have seen informing his garden designs over the previous chapters of this thesis.

At the start of the story the narrator pays an unannounced visit to his friend at his home, which is a 'little Villa [...] not far from the City'.⁷ Finding him not at home, the visitor takes a walk in the villa gardens, where he eventually stumbles across the laboratory, located at the far end of a grove and overlooking a parterre. These garden are adorned 'with Cases of Oranges, Limons, Lentiscus, Myrtills, and other greene shrubs', the groves are furnished with 'statues [...] Urnes, and Incriptions', with 'shady treese and [...] cavernous Grotts', accompanied by 'the murmuring of the Water, redolency, and beauty of the Flowers' and other 'ravishing objects'. The pleasures of the hortulan scene leaves out narrator 'charm'd with the pleasure, and admirable mixture of the Art & Nature'.⁸ As the British Library catalogue points out, the ensemble is reminiscent of Evelyn's own laboratory and garden at Sayes Court, and this evocation of the earthly delights of garden is surely reminiscent of passages of the *Elysium*, but the garden environment also resembles Evelyn's Philosophico-Medicall garden.⁹ As Evelyn tells us, the parterre fronting the laboratory terminates in 'a stupendious precipice', which has 'plentifull streams of pure Water trickling out at severall heights' and gathering in 'a fountain which continually play'd in the middle of a Flower garden, whilst the rest ran along in a silent and chrystal streame', a constellation of elements that is highly reminiscent of Evelyn's design for that enclosure.¹⁰ Given the chymical context, and given the prominent place that the distillation vessel occupies in the laboratory operations that the story subsequently relates, the identification of this 'praecipice' with this piece of laboratory equipment is irresistible.¹¹ Thus, in a few short paragraphs Evelyn has established the superiority of experiment over disputational methods of philosophy; the affectivity of the 'enchancing' spaces of the garden that surrounds the laboratory; the gentleman's 'villa' as the locus of experimental philosophy; and the garden and landscape as a domain analogous to the little world of the laboratory.

⁷ Add 78346, fol. 3.

⁸ Add 78346, fols. 5-6.

⁹ cf. *Elysium*, p. 187.

¹⁰ Add 78346, fol.5.

¹¹ Add 78346, fol. 30.

As the story proceeds other familiar themes emerge as Evelyn elaborates his belief that experiment should be conducted in an atmosphere of civility and elegance. He describes the 'Father' as a 'Gentleman, whom I found allwayes in a pleasing humor, far from the usuall morosity of most philosophers', whilst the laboratory is: 'a pretty square, or rather, oblong Fabric', which is 'fronting with a handsome faciata of Architecture'; and the adjoining 'Library, not greate, but choicely furnish'd'.¹² The superiority of experiment over traditional book based learning and disputation is further elaborated as the Father explains that he only needs a few books, for he see his chymical 'Instruments' as 'the keys which open my Bookes, or, rather that one Greate Codex which is the Booke of Nature'.¹³ The philosophical Instruments, 'those extravagant things wch here you so much admire', also receive due attention as the narrator recalls the 'glasse vessell which he call'd a Pelican, having two beakes entering; the 'Malicke of Glasse'; and a distillatory 'worme' placed in a 'Refrigeratory, where the fresh cold water ran in above as fast as it passed forth below, and so kept the worme perpetually cold'.¹⁴

If the philosophical Father has a courtly elegance of bearing, his friend also recognises more substantial virtues in him: his dedication to his laboratory work, his piety and humility in his dealings with his fellow men. The latter are displayed in an episode in which the friends make a charitable sortie to a nearby town, bearing the gift of their quintessential cure, which they use to treat the diseases of the suffering inhabitants. Here the Father is received 'as if he had bin The Lord of the Territory but, I perceived it did not a little trouble the good man'.¹⁵ The piety of the experimental work is expanded in specifically Christian terms, when the Father casts his work as a redemptive labour, making use of the twin images of purgatory and Eden. He had the word 'PURGATORIUM' engraved above his laboratory door and, when first receiving his visitor, who arrived at the laboratory after wandering in the blissfully affecting garden, says:

¹² Add 78346, fol. 2-3; fol. 41; fol. 4; fol. 10.

¹³ Add 78346, fol. 9.

¹⁴ Add 78346, fol. 11, fol. 10, fol. 37, fol. 44, fol. 30.

¹⁵ Add 78346, fol. 42.

though as you enter'd into my Garden, you say you passed through paradise, and are now come to Purgatory; yet before you can truly arrive to the paradise, which I cultivate, you must first passé through purgatory indeed.¹⁶

The medical 'quintessence' that he seeks 'is named 'Coelum, [f]or its universality, & extent; its incorruptibility, imutability and other (as it were) supernaturall, and divine qualities'.¹⁷ It is a substance that combines all the qualities of the terrestrial elements, whilst transcending their material nature in its transcendent purity – it is the true paradise, restored to earth through the noble art of chymistry.¹⁸

The romantic chymical tale thus demonstrates many of the attitudes which inform Evelyn's *Elysium*, and though the story derives from the French context of Paracelsian medical chymistry, many of these attitudes also inform Bacon's work: the fascination with experimental Instruments; the disdain for Scholastic disputational methods of enquiry; the ethical frame, that conceives of experiment as a pious endeavour directed towards the twin goals of attaining useful inventions, applicable to the remediation of man in his Fallen state, and illuminating insights into the wonderful order of God's Creation.¹⁹ All of these imperatives are as vital to Bacon as they were to the philosophical chymists. Even the central goal of pursuing a reformed 'alchemy', directed towards the remediation of health and the prolongation of life, finds a place in Bacon's programme.²⁰ With the help of this text it is easy to see how Evelyn's Baconianism, as it emerged and matured over the course of the 1650s and early 60s, could readily be accommodated to the culture of chymical experiment with which he was already familiar. Emphasising the theme of French precedent, we may even rob Bacon of his priority in calling for the proper institution of experimental philosophy under Royal patronage, for the Parisian Jardin du Roi, founded in 1626, preceded the publication of *New Atlantis* by one year. This

¹⁶ Add 78346, fol. 9.

¹⁷ Add 78346, fol. 39.

¹⁸ Add 78346, fols. 39-40.

¹⁹ Eduard Jan Dijksterhuis, *The Mechanization of the World Picture: Pythagoras to Newton*, trs. by C. Dickshoorn (Princeton: Princeton University Press, 1961), pp. 183-193, pp. 396-403; Charles Webster, *The Great Instauration: Science, Medicine and Reform, 1626-1660* (London: Duckworth, 1975), p. 45; Walter E. Jr Houghton, 'The History of Trades: Its Relation to Seventeenth-Century Thought: As Seen in Bacon, Petty, Evelyn, and Boyle', *Journal of the History of Ideas* 2 (1941), 33-60, (p. 38).

²⁰ Paolo Rossi, *Francis Bacon: From Magic to Science*, trs. by Sacha Rabinovitch (London: Routledge & Kegan Paul, 1968), p. 21; Frances A. Yates, *The Rosicrucian Enlightenment* (London: Ark, 1986), p. 120.

institution may not have had the full range of experimental Instruments that Bacon envisaged for Salomon's House, but with its chymical laboratory and extensive experimental gardens, it went some way towards fulfilling that more expansive programme.²¹ Thus, whilst Bacon was undoubtedly important to Evelyn from the early the 1650s and became increasingly so in the years after the Restoration, the traditions of Hermetic chymistry appears more prominent in Evelyn's thought during the period of this study. But this was a time of rapid changes and though many of these attitudes may have continued into the later years of the seventeenth century, Evelyn also changed his mind on some fundamental issues.

Revision

When Evelyn changed his mind on a topic he was in the habit of going back over his notes and manuscripts to make his reservations and second thoughts clear, sometimes obliterating earlier 'mistakes' to the point of illegibility. Thus, at the end of the 'Coelum Sanitatis' he closes with the word 'FINIS', and two other notes, which he later blacked out with impenetrable scribbling, whilst substituting the legend: 'This is after all our Philosophers Boast, but a well rectified Spirit of Wine' (FIG. 9.1).²² The note has the effect of rendering the tale satirical, or at the very least gently mocking, though it is not clear where the mockery is aimed. It may be a self-deprecating jest at Evelyn's expense, pointing to the somewhat dilettante nature of his efforts in the laboratory, which fell a good way short of the mastery attained by the fictional heroes of the story; it may indicate a ribald attitude towards the reality of the ruby red 'Catholic medicine'; or it may perhaps be a deprecation of the Paracelsian physics that underpin the descriptions of chymical process. Whatever his maturing thoughts on the topic of the alchemical quest, Evelyn certainly had second thoughts on the validity of the chymical philosophy and these are registered in the amendments that he made to the text of the *Elysium*.

²¹ Clara de Mint, 'Early Chemistry at the Jardin du Roi', *Journal of Chemical Education* (1941), 503-509; Alain Mazas, 'Le Belvedere du Jardin des Plantes de Paris', *Journal of Garden History*, 10 (1990), 1-9.

²² Add 78346, fol. 52.

Though the whole of the *Elysium* manuscript is peppered with marginal accretions and new interleaved additional pages, Evelyn confined cancellations of whole sequences of pages to the philosophical material contained in the first book, that part in which he set out his Hermetic chymico-mechanical explanation of the principles and elements, and his discussions of Nature as the Universal Spirit (FIG. 9.2).²³ These cancellations not only suggest a profound change of direction in Evelyn's physics, but also, and equally significantly, register his abandonment of the attempt to offer an authoritative unified account of physics. In place of this he started to lay out a plan for a comparative survey of alternatives, indicated by an insertion destined for Chapter III, 'Of the Principles and Elements in generall', where writes:

We shall therefore say [some word?] of the common and vulgarly received Principles of the Peripatetes, some thing of the Cartesian [...] but more largely of the Spargyricall & Corpuscularie, altogether warning [?] ma[g]netical & Astrological Suppositions.²⁴

The note suggests sweeping changes indeed, if the theories of 'magnetic' attraction that Evelyn used to support his presentation of the Kircherean sympathetic cure of spider bite were to be banished in favour of a precis of Cartesianism and the 'received Principles' of the Schools.²⁵ Even 'Astrologie' appears to be under threat. If these annotations register changes in Evelyn's understanding of Nature, they can also be seen as a register of an important aspect of Baconian method: theorisation was to be deferred, whilst observation, experiment, and the gradual accumulation and ordering of 'matters of fact' were pursued. Only after some time had elapsed and much labour had been expended on securing the factual basis, could axioms and principles be attained.

Evelyn expresses these priorities cogently in a prefatory address 'To the Reader' that he included in the third edition of *Sylva*, published in 1679.²⁶ This takes the form of a resounding defence of the activities of the 'noble *Institution*', the Royal

²³ The pages in this sequence which are not cancelled represent new material subsequently inserted, the cancelled pages are: Add 78342, fol. 13^v, fols. 15-18^v, fols. 22-22^v, fols. 28-28^v, fols. 31-31^v, fols. 34-36.

²⁴ *Elysium*, p. 36.

²⁵ *Elysium*, p. 306.

²⁶ John Evelyn, F. R. S. 'To the Reader', *Sylva, or a Discourse of Forest-Trees ... Terra, a Philosophical Essay of Earth ... Pomona: Or, an Appendix Concerning Fruit-Trees ... Also Kalendarium Hortense ...* 3rd ed. (London: printed for John Martyn, 1679), u.p..

Society, which Evelyn sets out in classically Baconian terms. He tells his reader that the Society aims to:

Improv[e] Natural Knowledge, and inlarge the empire of *Operative Philosophy*; not by an Abolition of the *Old*, but by the Real Effects of the Experimental; Collecting Examining, and Improving their scatter'd Phoenomena's [...]

The Society does not reject any '*Sect of Philosophers*', but subjects all to the same experimental tests of 'the Fire, the Anvil, and the File', so that 'from a plentiful and well furnishd Magazine of experiments, they may in time advance to Solomn and established Axioms, General Rules and Maximes'. The Society rejects the '*Notional, and Formal* way of delivering divers *Systemes* and *Bodies of Philosophy* (falsely so call'd) beyond which there was no more *Country* to discover', for this '*Pedantick Rubbish*' is not '*Useful*', it has none of the virtue of the '*Mathematical, or Mechanical*', nothing that will promote 'progresse'.

In contrast to the derelict and ruinous practices of Scholasticism, the activities of the Royal Society have all the merits of:

Ennobling the Dignity of Mankind in the *Sublimest operations* of the rational *Faculty* by *clearing the Obscurities* and *healing the Philosophical Hypotheses*, repugnant, as they hitherto seemed to be, to the *Principles of real Knowledge and Experience*.

They have:

brought in Specimens for the Improvements of Astronomy, Geography, Navigation, Optics; and the parts of Agriculture, the Garden and the Forest; Anatomy of Plants, Mines and Ores; measures and Æquations of Time by accurate Pendules, and other motions, Hydro-, and Hygrostatics, divers engines, Powers and Automata, with innumerable more Luciferous particulars, subservient to humane life.

If some of this is entirely in accord with the attitudes we have encounters in Evelyn's first draft for the *Elysium* (or indeed with his chymical romance), in this preface the Baconian aspects of his thought come through with a vehemence and coherence that

is quite new. Furthermore, though the primary butt of Evelyn's attack remains Aristotelean Scholastics (he derogates some key Aristotelian concepts: the '*Elements*, and *Qualities*, *Occult AND Evident*; abhorrence of *vacuum*, *Substantial forms*, and *Prime-matter* courting *Form*'), there are also other casualties, for he adds '*Sympathies*' and '*Antipathies*' to his list of '*Precaious and unintelligible Notions*', and these are concepts which had held an important place in his chymically ordered harmonious universe. Though Evelyn claims that the members of the Society 'reject no *Sect of Philosophers*, no *Mechanic* helps, except no persons of Men; but cheerfully embrac[e] all', the text paradoxically indicates that, by 1679, the Society had already cast both Aristotle and the chymical philosophy onto the heap of '*Pedantick Rubbish*'.

Where precisely Evelyn's revisions might ultimately have taken the text of the *Elysium* is uncertain, though further insight might be gained from a systematic study of available evidence, not least the insertions and deletions that Evelyn made to the first fair draft of the main manuscript, and the fragmentary material collected in other volumes and intended for later insertion in the text.²⁷ It is tempting to presume that the vitalist components of his thought attendant on his characterisation of 'Nature herselfe' as the Universal Spirit, would have perished under later influences, particularly that of Robert Boyle, whose attacks on Paracelsianism and Aristotelianism entailed the dismissal any conception of a vital Nature along with his dismantling of the concepts of the *tria prima* and the four elements.²⁸ Certainly Evelyn intended that Boyle's work inform his revisions to the *Elysium*, for his annotations make this quite plain, particularly the note that he made against the title of Chapter III, 'Of the Principles and Elements in generall'. Here Evelyn wrote: 'For these chapp. consult Malphigii, & Dr. grew, with Mr Boyles Origin of Forms etc. Dr

²⁷ John Evelyn, 'Rude Collections to be Inserted into Elysium Britannicum, Referring to the several Chapters of what is beg[un] (f. 150v), London, British Library, Evelyn Papers, Add 78343; John Evelyn, 'Notes and collections for Evelyn's intended work, entitled "Elysium Britannicum", with a printed sheet of the contents', London, British Library, Evelyn Papers, Add 15950, fols. 142-173; for summary of extant manuscripts by Evelyn see Peter Beal, 'Catalogue of English Manuscripts 1450-1700', <http://www.celm-ms.org.uk/introductions/EvelynJohn.html> [Accessed 23 May 2016].

²⁸ Michael Hunter, 'Introduction' in Robert Boyle, Edward B. Davis, and Michael Cyril William Hunter, *A Free Enquiry into the Vulgarly Received Notion of Nature* (Cambridge: Cambridge University Press, 1996), pp. ix-xxvii; Lawrence Principe, *The Aspiring Adept: Robert Boyle and His Alchemical Quest: Including Boyle's "Lost" Dialogue on the Transmutation of Metals* (Princeton, N.J.; Chichester: Princeton University Press, 1998), pp. 34-41.

Cudworth etc}.²⁹ So, if he intended to consult Boyle, he also intended to consult the work of Ralph Cudworth, a prominent representative of the school of Cambridge Platonists, who whilst embracing an atomistic theory of matter, resisted a fully mechanistic physics and insisted on Spirit as the fundamental causal principle of Nature.³⁰ Evelyn's inclusion of Cudworth amongst his revisionist authorities may well indicate a lingering reluctance on his part to relinquish vitalist conceptions of Nature completely.

What then of the revisions that Evelyn made, or intended to make to the second more practically oriented book of the *Elysium*? Where did his second thoughts on the fundamental structures of created nature lead him when considering the harmonious design of his imagined Royal Garden, or the gardening techniques which assured its flourishing, or the experimental activities that it housed? Though Evelyn's changes to the surviving chapters of the second book are typically additions rather than cancellations, this does not imply that he had no anxiety to 'reform' the text. '[R]eforme this be Dr: Wilkins' he notes against his description of the philosophical Instrument, the 'Foixt'; 'Improve this Chap: by Dr Plots descript of Echos: etc' he writes at the end of the chapter 'Of Rocks, Grots, Cryptas etc.'; and, against his drawing of a garden 'thermoscope or wether glass', 'Improve this by the R:Society. Put in an higroscop or Barometer: for the ayres gravitation, & that for the wind of Mr: Hooke'.³¹ Contributions from the members of the Royal Society are much in evidence as Evelyn's revisions proceed - Christopher Wren supplied an additional account of hortulan *trompe l'oeil*, taken from the gardens of Dr. Wilkins at Wadham College; Thomas Hanmer (1612–1678) supplied a long account of the cultivation of tulips; and so it goes on.³² Evelyn's amendments also increase the number of references to Bacon substantially, as he systematically inserted particulars

²⁹ *Elysium*, p. 36.

³⁰ This note must have been made at some time after the publication of Cudworth's only work in natural philosophy, Ralph Cudworth, *The True Intellectual System of the Universe: The First Part; Wherein, All the Reason and Philosophy of Atheism Is Confuted: And Its Impossibility Demonstrated* (London: Richard Royston, 1678); Sarah Hutton, 'The Cambridge Platonists', *The Stanford Encyclopaedia of Philosophy* (Winter 2013 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/win2013/entries/cambridge-platonists/>>.

³¹ *Elysium*, p. 88; p. 203; p. 251.

³² *Elysium*, p. 218; 'On Tulips', pp. 445-448.

gleaned from the pages of *Sylva Sylvarum* into the text.³³ The direction of his revisions was to bring the text into alignment with the new ideas he was encountering through his membership of the Royal Society.

Given Evelyn's eventual dismissal of the concepts of sympathy, antipathy, and universal magnetism, we can only assume that his account of the Kircherean spider bite cure would not have gone to press unaltered. Similarly his evocative poems of praise for the Pythagorean harmonies of the heavens might have seemed out of place as the century progressed.³⁴ But revision may take a subtle form. When a theoretical position is discredited, the particulars of a reported phenomenon may still stand and the enigmatic details of any operative practice may still serve as a repository of unsuspected secrets. The 'experimental' surface of the garden, the phenomena and techniques, might have remained undisturbed for a time by the more profound changes that were happening beneath the surface, as Evelyn revised his theoretical conception of Nature.

Gardens, like the theoretical ideas which support them, are mutable. Sometimes a gardening practice may prove stable, whilst theoretical positions change. The gardener may continue with quincunxial planting patterns, valuing their beauty, utility and convenience, long after he has abandoned any thought of the once important emblematic significance of the quinary, or the intrinsic generative potency of the number five. The intricate design of a parterre may be relished even by those who have no suspicion that there is an encoded 'fantasy' embedded within its patterns. But equally, deracinated forms, stripped of any lively connection with a supporting culture, eventually fall out of fashion and into irrelevance. In 1679, the same year in which he published his voluble preface in support of the Royal Society in *Sylva*, Evelyn ripped up his dial garden. Why he did this remains a question. Was the destruction prompted by the combined persuasive forces of frost damage and the expense of upkeep, so long lamented by his wife; or was it perhaps a response to the waning of some of the Hermetically inspired ideas which had supported his design in

³³ Specific references to *Sylva Sylvarum* in the revisions *Elysium*, pp. 50-51; p. 70. p. 104; p. 107; p. 298; p. 311; p. 331; p. 332; p. 340; p. 406; Evelyn owned Francis Bacon, *Sylva Sylvarum (New Atlantis) ... Whereunto is Newly Added the History Naturall and Experimentall of Life and Death ...* 6th ed. (London: J. F., for William Lee, 1651), British Library call number Eve.b.30.

³⁴ *Elysium*, pp. 303-306.

the first place? If his interest in astrological gardening survived for some time, did it eventually fall into irrelevance, and what of his interest in numerology? Some of the compositional ingenuities, embedded in the parterre may have begun to feel a little strained as Evelyn's ideas developed and shifted over the passing years and maybe, in the event, he was able to countenance the destruction of his dial garden without regret.

53

and by this meanes you may
 preserve her for ever. After this
 with innumerable thanks I took
 leave of my Father (for so I ever
 after that shuld him) as from whom
 I esteeme to have receiv'd a greater
 gift, then that of my being from
 the Loynes of my naturall ^{Parents} ~~Father~~;
 for having long enjoy'd this Dught-
 ler of Light, and health, and health
 I begot many more incompar-
 able offsprings, and so successfullly
 flourish'd with her; that I have
 that great reason to praise the
 mighty God for this excellent gift,
 and to reverence the memory of
 this rare Person, by whose friend-
 ship, and charity I most gratefully
 acknowledge ~~was~~ to have received
 it.

FINIS.

~~Handwritten scribbles~~

~~Handwritten scribbles~~

This is after all our Philosophy
 Boast, but a well-vestifed Spirit
 of Wine.

9.1

John Evelyn, the final page of 'Coelum sanitatis. or, a Particular of the Vegetable & Animal Dissolvant' © The British Library Board, Add MS 78346, fol. 53.

Elysium Britannicum.

6 My purpose was quite to alter the philosophical part of this first book

CHAP. III
Of the Principles and Elements in general.

To the culture of a Garden, the knowledge of the nature of the Elements is of absolute necessity, and especially of the Earth, which being of all the rest the most heteroganeous (considered in the bulk it appears to us) is the most difficult to comprehend. Also the variety of Climates; the degrees of Heat and Cold; the qualities of the Air, and of the Water, all which exceedingly cooperate and concur to the accomplishment of our design; being the causes of all Generation, Generation and commencement of things so much result from their mixture and temperaments; as, on the contrary, their dissipation and discordancy is the occasion of their ruine and dissolution.

Our intent is not here to discourse, but very briefly, of the subtle nature of principles, such as Philosophers describe them to be before they compose the Mass; that is, by reducing them to those *particulae simplices*, Atoms; but as they are vulgarly styled, and most sensibly known by the name of Elements (though upon strict inspection they prove but mixtures) viz. Fire, Air, Earth and Water; whereof the two last compose that grosser Globes upon which we intend per-
turbation, which the Air and the Fire or Ether with the glorious influences of the celestial constellations insiron.

Now the principle of all these principles is nothing less than Nature herself; the root, *Spina*, Entelechia and Soul of all things, and the first like to the *Substantia* of Fire: being the energetic matter is not that which in the body physical we find every day *substantia* noxious to corruption; but that invisible seed or *spina* covered under that *capsa* or shell of the body, the offspring of a more subtle original, by which it becomes *substantia*; so that upon the very destruction and death of this external phenomenon, which impresses the virtue, always produces some other thing individual, and is never at repose, 'til it againe reverts to its source and original, as is evident in the *generation* of seeds and roots if they receive not according to our expectation, or *reproduction*; *generation* and *reproduction* subsisting to that of *substantia*, *quod in se, non vivit nisi in se, nisi in se, non vivit nisi in se.*

Now this spiritual substance (for as we say, there is a substance besides corporeal matter, which is the soul, seminal forme and *arche*) though three distinct substances, or rather denominations (and therefore some do call them *several matters*) with subject them to manifold inconveniences, hindring both the generation, and augmentation of compounds, the variety resulting from mixt. they are therefore unical in *essence* though

distinct and *several*

9.2

Evelyn's deletion of the first page of chapter, 'Of the Principles and Elements in generall' from the 'Elysium Britannicum' manuscript © The British Library Board, Add 78342, fol. 13^v.

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Appendix 1

Transcription of a printed table of contents (the third of three which Evelyn produced) as it appears transcribed in John Evelyn, *Elysium Britannicum, or the Royal Gardens*, *Penn Studies in Landscape Architecture* ed. by John Ingram (Philadelphia: University of Pennsylvania Press, 2001), pp. 21-23. For commentary - see *Elysium*, p. 14-15.

ELYSIUM BRITANNICUM

OR THE

ROYAL GARDENS

IN

THREE BOOKS

Præmissis præmittendis, etc.

BOOK I

Præface Pr:		Pages:
Chap 1	A Garden derived, and defined, with its distinctions and sorts.	1
2	Of a Gardiner, and how he is to be qualified.	3
3	Of the Principles and Elements in general.	6
4	Of the Fire.	10
5	Of the Air, and Winds.	12
6	Of the Water.	13
7	Of the Earth.	15
8	Of the Celestial influences, particularly the Sun, and Moon, and of the Climates.	16
9	Of the four Seasons.	19
10	Of the Mould and Soil of the Garden.	23

- 11 Of Composts, and Stercoration. {with ~~some conjectures~~
concerning an account of the Causes of Vegetation and fertility}.
- 12 Of the Generation of Plants. {Vegetation} 30

BOOK II

- 1 Of the Instruments belonging to a Gardiner, and their various
uses. {& Termes used by a Gardiner etc.} 41
- 2 Of the Situation of a Garden, with its extent. 52
- 3 Of enclosing, fencing, plotting and disposing of Ground. 54
- 4 Of a seminary, {[illegible] grafting} and of [propagating Trees,
Plants, and Flowers. {Grafting}] 61
- 5 Of Knots, Parters, Compartiments, Bordures, and
Embossements. {Topiary Work & hortulan architecture} 74
- 6 Of Walks, Terraces, Allees, Carpets, Bowling-Greens, Malls,
their materials and proportions. 77
- ¹7 Of Groves, Labyrinths, Dædales, Cabinets, Cradles, Pavilions,
Galleries, Close-walks, and other Relievo's. 89
- 8 Of {Planting} Transplanting 111
- 9 Of Fountaines, Cascades, Rivulets, Piscenas, Canales, and
Water-works. 117
- 10 Of Rocks, Grots, Cryptas, Mounts, Precipices, Porticos,
Ventiducts, and other Hortulan refreshments. 113
- 11 Of Statues, Obeliscs, Columns, Dyals, Pots, Vasas, Perspectives,
Paintings, and other Ornaments. [149]
- 12 Of Artificial Echoe{'}s, Automats, and Hydraulic motions. 167
- 13 Of Aviaries, Apiaries, Viviaries, Insects, etc. 200
- 14 Of Verdures, Perennial-greens, and perpetual Springs 259
- 15 Of Orangeries, Oporothecas, and Conservatories of rare Plants
and Fruits, {with the manner of raising them} 262
- 16 Of Coronary Gardens, Flowers, and rare Plants, how they are to
be propagated, gouvern'd, and improv'd; together with a touch at
their Vertues, and how the Gardiner is to keep his Register. 275

¹ [Margin note] part of this is printed. *Syl*[va]

17	Of the Philosophico-Medical garden.	321
18	Of stupendious and wonderful Plants. {Sensitive}	331
19	Of the Ortyard, and what Fruit-Trees, Olitory, and Esuculent Plants may be admitted into a Garden of pleasure. {and Sallets}	362
{20	Of Sallets}	
201	Of a Vinyard, and Directions about making Wine.	380
242	Of Watering, Pruning, {repastinating} & stirring}	395
223	Of the Enemies and Infirmities to which a Garden is obnoxious, together with the Remedies.	405
² 234	Of the Gardiners Almanack, or Calendarium Hortense, directing what he is to do monthly, and what Fruits and Flowers are in Prime.	415

BOOK III

1	Of Conserving, Propergating, Retarding, Multiplying , Transmuting and altering the Species, Forms, and {briefly called} substantial qualities of Plants and Flowers.	433
2	Of the Gardiners Elaboratory, and of distilling, and extracting of Waters, Spirits, Essences, Salts, Resuscitation of Plants, with other rare Experiments, and an account of their Vertues.	559
3	Of Composing the <i>Hortus Hyemalis</i> and making Books of Natural, Arid Plants, and Flowers, with other curious ways of preserving them in their Natural.	629
4	Of Painting of Flowers, Flowers enamel'd, in Silk, Wax, Gun. Horn, Feathers, Shells, Calicos, Moss, Pietra Commessa {Paste} Mettal, Inlaying, Embroideries, Carvings, and other artificial representations of them.	631
5	Of Crowns, Chaplets, Garlands, Festoons, Flower-pots, Nosegays, Posies, and other Flowery Pomps.	633
6	Of the Hortulan Laws. {& Priviledges}	643
7	Of the Hortulan Study, and of a Library assistant to it.	649
8	Of Hortulan Entertainments, Divine, Moral, and Natural, to shew the riches, beauty, wonder, plenty, delight, and universal use of a	657

² [Margin notes, printed] This is already publish'd, being but a Chapter of this work.

Garden. {Garden Buriale etc.}

- | | | |
|----|---|-----|
| 9 | Of the most famous Gardens of the World, Ancient and Modern. | 727 |
| 10 | The Description of the <i>Villa</i> . | 867 |
| 11 | The Corollary and Conclusion. {Authors of <i>Books</i> on these Subjects Either asked or yet to be consulted} | |

FINIS

J EVELYN

Appendix 2

A table reconciling the Instruments described by the Father of Salomon's House and the topics that Evelyn treats in the *Elysium*.

Page references are to Francis Bacon, *New Atlantis a Work Unfinished / Written by the Right Honourable Francis, Lord Verulam, Viscount St. Alban* ([London]: s.n., 1658), pp. 26-32; and John Evelyn, *Elysium Britannicum, or the Royal Gardens*, ed. by and John E. Ingram, (Philadelphia: University of Pennsylvania Press, 2001).

<i>New Atlantis</i>	<i>Elysium</i>
p. 26 'large and deep caves of several depths [...] some of them are digged and made under great hills and mountains... the Lower Region'.	pp. 193-194, p. 405.
p. 27 We have also great variety of composts and soils, for the making of the earth fruitful.	'Of the Mould and Soile of a Garden', Chapter X, Book 1, pp. 65-73; and p. 406.
p. 27 'We have high towers; the highest about half a mile in height; and some of them likewise set upon high mountains; ... [the] Upper Region... for the view of divers meteors... dwellings of hermits, whom we visit sometimes, and instruct what to observe'.	p. 195; p. 198.
p. 27 'We have great lakes, both salt, and fresh; whereof we have use for the fish and fow'l'	pp. 182-183.
p. 27 'violent streams and cataracts, which serve us for many motions: and likewise engines for multiplying and enforcing of winds, to set also on going diverse motions'	p. 183, p. 191.
p. 27 'artificial wells and fountains, made in imitation of the natural sources and baths'	p. 184.

New Atlantis

- p. 27 ‘We have also great and spacious houses where we imitate and demonstrate meteors; as snow, hail, rain, some artificial rains of bodies and not of water, thunders, lightnings’
- p. 27 ‘qualify the air as we think good and proper for the cure of divers diseases, and preservation of health’.
- p. 28 ‘We have also large and various orchards and gardens; wherein we do not so much respect beauty, as variety of ground and soil, proper for divers trees and herbs: and some very spacious, where trees and berries are set whereof we make divers kinds of drinks, besides the vineyards.’
- ‘In these we practise likewise all conclusions of grafting, and inoculating as well of wild-trees as fruit-trees’.
- p. 28 And we make (by art) in the same orchards and gardens, trees and flowers to come earlier or later than their seasons;
- p. 28 ‘We have also means to make divers plants rise by mixtures of earths without seeds; and likewise to make divers new plants, differing from the vulgar; and to make one tree or plant turn into another’.
- p. 28 ‘We have also parks and enclosures of all sorts of beasts and birds [...] Wherein we find many strange effects; as continuing life in them, though divers parts, which you account vital, be perished and taken forth; resuscitating of some that seem dead in appearance [...]’.

Elysium

- p. 192.
- p. 189, p. 197, p. 232, p. 244.
- Lost chapter, ‘Of the Ortyard, and what Fruit-trees ...’ Chapter XIX, Book 2, see table of contents Appendix 0.
- Lost chapter ‘Of a Vinyard and Directions about making Wine’, Chapter XXI, Book 2, see table of contents Appendix 0.
- ‘Of a seminary, [illegible], and of propagating Trees, Plants and Flowers. {Graffing}’, Chapter IV, Book 2, pp. 102-122.
- ‘Of Orangeries, {*Oporothecas*} and Conservatories of rare Plants & Fruites {with the manner of raising them}’, Chapter XV, Book 2.
- p. 406; Lost chapter ‘Of conserving, Properating, Retarding, Multiplying, Transmuting and altering Species, Forms [etc.]’, Chapter I, Book 3, see table of contents Appendix 0.
- p. 267, p. 270, pp. 253-258, pp. 266-267.

New Atlantis

- p. 29 ‘We have also places for breed and generation of those kinds of worms and flies which are of special use; such as are with you your silk-worms and bees’.
- p.29 ‘We have dispensatories, or shops of medicines. [...] We have them likewise of divers ages, and long fermentations. And for their preparations, we have not only all manner of exquisite distillations and separations’.
- p. 30* ‘We have also divers mechanical arts, which you have not; and stuffs made by them; as papers, linen, silks, tissues; dainty works of feathers of wonderful lustre;
- p. 30* ‘We have also furnaces of great diversities, and that keep great diversity of heats; fierce and quick; strong and constant; soft and mild; blown, quiet; dry, moist; and the like’.
- p. 30* ‘We have also perspective-houses, where we make demonstrations of all lights and radiations; and of all colours: We represent also all multiplications of light, which we carry to great distance, and make so sharp as to discern small points and lines. Also all colourations of light; all delusions and deceits of the sight’

Elysium

pp. 287-296; pp. 273-287.

Lost chapter ‘Of the Gardiners Elaboratory, and of distilling, and extracting of Waters, Spirits, Essences, Salts, Resuscitation of Plants, with other rare Experiments, and an account of their Vertues’, Chapter II, Book 3, see table of contents Appendix 0.

Lost chapter ‘Of Painting of Flowers, Flowers enamel’d, in Silk, Wax, Gum, Horn, Feathers, Shells, Calicos, Moss, Pietra Commessa {Paist} Mettal, Inlayings, Embroideries, Carvings, and other artificial representations of them’, Chapter IV, Book 3, see table of contents Appendix 0.

pp. 404-405; Lost chapter ‘Of the Gardiners Elaboratory, and of distilling, and extracting of Waters, Spirits, Essences, Salts, Resuscitation of Plants, with other rare Experiments, and an account of their Vertues’, Chapter II, Book 3, see table of contents Appendix 0.

pp. 126-127; p. 206; pp. 215-217; p. 66; p. 184.

New Atlantis

- 31 ‘We have also sound-houses, where we practise and demonstrate all sounds, and their generation [...]. We represent and imitate all articulate sounds and letters, and the voices and notes of beasts and birds’.
- 31 ‘We have also perfume-houses; wherewith we join also practices of Taste [...] and sallets in far greater variety then you have’.
- 31-32 ‘We have also engine-houses, where are prepared engines and instruments for all sorts of motions. We have ships and boats for going under water, and brooking of seas; also swimming-girdles and supporters. We have divers curious clocks, and other like motions of return: and some perpetual motions. We imitate also motions of living creatures, by images, of men, beasts, birds, fishes, and serpents’.
- 32 ‘We have also a mathematical house, where are represented all instruments, as well of geometry as astronomy, exquisitely made’.
- 32 ‘We have also houses of deceits of the senses; where we represent all manner of feats of juggling, false apparitions, impostures, and illusions; and their fallacies’.

Elysium

- p. 197; ‘Of artificial Echo’s, Musick, & Hydraulick motions’, chapter XII, book 2, pp. 225-252.
- p. 39, p. 225; Lost Chapter ‘Of Sallets’, chapter XX, Book 2, see table of contents Appendix 0.
- ‘Of artificial Echo’s, Musick, & Hydraulick motions’, chapter XII, book 2, pp. 225-252 (pp. 232-252); p. 191.
- pp. 194-195.
- pp. 215-217.

*The pagination is incorrect in this edition. p. 28 appearing twice, the second time in place of what should be p. 30 as here.

Appendix 3

Transcription of Evelyn's list of 'Writers of Chymistry' from the 'Barlet notebook', London, British Library, Evelyn Papers, Add 78335, fol. 5^v. See (FIG 3.7)

Writers of Chymistry:	
{arteanius. Ancient}	Lurria Triumphalus Antimonij Fabri
Philips Theophrastus Paracelsus:	Pan Chymicum : of the same fab:
Raimundus Lullius:	Propagnaculum Alchymia:
Arnoldus de Villanova	Jo: Dan: Mylij Complementio operis
Johannesburg de Rupescissa:	Medico-chymici. Vol: 2: ³
Trite minus:	
More moderne	The 5 volumes set out, by the Duke of
Trevisanus	Orsena, who caused it to be completed
Korndorfer:	whilst he was vice Rè of Naples and
Montagnes:	dedicated it unto his son. opus explorat...
Johannes Dee:	
Ponta nonus:	Glauber ut Ferunus philosophique. In 8
Queicetannus:	Vo Frankfurti 1650 the best of all:
Pederus Severinus:	Glauber hath 5 bookes:
Penotus:	Theatrum Chymicum 5 vol:
Dornaeus:	Turba Philosphorum {8 ⁰ : 5 vol:}
Rulandus:	Agricola de Minerali [?]
Alexander à süchten	Hartmanus in Bazil: Chym: : Crolij:
Oswaldus Crollius:	Angeli Sali de Anatomia
Mulleriis:	Antimonij de Sulphero
Dr: d'Avinson:	Novem Lumen Chymicum
Mon: Barlet not yet in print.	Les douse Clefs de Basil Valentino:
John: Beguinus:	Helmontius:
{N: Flamell:}	Despagnet: Or Arcan Her: opus: sive ⁴
	Enchir: phil: restitutiae {is elegant a
	piece as was ever written in any tongue
	whatsoever} ⁵
	G: Ripley : in Eng: [and sign] a worke of
	others.

[Evelyn's copy of the astrological diagram from Jean d'Espagnet, *Arcanum Hermeticae Philosophiae*, (1563)⁶ appears here, see FIGS. 3.7; 3.7A]

³ Joannes Daniel Mylius, *Opus Medico-Chymicum, Continens Tractatus Sive Basilicas Quorum Prior Inscritur Basilica Medica, Secundus Basilica Chymica, Tertius Basilica Philosophica* (Francofurti, 1618-30).

⁴ Joannes d'Espagnet, *Arcanum Hermeticae Philosophiae Opus: In Quo Occulta Naturae Et Artis Circa Lapidis Philosphorum Materiam Et Operandi Modum Canonice Et Ordinate Fiunt Manifesta. Opus Ejusdem Authoris Anonymi. Penes Nos Unda Tagi. [the Anagram of Joannes D'espagnet.]* (Genevæ: 1653).

⁵ Espagnet, Jean, *Enchyridion Physicae Restitutae, or, the Summary of Physicks Recovered Wherein the True Harmony of Nature Is Explained ...* trs. by Dr Everard (London, 1651).

⁶ See n. 2.

Appendix 4:

Further notes on Evelyn's inheritance from the Hermetic tradition: Perception, Experiment, Vitalism and Magic.

As an experimentalist, Evelyn's interest in the traditions of Renaissance Neoplatonic Hermeticism was not merely theoretical or contemplative, he was also concerned with 'operational' potentials. As demonstrated in the main body of the thesis, he expanded his Hermetically informed understanding of Nature into a practical engagement with both alchemy and with astrology.⁷ This appendix gives some attention to Evelyn's understanding other 'Hermetically' nuanced operational domains - domains influenced by his understanding of Nature as the Universal Spirit - in a discussion of 'experiment', perception, vitalism, and 'magic'.

'Experiment' and Perception

If Evelyn's ideas of institutional structure and method owed much to Bacon, and his physics was strongly informed by the Hermetic ideas of Paracelsian chymistry, 'experiment' forms a ground common to both camps and deserves some consideration. However interested Evelyn was in the Baconian priority given to the proper ordering of observationally generated matters of fact, there is a crucial Hermetic component to the 'experiences' involved in the experiments that he hints at or describes in the *Elysium*, whether these be the formally conducted chymical experiments of the laboratory, the observation of natural phenomena such as the growth of plants, or the more common experience of simple phenomena such as the quality of air or water. The crucial issue is that, for Evelyn, 'experience' includes direct sensory perception of the Universal Spirit - 'seene by few, but felt by every body and flowing through all the workes of the creation'.⁸ He defends this idea with some force, writing of the 'canting ignorance, or envie of some writers, [who] have taken it for a *Chymical Chimæra*'.⁹ One logical consequence of this is that Evelyn's

⁷ Alchemy see chapters 2 and 3; Astrology principally Chapter 7.

⁸ *Elysium*, p. 38.

⁹ *Elysium*, p. 37.

experiments must have included the observation and manipulation of Spirit. This indeed proves to be the case, for he makes reference to the technical difficulties of discerning the quality of Spirit in its various ‘denominations’, (we would probably say ‘qualities’), saying that this is a matter ‘extraordinarily difficult to investigate’.¹⁰ The locus of this comment is chymical experimentation, for, as he says ‘the *Chymists* do best understand’ the corporification of Spirit and its release from material ‘fetters’.¹¹ So central is the concept of the vivifying Universal Spirit to Evelyn’s understanding of Nature, that even when not explicitly stated, it must be understood as an essential to the phenomena that he observes, whether these be the ‘rarification’ of air that activates a pneumatically powered garden automaton; the fecundation of soil; or the especially beneficial properties of equinoctial rains, which, he says, are to be preferred ‘as being the most of all impregnat with the *universall Spirit*’.¹²

The issues of the boundaries and acuity of perception are, of course, important experimental concerns. If the Universal Spirit is nothing but a *Chymical Chimæra*, as Evelyn’s ‘canting’ detractors said, then its perception becomes an irrational and ‘enthusiastic’ pretense. If it is a readily perceptible reality, then this is not the case and observations of the Spirit in its various manifestations take their place amongst the other laborious and difficult experimental practices located in the laboratory, or the garden. Though it is clear that ‘enthusiastic’, or ‘illuminate’ practices in the study of nature became marginalised over the course of the seventeenth century, particularly amongst members of the Royal Society (Bacon also disapproved), it is quite possible that Evelyn, like many chymical philosophers, was open to enthusiastically attained insights.¹³ Consider his letter of 1660 to Sir Thomas Browne, where Evelyn writes of his intentions for the *Elysium*:

We will endeavour to shew how the aire and genius of Gardens operat upon humane spirits towards virtue and sanctitie, I meane in a remote, preparatory

¹⁰ *Elysium*, p. 38-39.

¹¹ *Elysium*, pp. 38-39.

¹² *Elysium* p. p. 245; p. 43, p. 51.

¹³ Frances Yates, ‘the Hermetic Tradition in Renaissance Science’ in *Ideas and Ideals in the Northern European Renaissance*, Vol. III (London: Routledge & Kegan Paul, 1984), pp. 227-246, (p. 239); Brian Vickers and Nancy S. Struener, *Rhetoric and the Pursuit of Truth: Language Change in the Seventeenth and Eighteenth Centuries: Papers Read at a Clark Library Seminar, 8 March 1980* (Los Angeles: William Andrews Clark Memorial Library, University of California, 1985), pp. 3-76. Bruce Janacek, ‘Ashmole’s Baconian Revelation of Knowledge’, in *Alchemical Belief: Occultism in the Religious Culture of Early Modern England* (University Park, Pa.: Pennsylvania State University Press, 2011), pp. 134-136.

and instrumentall working. How caves, Grotts, mounts, and irregular ornaments of gardens do contribute to contemplative and Philosophicall Enthusiasme; how *Elysium, Antrum, Nemus, Paradysus, Hortus, Lucus &c.* signifie all of them *rem sacram et diviniam*; for these expedients do influence the soule and spirits of man, and prepare them for converse with good Angells.¹⁴

In the *Elysium*, Evelyn expresses similar thoughts at greater length, again mentioning the potential of ‘Mounts, Prospects, Praecipices, Grotts, etc,’ to inspire ‘philosophical enthusiasme’, an idea that he elaborates further with reference to the enduring potential of mountainous ‘Retirements [... which ...] dispose the curiosite for the Speculation of Nature & her incomparable workes’.¹⁵ Evelyn’s ideas of the potential of rural and wild settings to support spiritual practices and philosophical activity continued into the later decades, finding expression in his disquisition on the ‘Sacrednesse, and Use of standing Groves’, in *Sylva* (starting with the second edition, published in 1670).¹⁶ In this later context, however, Evelyn omits his positive mentions of ‘philosophical enthusiasm’, casting ‘enthusiasm’ as a pejorative term.¹⁷ This shift in attitudes towards illuminism is entirely in line with the increasing emphasis placed on ‘sober’ rationality in the context of the Royal Society, a phenomenon reflected in the quasi-official account of its activities by Thomas Sprat, published in 1667, if not adhered to by all of the Society’s members, at least not in its early years.¹⁸

Vitalism.

Evelyn’s universe was alive, but how it was alive is a matter of ambiguity. The issue of the boundaries of vitalism was an important area of debate throughout the

¹⁴ John Evelyn to Sir Thomas Browne, 28 January, 1660, quoted in Parry, p. 135, cf. transcription in *The Letterbooks of John Evelyn*, ed. by Douglas Chambers and David Galbraith (Toronto: University of Toronto Press, Scholarly Publishing Division, 2014), pp. 270-272, (p. 271), which substitutes ‘Enthusiasms’ for ‘Enthusiasme’. MSs reference in ‘Elysium Britannicum’, British Library, Evelyn papers, Add 78342, fol. 145 says ‘enthusiasme’.

¹⁵ *Elysium*, p. 198-199.

¹⁶ John Evelyn, F. R. S., *Sylva, or a Discourse of Forest-Trees ... To Which Is Annexed Pomona; or, an Appendix Concerning Fruit-Trees ... Also Kalendarium Hortense ... Second Edition Much Inlarged and Improved*: London: printed for Jo. Martyn & Ja. Allestry, 1670), pp. 225-247; Parry, pp. 142-143.

¹⁷ Evelyn, *Sylva* (1670), p. 230.

¹⁸ See chapter 3 of this thesis; Thomas Sprat, *The History of the Royal Society of London for the Improving of Natural Knowledge. [with Verses Addressed to the Society, by A. Cowley.]* (London: J. R., 1667); Vickers (1985), pp. 3-76.

seventeenth century, as indicated by the posthumous publication, in 1686, of Robert Boyle's *A Free Enquiry into the Vulgarly received Notion of Nature*.¹⁹ Boyle thought that to view 'Nature' as a vital force diminished the agency of God and consequently he found no place for the concept in his mechanistic cosmos. He also disapproved of the casual personification of Nature.²⁰ Whether Evelyn thought of 'Nature' (the Universal Spirit), as a purposive agent is not clear, but whatever the case it is certain that he understood the universe to be inhabited by spiritual persons in the form of angels (good and fallen). Belief in such personal spirits was typical of his milieu, though attitudes towards the benefits or dangers of a knowing or unknowing encounter or converse with spiritual entities varied.²¹ Evelyn was on the timid side. He was wary of any practice that could be seen as 'superstitious', or worse, illegitimate and sinful, casting the latter as 'Witchcraft'.²² In this attitude we may contrast him with Royal Society colleagues and friends John Aubrey and Elias Ashmole, both of whom saw 'the natural and the supernatural as inter-locked and angelic intercourse as a perfectly legitimate goal'.²³

One crucial issue in considering intercourse with 'spirits' was the determination of whether any particular spiritual entity was 'good' or 'bad'. How could one tell? A fragment from one of Evelyn's early manuscript notebooks on chymistry frames his attitude. The passage concerns the preparation of a divining rod to be used in the discovery of hidden metals. It instructs that the rod should be fashioning into a cross and gives a long preparatory prayer, which actually appears to be more of an incantation, given the vagaries of who, or what, is being addressed – the rod, the spirit of the rod? This includes the sentences:

¹⁹ Robert Boyle, *A Free Enquiry into the Vulgarly Received Notion of Nature* (Cambridge: Cambridge University Press, 1996).

²⁰ Michael Hunter, 'Introduction' in Robert Boyle, Edward B. Davis, and Michael Cyril William Hunter, *A Free Enquiry into the Vulgarly Received Notion of Nature* (Cambridge: Cambridge University Press, 1996), pp. ix-xxvii.

²¹ M.E. Prior, 'Joseph Glanvill, Witchcraft and Seventeenth Century Science', *Modern Philology* (1932), 167-93; Thomas Harmon Jobe, 'The Devil in Restoration Science: The Glanville-Webster Witchcraft Debate', *Isis*, 72 (1981), 343-56; Stuart Clark, 'Part II: Science' in *Thinking with Demons: The Idea of Witchcraft in Early Modern Europe* (Oxford: Clarendon Press, 1997), pp. 149-312.

²² See for example London, British Library, Evelyn Papers Add 78335, fol. 135^v.

²³ Hunter, Michael, 'Alchemy, Magic, and Moralism in the Thought of Robert Boyle', *British Journal for the History of Science* (1990), 387-410, (p. 409).

in the name of the Angells & Archangells, cherebens, & seraphims, to give me notic without lying of the places, and corners where there is Gold , silver, and all other kind of metals; and that all other spirits flye away not hurting mee; but obeying my will, because it is Gods will to forme mee of his Image and likensse:²⁴

Evelyn evidently thought that the prayer came dangerously close to conjuring spirits, for he wrote at the bottom of the page: ‘Consult with divines whether this be not witchcraft’. Whilst Evelyn actively sought encounters with angelic spirits (and indeed saw the garden as a place particularly suited to such), an encounter with the wrong sort of spirit was to be avoided. ‘Demonic magic’ could be an anxious business, given the difficulties of separating good from bad angels and the potential penalties, temporal and eternal, of making a wrong judgement. If one key component of the Hermetic tradition is the summoning of ‘demonic’ spirits (the practice of capturing spirits in statues is a recurring theme), this is certainly not something that Evelyn embraced.²⁵ But his disdain rests on caution, religious disapproval and fear, it does not arise out of a sceptical dismissal.

Natural Magic and Experiment: The Hermetic Legacy

Any discussion of the topic of ‘magic’ is greatly complicated by shifts in terminology, as the fragile and flexible boundaries that separated the domains of ‘magic’ and ‘natural philosophy’ were substantially redrawn over the course of the seventeenth century.²⁶ As John Henry explains in his important contribution to the debate, during this period practices such as mechanics, hydraulics, optics, acoustics, and pneumatics (practices which originally constituted an important part of natural magic), were less and less frequently described as ‘magical’. Instead they were cast as ‘experimental’, as they were gradually appropriated into the expanding domain of the new experimental natural philosophy. As a result of these appropriations, by the end of the century all that was left in the now much reduced field of ‘magic’ were practices such as necromancy, palmistry, spellbinding and so on – practices that we

²⁴ Add 78335, fol. 135 v.

²⁵ D.P. Walker, *Spiritual and Demonic Magic from Ficino to Campanella*, (Pensylvania University Press, 2000), pp. 92-96.

²⁶ The key work on this topic is John Henry, 'The Fragmentation of the Occult and the Decline of Magic', *History of Science*, 47 (2008), 1-48.

are now accustomed to seeing as the entire domain of ‘magic’. Simultaneously ‘magic’ was gradually marginalised and experimental philosophy legitimised. But, in the middle decades of the century, this process was not yet complete.²⁷

The dependence of the ‘new’ experimental philosophy on magical traditions is now well established, though the issue is often obfuscated by these shifts in terms and boundaries.²⁸ Evelyn was typical of his milieu in drawing explicitly and extensively on the canon of ‘natural’ or ‘mathematical magic’ for the details of the optical, acoustic and mechanical contrivances that he described in the *Elysium*. He called on authors such as Robert Fludd, Gaspar Schotti, Isaac de Caus, Cornelius Drebbel, and Gianbattista della Porta.²⁹ He even occasionally used the words ‘magic’ or ‘magicall’ to describe the devices he appropriated from the canon, notably the echoes that he copies from Athanasius Kircher studied in chapter 5 of this thesis.³⁰ But if some of Evelyn’s ‘magically’ derived garden contrivances can comfortably be migrated into the ‘experimental’ categories of optics, acoustics and mechanics, and so on, as we have seen there are other practices or ideas described in the *Elysium*, which are less easily realigned – notably the he prodigious cure of the bite of a tarantula spider by means of musical therapeutics, and the idea of ‘signatures’.³¹ The ‘Signature’ is an important concept in Paracelsian medicine, meaning a sign planted by God in His creation to indicate the medical potentials of something (usually, but not, exclusively a plant or mineral). These divine hints were usually understood to take the form of a figural resemblance between that thing and the part of the human body that it might treat, (the walnut’s resemblance to the brain is a classic example), though sometimes a more subtle or occult ‘resemblance’ was understood to be entailed.³²

²⁷ Henry, ‘Fragmentation’ (2008), p. 6, p. 11;

²⁸ Henry, ‘Fragmentation’ (2008), p.8, p. 13, p. 14; on magic in the Early Modern period see also David Katz, *The Occult Tradition from the Renaissance to the Present Day* (London: Jonathan Cape, 2005), pp. 11-16; Charles Webster, *From Paracelsus to Newton: Magic and the making of Modern Science* (Cambridge 1982); Brian Copenhaver, ‘Natural Magic, Hermeticism and Occultism in Early Modern Science’ in *Reappraisals of the Scientific Revolution*, ed. by David C. Lindberg, and Robert S. Westman (Cambridge: Cambridge University Press, 1990), pp. 261-302; L. Thorndike, *A History of Magic and Experimental Science*, 8 vols, vol 7 (Columbia NY: [s.n.], 1958); Keith Thomas, *Religion and the Decline of Magic: Studies in Popular Beliefs in Sixteenth- and Seventeenth-Century England* (London: Folio Society, 1971).

²⁹ *Elysium*, p. 252; p. 429.

³⁰ *Elysium*, p. 226, p. 242.

³¹ Henry, ‘Fragmentation’ (2008), p. 9.

³² Jole Shackelford, *A Philosophical Path for Paracelsian Medicine: The Ideas, Intellectual Context, and Influence of Petrus Severinus (1540/2-1602)* (Copenhagen: Museum Tusculanum Press, 2004), p.

Evelyn explicitly embraces the concept of Signatures giving the idea a Hermetic twist.³³ At a crucial juncture in his description of the economy of nature, he introduces the Hermetic idea of the correspondence of ‘above’ and ‘below’, elaborated through a description of the generative interrelation of the Universal Spirit and matter, as the Spirit moves between the ‘celestiall Constellations’ and the ‘*matrices* of the inferiour Elements’. Into this context he drops the concept of Signature, writing:

every thing hath its star and *Signature*, which being knowingly applied reflect {produce} wonders [...] and effects so considerable, that did men, and especially, Gardiners well examine they would emerge the most accomplished *Physitians* in the world.³⁴

The efficacy of a Signature then depends in some unspecified way on the relation of above and below and concerns the capture of astral influence.

Both of the spider bite cure and Evelyn’s evocation of Signatures are explicitly derived from the traditions of natural magic and both depend on a conception of the universe as a web of correspondences, the various parts of which are bound together by ties of sympathy or antipathy, which might be manipulated for good or ill – the very definition of ‘magic’ according to some authors.³⁵ Evelyn does not describe these episodes as ‘magical’, for his they are ‘miraculous’ and ‘prodigious’, the spider bite cure is an ‘Noble experiment’, but (following John

72-73; Henry, ‘Fragmentation’, (2008), p. 25; John Henry, *Knowledge Is Power: How Magic, the Government and an Apocalyptic Vision Inspired Francis Bacon to Create Modern Science* (Cambridge: Icon, 2002).p. 57; Allen G. Debus, *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries* (Mineola, N.Y. ; [Great Britain]: Dover Publications, 2002), pp. 100-103.

³³ In an additional note Evelyn writes of the ‘chequerd’ ‘Frittillaria’: ‘[t]he signature of this plant made {gave} light to a knowing Chymistry to find an excellent successe & rare water to take away spotts & freckles out of the skin & face & to recover Sunburnt’, *Elysium*, p. 365.

³⁴ *Elysium*, p. 42; for a further theoretical justification and elaboration of the idea Evelyn points the reader towards chapter 5 of Jacques Gaffarel, *Curiositez Inouyes, Sur La Sculpture Talismanique Des Persans. Horoscope Des Patriarches. Et Lecture Des Estoilles*: Rouen, 1632), see Juliet Odgers, ‘Resemblance and Figure in Garden and Laboratory: Gaffarel’s Influence on John Evelyn’, in *Jacques Gaffarel: Between Magic and Science*, ed. by Hiro Hirai (Rome, Pisa: Serra, 2014), pp. 85-109.

³⁵ See for example Frances Amelia Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge, 2002, 1964), pp. 73-85; Penelope Gouk, *Music, Science and Natural Magic in Seventeenth-Century England* (New Haven; London: Yale University Press 1999), p. 103; Walker, p. 81.

Henry's caution) this should not distract us from recognising their derivation in the earlier magical traditions of Hermetic Neoplatonic and Paracelsian medicine.³⁶

A concern with the fields of astrology, alchemy and natural magic was, of course, by no means limited to thinkers who gave credit to Hermetic ideas, nor indeed is the genesis of those practices founded exclusively in Hermetic doctrines.³⁷ Nonetheless these practices all constitute important aspects of the Hermetic traditions as articulated in Renaissance Neoplatonism and Paracelsian chymistry – the inheritance on which Evelyn drew substantially when composing his *Elysium*.

³⁶ *Elysium*, p. 303-306; for the terms 'Hermetic' and 'occult' see Brian Vickers, 'Introduction' in *Occult and Scientific Mentalities in the Renaissance* ed. by Brian Vickers (Cambridge: Cambridge University Press, 1984), pp. 1-55; for the genealogy of the spider bite cure see Gouk, p. 178.

³⁷ William R. Newman, and Anthony Grafton, *Secrets of Nature: Astrology and Alchemy in Early Modern Europe* (Cambridge, Mass.; London: MIT Press, 2001); Yates *Bruno* 1964), pp. 75-76; Thorndike, vols 1-3.

Appendix 5

'Trades: Seacrets & Receipts Maechanicall as they came casually to hand', British Library, Evelyn papers, Add 78339.

The spacing of the transcription roughly indicates the spacing in the original (though the original is ordered in four columns to a page). The 'Table' serves as an index and those trades marked by Evelyn with an + refer to details compiled in other manuscripts. Those trades detailed in Add 78339 have a page number attached.

	+ layer
[On fly leaf]	
Frippery	Brush maker:
servile	Buckram maker:
polite	Butcher:
exotics	Button-maker: (moulds)
liberal	+ Boate maker:
femal	+ Belt & Girdle maker
country.	-----
[Fol. 2]	
<u>Table</u>	
<u>A</u>	<u>C</u>
Amberwork	Cabinet maker (boxes). 43
Apothecarie: 1	Cardwynder
Armorer : 9	Carpenter (House Ships
+ Attiner	Cartwrite
+ Auge maker	+ Cross-bow maker
-----	+ Chair maker
<u>B</u>	Chandler (Tallow Ship Wax
Baker:	Cheeze monger
Barber	Cloathes: (surge, searches, cotton
+ Barkstripper	Cloath- drawer:
Basketmaker	Cloth-worker:
Bellfounder : 19	Coach- maker:
Bellows-maker:	Coiner:& mint
Bitt- maker:	+ Colour maker: Coller maker:
Book-binder:	+ Comb-maker: + carver
+ Brasell rasper:	Cooke
Brasier: 29	Confectioner
Brewer:	Cooper(wine Dry vessels
Brick- maker: (pan Plain) Tyle	Cruell-man

Currier
 Calendrer:
 +Claye maker

D

Dier
 + Dicemaker

Draper (wollen
 Linnen
 Silk

Distiller : v : Chymist:
 Drougist:
 Drum-maker

E

Embroider, v. Stitcher:
 + Edge-tootle maker:

F

Feather-maker:
 Fell-mongre:
 Ferrier:

Fishmongre: (hooks
 Line maker

Fletcher:
 Forger:
 Founder:
 Frieng-maker:
 Feuler
 Fourbisher :
 Furnace-maker:
 Furrier:

G

Garbeller:

Glass-maker
 Worker (Maliable
 ?
 Lamp work
 Miroirs of steel &c

Glazier:
 Gold-beater:
 Gold-smith: 173
 Grosser:

Guilder(of all materials
 Of wood
 metal, leather
 Bronzing & c
 Lacquer: &mc:

+ glue maker:
 Gunner:
 Gun- Smith:

H

Haberdasher:
 + Harnesse maker:
 + Harts horn rasper:
 Hatter: v: H maker:
 Hatband- maker:
 Horner:
 Hosier:
 +Hot- presser: [100]

I

Inkle-maker:
 Inke -maker: (Chinese, 210
 Inlayer:
 Instrument -maker
 - wind gun, Tere[...] Compasses
 - Aeolipile Thermometer, Barometr

Joyner 219
 Coffins

Ironmongre:

K

+ knitter (engine:
needles:

L

Lace-maker. (silver:
Silke :
Boone:
point:

Lantern-maker:
+ Latch maker:
+ Lattice windows:
Letter- founder: [125]
+ Leather seller
+ Leather bushels
Looking-glasse maker:

Lute-string-maker
V: Catlines: &c:
Limes burner see [...] 247.

M

Masson: (free
243

Milstone- maker
Mill-wright:
Millainer:
+Mathematicall Instrt:
Mint-master:
+Mattmaker:

Fol. 2 verso

N

Needle-maker:

Net-maker:

O

Ordnance-caster:
Organ-maker:
Oyle-man:

P

Painter in (glasse:
oyle:
Miniature:
Fresca:
Enamel:

Paper-maker (mills:
Parchment dresser:
Pastry-man:
Past-board-maker:
Paver:
Pensile maker:
Perfumer & sweete powder:
302
Perruque- maker:
Pinner:
Pewterer:
Pipe-maker:(tobacco
Flutes [illegible] &c.

Plastrer:
Pargeter: v
Plumber:
Poulterer:
Potter:
Powder-maker: (gun
Printer: (rolling presse:
Pumpmaker:
Plate worker:
[illegible]

Q

R

Razer of Sattan:
Rope-maker:

Rush (matts
Worker

Chair

S

Sadler:
 Sawyer: {mills

 Salt: (boiling, Alum,
 peter, copros
 Salter:
 + Seedman:
 Sheath & Scabard maker:
 Shear-man:
 Silk-weaver:
 Skinner:

 Smith (black
 [illegible]
 Lock
 v. Gold smith: Silver:
 Anker:

 Soap- boyler:
 +starch-maker:
 Spectacle -maker: (optical
 Glasses
 &c.

 396
 Sparrier:
 Stationer:
 Suggar-boyler: baker:
 Ingenios
 Sive- maker: (Lattices:
 + Sculpter: v: Engraver: 569
 + Skrew-maker
 + Spark or Touchwood maker:

T

Tanner:
 Tapissry maker: (Arras:

 Taylor ([...])?
 Thatcher:
 Tiffany maker weaver:
 Tike-maker:

Tobacco man(cutter, curer,
 v. pipe:
 Trumpet maker
 Trunk maker (jacks [illegible]
 Buckled &c.
 To [illegible] in

Turner
 Throwster:
 + Tin-man:
 + Thred- maker
 + Tyler: [225]

V

Vintner:
 Upholster:
 + Virginal make:

W

Weight maker ([?]

 Wheelwright:
 Wood- Mongre 369 449
 Woll carder:

 Weaver of (Lin: Wollen
 Silk, diaper,
 &c : damask: ribbon:

 Wyer- drawer:
 Worme- maker for stills:

X

Y

Z

Meane & Frippery trades

Jack of all trades (country
mercier:
Cobler:
Hecle (?) maker: kest (?) maker [illegible]
Pattern, & Clog- maker:
Chimny- sweeper:
Tinker:
Screw-maker:
Pedler:
Rat-catcher:
Mole-catcher:
Broome-maker:
Hive-maker:
Sow-gelder: (colts
Come- cutter:
+Tooth-drawer: (artificial
+ Baubles for Children:
+ Puppet player v. Maker
+ Rope Dauncer:

Servile Trades

Carrier:
Porter:
Carter:
Sedan or Chair man:
Coach (postillion:
Litter- man:
Embailer:
Packer:
Shower:
Huckster: Hayler:
Costner-mongre:
Tankard-bearer:
Whetstone-grinder:
Hostler:
+ Victualer: [275]

Polite Arts & Trades

Painting in (oyle 490
Miniature
Destemper
In [illegible], Anealing
Fresca
Enamelling
486
Statuary
Plaster:
Embossing, [?]? founding

Etching
Graving, 569.
[plate?] cutter:
Grotesco, 449
Aviaries, viviaries decois
Parkes Warrens:
Fish-ponds, Canales
Watch-maker, dial, clocks,
Jeweller
Lapidarie
512

+Moulding with leather: Linnen, paper
& burnishing &c: also in head statues:
Horn , tortoise, shell (+cicurations
+ Coating of wood against weather:
+ Cement[...Illegible]
+ Optic, burning glasses:
+ cryptologia
+ Lutations:

Exotic Arts and Trades

Sleads v. Sckater:
Moasaic worke: 519.
Pierre-comessa: 522.
In laying wood &c:
Red flores of Venice:
& other terrace
Marble paper :523
Stained calico [illegible]
Turkey worke, Persian
[...?]
Purselane:
Twig worke
Bales of Bolognia:
& all smegmaticks:
Stones of Bolognia:
Silk

Calico
Velvet
Grosgrain
Damask

Chiomletti
Frosthangers &c
+Asbestos [illegible]
Armon of lute string
Taffatas & stuffs for

Plastroons [illegible]
Buff coats mail.

Gumming & Cere- Cloth
Tarpaulia &c it keepe out wet

Varnishes for
Wood
Metal
Pictures
Paper
Table books

Asses skins for 541
Schiagryrin & boyled leather
Fishes skins: seale
Matrons in Turky leather
Diving, urinator

Carver: wood, stone
Wax workes of all sorts
(for flowers, wood, &mc.
[illegible] China
Varnishes cabinets
Skreenes &c :
Dying of wood, stones, Home, metals, &c:
552
Tinctures & blanches
Dam asking weapon
Armor &c:
Pastes for Artificial pearled, stones, marbles
&c: 553

+ Stuffs of barke, grasse, silk
hairs:
Embalming, men, insects &c:
Cosmetics: [illegible] [illegible] &c:

Trades more liberall
Book keeper: Exchange
Merchant: traffique, [illegible]
+ Navigation:
Dauancer:
+ legit de main[illegible]
Vaulter:
Wrestling
Dander:
Cavalenzio

Art Military

Drilling
[illegible]

Engineer: fireworks:
Scene painter & maker
Architecture : (Fortification
Hearauld:
Fontaniere:
Pilot:
Sculptor:
Gauges:
Chiurgeon:
Oculist:
Chymist:

[illegible] of crooked bodies
Ventiducts
Calidaucts
Warmingstone

Femal Trades & Arts

Preserving
Gumm & silk flo, cotton work &c
Straw-worke, Nuns-work:
Wax-worke: feather, horn
Cut, & needleworke
Pointe of Geneva, sidan, [illegible], poin
d'orillac:
Midwifery.
Spinner:
Semester, all the stitchers
Laundresse: Bleachers:

Occupations in & about the Countrey

Husbandman,	Malster	Vigneron
Fisher:	Mariner	Collyer
Fowler:587	Miller	Gardner
Faulkner:	Miner	Barkstripper
Grasier:	Pioner	
Horse-rider		
Huntsman:		
Keeper		