

4-17-2013

Matter, Spirit, and Cosmogony: The Context and Meaning of Thomas Vaughan's Alchemical Vitalism

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MATTER, SPIRIT, AND COSMOGONY:
THE CONTEXT AND MEANING OF THOMAS VAUGHAN'S
ALCHEMICAL VITALISM

by

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A Thesis Submitted to the Graduate School of the
UNIVERSITY OF MISSOURI—ST. LOUIS
In partial Fulfillment of the Requirements for the Degree

Master of Arts in History

April 2013

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Acknowledgements

The creations of one person are not solely his own but bear the marks of myriad influences. I realize this truth deeply, and wish to acknowledge those people whose marks on this work are especially evident to me.

First, I would like to thank my advisory committee for their guidance in the completion of this project. I am very much indebted to Dr. Minsoo Kang in that his constant emphasis on thinking like a historian is at the core of the structure of this paper. In addition, he introduced me to the sub-discipline of the history of science, which set me on a path leading to the topic I chose for this essay. I also want to thank Dr. Steve Rowan, who in our conversations about Ethan Allen Hitchcock led me to seriously consider alchemy as a topic. Finally, I wish to thank Dr. Peter Acsay, whose guidance in the technical aspects of my writing served as a constant corrective to ensure that I was deliberate and explicit in the way I expressed and defined my ideas.

To my wife, Loretta, I must also express immense gratitude; through the entire writing and research process she demonstrated a seemingly endless supply of understanding, patience, and love as I spent most of my waking life dedicating myself to the completion of this project. Also, as the stress associated with writing my thesis and fulfilling all of my other responsibilities started to wear me down, her continued belief in my intellectual ability gave me extra momentum to complete my work.

I also want to give a special acknowledgment to my comrades—my fellow TAs, true friends all—who through their friendship, moral support, and belief in my ability to do the work helped me to complete this thesis.

Finally, I wish to state, along with Julian the Philosopher:

ἀλλ' ἔμοιγε τούτου παραστάη βοηθὸς ὃ τε λόγιος Ἑρμῆς ξὺν ταῖς Μούσαις ὃ τε Μουσηγέτης Ἀπόλλων, ἐπεὶ καὶ αὐτῷ προσήκει τῶν λόγων, καὶ δοῖεν δὲ εἰπεῖν ὅποσα τοῖς θεοῖς φίλα λέγεσθαί τε καὶ πιστεύεσθαι περὶ αὐτῶν. (Oration 4)

ABSTRACT

During the seventeenth century in Europe, three major theories of matter were in contention for the dominant natural philosophy: the hylomorphism of the Aristotelian-Scholastic philosophy, the mechanism of the Cartesians and other mechanical philosophers, and the vitalism of the Hermeticists and alchemists. The debate over matter between these three views of the physical world, as well as the argument over their associated epistemologies, fueled the scientific revolution. The fact that alchemy was a viable contender for the dominant natural philosophy of the time—an era that is supposed to be marked by strides forward to a more “rational” and “scientific” view of nature and away from religion, pseudo-science, and “superstition”—is a difficult concept for the modern reader to reconcile. However, history has shown that not only was alchemy taken seriously by many thinkers important to the scientific revolution, but that it was also a crucial element in the developments leading up to the modern scientific paradigm. This study focuses on one of the alchemists of the seventeenth century, the Englishman Thomas Vaughan, showing how his alchemical writings detail, in the religious and philosophical language of early modern alchemy, the alchemical vitalist conception of matter, and that these works therefore constitute an alchemical natural philosophy. In the process, I show that his ideas, as well as the epistemological premises behind them, were products of the specific cultural and intellectual context in which Vaughan wrote, and that they therefore can only be properly understood in light of that contextual framework. This idea underlies both the methodological approach and layout of the research.

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	ii
ABSTRACT	iii
TABLE OF CONTENTS	iv
INTRODUCTION	1
Thomas Vaughan and His Works	3
Methodological and Theoretical Concerns	6
Outline of the Study	10
CHAPTER ONE: THE <i>CULTURAL AND INTELLECTUAL CONTEXT OF ALCHEMY IN EARLY MODERN EUROPE</i>	14
The Crisis in Hylomorphism and the Emergence of the Hermetic Philosophy	14
Mechanicism and the Reaction against Hermetic “Occultism”	26
The Paracelsian Chemical Philosophy and Hermetico-Alchemical Epistemology	28
The “Rosicrucian Enlightenment” and the Call for Academic Reform	36
CHAPTER TWO: <i>RELIGIOUS AND PHILOSOPHICAL ANTECEDENTS TO VAUGHAN’S IDEAS</i>	47
Hermeticism: Historical Background of the Texts	50
Contextual Elements of Hermetic Thought	55
<i>Logos-Pneuma</i> and <i>Hulé</i> : The Vital Spirit and Matter in the <i>Hermetica</i>	57
Genesis and Alchemy in Paracelsian Chemical Philosophy	64
CHAPTER THREE: <i>MATTER, SPIRIT, AND THE ALCHEMICAL COSMOGONY IN VAUGHAN’S WORKS</i>	81
The Alchemical Genesis: Matter and the Vital Agent as Cosmogonic Principles	84
Matter and the Vital Agent in the Elemental World	91
Matter and the Activity of the Vital Agent within Nature	97
CONCLUSION: <i>VAUGHAN’S PLACE IN THE HISTORY OF SCIENCE</i>	101
BIBLIOGRAPHY	106

INTRODUCTION

In his *Lumen de Lumine*, the English alchemist Thomas Vaughan (1621-1666) wrote what he termed his “Magical Aphorisms,” a summary of his ideas concerning the primordial cosmogony and the cosmological elements that make up the universe. One section in particular describes a mythical scene by which Vaughan explains how the various physical objects of sensible reality came to be:

Among things visible the water first shone forth, the feminine aspect of brooding fire and fruitful mother of figurable things. She was porous inwardly and variously clothed with skins: in her womb were interfolded heavens and inchoate stars. The Artificer, who parts asunder, broke up the womb of the waters into spacious regions; but when the fœtus appeared the mother vanished. This notwithstanding, the mother brought forth resplendent sons, who overran the Land of Chai.¹

Vaughan is here describing his conception of matter and the vital spirit—the two fundamental principles that he thought were responsible for the existence of the universe and everything within it. Vaughan elaborates on these concepts in the terms and language of an alchemist: matter is the “water” and the “mother of figurable things;” the “Artificer, who parts asunder” represents the vital, creative agent. While the terminology may be obscure to the modern reader, these symbols represent ideas that were familiar to any natural philosopher during the Renaissance and Scientific Revolution, even if the particular philosopher in question disagreed with the concepts. During the Scientific Revolution, there were three main theories of matter contending for dominance: the hylomorphism of Aristotelian-Scholastic philosophy, the vitalism of the alchemists and natural magicians, and the mechanism of the Cartesians and other mechanist

¹ Eugenius Philalethes [Thomas Vaughan], “Magical Aphorisms” in *Lumen de Lumine*, trans. Arthur Edward Waite. *The Works of Thomas Vaughan: Eugenius Philalethes*, ed. Arthur Edward Waite (London: Theosophical Publishing House, 1919), 307.

philosophers. In each case, the description of matter was different. Hylomorphism described matter as “prime matter” or *prima materia*, a substance that possessed no qualities or characteristics whatsoever except in a potential state. This invisible substance only attained to the status of an object through the activation of its “form,” that is, the actualization of its inherent qualities. The alchemists and natural magicians, however, saw matter as a universal matrix or substratum, and although they appropriated for their own use the Scholastic term *prima materia*, their conception was different in that they thought matter was imbued with a divine, vital spirit that gave life, form, qualities, and even existence to all things. For the alchemists, there was no such thing as “dead” matter in that God existed in all things. Finally, in the mechanist philosophy, matter was a thing unto itself, possessing its own qualities of extension and existing independently of spirit, requiring no form or agent to give it existence.

As a natural philosopher of the alchemical variety, Vaughan saw creation as an alchemical process in which God transmuted, extracted, and congealed matter by the activity of the vital spirit, thus forming the variety contained in sensible reality. The peculiarities of Vaughan’s conception of matter and the vital spirit will be the primary focus of this paper, especially as they appear as cosmogonic principles; I will untangle his ideas—which were a blend of Hermetic, alchemical, Kabbalistic, Christian, and Paracelsian ideas—showing that they indeed formed a natural philosophy of matter. Secondly, in the process of describing these concepts, I will also show how Vaughan “fits” into his cultural and intellectual context. There has been minimal scholarship done on his works, most of it superficial, and no study as of yet shows how Vaughan, who wrote in the 1650’s, was truly an exemplar of the specific cultural forces and ideas of his

time. He was an advocate of observation and experimentation in natural philosophy, which was a major theme of the Scientific Revolution of which he was part. Vaughan was also a reformist, who like the mechanists, called for the abandonment of the Peripatetic philosophy dominant in the universities. In this regard he was following in the steps of the Rosicrucians and Paracelsians, whose ideas he adopted to various degrees, especially in the form of the co-called “Chemical Philosophy.” And finally, as an alchemist writing around the 1650’s in England, Vaughan represented the revival of an interest in alchemy that occurred during this period of England’s history, which lasted until the turn of the century. Vaughan was very much a product of his time, and his ideas only make sense within his context.

THOMAS VAUGHAN AND HIS WORKS

Thomas Vaughan was born in 1621 at “a farm house called Newton” in the parish of Llansaintfread (St. Bridget), Wales, and was twin to the English poet Henry Vaughan.² In 1638 Thomas entered Jesus College, Oxford, where he was first introduced to alchemy.³ Here he was also ordained into the Anglican Church, and after graduating from Oxford in 1642, was instituted at his old parish in Llansaintfread.⁴ This did not last long however, as in 1649 he was “ousted by the propagators of the Gospel in Wales, for drunkenness, swearing, incontinency, being no preacher, and carrying arms for the

² Several scholarly works have noted the influences of Thomas Vaughan and Hermeticism in general on the better known of the two twin brothers, Henry Vaughan, who is remembered as a mystical metaphysical poet. See for example Ralph M. Wardle, “Thomas Vaughan’s Influence upon the Poetry of Henry Vaughan,” *PMLA* 51, no. 4 (Dec. 1936): 936-952, and Wilson O. Clough, “Henry Vaughan and the Hermetic Philosophy,” *PMLA* 48, no. 4 (Dec. 1933): 1108-1130.

³ Theophilus Jones, *A History of the County of Brecknock, in Two Volumes. Vol. II. Part II. Containing the Antiquities, Sepulchral Monuments and Inscriptions, Natural Curiosities, Variations of the Soil Stratification, Mineralogy, a copious List of rare and other Plants and also the Genealogies and Arms of the principal families properly coloured or blazoned together with the Names of the Patrons and Incumbents of all the Parishes and Livings in that County* (n.p.: George North, 1809), 540.

⁴ Wardle, “Thomas Vaughan’s Influence,” 937.

king.”⁵ A.E. Waite notes, however, that the real reason for Vaughan’s ejection from his rectorship was because he was a Royalist, and Waite surmises that the other charges were partially if not completely fraudulent.⁶ Nevertheless, after leaving his parish, Vaughan returned to Oxford where he developed a friendship with the Scottish Secretary of State and future founding member of the Royal Society, Sir Robert Moray. Apparently, it was due to Moray’s influence that Vaughan’s interest in alchemy became a passion, and Theophilus Jones, the author of the *History of Brecknockshire*, notes that both Vaughan and Moray were “passionately fond of *chemistry run mad.*”⁷ After having “hit his head on the philosopher’s stone,” as Jones put it, Vaughan published seven works on alchemy between 1650 and 1655.⁸ Vaughan was also the first to translate the two Rosicrucian manifestos—the *Fama Fraternitatis* and *Confessio*—into English, which he published in 1652. Vaughan died in 1666; Jones gives the cause of death as the plague, but Waite gives two other accounts, one being from an explosion during his chemical experiments, and another being from inhaling too many mercury fumes—both of which could reasonably be the same event if the explosion involved some kind of mixture of mercury.⁹

Vaughan’s works, which serve as a bibliography of primary sources on his ideas, all have alchemy—and specifically the concept of matter and the vital spirit—as principle topics. He published six works dealing explicitly with alchemy under the pseudonym Eugenius Philalethes, and one under the name “S. N., A Modern Speculator.” He also

⁵ Although there seems to be no record of the exact date at which this occurred, Wardle sets it in 1649. Wardle, “Thomas Vaughan’s Influence,” 937; Jones, *A History of the County of Brecknock*, 540.

⁶ Arthur Edward Waite, ed., *The Works of Thomas Vaughan: Eugenius Philalethes* (London: Theosophical Publishing House, 1919), x.

⁷ Jones, *A History of the County of Brecknock*, 541.

⁸ Jones, *A History of the County of Brecknock*, 541.

⁹ Jones, *A History of the County of Brecknock*, 541; Waite, *The Works of Thomas Vaughan*, vi, xii.

published his translation of the Rosicrucian manifestoes under the name Eugenius Philalethes. The title of his first work, published in 1650, reveals the nature of its topic and at the same time the idea held among early modern alchemists that Creation was an alchemical process: *Anthroposophia Theomagica; Or A Discourse of the Nature of Man and his state after death; Grounded on his Creator's Proto-Chimistry, and verifi'd by a practicall Examination of Principles in the Great World*. This is a purely cosmological and theological text, and characterizes matter and the vital spirit as emanations of God. His next work, *Anima Magica Abscondita* (1650), deals specifically with the vital "Spirit of Nature," a theme picked up again in his next pamphlet, *Magia Adamica* (1650). His next work, *Coelum Terrae* (1650) (which was published with *Magia Adamica*), Vaughan dedicates to his conception of matter, speaking of it in terms of both the primordial cosmogony and as it appears in the elemental realm. *Lumen de Lumine* (1651) is one of his more interesting works in that he describes therein a vision he had in which he entered the "Temple of Nature," and describes matter and spirit as they exist within nature itself. Here, the vital spirit is a "fire" or "candle" hidden in matter, a theme he picks up again in *Aula Lucis* (1652). Between the publication of *Aula Lucis* in 1652 and the printing of his *Euphrates* in 1655, Vaughan produced no alchemical texts. He did, however, publish his translation of the *Fama Fraternitatis* and *Confessio* in 1652. His final work, *Euphrates*, is perhaps the most obscure of his texts. It deals almost exclusively with matter and spirit on a very small scale, that is, in terms of laboratory work. All of these works will be useful in this present study of Vaughan, but most principally *Anthroposophia Theomagica*, as this text frames matter and vital spirit in terms of Creation, one of the major themes this paper is concerned with.

METHODOLOGICAL AND THEORETICAL CONCERNS

That the Scientific Revolution was the “golden age” of alchemy is perhaps a strange fact for the modern reader to confront, and difficult to reconcile with the common understanding of alchemy. Why would alchemy, a “pseudo-scientific” discipline that had as its primary goal the search for the enigmatic and mystical Philosopher’s Stone, or even the pursuit to transmute the “lesser metals” into gold, be taken so seriously in an age that was supposed to be marked by strides away from “irrational” and “superstitious” ideas and forward to a proper study—based in reason, experimentation, and observation—of the natural world? The problem lies primarily in the modern understanding of alchemy. Whereas today alchemy is seen as perhaps a misguided version of chemistry that is based in “magical” ideas, an immature “proto-chemistry” prone to the “errors” of the early form of a science, the early modern alchemists saw their study as synonymous with natural philosophy. Alchemy for them was the best and most pious way for a religious natural philosopher to pierce into the secrets of nature, an idea which rested in the philosophical and religious premises underlying natural philosophy from the Middle Ages and into the Scientific Revolution.

One of the most crucial and formative of these premises for the understanding of nature was that of a chain of being or *scala natura* (ladder of nature), which was the idea that everything in existence resided on an ontological hierarchy where God, as the source and cause of all being stood at the very top, and inanimate matter rested at the very bottom; everything else in existence had a place at some point in between the two, with angels and humans nearer to God than animals and plant life. All things along this chain are connected to that which is above and below it, and ultimately also connected to God

as the source of existence, life, and being. Strongly tied to this idea was that of the cosmos as a literal “*kosmos*,” that is, a holistic, living universe wherein all its elements are interdependent and interconnected through a principle of order and life. This principle, regardless of its particular appellation, was ultimately identified with the divine. As a result, there was no separation for natural philosophers of the early modern period between the study of nature and the study of God. Theology and natural philosophy went hand-in-hand, and in this vision, religious ideas were accepted as truths upon which one could base the study of God’s creation. As Lawrence Principe notes, “for early moderns, the doctrines of Christianity were not opinion or personal choices. They had the status of natural or historical facts...theological tenets were considered part of the data set with which early modern natural philosophers worked.”¹⁰ Thinkers like Robert Boyle and Isaac Newton, both of whom were crucial to the developments of modern science, believed that scientific inquiry was “a type of religious devotion...that heightens the natural philosopher’s knowledge and awareness of God through the contemplation of His creation.”¹¹ Principe also makes the point that “Many people today acquiesce in the widespread myth, devised in the late 19th century, of an epic battle between ‘scientists’ and ‘religionists’...this ‘conflict’ model has been rejected by every modern historian of science; it does not portray the historical situation. During the 16th and 17th centuries...there was not a camp of ‘scientists’ struggling to break free of the repression of ‘religionists’; such separate camps simply did not exist as such.”¹² On the contrary,

¹⁰ Lawrence M. Principe, *The Scientific Revolution: A Very Short Introduction* (Oxford: Oxford University Press, 2011), 36.

¹¹ Principe, *The Scientific Revolution*, 37.

¹² Principe, *The Scientific Revolution*, 37.

natural philosophers were “priests of nature” whose study of Creation only served to worship its Creator.

Thus, both the ideas inherent in alchemy and the underlying premises that formed its worldview are completely “foreign” to the modern scholar; alchemy is an “other,” not only because of its particular formulations, but also because it represents a “losing” side in the history of thought. Based on propositions that were increasingly being discarded by natural philosophers after the 17th century, alchemy could no longer provide the answers to basic questions about nature that these thinkers were seeking. In other words, as a mode of inquiry into the natural world, one based on specific assumptions about what constitutes knowledge and how one can attain to that knowledge, alchemy was no longer epistemologically reconcilable with the newly developing scientific paradigm. The modern world, whose epistemological assumptions are the logical consequence of that scientific paradigm, is therefore unfamiliar with the nature of alchemy precisely because its premises were determined to be incompatible with the specific transformations of ideas and thought that lead to modern science; they belong to a completely different “family” of ideas that, in order for the modern scholar to understand, requires a major leap over an ever-widening gulf of centuries of developments in scientific thought. This is all the more reason that special methodological concerns must be taken up when studying alchemy. There is a danger, in studying a topic such as this, in simplifying it, or in projecting one’s own cultural and ideological assumptions upon something that is in many ways “outside” the modern way of thinking. If we are to understand the concepts inherent in a foreign but complete and complex worldview such as alchemy, we must

endeavor to do so on its own terms, as the early modern alchemist would, but at the same time retain a scholarly objectivity.

I have therefore adopted a specific way of approaching Vaughan's ideas in this study. The historian Mircea Eliade notes that "There is, indeed, only one way of understanding a cultural phenomenon which is alien to one's own ideological pattern, and that is to place oneself at its very centre and from there to track down all the values that radiate from it. Only by looking at things from the standpoint of the alchemist will we succeed in gaining an insight into his mental world."¹³ Thus, I have endeavored to provide a contextual framework with which to analyze the works of Vaughan, to try to provide the historical, ideological, and paradigmatic "grammar" and "vocabulary" with which to understand the language of alchemy, and more specifically, Vaughan's conception of matter and spirit. I have also made an attempt at what Arthur Versluis calls "sympathetic empiricism," a methodological approach suited in particular to the study of esoteric topics.¹⁴ Versluis characterizes this method as one that combines both the "emic" and "etic" approaches to the study of a topic.¹⁵ In other words, it is a method that combines scholastic objectivity with the need, in such a complex topic as alchemy, "to sympathetically understand one's subject, to understand it from the inside out, so to speak. Anthropologists have long understood the importance of balancing etic and emic approaches, of on the one hand entering into a culture in order to understand it while on the other hand retaining the status of observer and analyst. If the vice of a too emic

¹³ Mircea Eliade, *The Forge and the Crucible: The Origins and Structures of Alchemy*, 2nd ed. (Chicago: University of Chicago Press, 1978), 11.

¹⁴ Arthur Versluis, "What is Esoteric? Methods in the Study of Western Esotericism," *Esoterica* 4 (2002), <http://www.esoteric.msu.edu/VolumeIV/Methods.htm>.

¹⁵ Versluis, "What is Esoteric?"

position is that of becoming an apologist, the vice of a too etic position is if anything greater: a failure to understand and accurately convey what one is studying.”¹⁶

Summarily, I have found the need for a specific methodological approach in this study for the major reasons that a subject like alchemy 1) is not well understood, 2) is often misattributed (i.e., called “superstitious,” “pseudo-science,” or otherwise arrogantly referred to as a primitive form of thought in a chain of evolving science), and 3) represents the “losing” side of the debate that led to the modern epistemological premises of science. The third reason here is perhaps the most important as to why I have taken my particular approach. As an abandoned mode of inquiry, the alchemical formulations of nature and its elements are not the same as those that we know today—they were necessarily discarded as being irrelevant to the developments of science. But, as Allen Debus notes, if we are to understand a historical period and its thinkers, we cannot ignore the “fields of study that were then—but are no longer—respectable.”¹⁷

OUTLINE OF THE STUDY

The chapters of this essay are arranged according to the above-mentioned methodological approach, and this arrangement is designed to provide a contextual framework with which to understand Vaughan’s ideas. This approach is not only the way in which I am communicating my research, but it is also the way in which the research was performed. Specifically, I have arranged the chapters to first build the necessary context for understanding Vaughan’s ideas, and then to place these ideas within that framework to reveal their greater signification.

¹⁶ Versluis, “What is Esoteric?”

¹⁷ Allen G. Debus, *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries*, vol. 1 (New York: Science History Publications, 1977), 2.

Chapter 1 will provide the cultural and intellectual context of Europe that pertains to Vaughan's writings, especially from the standpoint of the history of science. Because Vaughan can be placed squarely within the "renaissance" of alchemy and the so-called Rosicrucian Enlightenment, and because the Paracelsians play such a large role in the shaping of Vaughan's ideas and context, the nature of this alchemical movement—which represents a major strand of natural philosophy that Allen Debus calls the "Chemical Philosophy," a brief history of alchemy during this period will be made. In the process, however, I will limit my discussion to those currents that played a direct and major role in the development of Vaughan's ideas, or those that help to elaborate both the milieu and his ideas specifically. For example, although the emergent mechanist philosophy was a major contender for the dominant natural philosophy of his time (and could perhaps be argued to already be the dominant mode by the time Vaughan published his pamphlets), Vaughan and his works seems almost completely unconcerned with mechanism, though he was certainly aware of it. He mentions Descartes only once, and describes him as one of the "moderns" who should not be trusted for truths about the natural world, for their ideas are not based in tradition but are "Inventions of their own, such as may pass with the Whymzies of des Chartes."¹⁸ Rather, he seems much more concerned with attacking the Scholastic position, while at the same time elaborating on his own, alchemical ideas.

Chapter 2 will give an entirely different context, that of the religious and philosophical antecedents to Vaughan's ideas. These antecedents are important in that Vaughan's specific formulations of natural philosophy did not emerge in a vacuum, but were rather elaborations of various ideas circulating in Europe during the early modern

¹⁸ Eugenius Philalethes [Thomas Vaughan], *Anima Magica Abscondita: Or A Discourse of the universall Spirit of Nature, With his strange, abstruse, miraculous Ascent, and Descent* (London: Printed by T.W. for H.B., 1650), 55.

period. These include, first and foremost, the Biblical and Hermetic accounts of Creation, the former being derived from the books of Genesis and John, the latter originating from the collection of Hermetic texts of late antiquity known as the *Corpus Hermeticum*. These texts should be seen as the major source for the early modern alchemist's conception of matter and the vital spirit. Further, the expression of these ideas as they appeared in certain important alchemists of the early modern period will be discussed, as these have a direct impact on how Vaughan viewed Creation, matter, and the vital spirit. Vaughan's specific ideas will be dealt with in Chapter 3, where I will draw directly from his seven alchemical works for his conception of matter and the vital spirit. Necessarily, I will frame this analysis in light of his view of Creation as an alchemical process.

Finally, a note on translation. Wherever possible I have done my own translations, especially with regard to the Greek *Corpus Hermeticum*. I have, in most cases, compared my translations of the *Corpus Hermeticum* to those of Copenhaver, Scott, and Salaman et al., each with different degrees of reliance upon a cross-comparison of the translations. In my view, the Salaman translation tends to overemphasize the text as a "spiritual way," and while I agree that Hermeticism was indeed spiritual in nature, we cannot remove also those philosophical elements that were so important to Hermetic thought. It is in this regard that the Copenhaver translation has been useful, in that he strives for the most acceptable form of neutrality in his translation. However, this neutrality in itself can cause problems, mostly in the form of a "non-technical" language. For example, some of the most important concepts of the *Corpus*, such as "*logos*," "*nous*," and "*pneuma*," he variously translates, but it is my view that these words should not be translated, but left

alone for the reader to understand the full implication of a passage. Nevertheless, in cases where I believe Copenhaver's translation is rendered better than my own, while still retaining the specificity required in a study like this, I have used his translations. Finally, the Scott translation is notoriously problematic; as Copenhaver notes "Scott's translation can only be regarded as a translation of Scott, not of the Hermetic authors." But as Copenhaver later adds, "Apart from the text and translation, however, Scott's volumes remain indispensable."¹⁹ My own translation of the *Corpus* is of the Greek text provided in Scott, and I have avoided all of his extrapolations and interpolations. In some cases of translation, I have interjected in [] brackets either the original language or notes to help explain these concepts. Especially in Greek, many of the terms bear a meaning that make it difficult to translate in a single word, and for those able to read the original languages, the original words as they appear in the text are helpful in understanding the nuances of the text.

Since Vaughan's works are in English, I use his texts as they appear in their dates of publication. In instances where he uses Greek to communicate his ideas, I have done the translations on my own. Similarly, small patches of alchemical jargon presented in Latin I have translated myself, as these terms are familiar to me from my studies into alchemy and Hermeticism. However, in instances where the Latin is outside my knowledge, I have used Waite's translation, which he provides in his compilation of Vaughan's works. Any Kabbalistic jargon presented in Hebrew I have translated on my own as well.

¹⁹ Brian P. Copenhaver, ed., *Hermetica: The Greek Corpus Hermeticum and the Latin Asclepius in a New English Translation, with Notes and Introduction*, trans. Brian P. Copenhaver (Cambridge: Cambridge University Press, 2000), liii.

CHAPTER 1:

The Cultural and Intellectual Context of Alchemy in Early Modern Europe

As an alchemist of early modern Europe, Thomas Vaughan was the inheritor of a worldview and concomitant natural philosophy that is alien to the modern scientific mindset. It possessed a language and a set of ideas that were shaped by the larger cultural, intellectual, and religious factors of the late Middle Ages, the Renaissance, and the Scientific Revolution, and which are no longer present in the modern scientific enterprise. Since Vaughan's worldview provided the epistemological and cognitive framework by which he perceived and interpreted nature, we must first understand the larger contextual factors at work in order to fully grasp his ideas. If we are to understand his ideas as he understood them, and as his contemporary readers would have understood them—that is, if we are to generate a historical empathy with him—we must first rebuild the context in which Vaughan thought about the natural world, and having done so, frame his ideas within that context.

THE CRISIS IN HYLOMORPHISM AND THE EMERGENCE OF THE HERMETIC PHILOSOPHY

The rise of the alchemical worldview to the status of one of the three major contending natural philosophies in early modern Europe can be said to have begun for two major reasons. The first of these is the re-discovery in the West of the *Corpus Hermeticum*, a set of religious and philosophical texts from late antiquity ascribed to the semi-divine figure Hermes Trismegistus. The seventeen Greek *logoi*, or discourses that make up the *Corpus Hermeticum* provided a new way to think about and interpret nature. The fact that the Hermetic texts provided this new approach to understanding the natural world fit well with the other major reason behind the rising acceptance of the alchemical

paradigm: the crisis over the authority of Aristotle in natural philosophy that began in the Renaissance.

The translation and dissemination of Aristotle's works in the West during the twelfth and thirteenth centuries, and advocacy from thinkers associated with the Roman Church, especially Thomas Aquinas (1225–1274), helped to make Aristotelian natural philosophy the dominant view of nature in the late Middle Ages. Aristotle's works had an “enormous impact” on the medieval worldview, and “transformed the intellectual life of Western Europe.”²⁰ Through the effort of thinkers like Thomas Aquinas, Aristotle's teachings were quickly integrated with Christian doctrine, and as a result eventually came to form the authoritative natural philosophy of the period. Having thus been elaborated by Christian thinkers, Aristotle's writings on natural philosophy came to form “a core of the [university] curriculum, and his logical works gave rise to Scholasticism, a rigorous and formalized methodology of logical inquiry and debate applicable to any subject, and upon which university studies were based.”²¹ Eventually, however, several problems arose with Aristotle's ideas, especially as to how well they actually fit with Christian theology. One idea in particular, hylomorphism, was at the crux of the beginning crisis over Aristotle's authority in natural philosophy.

In Aristotle's theory of matter, all physical objects are composed of two principles: matter (*hule*) and form (*morphe*), thus the term “hylomorphism.” These concepts are completely foreign to the modern understanding and use of the terms. Matter is not anything “real” in the sense of being material or substantial; rather, by itself it is

²⁰ Edward Grant, *The Foundations of Modern Science in the Middle Ages: Their Religious, Institutional, and Intellectual Contexts*, Cambridge History of Science (New York: Cambridge University Press, 2008), 27.

²¹ Lawrence M Principe, *The Scientific Revolution: A Very Short Introduction* (Oxford: Oxford University Press, 2011), 7.

“indeterminate,” possessing no qualities or traits, not even extension, mass, etc., except in a state of potentiality.²² If anything can be said of Aristotelian matter, it is that it is the potency or potentiality to become some thing in particular, the identity of that thing depending upon its form. As Aristotle stated in his *Metaphysics*, “Matter exists in a potential state, just because it may attain to its form; and when it exists actually, then it is in its form.”²³

Form, the necessary other half of hylomorphism, is therefore the principle of actuality; it is the defining qualities and characteristics of an object.²⁴ Form is therefore the object’s “essence,” its “prime substance;” matter, on the other hand is “prime matter,” rendered by the Medieval scholastics as *materia prima*. Thomas Aquinas, who during the Middle Ages played a major role in interpreting Aristotle’s intent, summarized Aristotle’s conception of matter and form in his *Librum de Anima*:

Matter is that which of itself is not a determinate thing but is only in potency to be a particular thing. Form is that by which it is already a particular thing in act... There is, then, a difference between matter and form, because matter is being in potency, while form is entelechy, that is, act. Through it matter is actualized. The composite which results is being in act.²⁵

An object is thus a “composite” or “compound,” consisting of both matter and form, both of which can only be defined in relation to its object and to each other.²⁶ They are best understood as the potentiality and actuality of some thing, and “matter is one way of being the composite substance, and form is another way of being it.”²⁷ In other

²² Brian Copenhaver, and Charles B. Schmitt, *Renaissance Philosophy*, A History of Western Philosophy 3 (Oxford: Oxford University Press, 1992), 303-4.

²³ Aristotle, *Metaphysics* IX, 8, quoted in Charlotte Witt, “Hylomorphism in Aristotle,” *The Journal of Philosophy* 84, no. 11 (Nov. 1987): 678.

²⁴ Grant, *The Foundations of Modern Science*, 56.

²⁵ Quoted in David P Lang, “The Thomistic Doctrine of Prime Matter,” *Laval Theologique et Philosophique* 54, no. 2 (1998): 368.

²⁶ Kit Fine, “Aristotle on Matter,” *Mind* 101, no. 401 (Jan. 1992): 36.

²⁷ Aristotle, *De Anima*, I 1, 412a2; Witt, “Hylomorphism in Aristotle,” 678.

words, an object is one, whole, undivided thing, and it possesses both its matter (that from which it is generated) and its form (its shape, qualities, etc.).

Brian Copenhaver notes that as the central theory of the Peripatetic natural philosophy, hylomorphism was as foundational and essential to the natural philosophy of the late Middle Ages and the early Renaissance as the theory of evolution or quantum mechanics is to science today.²⁸ However, over time, the hylomorphic conception of matter came into question as thinkers were increasingly unable to reconcile it with Christian doctrine, especially with regards to the Christian idea of an immortal soul that gains a new body after resurrection. In his *De Anima*, Aristotle defined the soul as the substantial form of the body, and therefore the body as the “substrate and matter” informed by the soul.²⁹ At one point in the same text, Aristotle states, “It is therefore, clear that the soul is not separable from the body [being that the soul is the actualization of the body as its form].”³⁰ Copenhaver summarizes the problem by stating that “Having defined man's immortal soul as a substantial form and the mortal body as the matter informed by it, they faced such puzzles as the status of the soul after death, before rejoining the resurrected body.” The result was that by the late 16th century, “the doctrine of substantial or specific form had become a crux of debate and focus of explanation in many areas of physics and metaphysics.” These debates only served, ultimately, to erode the status of hylomorphism as the central concept of natural philosophy.³¹

In the meantime, new ideas were entering this debate from the continued transmission from the East of classical texts into Western Europe. The first of these were

²⁸ Copenhaver and Schmitt, *Renaissance Philosophy*, 304-5.

²⁹ Aristotle, *De Anima*, I 1, 412a4.

³⁰ Aristotle, *De Anima*, I 1, 413a.

³¹ Copenhaver and Schmitt, *Renaissance Philosophy*, 304-5.

the writings of Plato, the Neoplatonists, and several of the pre-Socratics writers, many of which were lost to the West during the Middle Ages. These texts and philosophers offered new ways of looking at nature, and provided novel answers to questions posed in natural philosophy, to the effect that a “Platonic, neo-Platonic, and Pythagorean revival” occurred in the West, which was “an important stimulus for many scientists of the period.”³² More significant to later alchemists like Thomas Vaughan, however, was the rediscovery of the *Corpus Hermeticum*. Around 1460, Leonardo da Pistoia, a monk who had been tasked by Cosimo de’ Medici to recover classical texts, brought from Macedonia to Florence a collection of manuscripts, one of which was a partial copy of the *Corpus Hermeticum*, a collection of Graeco-Egyptian religious and philosophical texts believed by thinkers in antiquity and the Renaissance to have been written by Hermes Trismegistus. When Cosimo realized that he possessed previously unknown writings of Hermes Trismegistus, he immediately told Marsilio Ficino—who was at the time already translating the Greek texts of Plato for him—to stop his work and begin translations of the *Corpus Hermeticum*.³³ Ficino published the translation in 1463.

Why did Cosimo place such importance on the translation of the *Corpus Hermeticum* and direct Ficino to stop the important work of translating Plato? To answer this question, the significance of this discovery needs to be placed into context. Cosimo, Ficino, and anyone else with knowledge of the classical authors and Christian writers, were already familiar with the name Hermes Trismegistus and his place in history as an ancient teacher of “Egyptian wisdom.” Writers of authority like Augustine and Cicero

³² Allen G. Debus, *Man and Nature in the Renaissance*, Cambridge History of Science (New York: Cambridge University Press, 1995), 9.

³³ Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (Chicago: University of Chicago Press, 1991), 12-13.

spoke highly of Hermes Trismegistus as a revealer of “the knowledge of divine things,” who “gave the Egyptians their laws and letters.”³⁴ The Christian writer Lactantius in his *Epitome of the Divine Institutes* speaks of Hermes as the bearer of ancient wisdom, “who preceded the philosophers in the antiquity of his doctrine...in asserting the majesty of the one God with infinite praises, calls him Lord and Father.”³⁵ Not only this, Lactantius asserted, but Hermes Trismegistus, who was “far more ancient” than both Plato and the Pythagoreans, also attested to the nature of Christ as Word of God and Creator of the cosmos.³⁶ In other words, what Lactantius was here claiming was that Hermes Trismegistus knew about the coming of Christ prior to what Christians see as his Incarnation in history, that Trismegistus was therefore one of the few ancient “prophets” of Christianity whose words bear truth, and therefore an author to which Christians may turn to for truths about the nature of God.

Ficino in the *argumentum* to his translation of the *Corpus Hermeticum*, similarly gives the highest praise to Trismegistus as initiate of the Orphic mysteries, source of Platonic philosophy, and “the first author of theology,” citing Clement of Alexandria, Augustine, and Lactantius as authorities in this genealogy of Hermes Trismegistus. And, most significantly for the eventual diffusion of Hermetism into Western Europe, Ficino, following the ancient Christian authors like Lactantius, identified Hermes Trismegistus as a prophet who anticipated the coming of Christianity.³⁷ What Ficino was proposing here was a *philosophia perennis*, a “perennial philosophy” and esoteric “Tradition” that extended back into antiquity and beyond, and which manifested variously throughout

³⁴ Antoine Faivre, *The Eternal Hermes: from Greek God to Alchemical Magus*, trans. Joscelyn Godwin (Grand Rapids: Phanes Press, 1995), 83; Yates, *Giordano Bruno*, 2, 7.

³⁵ Lactantius, *Epitome*, IV.

³⁶ Lactantius, *Epitome*, XLII; Lactantius, *On the Anger of God*, XI.

³⁷ Yates, *Giordano Bruno*, 14-16.

time as the “one true religion.”³⁸ This tradition consisted of a line of theologians and philosophers who taught a single truth—the *prisca theologia*—that appeared in the earliest times and culminated philosophically in Plato but religiously in the revelations and mysteries of Christ. There were many writers, philosophers, and religious figures included in this list of ancient revealers of the *prisca theologia*, some of the most notable being Noah, Abraham, Moses, Enoch, David, Zoroaster, Hermes Trismegistus, the Sibyls, Pythagoras, Plato, the Brahmins, and the Druids.³⁹

It was under these presuppositions that Hermes Trismegistus entered into the Renaissance world, and because of Hermes’ place among the *philosophia perennis*, the ideas of the *Corpus Hermeticum* easily integrated with other philosophical and religious elements of the time. In many ways, the introduction of Hermetism into the West increased the skepticism toward Aristotle as an authority in natural philosophy. Not only did the philosophy of the *Corpus Hermeticum* offer an alternative way of understanding nature, but with Hermes Trismegistus as an attested Christian prophet and link in the chain of the *philosophia perennis*, his ideas were given much more credence than Aristotle’s. As Allen Debus notes, “for the Hermeticists and natural magicians the works of Aristotle were flawed by heretical concepts, and they were repeatedly to recall that church councils had condemned many of these Aristotelian errors. This being the case, why should Aristotle and Galen still be the basis of university teaching when there was another interpretation of nature through natural magic and occult philosophy—subjects whose very existence depended upon the sacred Scriptures? How could it be that any

³⁸ Faivre, *The Eternal Hermes*, 39.

³⁹ Faivre, *The Eternal Hermes*, 39.

Christian should prefer the atheistic Aristotle to this new and pious doctrine?”⁴⁰

Increasingly, the Aristotelian interpretation of nature was rejected in favor of the new Hermetico-Christian natural philosophy; the fact that this new philosophy saw “science and the observation of nature [as] a form of divine service...natural research [as] a quest for God,” further solidified the place of Hermeticism in the developments of science for the next few centuries.⁴¹

New philosophers of nature, guided by Hermetic philosophy, began to openly confront, attack, and dismantle Aristotelian natural philosophy and the concept of hylomorphism. Giordano Bruno, for example, in his *De la causa*, replaced hylomorphism with “a materialist naturalism that preserved certain elements of Aristotle's terminology—the words ‘form’ and ‘matter,’ for example—but demolished his metaphysics.”⁴² Another Hermetic thinker, Tomasso Campanella also attacked hylomorphism, replacing it with ideas from natural magic that were in turn informed by Hermetic ideas.⁴³ The alchemist and doctor Paracelsus, rejecting both hylomorphism and the Aristotelian conception of the four classical elements (i.e., fire, air, water, and earth), as the basic “stuff” of material objects, replaced them with three elements, salt, mercury, and sulphur, which was simultaneously an innovation of Hermetic and alchemical ideas and also a challenge to Scholasticism.⁴⁴ With this view of matter, as well as an epistemology and metaphysics grounded in Hermeticism, Paracelsus, his followers, and the early modern philosophers of the “new philosophy” in general, “sought to overturn the traditional, dominant Aristotelianism of the universities,” and “hoped to replace all

⁴⁰ Debus, *Man and Nature in the Renaissance*, 13.

⁴¹ Debus, *Man and Nature in the Renaissance*, 14.

⁴² Copenhaver and Schmitt, *Renaissance Philosophy*, 305.

⁴³ Copenhaver and Schmitt, *Renaissance Philosophy*, 319, 327.

⁴⁴ Copenhaver and Schmitt, *Renaissance Philosophy*, 307.

this with a Christian neo-Platonic and Hermetic philosophy, one that would account for all natural phenomena.”⁴⁵

Such was the pervasiveness of the Hermetic philosophy in Europe between the sixteenth and seventeenth centuries that even philosophers not usually associated with Hermeticism in fact reveal at least some connection and familiarity with the Hermetic philosophy. For example, Nicolaus Copernicus used Hermes Trismegistus as an authority in defending heliocentrism; Francis Bacon wrote numerous alchemical texts, and his natural philosophy bore several ideas that ultimately derived from the Hermetico-alchemical philosophy; Gottfried Wilhelm Leibniz was an avid reader of the alchemist and mystic Ramon Lull, and several of Leibniz’s ideas in natural philosophy derive from these readings; even Isaac Newton, whose ideas are still very much at the core of modern physics, was a practicing alchemist and very familiar with Hermetic alchemy.⁴⁶ Other thinkers, like Tycho Brahe, Robert Boyle, William Gilbert, Johannes Kepler, William Harvey, and numerous other thinkers no less important to the developments of science, entertained thoughts of, or actively engaged in, ideas that today would be considered “esoteric,” “occult,” or “pseudo-scientific.”⁴⁷ Debus notes that these thinkers, “whose work contributed to our modern scientific age, found magic, alchemy, and astrology no less stimulating than the new interest in mathematical abstraction, observation, and experiment. Today we find it easy—and necessary—to separate ‘science’ from occult

⁴⁵ Debus, *Man and Nature in the Renaissance*, 21.

⁴⁶ Paolo Rossi, *The Birth of Modern Science*, trans. Cynthia De Nardi Ipsen, The Making of Europe (Malden, MA: Blackwell Publishers, 2001), 26; also see Betty Jo Teeter Dobbs, *The Janus Faces of Genius: The Role of Alchemy in Newton’s Thought* (Cambridge: Cambridge University Press, 1991).

⁴⁷ Allen G. Debus, *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries*, vol. 1 (New York: Science History Publications, 1977), 2; Rossi, *The Birth of Modern Science*, 26.

interests, but many then could not.”⁴⁸ It is therefore “important not to try to separate the ‘mystical’ and the ‘scientific’ when they are both present in the work of a single author. To do so would be to distort the intellectual climate of the period,” and would similarly misrepresent the ideas of the individual authors.⁴⁹

Yet, even thinkers who did not actively adopt Hermetic ideas were ultimately influenced by the implications of Hermeticism. David Walsh notes that “the Renaissance, we have come to realize, was not merely about the rebirth of classical learning and humanism. It was marked by a widespread explosion of magico-mystical movements that emphasized man’s role as a semi-divine being and ruler of the material world.”⁵⁰ This new conception of the Promethean power of man informed the intellectual climate of the Renaissance and later; it was at the core of scientific and philosophic inquiry as the idea that man could penetrate into the depths of nature like God himself and emerge with its secrets.⁵¹ Allen Debus points out that “in the Hermetic corpus, it is clearly indicated that man is able to learn all things, but that to accomplish this he must strive to make himself the equal of his creator.” This sentiment is expressed clearly in the Hermetic literature:

Unless you make yourself equal to god, you cannot understand god; like is understood by like...Having conceived that nothing is impossible to you, consider yourself immortal and able to understand everything, all art, all learning, the temper of every living thing. Go higher than every height and lower than every depth...And when you have understood all these things at once...then you can understand god.⁵²

It is this aspect of “Hermetic epistemology,” as I am terming it, that was at the heart of inquiry into nature during the Renaissance, and it fueled the Hermetic and alchemical

⁴⁸ Debus, *Man and Nature in the Renaissance*, 2.

⁴⁹ Debus, *Man and Nature in the Renaissance*, 11.

⁵⁰ David Walsh, “A Mythology of Reason: The Persistence of Pseudo-Science in the Modern World,” in *Science, Pseudo-Science, and Utopianism in Early Modern Thought*, ed. Stephen A. McKnight (Columbia, MO: University of Missouri Press, 1992), 144.

⁵¹ Walsh, “A Mythology of Reason,” 142.

⁵² *Corpus Hermeticum*, XI.20.

search for the fundamental nature and composition of the cosmos—what they saw as matter and spirit.

The details of the Hermetic conception of matter, which in many areas replaced hylomorphism during the Scientific Revolution, will be discussed more fully in a later chapter, and for now a brief description will suffice. The Hermetic conception of matter is intimately tied into its conception of the vital spirit, as it is only through the operation of both matter and spirit together that sensible reality and material objects arise. In the Hermetic view, nature is a unified whole, but it is characterized by an essential duality of primordial matter and creative spirit. On the one hand is matter, the universal substratum and generative matrix of all sensible reality. However, by itself it is not perceptible and possesses no qualities or characteristics—not mass, not extension—but is simply a formless, passive substance that can be modified by a creative agent. This concept sounds similar to the Aristotelian *hyle*, but is different for a few reasons. First, matter in the Hermetic sense exists on an ontological hierarchy, and can be either a spiritual principle that emanates from God, or a gross, physical substance on the plane of sensible reality. Second, the Hermetic matter is not unique to each object, that is, it is not a “material cause” of a specific object as Aristotle would say. Rather, matter is a universal substance that exists everywhere, filling the entirety of the cosmos so that there is no vacuum anywhere. The Hermetic alchemist Robert Fludd saw matter as a universal sea of primordial substance upon which the vital spirit stood and stirred it into the various objects of reality.⁵³ Giordano Bruno similarly understood prime matter as a “sea of

⁵³ This idea is in fact one of the major themes of all of Fludd’s writings. See especially Fludd, *Mosaical Philosophy*, and Fludd, *Utriusque Cosmi Historia*.

being,” and “the particular forms that distinguish one thing from another as ripples...mere modes or accidents of universal matter.”⁵⁴

The vital spirit, on the other hand, is an operative and causal agent that acts within nature. It is creative, combining with matter to bring about the cosmos and all sensible objects within it. It gives form, quality, and order; it also generates, enlivens, and animates. This vital force is teleological in character, acting with a particular end in mind, namely, the organization and development of the matter in which it inheres.⁵⁵ Ultimately, it is divine and the cause of the existence of all things; it is an “incarnation” and activity of God within the condition of becoming. The vital spirit is therefore certainly not Aristotle’s *morphe*. While the vital spirit does partake of the role of formal cause, it is much more, being also the final and efficient causes. And, just like the Hermetic conception of matter, the vital agent is universal, and not specific to each, individual object.

Together, the vital spirit (God) and matter give birth to the cosmos, and as such, all things are infused with divinity, with the result that “Renaissance and early modern natural philosophers believed that they lived in an enchanted universe, that the physical universe did not consist of inert matter but either was itself animate (i.e., it contained a ‘world soul’ or *anima mundi*) or was inhabited by vital forces and spirits that played a causal role in the occurrence of natural phenomena. For these philosophers, the presence of a world soul or of vital forces and spirits was ultimately attributed either to divine emanation or to divine action.”⁵⁶ The totality of sensible reality, that is, the interplay and

⁵⁴ Copenhaver and Schmitt, *Renaissance Philosophy*, 315.

⁵⁵ Marina Paola Banchetti-Robino, “Ontological Tensions in Sixteenth and Seventeenth Century Chemistry: Between Mechanism and Vitalism,” *Foundations of Chemistry* 13 (2011): 174.

⁵⁶ Banchetti-Robino, “Ontological Tensions,” 174.

marriage of matter and vital spirit, the early modern Hermeticists and alchemists termed “Nature,” the actual and potential combination of the two cosmological principles. Nature thus gives rise to objects by imbuing her own *prima materia* with her own force of soul—the internal fire of the vital spirit.

MECHANISM AND THE REACTION AGAINST HERMETIC “OCCULTISM”

This specific formulation of matter and spirit was not accepted by all early modern philosophers, and in fact created a strong reaction to what many saw as overly mystical ideas.⁵⁷ For many thinkers of the sixteenth and seventeenth century, the questions raised by the erosion of Peripatetic natural philosophy were not answered sufficiently by Hermeticism and Neoplatonism, and a new way of viewing the universe began to emerge, one where all ideas of vital forces were completely quashed in favor of a more mechanical view. The mechanistic philosophy, which saw its culmination in the ideas of Descartes, Boyle, Galileo, and Newton, was, just like Renaissance vitalism, an attack on Aristotelianism; however it was also a revolt against the naturalism and mysticism of this vitalism. Westfall characterizes the mechanical philosophy as “the urge to prune all that smacked of the occult from the body of natural philosophy.”⁵⁸ For these thinkers, things like vital forces and occult qualities were not true “matters of fact,” that is, they were not “authenticated experimental knowledge” generated in the experimental laboratory.⁵⁹ For this new breed of natural philosophers, experiment was superior to the simple observation of nature utilized by the alchemists; experiment occurred in a “public”

⁵⁷ Richard S. Westfall, *The Construction of Modern Science: Mechanisms and Mechanics*, Cambridge History of Science (New York: Cambridge University Press, 1998), 31.

⁵⁸ Westfall, *The Construction of Modern Science*, 120.

⁵⁹ Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 2011), 39.

space—i.e., the laboratory—using scientific instruments, machines like the telescope and microscope that “imposed both a correction and a discipline” upon the imperfect human senses.⁶⁰ Using these corrective devices in a space where others could view the results of any particular experiment, the observers could come to a consensus about the nature, result, and implications of the experiment. And, as Steven Shapin and Simon Schaffer note, “Insofar as one insisted upon the foundational status of experimentally produced matters of fact, one ruled out of court the knowledge-claims of alchemical “secretists”...who claimed individual and unmediated inspiration from God, or whose solitary “treading of the Book of Nature” produced unverifiable observational testimony.”⁶¹ Knowledge produced by alchemical means was therefore not authentic knowledge, and not to be trusted since it could not be demonstrated in the experimental laboratory.

These new philosophers therefore rejected the vitalist interpretation of nature, and instead explained the universe as one composed of and filled completely with matter devoid of spirit or vital forces.⁶² Descartes, an exemplar of the new mechanical philosophy, had separated matter from spirit absolutely, and he offered a picture of matter drastically different from that of the early modern vitalists. Matter, Descartes said, possesses its own qualities, and is a substance characterized by extension:

On the other hand, let us not think that this matter is the ‘prime matter’ of the Philosophers, which they have stripped so thoroughly of all its forms and qualities that nothing more remains in it which can be clearly understood. Let us rather conceive of it as a real, perfectly solid body, which uniformly fills the entire length, breadth, and depth of this great space [the universe]...I conceive of its

⁶⁰ Shapin and Schaffer, *Leviathan and the Air-Pump*, 36-7.

⁶¹ Shapin and Schaffer, *Leviathan and the Air-Pump*, 39.

⁶² Debus, *Man and Nature in the Renaissance*, 107.

[matter's] extension, or the property it has of occupying space, not as an accident, but as its true form and its essence.⁶³

In other words, matter is a thing unto itself that does not require the Aristotelian “form” or the alchemist’s “spirit” to have actuality, and in fact, matter and spirit (or mind) are completely separate from one another. In the same way that matter lacks any of the qualities of spirit, so too is spirit a substance bereft of any of the qualities of matter; its only property, rather, is thinking. Matter and spirit thus exist independently of each other and are fundamentally separate from one another, with the result that, as Westfall characterizes it, the universe is a “lifeless field knowing only the brute blows of inert chunks of matter.”⁶⁴

THE PARACELSIAN CHEMICAL PHILOSOPHY AND HERMETICO-ALCHEMICAL EPISTEMOLOGY

The introduction of the mechanical philosophy in the seventeenth century signaled a major shift in the developments of ideas about matter and the universe, with the result that by the middle of the seventeenth century, the mechanical philosophy had become the dominant way of looking at matter and the universe. The rising supremacy of the mechanist philosophy, however, did not completely stamp out vitalism, which still posed a threat to the mechanical conception of nature.⁶⁵ Hermetic thinkers like Robert Fludd, Thomas Tymme, Jean-Baptiste von Helmont, Michael Maier, and Thomas Vaughan all maintained the Hermetic vitalist conception of matter well into the seventeenth century. However, one might note the interesting change that took place: whereas in the sixteenth century the vitalists in the debate over natural science were

⁶³ Descartes, *The World*, Ch. VI.

⁶⁴ Westfall, *The Construction of Modern Science*, 31.

⁶⁵ Debus, *Man and Nature in the Renaissance*, 115.

represented in large part by the so-called Hermetic natural magicians, with figures like Ficino, Agrippa, and Bruno, in the seventeenth century, vitalism was represented more by the alchemists. The time of the Renaissance magus in the developments of natural philosophy might have come more or less to a close, but Hermeticism had a firm foothold in the chemical sciences, where the mechanists found it difficult to dislodge.⁶⁶ It should be quickly interjected here, however, that the mechanists had an ambiguous relationship with the alchemists: on the one hand, they disliked the alchemical idea of a vital principle and “occult qualities” in nature, as would be expected; however, at the same time, they “admired above all the radical break with the dogmatism of the Peripatetics and the Galenists” that the alchemists represented, a battle that was indeed still being waged in the seventeenth century by both the vitalists and mechanists.⁶⁷

Frances Yates characterizes this “phase in the history of European culture which is intermediate between the Renaissance and the so-called scientific revolution of the seventeenth century” as the “Rosicrucian Enlightenment.”⁶⁸ “It is a phase in which the Renaissance Hermetic-Cabalist tradition has received the influx of another Hermetic tradition, that of alchemy.”⁶⁹ It was a “renaissance...in the early seventeenth century” of

⁶⁶ Banchetti-Robino, “Ontological Tensions,” 173-4.

⁶⁷ Cesare Vasoli, “Alchemy in the Seventeenth Century: The European and Italian Scene,” in *Reason, Experiment, and Mysticism in the Scientific Revolution*, ed. M. L. Righini Bonelli and William R. Shea (New York: Science History Publications, 1975), 50.

⁶⁸ Frances A. Yates, *The Rosicrucian Enlightenment* (New York: Routledge, 2010), xii.

⁶⁹ Yates’s mention here of “Cabalist” requires some explanation. “Cabalist” refers to the Jewish mystical tradition known as “Kabbalah” (variant spellings include Cabala and Qabala, among others). The Kabbalah has its beginning in 12th century Europe, but its ideas reach back even further, being an esoteric and mystical form of Judaism. It was present in Medieval Europe, and soon after its appearance, Christians began to appropriate its ideas and “transformed them into a specifically Christian Kabbalah.” As Antoine Faivre notes, “Its influence in Latinity is considerable, especially from the Renaissance onwards.” By the Renaissance, and with the appearance of the Hermetic and Neoplatonic texts from the East, Kabbalistic ideas were easily integrated with Christian and Hermetic concepts to form a highly syncretic but complete esoteric system that was influential to thinkers throughout the early modern period, including the alchemists. See Daniel C. Matt, *The Essential Kabbalah: The Heart of Jewish Mysticism*, Mystical Classics of the World (New York: Quality Paperback Book Club, 1998), 2-3; Antoine Faivre, *Access to Western*

the Hermetic tradition that began in the Renaissance, but began to fade as the mechanistic philosophy began its ascendancy, with “fresh manifestations of [Hermeticism] in new forms which had absorbed alchemical influences.”⁷⁰ Yates notes that “alchemy as the Hermetic art par excellence belongs to the Hermetic tradition, but the revival of alchemy was not noticeably a part of the revival of the Hermetic tradition in the Italian Renaissance.”⁷¹ In this regard, Florian Ebeling notes that there were actually two strands of the development of Hermetic thought during the Renaissance, one which occurred in the south during the Italian Renaissance, and one in the north in Germany. In the Italian Renaissance, focus was placed on the *Corpus Hermeticum*, and Hermes Trismegistus was seen as being the head of a long line of philosophers, as has already been noted with Ficino and the *sophia perennis*. Hermetic texts also played a role in the German Renaissance to the north, but instead of the *Corpus Hermeticum* being the core Hermetic text, here the major Hermetic source was the *Tabula Smaragdina*, or the Emerald Tablet, a text ascribed to Hermes Trismegistus that “purports to summarize the principles of change in Nature and therefore lies at [the] root of alchemical doctrine.”⁷² In the German strand of Hermeticism then, which saw its greatest fruits in Paracelsus and his followers who later spread all over Europe, the focus was on alchemy and alchemical texts, and Hermes Trismegistus was seen as the beginning of a long line of an ancient alchemical

Esotericism, SUNY Series in Western Esoteric Traditions, ed. David Appelbaum (Albany: State University of New York Press, 1994), 55; Kocku von Stuckrad, *Western Esotericism: A Brief History of Secret Knowledge*, trans. Nicholas Goodrick-Clarke (London: Equinox Publishing, 2005), 31; Yates, *Giordano Bruno*, 84; Yates, *The Rosicrucian Enlightenment*, xii.

⁷⁰ Yates, *The Rosicrucian Enlightenment*, xii.

⁷¹ Yates, *The Rosicrucian Enlightenment*, 248.

⁷² E. J. Holmyard, *Alchemy* (Baltimore: Penguin Books, 1957), 95; Florian Ebeling, *The Secret History of Hermes Trismegistus: Hermeticism from Ancient to Modern Times*, trans. David Lorton (Ithaca: Cornell University Press, 2007), 70-1.

tradition.⁷³ The Hermeticism in Germany “is not to be understood as the heir of Ficino’s translation and commentary of the *Corpus Hermeticum* but rather as a synonym for alchemy, which was candidly called the *Ars Hermetica*, the Hermetic Art.”⁷⁴

Yates, Ebeling, and Debus all see Philippus Aureolus Theophrastus Bombastus von Hohenheim (1493-1541), also known as Paracelsus, as the fountainhead of the “reformed, renaissance type of alchemy” that emerged during the German Renaissance and later spread throughout Europe.⁷⁵ This new mode of alchemy was characterized by the syncretic combination of Hermetic alchemy, Kabbalah, and Christianity—much in the same way that the teachings of the *Corpus Hermeticum* were transformed by Ficino, Pico, and Campanella. Although Paracelsus, who in his time was called the “German Hermes,” and the “legitimate heir of the Egyptian Hermes Trismegistus,” was a major figure behind this reform, Christianized alchemy is seen very early in Germany. For example, the *Buch der Heiligen Dreifaltigkeit* (1415) is considered “one of the earliest and most important testimonies to a way of thinking that combines the representation of the chemical process with Christian mysticism and iconography.”⁷⁶ Even non-alchemical German texts of the fifteenth century demonstrated similar ideas as those expressed in the distinct Christian alchemy of the period. For example, Steve Rowan shows how Hartmann Schedel, in his *Nuremberg Chronicle* (1493), combined the Christian formulation of Creation with Hermetic ideas, using the Hermetic account of Creation in the *Asclepius* to elaborate on the Biblical one. Moses, Schedel thought, “simply communicated to the world what God told him on Mount Sinai...[and] managed to

⁷³ Ebeling, *The Secret History of Hermes Trismegistus*, 70-1.

⁷⁴ Ebeling, *The Secret History of Hermes Trismegistus*, 70.

⁷⁵ Yates, *The Rosicrucian Enlightenment*, 248.

⁷⁶ Ebeling, *The Secret History of Hermes Trismegistus*, 71, 75; Alexander Roob, *The Hermetic Museum: Alchemy and Mysticism* (Köln: Taschen, 2011), 182.

describe only a portion of the process of creation.”⁷⁷ The account given by Hermes Trismegistus was therefore “a corrective and supplement to the account of the scheme of the universe found in the Mosaic books of the Bible.”⁷⁸ Paracelsus inherited this way of thinking, combining in his own works Christian and alchemical ideas, a theme that would be repeated in the alchemical texts of the early modern period.

Paracelsus’ works also demonstrate another element integral to early modern alchemy, one that explains in part the combination of Christian iconography and alchemical concepts; this is the idea that natural philosophy and theology are part of the same study. For Paracelsus, as well as those “Chemical Philosophers” who adopted his ideas after his death, alchemy was seen as “the key to nature” that not only unlocked the secrets of matter, but also opened the way to divine knowledge. Early modern alchemists believed that by means of the alchemical art one could make primary observations of nature, which through analogy would reveal the truths of the cosmos as a whole and ultimately God.⁷⁹ This “Hermetic epistemology,” which I have alluded to before, is based in the idea that by studying nature and its inner principles one will in turn come to know the divine and possibly become divine. This notion has its roots in the Hermetic philosophy of antiquity, where a distinction was made between *episteme* and *gnosis*, the former being “scientific knowledge” and the latter “spiritual knowledge.” Although these types of knowledge are distinct—*episteme* being the product of reason [*logos*] and related to discursive thought [*dianoia*], *gnosis* being an intuitional knowledge related to the Intellect [*nous*]⁸⁰—they are in the words of the *Corpus Hermeticum* ultimately related in

⁷⁷ Steve Rowan, “Chronicle as Cosmos: Hartmann Schedel’s Nuremburg Chronicle, 1493,” in *Daphnis: Zeitschrift für Mittlere Deutsche Literatur*, 15, no. 2-3 (1986), 377.

⁷⁸ Rowan, “Chronicle as Cosmos,” 378.

⁷⁹ Debus, *The Chemical Philosophy*, 55.

that “*gnosis* is the goal of *episteme*.”⁸⁰ Copenhaver interprets this to mean that “knowledge of god’s creation is an essential preliminary to knowledge of god himself,” and that this is essentially “the way of Hermes.”⁸¹ It is a theme that reappears throughout the Hermetic literature, that “without philosophy it is impossible to be perfectly pious. He who learns of what nature things are, and how they are ordered, and by whom, and to what end, will be thankful for all things to the Creator.”⁸² In the Hermetic text *Asclepius*, Hermes Trismegistus says that philosophy should aim to “learn the dimensions, qualities and quantities of the land, the depths of the sea, the power of fire and the nature and effects of all such things in order to commend, worship and wonder at the skill and mind of god.”⁸³ This idea is further elaborated by the Hermetico-alchemical idea of a correlative relationship between the microcosm and macrocosm, stated in the text of the *Tabula Smaragdina*: “That which is above is like to that which is below, and that which is below is like to that which is above.”⁸⁴ This idea was fundamental to the Hermetic conception of an ordered, interconnected *kosmos* wherein the natural philosopher could at once learn about man, Nature, and God because all of these things are ultimately connected.⁸⁵ As Lawrence Principe notes, this worldview was inherited by European natural philosophers:

When early modern thinkers looked out on the world, they saw a cosmos in the true sense of that word, that is, a well-ordered and arranged whole. They saw the

⁸⁰ *Corpus Hermeticum*, X.9.

⁸¹ Brian P. Copenhaver, ed., *Hermetica: The Greek Corpus Hermeticum and the Latin Asclepius in a New English Translation, with Notes and Introduction*, trans. Brian P. Copenhaver (Cambridge: Cambridge University Press, 2000), 159.

⁸² Garth Fowden, *The Egyptian Hermes: A Historical Approach to the Late Pagan Mind* (Princeton: Princeton University Press, 1986), 101.

⁸³ *Asclepius*, 13.

⁸⁴ E.J. Holmyard, *Alchemy* (Baltimore: Penguin Books, 1957), 95.

⁸⁵ Allen G. Debus, “The Chemical Debates of the Seventeenth Century: the Reaction to Robert Fludd and Jean Baptiste van Helmont,” in *Reason, Experiment, and Mysticism in the Scientific Revolution*, ed. M. L. Righini Bonelli and William R. Shea (New York: Science History Publications, 1975), 21.

various components of the physical universe tightly interwoven with one another, and joined intimately to human beings and to God. Their world was woven together in a complex web of connections and interdependencies, its every corner filled with purpose and rich with meaning. Thus, for them, studying the world meant not only uncovering and cataloguing facts about its contents, but also revealing its hidden design and silent messages.⁸⁶

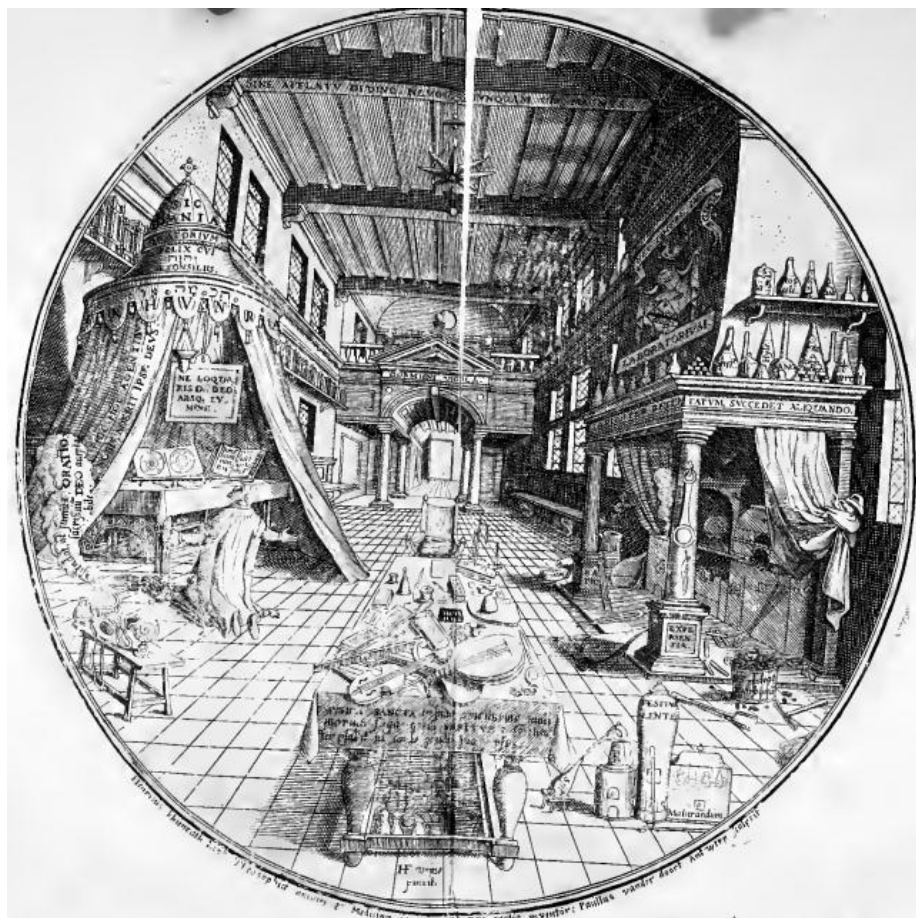
In the Christianized alchemy that emerged in the Renaissance, this Hermetic epistemology was central, and it was further elaborated through the idea that there were two sources of knowledge: the “Book of Nature” and the “Book of Scripture.”⁸⁷ In their study, the alchemist must rely on experience and observation of the natural world as well as the truths inherent in the bible. As an example of this type of thought, the Paracelsian Heinrich Khunrath expressed in his alchemical treatise *Amphitheatrum Sapientatae* the idea that “the true Chemical Philosopher worships his God through prayer and the study of his written word as well as through the study of his Creation, Nature, in the chemical laboratory.”⁸⁸ Representing his ideas and worldview in engravings, which was a common practice among the sixteenth and seventeenth century alchemists, Khunrath depicted this idea of alchemy as both prayer and laboratory work:⁸⁹

⁸⁶ Principe, *The Scientific Revolution*, 21.

⁸⁷ Debus, *Man and Nature in the Renaissance*, 21.

⁸⁸ M. L. Righini Bonelli and William R. Shea, eds., *Reason, Experiment, and Mysticism in the Scientific Revolution* (New York: Science History Publications, 1975), 18.

⁸⁹ Heinrich Khunrath, *Amphitheatrum Sapientiae Aeternae Solius Verae Christiano-Kabalisticum, Divino-Magicum, nec non Physico-Chymicum, Tertriumum, Catholicon* (Hamburg, 1595).



On the left hand side is Khunrath, who is praying at his “*Oratorium*,” on which is written, among other things, the Hebrew name of God. Next to him is an altar where incense burns, the rising smoke representing his prayers to the Divine. On the right hand side, however, is his “*Laboratorium*,” which rests upon two pillars labeled “*Ratio*” [reason] and “*Experientia*” [experience or experimental knowledge]. Upon the shelving are various alchemical “chemicals,” such as “Hyle,” “Azoth,” Mercury, and Sulfur. At the top on one of the beams is written a paraphrase of Cicero: “*sine afflatus divino, nemo unquam vir magnus*,” or “without divine inspiration, no man is great.” This distinction between “oratorium” and “laboratorium” is again encountered in the alchemical motto “*ora et labora et invenies*,” or “pray and work and you will find.” Alchemy was thus simultaneously a way to study nature, but it also had a soteriological character, which

was further emphasized by those alchemists like Khunrath who identified the Philosophers Stone, the goal of the alchemical Great Work, with Christ.⁹⁰

THE “ROSICRUCIAN ENLIGHTENMENT” AND THE CALL FOR ACADEMIC REFORM

This Hermetico-alchemical epistemology, as well as the urge by the alchemists to create a truly “Christian” natural philosophy guided by the teachings of Hermes and scripture was at the root of the confrontation between the alchemical and Aristotelian natural philosophies.⁹¹ The differences between Hermetico-alchemical and Aristotelian thought did not end with their division over the essential nature of matter, but extended into the debate over how a natural philosopher is to obtain his knowledge. For the Scholastics, knowledge was a product of reason, logic, and dialectic, and with reference to natural philosophy in particular, operated within already established “knowns”—that is, the Scholastic philosophy did not attempt to discover and collect new knowledge of the natural world, but rather set out to redefine, within Christian doctrine, what the “ancients” like Aristotle and Galen had said about the natural world. For Hermetic philosophers, on the other hand, knowledge was to be discovered through observation and experience, as expressed by Hermes Trismegistus’ call to “learn the dimensions, qualities and quantities” of everything in nature. The Hermetic epistemology thus took a much more “hands on” approach to knowledge. Peter Severinus, a Paracelsian alchemist, speaking on this theme stated:

[S]ell your lands, your houses, your clothes and your jewelry; burn up your books. On the other hand, buy yourselves stout shoes, travel to the mountains, search the valleys, the deserts, the shores of the sea, and the deepest depressions of the earth;

⁹⁰ Betty Jo Teeter Dobbs, *The Foundations of Newton’s Alchemy, or, “The Hunting of the Greene Lyon”* (New York: Cambridge University Press, 2008), 54.

⁹¹ Debus, *The Chemical Philosophy*, 32.

note with care the distinctions between animals, the differences of plants, the various kinds of minerals, the properties and mode of origin of everything that exists. Be not ashamed to study diligently the astronomy and terrestrial philosophy of the peasantry. Lastly, purchase coal, build furnaces, watch and operate with the fire without wearying. In this way and no other, you will arrive at a knowledge of things and their properties.⁹²

Paracelsus himself believed that the scholastic philosophy ultimately could not arrive at the knowledge of the truths of nature, in that it did not rely on observation and experience, which only the Chemical Philosophy could claim.⁹³ In one direct attack against one of his Aristotelian peers, he wrote: “Let me tell you this: every little hair on my neck knows more than you and all your scribes, and my shoe-buckles are more learned than your Galen and Avicenna, and my beard has more experience than all your high colleges.”⁹⁴ Instead of relying on these ancient authorities, he asserted, one must be guided by “experience” and observation of nature, keeping in mind the essential unity of Nature as expressed in the Hermetic writings.⁹⁵ In observing nature, Paracelsus noted, the goal of knowledge is the invisible (*unsichtig*), which can only be arrived at by piercing through the immediately visible (*sichtig*).⁹⁶ The German alchemist Joachim Tanke agreed, stating that one should “not simply understand nature in terms of its surface [as in the case of the Aristotelians], which is perceptible to the senses, but should discern the cause of, and reason behind, the processes of nature.”⁹⁷ The Philosopher must look for the “hidden gifts implanted in the earth by the Lord.”⁹⁸ This idea of “invisible” or “hidden” principles in Nature is another aspect of the Hermetic epistemological

⁹² Debus, *The Chemical Philosophy*, 70.

⁹³ Debus, *The Chemical Philosophy*, 51.

⁹⁴ Debus, *The Chemical Philosophy*, 52.

⁹⁵ Debus, *The Chemical Philosophy*, 52-3.

⁹⁶ Massimo L. Bianchi, “The Visible and the Invisible. From Alchemy to Paracelsus,” in *Alchemy and Chemistry in the 16th and 17th Centuries*, ed. Piyo Rattansi and Antonio Clericuzio, International Archives of the History of Ideas 140 (Boston: Kluwer Academic Publishers, 1994), 18.

⁹⁷ Ebeling, *The Secret History of Hermes Trismegistus*, 74.

⁹⁸ Debus, *The Chemical Philosophy*, 54.

assumption, that “Nature implanted and poured into all things a hidden and spiritual, mighty power [i.e., the vital spirit]” and that it is the task of the natural philosopher to pierce the interior of nature to learn her secrets.⁹⁹ They sought to study not surface phenomena, but inner principles.

Because of the essential differences between the alchemical and Aristotelian philosophy, the alchemical natural philosophers were contemptuous toward the dominant Scholastic philosophy of their time, and saw Aristotle and Galen as “heathen” philosophers who had been rightly denounced by the Church.¹⁰⁰ They sought a new approach both to natural philosophy and the study of medicine, one that emphasized “the facts of nature,” where philosophers would “discard their books and seek the truth of nature directly through observation.” This pursuit of truth was to be guided by Hermes rather than Aristotle, and for them, nothing less than a complete reform of the university educational system was in order.¹⁰¹ As Debus notes, “To many the doctrines of Aristotle and Galen seemed so deeply entrenched that little less than a total eradication of the traditional educational system would permit the foundation of a new system based on God's truth;” this new system was to be one based on the teachings of Christ, Hermes, and the methods of the Chemical Philosophy.¹⁰² “Not only was this “chemical philosophy” meant to replace the works of Aristotle, Galen, and their followers, it was to become the basis for suggested economic and educational reforms.”¹⁰³ To this end, the Paracelsians began to openly attack the university system in the sixteenth century, a

⁹⁹ Ebeling, *The Secret History of Hermes Trismegistus*, 74.

¹⁰⁰ Debus, *The Chemical Philosophy*, 52; Debus, “The Chemical Debates,” 20.

¹⁰¹ Debus, *The Chemical Philosophy*, 30-2.

¹⁰² Debus, *The Chemical Philosophy*, 211, 205.

¹⁰³ Debus, *The Chemical Philosophy*, 3.

confrontation that would extend into the next century, and which would bring the alchemists to greater attention among philosophers and physicians in Europe.¹⁰⁴

It is within this context that the two so-called Rosicrucian manifestos, the *Fama Fraternitatis* (1614) and the *Confessio* (1615) were published in Cassel.¹⁰⁵ As Yates points out, these pamphlets of unknown authorship “aroused immense excitement” among the intellectual world of the seventeenth century, and they were followed in the next year by *The Chemical Wedding of Christian Rosencreutz*, a “work of alchemical symbolism, using the marriage theme as a symbol of alchemical processes.”¹⁰⁶ The primary purpose of the Rosicrucian manifestos was a call for reform in natural philosophy, one based in Hermetic philosophy, alchemy, and Christianity.¹⁰⁷ There are men, the *Fama Fraternitatis* explains, who “still keep, and are loth to leave the old course, esteeming Porphyry, Aristotle, and Galen, yeah and that which hath but a mere show of learning...who if they were now living, with much joy would leave their erroneous doctrines.”¹⁰⁸ However, with the emergence of a Christian-Hermetic chemical philosophy, “the only wise and merciful God in these later days hath poured out so richly his mercy and goodness to mankind, whereby we do attain more and more to the perfect

¹⁰⁴ Debus, *The Chemical Philosophy*, 26.

¹⁰⁵ Both of these pamphlet names are shortened from the original for the sake of brevity. As originally published, the *Fama Fraternitatis* was called *Allgemeine und General Reformation, der gantzen weiten Welt. Beneben der Fama Fraternitatis, dess Loblichen Ordens des Rosenkeutzes, an alle gelehrte und Haupter Europae geschrieben: Auch einer kurtzen Responcion von des Herrn Haselmeyer gestellet, welcher desswegen von den Jesuitern ist gefanglich eingezogen, und auff eine Galleren geschmiedet: Itzo offentlich in Druck verfetiget, und allen trewen Herten comuniceret worden Gedrucht zu Cassel, durch Wilhelm Wessell, Anno MDCXIV*. The *Confessio* was originally published as *Secretioris Philosophiae Consideratio brevis a Philippo Gabella, Philosophiae St (studioso?) conscripta, et nunc primum una cum Confessione Fraternitatis R.C. in lucem edita Cassellis, Excudebat Guilhelmus Wessellius Illmi. Princ. Typographus. Anno post natum Christum MDVXV*. See Yates, *The Rosicrucian Enlightenment*, 295-6.

¹⁰⁶ Yates, *The Rosicrucian Enlightenment*, 42-3.

¹⁰⁷ Yates, *The Rosicrucian Enlightenment*, 67.

¹⁰⁸ *Fama Fraternitatis*, trans. Thomas Vaughan, reprinted in Yates, *The Rosicrucian Enlightenment*, 298.

knowledge of his Son Jesus Christ and Nature.”¹⁰⁹ God has “raised men, imbued with great wisdom, who might partly renew and reduce all arts (in this our age spotted and imperfect) to perfection.”¹¹⁰ “Theophrastus” (i.e., Paracelsus) is one such man who has “diligently read over the book M: whereby his sharp *ingenium* was exalted.”¹¹¹ I take the “book M” to mean “*liber mundi*,” that is, the book of the world or the book of nature that is to be studied along with the book of scripture. The *Fama* also makes a point to disassociate “true” alchemy from the charlatans, stressing that the “true philosophers...[esteem] little the making of gold, which is but a *parergon*” of “Chymia,” that is, it is a byproduct of alchemy only.¹¹² It is only the “runagates and roguish people” who use the art for such ends. The true philosopher “doth not rejoice that he can make gold, and that, as saith Christ, the devils are obedient unto him; but is glad that he seeth the heavens open, and the angels of God ascending and descending, and his name written in the book of life.”¹¹³ Thus the Rosicrucian manifestos stressed the same ideas that had been present among the Hermetico-alchemical philosophers, that the “new” philosophy was the only way to knowledge of Nature and God, and that it must replace the philosophy of the universities.¹¹⁴

¹⁰⁹ *Fama Fraternitatis*, 297-8.

¹¹⁰ *Fama Fraternitatis*, 297-8.

¹¹¹ *Fama Fraternitatis*, 301.

¹¹² *Fama Fraternitatis*, 311.

¹¹³ *Fama Fraternitatis*, 311.

¹¹⁴ There is some scholarly discussion surrounding the idea of the Rosicrucian manifestos and the Order of the Rosy Cross itself as a hoax. Those in support of the idea that the whole movement was a hoax point to the fact that, as far as we know at least, no one ever was able to make contact with the Order. In addition, Johann Valentin Andreae, the author of the Rosicrucian text *Chymische Hochzeit Christiani Rosencreutz* (*The Chymical Wedding of Christian Rosencreutz*), claimed to have a hand in the writing of the *Fama*, and also later characterized the Rosicrucian movement as *ludibrium*, that is, as a jest or mockery. Yet, this statement is problematic when one considers the nature and content of the *Fama* and *Confessio*—the fact that they espouse so clearly (and without a hint of mockery) the same ideas that were present during the 16th and 17th centuries about reform, alchemy, and the relationship between God, Nature, and knowledge, makes it difficult to disregard the manifestos as mere *ludibrium*. Ultimately, several things are unknown to the modern scholar: whether or not anyone actually ever made contact with the Order (if someone did, they

The publication and spread of these pamphlets, as well as the great interest in them, led to what Yates has called the Rosicrucian Enlightenment, which at its core was an alchemical movement, or as Debus terms it, a “neo-Paracelsian movement.”¹¹⁵ The German alchemist Michael Maier called the manifestos “an appeal to all ‘chymists’ of Germany,” and they spread quickly throughout Germany and France, strengthening the already-present idea that reform must occur in the sciences and that alchemy must be that which replaces the outdated and inefficacious Peripatetic philosophy.¹¹⁶ In fact, in addition to seeing the manifestos as influential, we should also understand them as manifestations and indicators of the widespread desire among many thinkers of the time for a change in the study of nature.

Not just on the continent, but in England as well, the manifestos had a great impact on its readers. The English physician Robert Fludd, “one of England’s best-known natural philosophers,” was one of the greater advocates in England of both the Rosicrucian call for reform as well as the Paracelsian-alchemical philosophy.¹¹⁷ In 1616, Robert Fludd published his first book, which was a defense of the Rosicrucians against an attack by Andreas Libavius, an Aristotelian-Galenic physician who rejected the mysticism of Paracelsianism and accused the Rosicrucian manifestos of “not understanding serious, scientific alchemy, for which they substitute wild theorizing.”¹¹⁸

may have been sworn to secrecy because of its mystical nature); whether or not Andreae actually had a hand in the writing of the manifestos, and if he did, how much of a part he played; to what degree Andreae’s description of the manifestos and movement as *ludibrium* was an attempt to distance himself from the movement after the fact (of which there is evidence). See Yates, *Rosicrucian Enlightenment*, 67-8.

¹¹⁵ Debus, *The Chemical Philosophy*, 213.

¹¹⁶ Yates, *The Rosicrucian Enlightenment*, 126.

¹¹⁷ Allen G. Debus, *The English Paracelsians* (New York: Franklin Watts, Inc., 1966), 105.

¹¹⁸ Joscelyn Godwin ed., *Robert Fludd: Hermetic Philosopher and Surveyor of Two Worlds* (Grand Rapids: Phanes Press, 1991), 7; Allen G. Debus, “Renaissance Chemistry and the Work of Robert Fludd,” in *Alchemy and Chemistry in the Seventeenth Century: Papers Read by Allen G. Debus and Robert P.*

Fludd's defense of the Rosicrucians came in the form of his *Apologia Compendaria*, which Fludd called a "Brief Apology, washing away and cleansing the stain of suspicion and infamy applied to the Fraternity of the Rosy Cross with, as it were, a Fludd of truth."¹¹⁹ In it, he refuted Libavius' claims, and at the same time counterattacked the Scholastic position and laid out his views of an "alchemical cosmology" based on Hermetic, Kabbalistic, Paracelsian, and Christian ideas.¹²⁰ Elias Ashmole, who eventually helped to found the Royal Society, was another Englishman who was very much taken by the message of the *Fama* and *Confessio*. In his *Theatrum Chemicum Britannicum*, a compendium of English alchemical verse, Ashmole quotes the *Fama* on several occasions. For example, while discussing the art of alchemy, Ashmole repeats the "incomparable Authour" of the *Fama* in stating that making gold was "scarce any intent of the ancient Philosophers, and the lowest use the Adepti made of this Materia... He to whom the whole Course of Nature lyes open, rejoyceth not so much that he can make Gold and Silver, or the Divells to become Subject to him, as that he sees the Heavens open, the Angells of God Ascending and Descending, and that his own Name is fairly written in the Book of life."¹²¹ Thomas Vaughan himself was also a student of the manifestos, and in fact, it was Vaughan who first published an English translation of the *Fama* and *Confessio* in London in 1652.¹²²

Multhauf at a Clark Library Seminar, March 12, 1966 (Los Angeles: University of California, Los Angeles, 1966), 15; Yates, *The Rosicrucian Enlightenment*, 69-70.

¹¹⁹ Robert Fludd, *Rosicrucian Defense*, trans. Robert A. Seelinger, Jr. and William H. Huffman, in *Robert Fludd: Essential Readings*, ed. William H. Huffman (London: The Aquarian Press, 1992), 45.

¹²⁰ Godwin, *Robert Fludd*, 7; Debus, "Renaissance Chemistry," 15.

¹²¹ Elias Ashmole, Prolegomena to *Theatrum Chemicum Britannicum. Containing Severall Poeticall 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*, The First Part (London: Printed by F Grismond for Nath: Brooke, at the Angel in Cornhill, 1652).

¹²² Yates, *The Rosicrucian Enlightenment*, 237.

Vaughan's English translation Yates called an "epoch-making event," in that it made "the Rosicrucian manifestos known to a much wider public."¹²³ Apparently, the new translations fell on willing ears in that several publications of the time echo the Rosicrucian call to reform in the universities, natural philosophy, and medicine. Antonio Clericuzio notes that "In the 1650's, following the teachings of Paracelsus... a number of English physicians were launching detailed attacks" on the traditional Aristotelian-Galenic medicine.¹²⁴ "One publication in particular, the *Academiarum Examen*, written in 1654 by the English minister John Webster, called for a "reformation and promotion of Physical knowledge." In it, Webster claims that the schools were dominated by "the Peripatetick Philosophy," and that while some of Aristotle's teachings are useful, his "Natural Philosophy...admits of no reformation, but eradication, that some better may be introduced in the place thereof."¹²⁵ What is needed is a "Philosophy more compleat than Aristotle's," one where "Physical learning...is grounded upon sensible, rational, experimental, and Scripture principles."¹²⁶ Webster recommends that the Peripatetic philosophy be replaced with "the Philosophy of Plato, revived and methodized by...Marsillius Ficinus," the teachings of "Hermes, revived by the Paracelsian School," and finally by those ideas exemplified by "the elaborate writings of that profoundly

¹²³ Yates, *The Rosicrucian Enlightenment*, 238.

¹²⁴ 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. Piyo Rattansi and Antonio Clericuzio, International Archives of the History of Ideas 140. (Boston: Kluwer Academic Publishers, 1994), 54.

¹²⁵ John Webster, *Academiarum Examen, or the Examination of the Academies. Wherein is discussed and examined the Matter, Method and Customes of Academick and Scholastick Learning, and the insufficiency thereof discovered and laid open; As also some Expedients proposed for the Reforming of Schools, and the perfecting and promoting of all kind of Science. Offered to the judgments of all those that love the proficiencie of Arts and Sciences, and the advancement of Learning* (London: Printed for Giles Calvert, and are to be sold at the sign of the Black Spread-Eagle at the West-end of Pauls, 1654), 104.

¹²⁶ Webster, *Academiarum Examen*, 105.

learned man Dr. Fludd.”¹²⁷ These “would be found to far excel” “Aristotle, and the Scholastick learning.”¹²⁸ Webster claimed that the youth trained in the Aristotelian tradition are “idlely trained up in notions, speculations, and verbal disputes,” but that students, through the Hermetic natural philosophy:

may learn to inure their hands to labour, and put their fingers to the furnaces, that...the wonders brought to light by Chymestry, may be rendered familiar unto them: so that...they may not be sayers, but doers...so that they may not be Sophisters...but true Natural Magicians, that walk not in the external circumference, but in the center of nature’s hidden secrets.¹²⁹

It is clear, then, that the desire for a reform in the sciences was present in England during the seventeenth century, which is one reason why the Rosicrucian manifestos were eagerly accepted. One other reason for this, however, is that alchemy in England was undergoing a revival, which Frederic Burnham claims is due in part to “the calamitous events of the Civil War and Commonwealth Era [which] spawned the revival of mysticism.”¹³⁰ He argues that in the “two decades of civil disorder (1640-60) many Englishmen...who were disillusioned by the contemporary state of English society forsook traditional rationalism for the peculiar security which mysticism affords in such uncertain times. Suddenly the mystical speculations of Renaissance figures like Cornelius Agrippa, Robert Fludd, John Dee, and Paracelsus became immensely popular again.”¹³¹ That interest in alchemy was indeed revived in England during this time is evident in William Cooper’s *A Catalogue of chymicall books*, which records 422 English alchemical books printed in London between 1527 and 1690. Kassell analyzed the data of the

¹²⁷ Webster, *Academiæ Examen*, 105.

¹²⁸ Webster, *Academiæ Examen*, 106.

¹²⁹ Webster, *Academiæ Examen*, 106.

¹³⁰ Frederic B. Burnham, “The More-Vaughan Controversy: The Revolt Against Philosophical Enthusiasm,” *Journal of the History of Ideas* 35, no. 1 (Jan.-Mar. 1974): 35.

¹³¹ Burnham, “The More-Vaughan Controversy,” 35.

Catalogue, and demonstrated that between 1527 and 1649, only a few number of alchemical books were published in London per year. However, in 1650, the number spikes, a trend which continues until 1690. The increase in the number of books published per year, Kassell notes, amounts to a “tenfold” increase in publication rates, indicating the general increase in the interest of alchemical subjects.¹³²

Vaughan’s seven alchemical pamphlets, all published between 1650 and 1655, are some of the texts that contributed to this spike.¹³³ His works bear the hallmarks of other alchemical writings during this period, and they therefore appear to be perfectly in place in this context. The conflict between Hermetic and Aristotelian natural philosophy and the extreme distaste for the latter appears throughout his works. At one point Vaughan says of the Peripatetic philosophy, “It is not the primitive Trueth of the Creation, not the Ancient, reall Theosophy of the Hebrews and Egyptians, but a certain preternaturall upstart, a Vomit of Aristotle, which his followers with so much diligence lick up and swallow.”¹³⁴ This vitriolic attack against the Scholastic philosophy is a product Vaughan’s conviction that the alchemico-Hermetic epistemology is a superior way to study nature, in that “the Peripateticks” describe their subject “onely by outward circumstances, which every childe can do, but they state nothing Essentially. Thus they

¹³² Lauren Kassell, “Secrets Revealed: Alchemical Books in Early-Modern England,” *History of Science* 49 (2011): 61.

¹³³ William Cooper, *Catalogue of Chymicall Books. In Three Parts. In the First and Second Parts are contained such Chymical Books as have been written Originally, or Translated into English....* (London: Collected by Will. Cooper, Bookseller, at the Pelican in Little Britain, London, 1675).

¹³⁴ Eugenius Philalethes [Thomas Vaughan], *Anthroposophia Theomagica; Or A Discourse of the Nature of Man and his state after death; Grounded on his Creator’s Proto-Chimistry, and verifi’d by a practicall Examination of Principles in the Great World* (London: Printed by T.W For H. Blunden at the Castle in Corn-hill, 1650), B4.

dwel altogether in the Face; their Indeavours are meer Titillations, & their Acquaintance with Nature is not at the heart.”¹³⁵

The attack on Aristotle is only a small part of the contents of Vaughan’s works. In his six alchemical works he lays out his conception of matter and the vital agent, and does so in light of Creation as expressed in the Bible and the *Corpus Hermeticum*. The specific ideas expressed in his works will be discussed in Chapter 3. However, in order to understand the meaning of the ideas contained therein, we must first proceed to uncover his philosophical antecedents, those specific ideas that not only formed the conceptual superstructure of the period in which Vaughan wrote, but also those ideas from which he drew in his understanding of matter and spirit.

¹³⁵ Eugenius Philalethes, *Anthroposophia Theomagica*, B2½.

CHAPTER 2: *Religious and Philosophical Antecedents to Vaughan's Ideas*

The alchemical works of Thomas Vaughan, as both Betty J.T Dobbs and William Newman have stated, have “a reputation for obscurity and mysticism.”¹³⁶ However, Newman also notes that “the difficulty in understanding Vaughan’s works does not lie so much in any inherent confusion as it does in our own unfamiliarity with the tradition from which they spring. Hence, we shall have to delve into Vaughan’s authorities.” In order to pierce the “mystery not easily apprehended” of Vaughan’s works, and specifically his conception of matter and spirit as they relate to the cosmogonic process, the “unfamiliar” ideas contained in Vaughan’s authorities must first be laid out, providing a contextual framework with which his works can be analyzed and understood.¹³⁷

There are several key religious and philosophical antecedents in this regard, to which Vaughan himself refers continuously in his works: the texts of the *Corpus Hermeticum*, the book of Genesis, and the writings of Cornelius Agrippa. Of these, the first two are the primary sources of Vaughan’s conception of matter, spirit, and cosmogony. Not only do his ideas bear the distinct mark of Hermetic and Biblical influence, but he also utilizes these two sources as authoritative, expert “evidence” in his expositions. Agrippa’s influence is also significant, as demonstrated by William Newman. However, since Agrippa’s influence can be seen more in the actual processes of alchemy leading to the formation of the *lapis philosophorum*, or the philosopher’s stone, and not so much in Vaughan’s conception of matter, spirit, and the creation of the

¹³⁶ William R. Newman, “Thomas Vaughan as an Interpreter of Agrippa von Nettesheim,” *Ambix* 29 (Nov. 1982): 125; Betty Jo Teeter Dobbs, *The Foundations of Newton’s Alchemy, or, “The Hunting of the Greene Lyon”* (New York: Cambridge University Press, 2008), 66.

¹³⁷ Dobbs, *The Foundations of Newton’s Alchemy*, 66.

cosmos, I will focus primarily on those two sources that played the major role of informing all hermetic philosophers of the period—both natural magicians and alchemists—namely, the *Corpus Hermeticum* and the Bible.¹³⁸

Vaughan was similar to other alchemical thinkers of his time, especially those of the Paracelsian tradition, in that he understood Creation as a form of “Proto-chemistry.” Since this concept is important for understanding how Vaughan viewed matter and the vital agent, I will examine it as it occurs in a few of Vaughan’s precursors, most notably Robert Fludd (1573/4-1637), whom I have chosen for a few reasons. First, Fludd, like Vaughan, was an English alchemist living in the first half of the seventeenth century; Fludd was the elder of the two, but both of their lives overlapped, and as such, both lived in the same basic cultural milieu. Second, Fludd was, like Vaughan, highly influenced by both the Paracelsian and Rosicrucian tradition, and as a result the ideas of both of these thinkers show very similar propensities, especially with regard to the call for reform against the Aristotelian-dominated universities, and in their combining of Hermetic and Biblical accounts of Creation into a single, alchemical vision of the genesis of the cosmos. Arthur Edward Waite, in his treatment of Vaughan’s works, goes so far as to say that Fludd “exercised no inconsiderable influence” on Vaughan.¹³⁹ While this claim perhaps overstates the relationship between these two thinkers, it would certainly be valid to conclude that both Fludd and Vaughan were of the same intellectual “stock” so to

¹³⁸ The relationship between *magia naturalis* and alchemy, and thus between Agrippa and Vaughan, is a complex one. Natural magic and alchemy undoubtedly share in the same fundamental underlying principles that make up the ideational structure and worldview of the two. The Hermetic epistemology is a dominant premise in both, and both also rely on Hermetic and Christian theology/philosophy. In addition, both share in the view of a Divinely-infused, vitalistic cosmos in which everything is alive and connected by a principle of order. Both, too, are modes of natural philosophy, a way to study Nature and God. Ultimately, the identity and history of natural magic and alchemy are intertwined in many respects, but the nature of this relationship is outside the purview of this essay.

¹³⁹ Arthur Edward Waite, ed., *The Works of Thomas Vaughan: Eugenius Philalethes* (London: Theosophical Publishing House, 1919), 347.

speak, both having been influenced by the same intellectual and cultural forces of their time and place in history, with the result that they both had very similar ideas. I would agree, therefore, with Waite's contention that "there is much in common between them," that Vaughan's "immediate predecessor in England was Robert Fludd," and that "the mantle of Robert Fludd may be said to have fallen upon the shoulders of Vaughan."¹⁴⁰ This connection between the two alchemists was made even in their own time, Vaughan having been called by one of his critics, Henry More, "a bad chip of the Dr. Fludd block."¹⁴¹

Finally, it is through Fludd and the Paracelsian tradition that I will elaborate on the Biblical account of Creation. The early modern alchemists were certainly not the only thinkers who saw the account of Creation in Genesis as an elucidation of both theology and natural philosophy. For example, Augustine of Hippo (354–430) described the cosmogonic processes detailed in the first few verses of Genesis 1 in terms of the natural philosophy of Neoplatonism, and later, Thomas Aquinas (1225–1274) would interpret Genesis in a similar way, but through the lens of Aristotelian hylomorphism.¹⁴² In addition, the concepts inherent in the alchemical interpretation of Creation have a history in Western thought going back into antiquity, which provided a common language with which the alchemists of early modern Europe were able to communicate their ideas. However, these alchemists read Genesis in Hermetic, Kabbalistic, Christian, and specifically alchemical terms, which is a distinct mark of the Chemical Philosophy that is found nowhere else. As such, I will use these alchemists as a lens with which to elaborate their view of creation in Genesis.

¹⁴⁰ Waite, *The Works of Thomas Vaughan*, 471, 8, v.

¹⁴¹ Waite, *The Works of Thomas Vaughan*, 471.

¹⁴² Augustine, *Confessions*, Book 12, Ch. 5, 6, 7; Thomas Aquinas, *Summa Theologica*, Q66.

HERMETICISM: HISTORICAL BACKGROUND AND THE TEXTS

The Hermetic writings have their roots in the Graeco-Egyptian milieu of Hellenistic Egypt, where divisions between distinctly Egyptian and Greek cultural elements blurred. In this environment, a “Graeco-Egyptian consciousness” developed, marked by the complex interweaving of language, culture, ideas, and religious belief.¹⁴³ One of the products of this setting was the religious philosophy that came to be known as Hermetism, which combined the religious elements of Egyptian thought with elements of Greek philosophy.¹⁴⁴ There is some division among scholars as to the status of “Hermetism” as distinct religious and philosophical entity in the ancient world; however, recent scholarship has argued the case for a Hermetic “mystery tradition,” complete with initiates, teachers, and initiation rites. Following the work of André-Jean Festugière, the dominant view of Hermeticism in the early twentieth century was that it “was a purely literary phenomenon, a *mystère littéraire*,” and that there was no evidence of it forming any kind of true religious group.¹⁴⁵ However, with the discovery in 1945 in Nag Hammadi of two Hermetic texts previously unknown to the modern world, recent scholars like Roelof Van Den Broek have begun to indicate that, while there was likely no Hermetic “cultus in the usual sense, with priests, offerings, processions, etc.,” Hermetic writings and ideas did form the core of “small Hermetic communities, groups, conventicles or Lodges, where Hermetic instruction was given and individual experiences

¹⁴³ Garth Fowden, *The Egyptian Hermes: A Historical Approach to the Late Pagan Mind* (Princeton: Princeton University Press, 1986), 17-19.

¹⁴⁴ Antoine Faivre, *The Eternal Hermes: from Greek God to Alchemical Magus*, Joscelyn Godwin trans. (Grand Rapids: Phanes Press, 1995), 55.

¹⁴⁵ Roelof Van Den Broek, “Religious Practices in the Hermetic ‘Lodge’: New Light from Nag Hammadi,” in *From Poimandres to Jacob Böhme: Gnosis, Hermetism and the Christian Tradition*, ed. Roelof van den Broek and Cis van Heertum. PIMANDER, Texts and Studies Published by the Bibliotheca Philosophica Hermetica 4. (Amsterdam: Bibliotheca Philosophica Hermetica, 2000), 80

were collectively celebrated with rituals, prayers, and hymns.”¹⁴⁶ Garth Fowden asserts that the Hermetic texts demonstrate a distinct “way” of Hermes, a philosophical *paideia* that served to teach and initiate adherents into the mysteries of Hermes Trismegistus.¹⁴⁷ Brian Copenhaver makes a similar claim, stating that the *Hermetica* present a complete theory of salvation by which the adherent might approach the divine with the object of receiving *gnosis*, or divine knowledge.¹⁴⁸ By receiving this *gnosis*, the practitioner of the Hermetic way is able to remove himself from the constraints of determinism and fate—qualities ascribed in Hermetic thought to the physical world—and may ascend to a region wherein only God and Wisdom exist. In this way, the *mustēs* is “saved” and “redeemed,” having returned to his ultimate source in the fountainhead of God, giving the concept of *gnosis* both an epistemological and the soteriological significance.

Hermetism derives its name from its patron deity, the Graeco-Egyptian Hermes Trismegistus, who by at least the third century BCE, was already an established deity.¹⁴⁹ Hermes Trismegistus was the syncretic melding and re-envisioning of the Egyptian god Thoth and the Greek god Hermes. Thoth was the ibis-headed god of magic, wisdom, and knowledge, counselor to the sun god Ra, inventor of writing and the 365-day calendar.¹⁵⁰ It was supposed that Thoth had written several of the Egyptian sacred funerary texts, such as parts of the *Book of Coming Forth by Day* (commonly rendered as the *Book of the*

¹⁴⁶ See Van Der Broek, “Religious Practices” for an analysis of the Hermetic texts—including those found at Nag Hammadi—where he shows instances of hymns, prayers, ritual meals, chants, and initiations akin to those of other mystery religions. Van Der Broek, “Religious Practices,” 81.

¹⁴⁷ Fowden, *The Egyptian Hermes*, 95-115.

¹⁴⁸ Note that *gnosis* refers here to a kind of knowledge, an “intuitional” or “intellective” knowledge of God and the noetic cosmos as opposed to *episteme*, the knowledge of the world or physical cosmos, and does not necessarily connect Hermetism to so-called Gnosticism. Brian P. Copenhaver, ed., *Hermetica: The Greek Corpus Hermeticum and the Latin Asclepius in a New English Translation, with Notes and Introduction*, Brian P. Copenhaver, trans. (Cambridge: Cambridge University Press, 2000), xxxvii; Fowden, *The Egyptian Hermes*, xxiv.

¹⁴⁹ Faivre, *The Eternal Hermes*, 76.

¹⁵⁰ Plutarch, *De Iside et Osiride, Moralia* 5, 355E

Dead), a collection of funerary, religious, and magical writings.¹⁵¹ Thoth's main site of worship was at Hermopolis (Khemnu), where he was acknowledged as the cosmic demiurge who with his voice created the universe out of a primordial chaos.¹⁵² In other creation myths, Thoth was "the demiurgic *logos*...the tongue of Ra who transforms the Thoughts of the Heart into spoken and written Language."¹⁵³ The Greek Hermes too was called *logos*, messenger of the gods, and "interpreter of the divine will to mankind," allowing for an easy identification with the Egyptian deity.¹⁵⁴

Hermes Trismegistus, like his purely Egyptian counterpart, was recognized as the father of wisdom as well as the master of magic and occult knowledge. The specific appellation *trismegistos*, meaning "thrice-great," was meant to communicate his importance and power, and it derives from the title "*megistos kai megistos theos megas*," meaning "the three times great god," an appellation given to him by Graeco-Egyptian priests of Thoth.¹⁵⁵ Such reverence was paid to Hermes Trismegistos for several reasons, one being his great power, knowledge and wisdom.¹⁵⁶ For example, in the Greek magical papyri, Hermes Trismegistos is called *pantokrator* and *cosmokrator*, who created the cosmos through his knowledge and use of magic. He was also said to be identical with Enoch, Moses, and Orpheus, an antique association that would reappear in the Renaissance.¹⁵⁷

¹⁵¹ Fowden, *The Egyptian Hermes*, 22; Richard H. Wilkinson, *The Complete Gods and Goddesses of Ancient Egypt* (New York: Thames & Hudson, 2003), 215-216.

¹⁵² Fowden, *The Egyptian Hermes*, 23.

¹⁵³ Algis Uždavinys, *Philosophy & Theurgy in Late Antiquity* (San Rafael, CA: Sophia Perennis, 2010), 294.

¹⁵⁴ Fowden, *The Egyptian Hermes*, 24.

¹⁵⁵ Copenhaver, *Hermetica*, xiv; Fowden, *The Egyptian Hermes*, 26.

¹⁵⁶ Faivre, *The Eternal Hermes*, 77.

¹⁵⁷ Faivre, *The Eternal Hermes*, 76-77.

With such a reputation for wisdom and knowledge, the writings ascribed to Hermes Trismegistus were well known among philosophers, theologians, magicians, and astrologers of antiquity. This literature, which modern scholars term the *Hermetica*, consisted of various magical, religious, and philosophic writings that for the most part, never formed a single corpus but rather seem to have been written by various authors at various times—some from at least as early as the third century BCE.¹⁵⁸ Especially in the case of the *Hermetica* dealing with astrology and magic, treatises were circulated primarily as individual texts. However, the religious-philosophical texts were brought together into collections in Antiquity, and were known to early writers like Clement of Alexandria, who identified “forty-two books of Hermes indispensably necessary” to the training of the priests of Hermes.¹⁵⁹ The Hermetic writings, as Stuckrad notes, “practically covered the entire magical, alchemical, astrological and natural philosophical knowledge of Hellenistic Egypt, in which the older traditions were blended with Greek philosophy.”¹⁶⁰ They mix the “Hellenistic philosophy of nature, which itself was a conglomeration of Aristotelian, Platonic, Stoic, and Pythagorean doctrines” with Egyptian religious, mythological, and magical elements.¹⁶¹ As noted in Chapter 1, this worldview seamlessly combining religion and philosophy had an enormous impact on the thought of the early modern alchemist and natural philosopher.

The literature ascribed to Hermes Trismegistus has been divided by scholars into two categories: the “technical” and the “philosophical” *Hermetica*. In the former

¹⁵⁸ Faivre, *The Eternal Hermes*, 77.

¹⁵⁹ Clement of Alexandria, *Stromata* VI, 4; Fowden, *The Egyptian Hermes*, 3-4.

¹⁶⁰ Kocku von Stuckrad, *Western Esotericism: A Brief History of Secret Knowledge*, Nicholas Goodrick-Clarke trans. (London: Equinox Publishing, 2005), 19.

¹⁶¹ Florian Ebeling, *The Secret History of Hermes Trismegistus: Hermeticism from Ancient to Modern Times* David Lorton trans. (Ithaca: Cornell University Press, 2007), 9.

category are texts dealing with magic, alchemy, and astrology. Examples include the first-century BCE astrological *Book on the Thirty-Six Decans* and the fourth-century magical *Cyranidi*. These texts, as well as the other technical Hermetica, deal very little with the philosophical and religious aspect of Hermetism; rather, they expound on the Hermetic “sciences” that were considered to be an essential part of the religion and philosophy of Hermes. The philosophical Hermetica, however, Brian Copenhaver characterizes as literature that deals “with theological or, in some loose sense, philosophical issues: they reveal to man knowledge of the origins, nature and moral properties of divine, human and material being so that man can use this knowledge to save himself.”¹⁶² These writings provide the basis for our understanding of Hermetic theology and natural philosophy. The texts of the philosophical Hermetica are various and numerous, but the most important for this study is the *Corpus Hermeticum*—a collection of second- or third-century discourses, written in Greek, that form the core of the Hermetic philosophical writings—and the *Asclepius*, a second- or third-century work that is only known to the modern world in Latin but which was originally translated from Greek.¹⁶³ These texts, after their transmission to Europe in the Renaissance, became extremely influential and instrumental in the developing ideas of early modern esotericism and natural philosophy.

¹⁶² Copenhaver, *Hermetica*, xxxii

¹⁶³ There are other texts that are considered part of the Hermetic corpus, all of them important for understanding the Hermetic philosophy. These include: the so-called Hermetic Fragments, which are various fragments dealing with Hermetic ideas that are found in the writings of the Church Fathers, e.g., Tertullian, Lactantius, and Augustine, as well as the fragments collected by the fifth-century compiler of ancient writings, Joannes Stobaeus; the Coptic Hermetica of the Nag Hammadi Library, consisting of *The Discourse on the Eighth and Ninth*, and *The Prayer of Thanksgiving*; the Armenian *Definitions of Hermes Trismegistus to Asclepius*, which likely dates from the first century. See Clement Salaman, Dorine van Oyen, William D. Wharton, and Jean-Pierre Mahé, eds., *The Way of Hermes: New Translations of the Corpus Hermeticum and The Definitions of Hermes Trismegistus to Asclepius* (Rochester, VT: Inner Traditions, 2004), 101; as well as Willis Barnstone and Marvin Meyer, eds., *The Gnostic Bible* (Boston: Shambhala, 2003), 495-523.

CONTEXTUAL ELEMENTS OF HERMETIC THOUGHT

It was not just the singular, individual concepts found in the Hermetic writings that influenced Vaughan and other early modern alchemists, but the entire worldview implicit in these specific ideas that was carried over into Europe and which formed the essential religious and philosophical substratum of alchemical thought. This context is a necessary component to the analysis of Hermetic and alchemical ideas, and as such I will here provide an overview of it, with two goals in mind: to provide a fuller understanding of the meaning implicit in the Hermetic writings, and to connect more clearly the Hermetic worldview with that of the early modern alchemists.

For the Hermetic thinkers of antiquity—which was also a characteristic of the thought of early modern alchemists—there was no essential difference between “philosophical” and “technical” topics. The distinction that has been made between one and the other is simply an analytical aid for our understanding as modern scholars. For Hermeticists, both ancient and modern, there was no “rigid distinction” between magic and natural philosophy, between theology and cosmology; indeed, such a distinction implies “a false, unhistorical dichotomy” that does not accurately reflect the Hermetic worldview and mindset.¹⁶⁴ Peter Kingsley agrees with this assertion, noting that “any attempt to impose a categorical distinction between philosophical and magical groups of Hermetica is misguided, based on a misunderstanding,” in that, since the discovery of the Nag Hammadi Hermetic texts, scholars have determined that “the writings of Hermes Trismegistus were indeed produced by specific circles of people belonging to a living

¹⁶⁴ Copenhaver, *Hermetica*, xxxvii

tradition; and that they arose out of—and also served as pointers towards—a way of life based on spiritual practice and realization.”¹⁶⁵

This holism of Hermetic thought ultimately has its origin in the ancient view of the cosmos and its relation to the divine. The English word “cosmos” derives from the Greek *kosmos*, but the former term only retains a partial meaning of the original word as something similar to “universe” or “world.” However, the Hermetic term *kosmos* was intended to communicate the full implications of the Greek word. The *kosmos* is not just a world or universe, it is an “order,” where it and everything within it is connected to and dependent upon everything else by a single principle that unites them all. This principle of “order,” which is variously rendered as *logos*, spirit, or God, is also the fundamental cause of the existence of the universe. The Hermetic *kosmos* is essentially a materialization of the spiritual principle of order, and as such, the cosmos was understood to be an “adornment” or “embellishment” of God. As a result of this view, all existent things in the universe are penetrated by this principle of order, and in the process, given life by it.

Thus, the Hermetic cosmos was a living, divine body of necessarily interconnected parts that emerged through the process of the divine revealing itself. Indeed, for these Hermetic thinkers, the cosmos was a theophany, and as such, “to learn about the things that are, to understand their nature, and to know god” as Hermes Trismegistus stated in the *Corpus Hermeticum*, are one and the same study.¹⁶⁶ Thus, it

¹⁶⁵ Peter Kinglsey, “An Introduction to the Hermetica: Approaching Ancient Esoteric Tradition,” in *From Poimandres to Jacob Böhme: Gnosis, Hermetism and the Christian Tradition*, edited by Roelof van den Broek and Cis van Heertum, PIMANDER, Texts and Studies Published by the Bibliotheca Philosophica Hermetica 4 (Amsterdam: Bibliotheca Philosophica Hermetica, 2000), 23-4.

¹⁶⁶ *Corpus Hermeticum* I.3.

would be ahistorical to interpret Hermetic natural philosophy as independent from its conception of the divine; rather this notion of a divinely-created, divinely-ordered cosmos that is itself divine, should be understood to reveal the intellectual assumptions and worldview of the Hermetic thinkers, which can aid in the analysis of Hermetic ideas. As already noted in Chapter 1, this same notion of the interconnectedness of all things and all disciplines was at the core of the alchemical study of the natural world, and of the idea that studying nature would ultimately lead to the divine.

LOGOS-PNEUMA AND HYLE: THE VITAL SPIRIT AND MATTER IN THE *HERMETICA*

Although the Hermetic cosmogony appears in many of the Hermetic sources, the primary account of Creation occurs in the first *logoi* of the *Corpus Hermeticum*, which is sometimes referred to as *Poimandres* after one of its primary characters. The text consists of a vision experienced by Hermes Trismegistus, granted to him by a being called Poimandres, who identifies himself as the mind of God.¹⁶⁷ Traditionally, the word Poimandres has been translated as a composite Greek term meaning “shepherd of men” (*poimen+andres*). However, as Kingsley argues, more likely is that “Poimandres” derives from an Egyptian title “*p-eime nte-re,*” meaning “the understanding of Re,” and equivalent to the Greek *nous tes authentias*, the latter appearing in the *Corpus Hermeticum* itself when Poimandres says to Hermes Trismegistus, “I am the mind of authority.”¹⁶⁸ In other words, Poimandres is the “divine Intelligence,” the noetic light of

¹⁶⁷ *Corpus Hermeticum* I.2, I.6.

¹⁶⁸ *Corpus Hermeticum* I.2.; Kingsley also adds that the Greek *authentias*, which is usually translated as “authority” by translators of the *Corpus Hermeticum*, is more precisely rendered as a spiritual “supreme authority.” The Greek term is used in this way only in religious or mystical Graeco-Egyptian texts, and refers to a supreme, divine authority associated with light—in the same way as Poimandres in book 1, verse 6 of the *Corpus Hermeticum*. Kingsley also notes that Poimandres’ use of the “‘I am...’ formula” further indicates the connection between Egyptian religion and Poimandres himself, as the formula is frequently

the ultimate divinity, and the dispenser of revelatory *gnosis*, which he grants to a seeking Hermes Trismegistus. In this first *logoi*, Poimandres, asks Hermes Trismegistus, “What do you want to hear and see; what do you want to learn and know from your understanding?” Trismegistus replies, “I wish to learn about the things that are [*ta onta*], to understand their nature [*phusin*] and to know god.”¹⁶⁹ In response, Poimandres grants Hermes a vision:

I saw a view without boundaries, undefined and indeterminate; all things became light...After a little while, darkness came into being in one part, and it descended, fearful and gloomy, coiling sinuously so that it looked to me like a snake. Thereafter, I saw the darkness was being changed into something of a watery nature [*phusin*], indescribably agitated.¹⁷⁰

This first part of Hermes’ vision can be separated into several steps. At the beginning, prior to the creation of any positive form of existence, there was only the “view without boundaries;” this should be understood as a “nothingness” that existed prior to creation, and from which all things eventually emerged. However, this is not an absolute nothingness, but more of a “Divine Darkness,” as Dionysius the Areopagite put it, that is, a “negative” existence that is beyond even being itself.¹⁷¹ It is the eternal and infinite, which the *Hermetica* describes as “the only [*monos*], who is not one [*hen*] but from whom the one comes.”¹⁷²

used in the Graeco-Egyptian magical papyri. Peter Kingsley, “Poimandres: The Etymology of the Name and the Origins of the Hermetica,” in Roelof van den Broek and Cis van Heertum, eds., *From Poimandres to Jacob Böhme: Gnosis, Hermetism and the Christian Tradition*, PIMANDER, Texts and Studies Published by the Bibliotheca Philosophica Hermetica 4 (Amsterdam: Bibliotheca Philosophica Hermetica, 2000), 46, 48-9.

¹⁶⁹ *Corpus Hermeticum* I.1-3.

¹⁷⁰ *Corpus Hermeticum* I.4-5.

¹⁷¹ Pseudo-Dionysius the Areopagite, *The Mystical Theology*, Colm Luibheid and Paul Rorem trans., in *Pseudo-Dionysius: The Complete Works*, The Classics of Western Spirituality (New York: Paulist Press, 1987), 135. In his notes to the translation of *The Mystical Theology*, Rorem states that “This small essay is the key to the Dionysian method and to the structure of the entire corpus. It exerted a vast influence on the theology and mysticism of later centuries, especially in the West.” 133.

¹⁷² *Corpus Hermeticum* V.2.

In the next stage, light emerged, or perhaps more accurately, light “had come into being.” As Poimandres explains to Hermes Trismegistus a little later, this light is *nous*, the “mind” of God who had “appeared out of darkness [i.e., the Divine Darkness].”¹⁷³ This light is thus the first emergence of God into “positive” existence; it is Being as one [*hen*] prior to any form of existence other than God himself, that is, prior to duality, multiplicity, or differentiation.¹⁷⁴

Eventually, from the divine oneness of *nous* emerged duality, as “darkness arose separately and descended.” This was the first inkling of a mode of existence not directly identical with God’s essence: duality as opposed to oneness and becoming as opposed to being. Hermes Trismegistus thus conceived of it as “dark and gloomy.” This new principle, however, is ultimately a product of the divine, as the *Corpus Hermeticum* makes clear that at this point, all that exists is God himself. The arising of the darkness also set into motion the creation of the sensible cosmos. Up until this point, creation had been primarily a function of the ontological extension of the divine from the negative state of beyond-being to positive being and oneness. However, with the appearance of the “downward-weighing” [*katopheres*] darkness—in other words, a substance with the tendency toward a less rarified or “gross” form of existence—the “darkness” became something more tangible and active in the emerging cosmos.¹⁷⁵ In the next stage, the darkness is transformed by the agency of the light into “a watery nature, indescribably agitated and smoking like a fire.”

As the *Corpus Hermeticum* indicates, there are yet still more stages to this primordial cosmogony:

¹⁷³ *Corpus Hermeticum* I.6.

¹⁷⁴ *Corpus Hermeticum* V.2.

¹⁷⁵ Copenhaver, *Hermetica*, 98.

From out of the light a holy word [*logos hagnos*] mounted upon the <watery> nature, and from the watery nature to the heights leapt pure, unmixed fire; it was light, swift, and active. The air, being light as well, followed after fire, and rose up to it away from earth and water, so that it seemed suspended from the fire. Earth and water stayed behind, mixed with one another, so that one could not be distinguished from another, but they were stirred and set in motion by means of the spiritual word [*pneumatikon logon*] that lay upon them [*epipheromenon*; or perhaps rather “that was added to them” or “that itself rushed upon them”].¹⁷⁶

In another chapter of the *Corpus Hermeticum*, the same stage of the cosmogony is repeated, but with a greater emphasis on the organizational nature of the *pneumatikon logon*, the “spiritual word,” which I am terming the spirit-*logos* principle:

In the deep there was boundless darkness and water and fine intelligent spirit, all existing by divine power in chaos. Then a holy word was sent forth, and elements solidified out of liquid essence... While all was unlimited and unformed, light elements were set apart to the heights and the heavy were grounded in the moist sand [being the combination of earth and water].”¹⁷⁷

This *logos hagnos* or *pneumatikon logon* is an important part of the Hermetic cosmogony, and is used to describe the active agency of the divine. Having emerged from the divine *nous*, (it is not said in what way the *logos* comes to be, for only the preposition *ek*, or “out of” is used without a verb to indicate its relation to the light) the *logos* “mounts” or “stands upon” the watery substance. Here the *logos* causes a change to occur in the plastic, dark-watery nature: immediately upon mounting the waters, the *logos* imbues its form and order into the formless, “agitated” chaos of the watery substance, creating from this *hule* the first *stoicheia* or “element”—fire. In other words, the divine agent of spirit-*logos* brings order, organization, and differentiation to the “matter” of the waters.

After the emergence of the “light, swift, and active” fire, the element of air soon followed, rising after the fire and leaving below the earth and water. There is a question here as to whether or not these elements are identical to the Aristotelian *stoicheia*, as they

¹⁷⁶ *Corpus Hermeticum* 1.5.

¹⁷⁷ *Corpus Hermeticum* III.1-2.

seem to be acting in a way that is not in accordance with Aristotle's understanding of the term "element." In Aristotle's natural philosophy, there are essentially two primary regions of the cosmos. First is the terrestrial or sublunar realm, which included the earth and extended up to the area of the moon. This is the realm of the four elements where everything is subject to ceaseless change. Beyond the moon was the celestial region, which included the seven planets known at the time (i.e., the Moon, Mercury, Venus, the Sun, Mars, Jupiter, and Saturn) and extended to the very edge of the cosmos. This region was composed of ether, a more rarified substance than that of the elements. Outside the celestial region was only the "prime mover," which was responsible for setting into motion the rotation of the planets. In Aristotle's conception, the elements of the terrestrial region followed certain laws, moving "rectilinearly," that is, in a straight line up and down. Fire, as the lightest element, moved upward and formed the topmost layer of the terrestrial region. The next lightest element, air, moved upward as well, but being not as light as fire, formed the second-most outer layer. Earth, the heaviest of all elements fell downward and was the bottom layer, while water, heavy, but not so much as earth, fell down after. These laws of the elements accounted for motion in the sublunar region, Aristotle thought.¹⁷⁸

The problem here with the Hermetic rendering of the elements, however, is that, while the elements do indeed follow the Aristotelian behavior in their motion, they do not seem limited to a terrestrial region like in Aristotle's conception. Further, later in the same chapter of the *Corpus Hermeticum*, Hermes Trismegistus asks Poimandres, "The elements of nature—whence have they arisen?" a seemingly strange question considering

¹⁷⁸ Edward Grant, *The Foundations of Modern Science in the Middle Ages: Their Religious, Institutional, and Intellectual Contexts* (Cambridge History of Science. New York: Cambridge University Press, 2008), 55-64.

that Poimandres just finished telling Hermes about the activity of fire, air, water, and earth.¹⁷⁹ Poimandres responds with an answer that clarifies the matter somewhat:

From the will of God which, having taken in the *logos* and having seen the beautiful cosmos, imitated it, having become a cosmos through its own elements... The mind who is god... existing as life and light, by speaking gave birth to a second mind, a craftsman, who, as god of fire and spirit, crafted seven governors; they encompass the sensible world in circles, and their government is called fate.¹⁸⁰

In other words, there were two *kosmoi*: the noetic cosmos of God and light, and a second cosmos of the sensible world which was modeled after the noetic one. The god of this second cosmos, a *demiourgos* of fire and spirit, formed the “seven governors,” i.e., the seven planets who since antiquity had been identified as the “governors” or “rulers” of fate [*heimarmene*, i.e., fate, destiny, literally one’s “lot” or “share”]. This sensible cosmos governed by the demiurge would technically be called “the universe,” for the only thing outside of it is God as *nous*, the noetic universe. As such, the fire, air, water, and earth previously described should not be read as being the same as Aristotle’s conception of the *stoicheia*, since seemingly, the “fire” described by Poimandres extends to the outermost regions of the sensible cosmos, perhaps even as the empyrean (*empyros*, literally, on or in fire)—being that the “second god” is himself composed of this fire and the spirit.

Continuing, the fire having been raised up, the “weighty elements of nature were left behind, bereft of reason, so as to be mere matter.”¹⁸¹ The reason these elements were “bereft of reason,” Poimandres explains, is that the *logos* had “leapt straight up [from

¹⁷⁹ *Corpus Hermeticum* I.8.

¹⁸⁰ *Corpus Hermeticum* I.8-9.

¹⁸¹ *Corpus Hermeticum* I.10.

them]...and united with the craftsman-mind [i.e., the demiurge] (for the word was of the same substance).”¹⁸² Having united in this manner:

The craftsman-mind, together with the [logos], encompassing the circles and whirling them about with a rush, turned his craftworks about, letting them turn from an endless beginning to a limitless end...Revolving as [nous] wished them to, the circles brought forth from the weighty elements living things.¹⁸³

In other words, the union of the spiritual and fiery-natured demiurge with the *logos* sets the cosmos in motion, and by this motion causes generation.

These passages just described form the core of the Hermetic cosmogony. At first, says Hermes Trismegistus in the *Asclepius*, there was only “god and *hule* (which we take as the Greek for ‘matter’), and attending matter was spirit.”¹⁸⁴ *Hule*, or the “watery nature,” is the foundational “stuff” of the four elements, the property-less substance and substrate that possesses, in a state of chaos, the elements as well as all possible variations of sensible reality.¹⁸⁵ This prime matter possesses “in itself the natures of all things inasmuch as it furnishes them most fertile wombs for conceiving.”¹⁸⁶ It is the “mother” of all reality, the “receptacle for omniform forms.”¹⁸⁷ The spirit-*logos*, on the other hand, is the divine, active agent that brings organization, order, and form to the disorder and formlessness of matter.¹⁸⁸ This creative agent has “constituted and organized all existence. [*sustesamenos ta onta*]”¹⁸⁹ In other words, through the activity of this “spiritual word,” the prime matter is differentiated and given quality, and it is precisely this activity and agency that defines the creative agent, which in the *Hermetica* is revealed to be the

¹⁸² *Corpus Hermeticum* I.10.

¹⁸³ *Corpus Hermeticum* I.11.

¹⁸⁴ *Asclepius*, 14.

¹⁸⁵ *Asclepius*, 17.

¹⁸⁶ *Asclepius*, 15.

¹⁸⁷ *Asclepius*, 3.

¹⁸⁸ *Corpus Hermeticum* VII.3.

¹⁸⁹ *Corpus Hermeticum* I.31.

active, dynamic aspect of God. Further, it is the vital agent that brings life and motion, “supply[ing] and invigorat[ing] all things in the world.” It “fills all [and] mixes with everything and enlivens everything.”¹⁹⁰ In the Hermetic conception, there is no essential difference between the concept of something organizing, growing and developing and it living or existing; all such states are dependent upon the activity of spirit-*logos*, whose nature is order, generation, and life. And in the final analysis, the spiritual *logos* and *hule* together are called “Nature,” “which possesses in itself the power [i.e., spirit as agency and vital force] and the material [that is, *hule*] for conceiving and giving birth. Nature, therefore, can breed alone without conceiving by another.”¹⁹¹

GENESIS AND ALCHEMY IN PARACELSIAN CHEMICAL PHILOSOPHY

Although not a Paracelsian *per se*, Vaughan inherited the ideas of Paracelsian chemical philosophy that had pervaded the intellectual climate of his day. One idea in particular that forms the core of this philosophy is the notion that Creation was an alchemical process. Paracelsus himself expressed this idea in his *Philosophia ad Athenienses* (1564), where he describes creation as “a process of separation,” whereby the “Great Mystery” (a term he uses to describe Nature as *prima materia*), undergoes an alchemical division in which the elements emerge as differentiated principles from the potential chaos of *hule*.¹⁹² Note that by “separation” Paracelsus was referring to the alchemical stage known as *separatio* (separation, also sometimes called “division”),

¹⁹⁰ *Asclepius*, 6.

¹⁹¹ *Asclepius*, 14.

¹⁹² Paracelsus. *The Philosophy Addressed to the Athenians*, Arthur Edward Waite trans. *The Hermetic and Alchemical Writings of Aureolus Philippus Theophrastus Bombast, of Hohenheim, Called Paracelsus the Great, now for the First Time Faithfully Translated into English*, edited by Arthur Edward Waite, Vol. 2: Hermetic Medicine and Hermetic Philosophy (New York: University Books Inc., 1967), 249.

wherein the *prima materia* is transformed into the four elements.¹⁹³ Later alchemists who adopted Paracelsus' ideas elaborated on this theme of Creation as alchemy, and explicitly connected the cosmogony of the book of Genesis to the alchemical process. For this study, the importance of this idea that Creation is a chemical process lies in the fact that, for the Paracelsians, the theory of matter and the vital spirit rests in this conception in which "God is a divine chemist."¹⁹⁴ Thus, by more closely analyzing the specifics of the "Genesis as alchemical process" idea, we can come to a better understanding of the alchemical conception of matter and the vital force, which in turn will allow for a better understanding of these ideas in Vaughan's writings.

For natural philosophers in the early modern period, "the first chapter of Genesis formed a bridge between theology and the natural world."¹⁹⁵ Genesis was for these thinkers the expression of a "Mosaic" natural philosophy, revealing the prime components of the world as well as its processes.¹⁹⁶ The most important verses of Genesis in this regard were the following:

In the beginning God created the heaven and the earth. And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters. And God said, Let there be light: and there was light...and God divided the light from the darkness.¹⁹⁷

It will be noted that this account in Genesis is very similar to that given in the *Corpus Hermeticum*, and it is no wonder that the early modern alchemists made the connection

¹⁹³ Lyndy Abraham, *A Dictionary of Alchemical Imagery* (Cambridge: Cambridge University Press, 2010), 180.

¹⁹⁴ Marina Paola Banchetti-Robino, "Ontological Tensions in Sixteenth and Seventeenth Century Chemistry: Between Mechanism and Vitalism," *Foundations of Chemistry* 13 (2011): 175.

¹⁹⁵ Michael T. Walton, "Genesis and Chemistry in the Sixteenth Century," in *Reading the Book of Nature: the Other Side of the Scientific Revolution*, edited by Allen G. Debus, and Michael T. Walton, *Sixteenth Century Essays & Studies*, 41 (Kirksville, MO: Sixteenth Century Journal Publishers, Inc., 1998), 1.

¹⁹⁶ Walton, "Genesis and Chemistry," 1, 5.

¹⁹⁷ Genesis 1:1-4 KJV

between the two. Here we have the same “darkness,” and “waters” upon which the spiritual principle acts. The light also serves a similar function to that of its Hermetic counterpart, “dividing” the waters, that is, differentiating and organizing it. Note that this “division” was understood by the early modern alchemists to be that process of separation mentioned earlier, which helps to elaborate their understanding of the next few verses of Genesis:¹⁹⁸

And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament... And God called the firmament Heaven... And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear... And God called the dry land Earth; and the gathering together of the waters called he Seas.¹⁹⁹

Here the early modern alchemists saw the emergence of the elements, specifically earth and water. The birth of fire and air were extrapolated from the division of the waters, although the language of Genesis never speaks in these terms.

Of equal importance to the alchemical interpretation of the biblical cosmogony was the account given in the Gospel of John of the *logos*, which specifically places the essentially Jewish account of Creation in Genesis into a Christian context:

In the beginning was the *logos*, and the *logos* was with God, and the *logos* was God... By him all things came into being [*egeneto*], and without him not anything that came into being had come to be. In him was life [*zoe*], and the life was the light of men. And the light shined [*phainei*] in the darkness; and the darkness overcame it not.²⁰⁰

Marian Hillar points out that “the reference to ‘In the beginning was the Word’ is a direct allusion to Genesis 1:1, the moment of creation, and the *logos* refers to God's activity, to

¹⁹⁸ Abraham, *A Dictionary of Alchemical Imagery*, 180.

¹⁹⁹ Genesis 1:6-10 KJV

²⁰⁰ John 1:1-5.

the Hebrew *davar*,” thereby placing the Jewish cosmogony into Christian terms.²⁰¹

Christians therefore took the account of the *logos* in John to elaborate the meaning of Genesis, adding to the Jewish cosmogony the idea that it was an act of light and life that created the universe. If we are to assume, as the early modern alchemists did, that this *logos*-light is the same as the Hebrew *davar*, then this is the same light of Genesis that divided the waters, leading to the formation of the sensible cosmos.

This is not the place here to go too deeply into the nuances of Christian theology; however, a few words can be said that will help to elaborate the meaning intrinsic in this term “*logos*” for the Christian cosmogony, as well as for the early modern alchemists. The word *logos* has a long history in the ancient world, and formed part of the basic philosophical-religious language that thinkers used to describe certain cosmic and divine processes, that is, it was part of a “common linguistic soil” from which Christians—and even the writers of the Hermetic texts—drew.²⁰² As early as Pythagoras, *logos* was used philosophically to denote “word,” “speech,” “reason,” and “thought.” Hillar notes that:

In any theistic system, it could therefore easily be used to account for a revelation or could be personified to designate a separate being. Throughout most schools of Greek philosophy, this term was used to designate a rational, intelligent, and thus vivifying principle of the universe. This principle was deduced from an analogy to the living creature, and because the ancient Greeks understood the universe as a living reality in accordance with their belief, it had to be vivified by some principle, namely, the universal *logos*.²⁰³

Several pre-Socratics integrated the *logos* concept into their philosophies with this meaning in mind. Pythagoras saw *logos* as the “bond” that united the Monad, “the

²⁰¹ Marian Hillar, *From Logos to Trinity: the Evolution of Religious Beliefs from Pythagoras to Tertullian* (Cambridge: Cambridge University Press, 2012), 125.

²⁰² Wilhelm Bousset, *Kyrios Christos: a History of the Belief in Christ from the Beginnings of Christianity to Irenaeus*, John E. Steely trans. (Nashville: Abingdon Press, 1970), 235-236.

²⁰³ Hillar, *From Logos to Trinity*, 6.

undifferentiated principle of unity of the whole of reality,” with the Dyad, or matter.²⁰⁴ Through *logos*, “unorganized, primordial matter...receives shape, qualities, and differentiation by Limit or Form in order to produce the phenomenal, sensible universe.”²⁰⁵ Additionally, the philosopher Heraclitus, whose ideas of the *logos* would play a major role in later conceptions of the term, saw *logos* as the ever-present “designer and the design of the world,” and “the underlying unity in the apparent diversity and change in the world.”²⁰⁶ Heraclitus says specifically that “everything comes to be according to this *logos*,” which is a “fire” or “thunderbolt” that “steers [*oiakizei*, or “guides,” “manages”]” all things.²⁰⁷ It is also the “intelligent and creative agent, the cause of managing and organizing the universe.”²⁰⁸ As such, *logos* is also the agent that gives birth to the elements.²⁰⁹ The Stoics, too, held the *logos* principle to be “*to poioun...logon ton theon*,” that is, the creative Word of God, and combined it with *pneuma* [spirit] to form a “governing, active principle,” a “dynamic” agent that “constituted the nature of beings.”²¹⁰ This creative agent was responsible for the emergence of the universe when it penetrated the “passive, indeterminate” *ousia*, giving this formless substance coherence and order.²¹¹ And, as already mentioned elsewhere,

²⁰⁴ Hillar, *From Logos to Trinity*, 7-8.

²⁰⁵ Hillar, *From Logos to Trinity*, 9.

²⁰⁶ Eva Brann, *The Logos of Heraclitus: the First Philosopher of the West on its Most Interesting Term* (Philadelphia: Paul Dry Books, 2011), 6, 22, 28; Dennis Sweet, ed., *Heraclitus: Translation and Analysis* (Lanham, MD: University Press of America, 1995), 68.

²⁰⁷ Heraclitus, frags. 1, 64, Sweet; Sweet, *Heraclitus*, 58.

²⁰⁸ Hillar, *From Logos to Trinity*, 13.

²⁰⁹ Brann, *The Logos of Heraclitus*, 53.

²¹⁰ Hillar, *From Logos to Trinity*, 25; Samuel Sambursky, *Physics of the Stoics* (London: Routledge and Kegan Paul, 1987), 2.

²¹¹ Hillar, *From Logos to Trinity* 25; Sambursky, *Physics of the Stoics*, 1, 11.

these Greek figurations of a divine Word mirrored similar conceptions of a demiurgic *logos* in Egyptian religion.²¹²

The first-century CE Hellenic Jewish thinker Philo of Alexandria would further solidify the meaning of the term *logos*, and by explicitly connecting the Greek usage of the term with the meaning inherent in the Jewish *davar*, would open the door for its introduction into Christian theology. Speaking on the Creation of the world, Philo said:

But Moses, who had early reached the very summits of philosophy, and who had learnt from the oracles of God the most numerous and important of the principles of nature, was well aware that it is indispensable that in all existing things there must be an active cause [*drasterion aition*], and a passive subject [*patheton*]; and that the active cause is the intellect [*nous*] of the universe...while the passive subject is something inanimate and incapable of motion by any intrinsic power of its own, but having been set in motion, and fashioned, and endowed with life by the intellect, became transformed into that most perfect work, this world.²¹³

This “active cause” is not just the *nous*, but it is the “*theion logon* [the divine *logos*]” of the *nous*, which Philo also calls “the idea of ideas.”²¹⁴ In Philo’s conception, *logos* is the “power through which God frames the world,” both the “instrument and pattern of creation.”²¹⁵ He conceived the *logos* to be the “active cause, the intellect of the universe” and “image of God” that imprinted its form on the passive substance of the cosmos.²¹⁶ This “passive subject” is “inchoate, lifeless, disorderly, unshaped, unqualified matter;” it is the “water, darkness, and chaos” of Genesis.²¹⁷ Further, and in what will prove to be very influential to the Christian conception of the *logos*, Philo thought that it was the “first born,” son of God:

²¹² Fowden, *The Egyptian Hermes*, 23; Uždavinys, *Philosophy & Theurgy*, 294.

²¹³ Philo of Alexandria, *De Opificio Mundi* II.

²¹⁴ Philo of Alexandria, *De Opificio Mundi* VI.

²¹⁵ Bousset, *Kyrios Christos*, 393; Hillar, *From Logos to Trinity*, 51.

²¹⁶ Hillar, *From Logos to Trinity*, 51-52, 56-7

²¹⁷ Hillar, *From Logos to Trinity*, 51-2

For the Father of the universe has caused him [the *logos*] to spring up as the eldest son, whom, in another passage [Moses] calls the firstborn; and he who is thus born, imitating the ways of his father, has formed such and such species, looking to his archetypal patterns.²¹⁸

Philo's ideas were adopted by several early Church writers who were integral to the post-Nicene conception of the *logos*. The second-century Christian writer Justyn Martyr, for example, conceived of the *logos* in ways that was based in the Heraclitean, Stoic, and Philonic conceptions, and ultimately combined it with the Holy Spirit into one creative agent of God.²¹⁹ Tertullian, another Christian author of the second century, elaborated on this conception of a creative spirit-*logos*, as well as the relation of earlier philosophy to the Christian rendering of the principle:

I have already said that God reared this fabric of the world out of nothing, by His word, wisdom, or power; and it is evident that your sages of old were of the same opinion, that the $\lambda\omicron\gamma\omicron\varsigma$, that is, the Word, or the Wisdom, was the Maker of the universe, for Zeno determines the Logos to be the creator and adjuster of everything in nature...Cleanthes will have the author of the world to be a spirit which pervades every part of it. And we Christians also do affirm a spirit to be the proper substance of the Logos, by whom all things were made, in which He subsisted before He was spoken out, and was the wisdom that assisted at the creation, and the power that presided over the whole work. The Logos or Word issuing forth from that spiritual substance at the creation of the world, and generated by that issuing or progression, is for this reason called the Son of God, and the God, from His unity of substance with God the Father, for God is a Spirit...and those two are one.²²⁰

It is thus clear that in the history of Christianity up to the early modern alchemists, there existed in its theology the idea that, first, there was a creative, vital, and divine agency that played an active role in the creation of the cosmos, and second, that both Genesis and John give a biblical account of this creation, whereby the divine agency acts upon a passive substratum, from which emerges the sensible cosmos. However, the Hermetic

²¹⁸ Philo of Alexandria, *De Confusione Linguarum*, XIV.

²¹⁹ Justin Martyr, *Dialogue with Trypho*, LXI.

²²⁰ Tertullian, *Apology*, XXI.

(and let us not forget, Christian) natural philosophers of early modern Europe took the account of Creation in the Bible to another level, connecting it explicitly with the Hermetic philosophy as expressed in the *Corpus Hermeticum*. For these thinkers, the demiurgic and divine light and *logos* of the *Corpus Hermeticum* was identical to the Johannine *logos* and light. And, these, in turn, were explicitly connected to the emanated word of Genesis.

One alchemist whose writings and illustrations demonstrate this type of thought is the English Paracelsian and physician Robert Fludd. A prolific writer and illustrator, Fludd's works are integral to understanding the intellectual context of early 17th century alchemy, as well as the specific view of Creation as an alchemical process.²²¹ Michael Walton notes that "In distillation, putrefaction, and generation, Fludd believed that he had glimpsed the processes used by God in the creation."²²² Further, as "the most prominent Renaissance Christian Neoplatonist alchemist of his time, and the greatest summarizer of that tradition of his age," Fludd is an important figure in this study in that he represents the type of Paracelsian alchemy dominant during the early and mid-seventeenth century, and also the type of alchemy inherited by Thomas Vaughan.²²³ In Fludd we find a confluence of Hermetic and Paracelsian ideas of natural philosophy, the desire to reform education, natural philosophy, and medicine, as well as the strain of "scientific" impulse of the Chemical Philosophy, that is, the alchemical pursuit to uncover the hidden truths of nature, man, and God. As such, Debus calls Fludd "the English culmination of all the

²²¹ William H. Huffman, ed., *Robert Fludd: Essential Readings* (London: The Aquarian Press, 1992), 14.

²²² Walton, "Genesis and Chemistry," 9.

²²³ Huffman, *Robert Fludd*, 13-14.

occult strains of alchemical, Paracelsian, Kabbalistic, and neo-Platonic thought.”²²⁴

Fludd’s views concerning alchemy as the study of nature *par excellence* mirrored the Hermetico-alchemical consensus of the seventeenth century that alchemy was “a fundamental science of the understanding of nature,” that “alchemy might be recognized as the most fundamental subject for the natural philosopher,” and that alchemy is the “true Key of Nature.”²²⁵

Fludd laid out his “Hermetic-Paracelsian approach to nature” in his *Utriusque Cosmi Historia*, where he elaborated on many of the ideas central to the Chemical Philosophy of the sixteenth and seventeenth centuries. These included the notion that alchemy was the best way to interpret natural phenomena, and that the natural philosophers should rely on “God's two books of revelation,” the written books of scripture (which for Fludd meant both the Bible and the *Corpus Hermeticum*), and the “book of creation,” i.e., nature itself.²²⁶ It is also in these volumes that Fludd laid out his view of the alchemical Genesis.

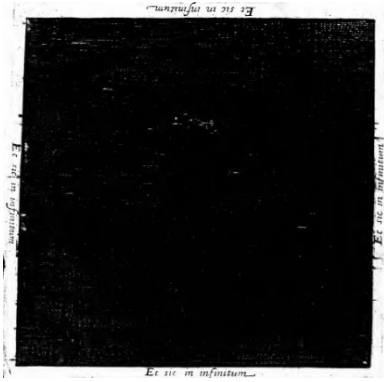
Like other alchemists of the seventeenth century, Fludd demonstrated his ideas in engravings that accompanied the text. In his *Utriusque Cosmi*, Fludd provides a set of several images that he uses to elaborate on his “Mosaicall Philosophy,” that is, the idea that the primordial cosmogonic duality of light (spirit-*logos*) and darkness (matter) are the fundamental components of the cosmos, that their activity created the cosmos in a

²²⁴ Allen G. Debus, *The English Paracelsians* (New York: Franklin Watts, Inc., 1966), 105.

²²⁵ Allen G. Debus, *Man and Nature in the Renaissance*, Cambridge History of Science (New York: Cambridge University Press, 1995), 19; Allen G. Debus, “Renaissance Chemistry and the Work of Robert Fludd,” in *Alchemy and Chemistry in the Seventeenth Century: Papers Read by Allen G. Debus and Robert P. Multhauf at a Clark Library Seminar, March 12, 1966* (Los Angeles: University of California, Los Angeles, 1966), 7.

²²⁶ Debus, “Renaissance Chemistry,” 8, 15-16.

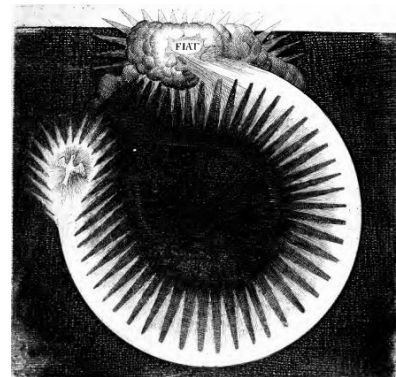
type of alchemical process, and that these principles, which are fundamental to all natural philosophy, are expressed in both the Bible and the *Corpus Hermeticum*.



The first image in the set symbolizes the original, boundless infinity of eternity.²²⁷ Around the complete darkness of nothingness, Fludd wrote “*Et sic in infinitum,*” or, “and thus to infinity.” This darkness is the Divine Darkness, the infinity of the Divine, and the Hermetic *monas*. In natural-philosophical terms, Fludd

identifies it as “some first state of unformed matter (*materia prima*), without dimension or quantity, neither small nor large, without properties or inclinations, neither moving nor still.”²²⁸

With the utterance by God of “let there be light,” the Word (*logos, davar*) appears.²²⁹ The word “FIAT” here refers to the *fiat lux* of the Vulgate, i.e., “let there be light.” From God, who utters this “Word” the Spirit in the form of a dove and light proceeds, and circumscribes an area wherein creation will take place. This is the first

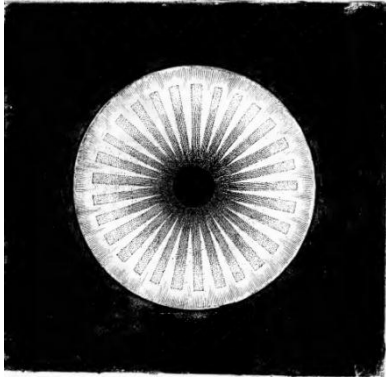


appearance of the cosmogonic vital agent as the spirit-*logos*.

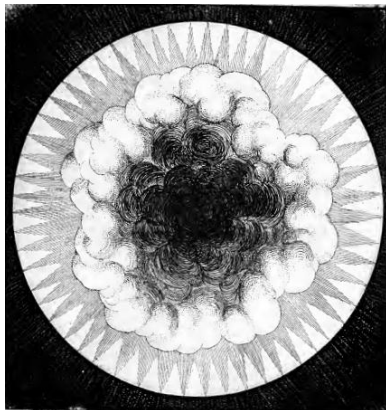
²²⁷ Robert Fludd, *Utriusque Cosmi Maioris scilicet et Minoris Metaphysica, Physica Atque Technica Historia In duo Volumina secundum Cosmi differentiam diuisa*. Tomus Primus: De Macrocosmi Historia in duos tractatus diuisa. (Oppenheim: Johan-Theodori De Bry, 1618) I, 26.

²²⁸ Joscelyn Godwin, ed., *Robert Fludd: Hermetic Philosopher and Surveyor of Two Worlds* (Grand Rapids: Phanes Press, 1991), 24.

²²⁹ Fludd, *Utriusque Cosmi* I, 49.



The next image²³⁰ shows therefore the “first act of creation” completed, and the separation of “light from the darkness” (Genesis 1:4).²³¹ Fludd says that “Moses, Plato, and Hermes all agree in calling the first act of creation one of light. This light, neither uncreated nor created, is the intelligence of the angels, the vivifying virtue of the heavens, the rational soul in man, and the life-force of the lower realms.”²³² In the center of the circle of light is captured the darkness of *hule*—the Mosaic “waters,” which are “impregnated” by the activity of the light and spirit, illustrated by the arrow-like shape of the light rays moving inward.



In the next stage,²³³ Fludd shows the “divided waters” of Genesis 1:6, of which Fludd says, “The prime matter, fecundated by the divine light, divides into two. The part furthest removed from the light [the dark cloud in the middle of the picture] remains in a state of passivity, while in the surrounding part dwells the active fire of love [which Fludd identifies elsewhere as the spirit].”²³⁴ These are the lower and the upper waters [of Genesis].”²³⁵ The cloud in between the upper and lower waters is “neither spiritual nor corporeal;” it is “the Spirit of Mercury, the Ether and the

²³⁰ Fludd, *Utriusque Cosmi* I, 29.

²³¹ Godwin, *Robert Fludd*, 24.

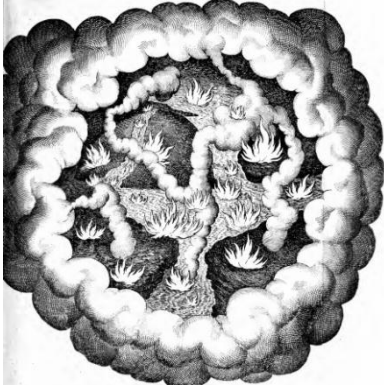
²³² Godwin, *Robert Fludd*, 24.

²³³ Fludd, *Utriusque Cosmi* I, 37.

²³⁴ Robert Fludd, *Truth's Golden Harrow*, translated by C. H. Josten, *Robert Fludd: Essential Readings*, William H. Huffman ed., (London: The Aquarian Press, 1992), 154-5.

²³⁵ Godwin, *Robert Fludd*, 24

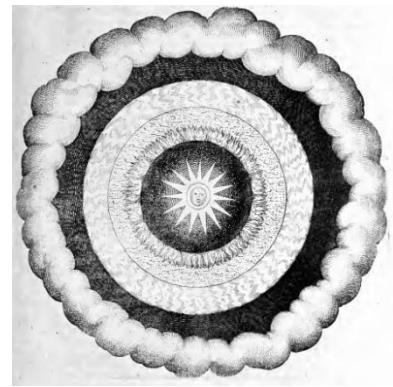
Quintessence. It has the capacity to penetrate and alter bodies, and thus acts as the vehicle of the soul's descent into matter."²³⁶



From this watery substance then emerge the elements, which, mirroring the account of creation in the *Corpus Hermeticum*, is in a state of chaos, that is, they are not yet separated into their proper hierarchy.²³⁷

Rather, they are mixed, represented by the burning earth and rising smoke surrounded by water. It is only by the organizing and developmental nature of the spirit-logos that the chaos of elements will become ordered.

The final image of the set²³⁸ shows the separated elements in their proper order, with the sun at the center dispensing the divine light to the elemental realm. Of this last image, Joscelyn Godwin notes that "Fludd derived this image from an alchemical experiment which he witnessed performed by a friend."²³⁹



From this vision of an alchemical cosmogony Fludd derives the nature of matter and the vital spirit. The darkness represents matter, "the Philosophical Hyle, that Physicists have called the absolutely Primal Matter."²⁴⁰ It is the "raw material of the maker of all."²⁴¹ This "primal materia is a primordial, infinite, shapeless

²³⁶ Godwin, *Robert Fludd*, 24.

²³⁷ Fludd, *Utriusque Cosmi* I, 41.

²³⁸ Fludd, *Utriusque Cosmi* I, 43.

²³⁹ Godwin, *Robert Fludd*, 25.

²⁴⁰ Huffman, *Robert Fludd*, 62; Godwin, *Robert Fludd*, 14.

²⁴¹ Huffman, *Robert Fludd*, 62.

Existence...having no size or dimension...having no qualities...nor [is it] perceptible; having no properties nor tendencies, neither moving nor still, without colour, or any elementary property...it is the original passive ground of action, containing the world.”²⁴² Fludd also calls it the “Virgin Nature” and the “field of activity” for the *logos* vital agent.²⁴³ He further notes that “The godly Moses, therefore, compared it now to the earth, without form and void, now the waters and abyss; Mercurius Trismegistus, in his *Pymander*, to a dreadful shadow, turning into a watery substance.”²⁴⁴ However, this *hule* “cannot be understood in isolation, nor described by itself alone” in that it is only half of the primordial duality, and is without the vital principle invisible, formless, and without specific qualities.²⁴⁵

The divine light, on the other hand, is “the Universal Essence, with which the Creator of the entire creation shaped Matter.”²⁴⁶ He noted that the agent is a beam of light that descends “into the dark *Hyle* or Chaos,” and is responsible for “motion and life.” It is called “*Fiat*” and “The Spirit of the Lord which walked on the waters by which all things were made.” It is also “the Spirit that seeks to bring the matter it inhabits to perfection,” indicating its developmental and organizing character.²⁴⁷ It is what Hermes Trismegistus calls “the light of God, and the divine power of His spirit,” what Moses calls “light,” and is also the “second person of the Christian Trinity,” “the spiritual Christ”²⁴⁸ It is “the only mover or agent in Nature;” it “is a vegetable spirit which is the proper fire of Nature.”²⁴⁹

²⁴² Huffman, *Robert Fludd*, 63.

²⁴³ Godwin, *Robert Fludd*, 16.

²⁴⁴ Huffman, *Robert Fludd*, 62.

²⁴⁵ Huffman, *Robert Fludd*, 62.

²⁴⁶ Huffman, *Robert Fludd*, 63.

²⁴⁷ Fludd, *Truth's Golden Harrow*, 155; 158-9.

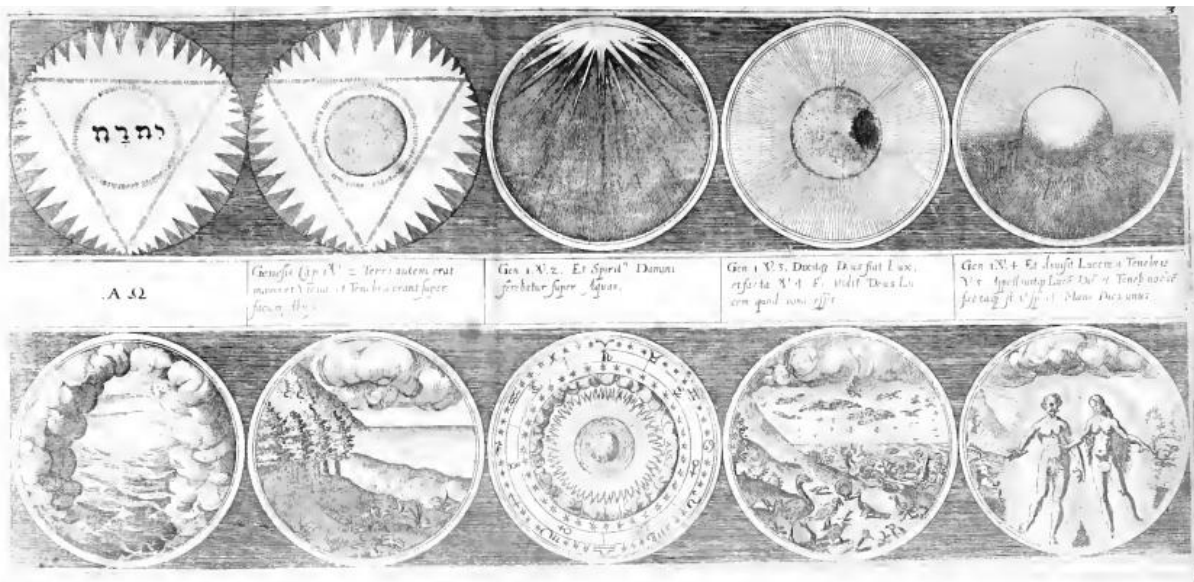
²⁴⁸ Godwin, *Robert Fludd*, 17.

²⁴⁹ Fludd, *Truth's Golden Harrow*, 168.

“It is the natural philosopher’s central and formal being or beginning, their *Actus primus*, or first Act, or Agent, their *natura naturans*.”²⁵⁰ Finally, Fludd notes that:

This vital agent exists in all things. In man it manifests as "the process of clear reasoning, in the other animals it is the hidden fire that evidently governs the actions of their life and senses; in vegetables it...causes them to grow and multiply endlessly; in minerals it is the spark of brilliance impelling them to their goal of perfection [i.e., it is the alchemical principle of transmutation].²⁵¹

Fludd was by no means the only alchemist to portray the “Creation as an alchemical process” theme in symbolic form, and one other example bears notice here. The Paracelsian alchemist Johann Daniel Mylius, in his *Opus medico-chymicum* (1618) provided the following figure, which demonstrates his understanding of the stages outlined in Genesis, and how these are in fact stages in the alchemical work.



252

Stanislas Klossowski de Rola, commenting on this image, notes that “The Biblical account of Creation is taken by alchemists as a model of their own microcosmic ‘re-

²⁵⁰ Fludd, *Truth’s Golden Harrow*, 162.

²⁵¹ Huffman, *Robert Fludd*, 65.

²⁵² “Figura III” of *Janitor Pansophis Seu Figura Aenea Quadripartita Cunctus Museum hoc Introeuntibus, Superiorum ac Inferiorum Scientiam Mosaico-Hermeticam, analytice Exhibens*. This image is from a reprint of Mylius’ work in the seventeenth century collection of alchemical texts, the *Musaeum Hermeticum Reformatum et Amplificatum* (Frankfurt: Hermannum a Sande, 1678).

creation', and each stage receives a complex interpretation which can best be summarized thus: From Divine Unity proceeds Spirit, Fire or Light, which materializes into the diversity of Matter. By isolating and purifying its essential principles, the Artist redeems Matter from the Fall that followed the creation of the human race." The text accompanying Mylius' engraving reveal this process as outlined by Klossowski de Rola. The first roundel represents the "A Ω," that is, God as the alpha and omega. It also represents God the trinity (the triangle as Father, *logos*, Spirit). The Hebrew יהוה in the center indicates the unutterable name of God, which has been variously rendered as "Jehovah" or "Yahweh." This image can therefore be seen to correspond to the first image in Fludd's set, as well as the "boundless view" of Hermes Trismegistus' vision in the Poimandres. The remaining images in Mylius' set have captions that paraphrase Genesis 1:2-31 of the Latin Vulgate. Beneath the second roundel, for example, are the words "*Terra autem erat inanis et vacus, et tenebrae errant super faciem abyssi*" that is, "the earth was without form, and void; and darkness was on the face of the deep," corresponding to the first part of Genesis 1:2. The third roundel picks up with the remainder of Genesis 1:2—"*Et Spirit Domini ferebatur super aquas*"—"And the Spirit of the Lord moved upon the face of the waters." The fifth roundel symbolizes the stage where "God divided the light from the darkness," which is followed by the creation of elements (roundels 6 and 7), the celestial and cosmic order (roundel 8), the living things (roundel 9), and finally man, the perfection and culmination of creation (roundel 10).²⁵³

Mylius' view of the alchemical cosmogony is very similar to that of Fludd, both of which were informed directly by the cosmogony in the *Corpus Hermeticum* and

²⁵³ *Musaeum Hermeticum Reformatum*.

Genesis. There are, of course, minor variations among the different sources, but the primary motifs remain the same, and as such form a “Paracelsian” or “alchemical” view of matter and the vital spirit:

- 1) Creation was an alchemical process whereby an original, divine *monos*—an infinite, eternal, and beyond-being state of divinity, symbolized variously by darkness, nothingness, or as “Alpha and Omega”—manifested into reality as *hen*, “one,” which is the absolute ground of Being.
- 2) God as Being is represented by light, and is called “father” or *mens* and *nous*, that is, the mind of God, sometimes understood to be the noetic cosmos, the divine archetype of archetypes.
- 3) From this light emanates a spirit, word, or some other active, creative, and divine agent that penetrates or acts upon the darkness, with the result that the differentiated elements are born.
- 4) Further intermingling of light and darkness, or vital agent and matter, results in the appearance of the sensible cosmos. Thus, the cosmos is, in the final analysis, an emanation of the divine and divine activity.

As noted in the introduction to this chapter, Vaughan’s ideas of matter and spirit only make complete sense in light of the historical circumstances of his age. In Chapter 1, I outlined the cultural climate of Vaughan’s time, and showed how the various currents of philosophical and religious thought formed the contextual superstructure wherein the alchemists and other vitalists developed their ideas of natural philosophy. This superstructure formed the backdrop and setting to Vaughan’s ideas, without which they would appear superstitious, strange, or even backward, and not at all “scientific.” In

Chapter 2, I outlined the specific ideas inherent in that superstructure, and showed what the vitalists of the early modern period actually meant by “vital spirit” and “matter,” and how these were related to the dominant religious and philosophical assumptions of the alchemical natural philosophers of the time, i.e., Christianity and Hermeticism. With these important contextual ideas in place, we can now proceed to an examination of Vaughan’s works themselves.

CHAPTER 3:

Matter, Spirit, and the Alchemical Cosmogony in Vaughan's Works

Vaughan, like other alchemists of early modern Europe, was very much opposed to the Aristotelian philosophy dominant in the universities of the time, and he made it a point to condemn, insult, or otherwise assault the “Peripatetick” philosophy in the majority of his works. In all of his attacks he had two main thrusting points. First, he asserted that Aristotle and his followers operated on false epistemological assumptions, that their approach to the study of nature was faulty. Second, and as a consequence of the first, the Peripatetics postulated a false theory of matter, i.e., hylomorphism, which denied nature the presence of a vital, divine spirit. Further, Vaughan asserted, not only was the Aristotelian approach to the study of nature wrong, but it was steering students of the universities down the wrong path and away from the true pursuit of knowledge. That “scabby sheep,” Aristotle, “hath spoil'd a numerous Flock” with his false ideas, which are merely repeated in the universities where every student is “taught like an Ape to shew severall tricks.”²⁵⁴ Vaughan saw his age as one “of Intellectuall slaveries,” where Aristotelian philosophers “are so confident of his principles they seek not to understand what others speak, but to make others speak what they understand.”²⁵⁵ The pursuit of knowledge, under the Peripatetic regime, is at a standstill: “we are still hammering of old elements, but seek not the America that lyes beyond them.”²⁵⁶ The Aristotelian

²⁵⁴ Eugenius Philalethes [Thomas Vaughan], *Euphrates, or the Waters of the East; Being a short Discourse of that Secret Fountain, whose Water flows from Fire; and carries in it the Beams of the Sun and Moon* (London: Printed for Humphrey Moseley at the Princes Arms in St. Paul's Church-yard, 1655), 64-5; Eugenius Philalethes [Thomas Vaughan], *Anthroposophia Theomagica; Or A Discourse of the Nature of Man and his state after death; Grounded on his Creator's Proto-Chimistry, and verifi'd by a practicall Examination of Principles in the Great World* (London: Printed by T.W For H. Blunden at the Castle in Corn-hill, 1650), B3½.

²⁵⁵ Eugenius Philalethes, *Anthroposophia Theomagica*, B2.

²⁵⁶ Eugenius Philalethes, *Anthroposophia Theomagica*, B2.

philosophy is “a meer Help to Discourse,” and “Their seven years studie are seven years of Famine” in that the principles of their philosophy “conduce to the Discovery of Nothing.”²⁵⁷ What is worse is that Aristotle, this philosopher whose ideas were so dominant in Christian universities, was himself an “Atheist;” as Vaughan noted, “It is a terrible thing to praefer Aristotel to Aelohim [i.e., one of the Hebrew and Kabbalistic names of God].”²⁵⁸

In attacking the Aristotelian epistemological position, Vaughan also put forth his own, which was in actuality the epistemology of the Hermetic natural magicians and alchemists. Perhaps the main fault Vaughan saw with the Aristotelians was that they were not approaching the study of nature correctly. For them, “Knowledge is a meere Peripateticall Chatt, and...the Fruits of it are not Works but Words.”²⁵⁹ But, Vaughan asserted, he who studies nature must do so directly, observe it, “leave off Speculation, and come up to Experience.”²⁶⁰ Observation and experience, after all, are completely natural to humans, who as children:

[B]efore ever they can speak, will stare upon any thing, that is strange to them; they will crie, and are restless till they get it into their hands, that they may feele it, and look upon it, that is to say, that they may know what it is in some Degree, and according to their Capacitie...for they desire to know; and this is plain out of their Actions; for if you put any Rattle into their hand they will view it, and studie it for some short Time...but if the touch also doth not satisfie, they will put it into their Mouthes to taste it, as if they would examine Things by more senses than one.²⁶¹

²⁵⁷ Eugenius Philalethes [Thomas Vaughan], *Anima Magica Abscondita: Or A Discourse of the universall Spirit of Nature, With his strange, abstruse, miraculous Ascent, and Descent* (London: Printed by T.W. For H.B., 1650), 1-2.

²⁵⁸ Eugenius Philalethes, *Euphrates*, 64-5. Eugenius Philalethes [Thomas Vaughan], *Magia Adamica: Or The Antiquity of Magic, and The Descent thereof from Adam downwards, proved. Whereunto is added a perfect, and full Discoverie of the true Coelum Terrae, or the Magicians Heavenly Chaos, and first Matter of all Things* (London: Printed by T.W. for H. Blunden at the Castle in Corn-hill, 1650), 3½.

²⁵⁹ Eugenius Philalethes, *Magia Adamica*, B5.

²⁶⁰ Eugenius Philalethes, *Magia Adamica*, 3; Eugenius Philalethes, *Anthroposophia Theomagica*, 2.

²⁶¹ Eugenius Philalethes, *Magia Adamica*, B2½-B3.

Therefore, Vaughan thought, instead of following the ways of Aristotle, who is only concerned with abstract “generals and universals,” “let us rather follow where Nature leads; for she having imprest these Universalls in our minds, hath not done it in vain, but to the end we should apply them to outward, sensible particulars, & so attain to a true experimentall knowledge.”²⁶²

Vaughan’s conception of “experimentall knowledge” was much different from the modern conception in that, while he did emphasize the notion that the natural philosopher must observe nature directly and examine its “sensible particulars,” he did not end there. For Vaughan, which was in fact the case for Hermetic philosophers generally, sensible particulars led, through analogy, to the inner principles of material objects. This idea Vaughan framed in light of his attack against the Aristotelians. The Peripatetic philosopher, he asserted, only describes what nature does, not what it is *essentially*; and, when they describe natural principles, they do so “onely by outward circumstances, which every childe can do, but they state nothing Essentially. Thus they dwel altogether in the Face, their Indeavours are meer Titillations, & their Acquaintance with Nature is not at the heart.”²⁶³ These philosophers “are still in the Chase [of Nature], but never overtake their Game,” the reason being that “they are Experienc'd in nothing but outward Accidents, or Qualities.”²⁶⁴

They will judge of invisible, Inward Principles, (Formes as they call them) which are shut up in the Closet of the Matter, and all this in perusing the outside, or Crust of Nature...I advise them therefore to use their Hands, not their Fancies, and to change their Abstractions into Extractions; for verily as long as they lick the shell in this fashion, and pierce not experimentally into the Center of things, they

²⁶² Eugenius Philalethes, *Euphrates*, 62-3.

²⁶³ Eugenius Philalethes, *Anima Magica*, 4; Eugenius Philalethes, *Anthroposophia Theomagica*, B2½.

²⁶⁴ Eugenius Philalethes, *Anima Magica*, 6-7.

can do no otherwise then they have done; they cannot know things substantially, but onely describe them by their outward effects and Motions.²⁶⁵

The natural magician and alchemist, on the other hand, have their eyes “in the Center, not in the Circumference.”²⁶⁶ They understand that to properly know something, “we must see it, handle it, and by experimentall ocular Demonstrations know the very Central Invisible Essences, and properties of it.”²⁶⁷ And, it is by looking at the center that they have discovered the primary “Central Invisible Essence,” the vital spirit inherent in all matter, which the Peripatetics reject:

The Peripateticks look on God, as they do on Carpenters, who build with stone and Timber, without any infusion of life. But the world, which is Gods building, is full of Spirit, quick and living. This Spirit is the cause of multiplication, of severall perpetuall productions of minerals, vegetables, and creatures ingendered by putrefaction: All which are manifest, infallible Arguments of life. Besides, the Texture of the universe clearly discovers its animation.²⁶⁸

The Aristotelian “form” only gives prime matter its qualities; the vital spirit, on the other hand, gives this and more: life—an idea very much linked to Vaughan’s conception of the identity and nature of matter and the vital spirit.

THE ALCHEMICAL GENESIS: MATTER AND THE VITAL AGENT AS COSMOGONIC PRINCIPLES

Just like other alchemists in early modern Europe, Vaughan thought of Creation as an alchemical process involving a vital spirit and prime matter. For Vaughan, the primordial cosmogony was God’s “Proto-Chymistrie,” whereby he applied his Spirit to the task of “separating” matter—that “Lumbus or Huddle of Matter wherein all things

²⁶⁵ Eugenius Philalethes, *Anima Magica*, 8.

²⁶⁶ Eugenius Philalethes, *Anthroposophia Theomagica*, 22.

²⁶⁷ Eugenius Philalethes [Thomas Vaughan], *Coelum Terrae*, in Eugenius Philalethes, *Magia Adamica: Or The Antiquity of Magic, and The Descent thereof from Adam downwards, proved. Whereunto is added a perfect, and full Discoverie of the true Coelum Terrae, or the Magicians Heavenly Chaos, and first Matter of all Things* (London: Printed by T.W. for H. Blunden at the Castle in Corn-hill, 1650), 81.

²⁶⁸ Eugenius Philalethes, *Anthroposophia Theomagica* 3½.

were so strangely contained,”—and extracting from it the primary elements of nature.²⁶⁹

Vaughan gives his most complete account of Creation in his *Anthroposophia*

Theomagica:

God before his work of Creation was wrapp'd up and contracted in himself. In this state the Egyptians stile him *Monas solitaria* [the Solitary Monad] and the Cabalists *Aleph tenebrosum* [the Dark Aleph]; But when the decreed Instant of Creation came, then appeared *Aleph Lucidum* [Bright Aleph], and the first Emanation was that of the holy Ghost into the bosom, of the matter. Thus we read that Darknesse was upon the face of the deep and the spirit of God moved upon the face of the waters. Here you are to observe that notwithstanding this processe of the third person, yet was there no Light, but darknesse on the face of the deep, Illumination properly being the Office of the second [i.e. *logos*-Christ], wherefore God also when the matter was prepared by Love [the Holy Spirit] for Light [*logos*] gives out his *Fiat Lux*, which was no Creation as most think, but an Emanation of the Word, in whom was life, and that life is the light of Men. This is that light whereof Saint John speaks, that it shines in the darknesse, and the darknesse comprehended it not. But lest I seem to be singular in this point, I will give you more evidence. Pimandras [Poimandres] informing Trismegistus in the work of the Creation tells him the self-same thing. *Lumen illud Ego sum, Mens, Deus tuus antiquior quam natura humida quae ex umbra effulsit* [I am the Light, the Mind, thy God, more ancient than the watery nature which shone forth out of the shadow]...But to proceed: No sooner had the Divine Light pierced the Bosom of the Matter, but the Idea, or Pattern of the whole Material World appeared in those primitive waters like an Image in a Glasse: by this Pattern it was that the Holy Ghost fram'd and modelled the universal Structure.²⁷⁰

Perhaps the first thing that will be noticed about Vaughan's conception of Creation is that it mirrors very closely both the Hermetic and Mosaic cosmogonies. In the beginning, prior to there being any form of positive existence whatsoever, only God existed, and he “was wrapp'd up and contracted in himself.” Vaughan calls this state both the “*Monas solitaria*” and the “*Aleph tenebrosum*.” By the former “Egyptian” appellation, as he calls it, Vaughan is referring to the Hermetic *monas* as found in the Hermetic account of Creation in the first chapter of the *Corpus Hermeticum*. This *monas* in the Hermetic

²⁶⁹ Eugenius Philalethes, *Anthroposophia Theomagica*, 9, 11.

²⁷⁰ Eugenius Philalethes, *Anthroposophia Theomagica*, 7-9. Arthur Edward Waite, ed., *The Works of Thomas Vaughan: Eugenius Philalethes* (London: Theosophical Publishing House, 1919), 16.

cosmogony was represented in Hermes Trismegistus' vision as a "view without boundaries, undefined and indeterminate."²⁷¹ The latter term, the "Dark Aleph," is a concept in early modern Kabbalistic thought that describes a "negative" state of Divine existence. Aleph (א) is the first letter of the Hebrew alphabet, one of the so-called "Mother letters" that represent the primordial principles of Creation. As *Aleph Tenebrosum*, it represents the Divine as it was before the existence of a state of Being, that is, before any emanation whatsoever, which in Kabbalistic thought is also rendered *Ein Soph*, "infinity," (literally, "without limits). This Dark Aleph is therefore identical to Dionysius' Divine Darkness:

It is indeed *Nihil quo ad Nos*, Nothing that we perfectly know. It is Nothing as Dionysius saith *Nihil eorum quae sunt, et nihil eorum quae non sunt*...[that is,] It is nothing that was created or of those things that are: and nothing of that which thou doest call nothing, that is of those Things that are not, in the empty destructive sense."²⁷²

Aleph Lucidum, or "bright Aleph," which Vaughan refers to next, is in Kabbalistic thought the "positive" existence of God, or rather, the first emanation of God into being. More specifically, it is the "reflection" of the Dark Aleph within its own infinity, and is the first instance of "something" as opposed to the "nothing" of *Ain Soph*.²⁷³ In his *Magical Aphorisms*, Vaughan expresses the idea thus: "The Point came forth before all things: it was neither atomic nor mathematical, being a diffused point. The Monad manifested explicitly but a myriad were implied. There was light and there was darkness, beginning and the end thereof, the all and naught, being and non-being."²⁷⁴

²⁷¹ *Corpus Hermeticum*, 1.4.

²⁷² Eugenius Philalethes, *Coelum Terrae*, 110-111.

²⁷³ Eugenius Philalethes, *Anthroposophia Theomagica*, 7.

²⁷⁴ Waite, *The Works of Thomas Vaughan*, 306.

As of yet in Vaughan's conception, there is no "matter" or "spirit" in the proper sense, but once God emerges into being, as the *Aleph Lucidum*, the "first Emanation... the holy Ghost" enters into the "bosom of the matter." This matter he calls "Remote Matter, and the Invisible Chaos... This is the Jewish *Ensoph* [*Ain Soph*] outwardly. Out of this Darkness all things that are in this world came, as out of their Fountain or Matrix."²⁷⁵

Vaughan does not specify here how and when in the cosmogony the matter first appears, but based on what he says elsewhere, the matter appears as a consequence of the first manifestation of God into creation, that is, as the result of the emergence of duality that occurred when "The Monad begets the Monad and reflects upon itself in its own fervor," and when "The Monad produced the Duad by self-motion."²⁷⁶ In other words, the emergence of God as positive existence created immediately a duality in the form of "something" versus "nothing," "being" versus "non-being." With the appearance of this "something," and "being," nothing and not-being were, of necessity, immediately implied. Thus Vaughan calls matter "the Effect of the Divine imagination acting beyond itself in Contemplation, of that which was to come, and producing this Passive darknesse for a Subject to worke upon the Circumference."²⁷⁷

With the emanation of the Spirit onto the darkness on the "face of the deep," we also see the first instance of a vital agent. It must be remembered here that Vaughan, as a Christian alchemist, saw no *essential* or *substantial* distinction between God the father and God the Holy Spirit (there was only a distinction of person), and as such, the emanation of the Spirit was in all actuality the emanation and extension of God's essence into an active role as demiurgic agent: "God Almighty is the onely proper immediate

²⁷⁵ Eugenius Philalethes, *Coelum Terrae*, 114.

²⁷⁶ Eugenius Philalethes, *Anthroposophia Theomagica*, 7; Waite, *The Works of Thomas Vaughan*, 306.

²⁷⁷ Eugenius Philalethes, *Anthroposophia Theomagica*, 11.

Agent which actuates this matter, as well in the work of Generation;” but at the same time, Vaughan makes sure to point out that the hypostasis of “God the Spirit” is the actual “*Spiritus Opifex* [i.e., craftsman spirit], or the Agent.”²⁷⁸

The Spirit “moved upon the face of the waters,” per the account of creation in Genesis, an act which Vaughan sees as a “preparation” “by love” of the “matter” for the impending arrival of the “Light,” that is, Christ-*logos*. It should be noted that no longer is the matter simply “darkness” or the abyss of Genesis, but now it is described as “waters,” a change that Vaughan ascribes to the activity of the Spirit itself. As noted earlier, the Spirit was the result of God reflecting upon himself in his own “fervor,” which indicates a passion of sorts that Vaughan understands to be “Heat” and “Love.” Vaughan typifies the Holy Spirit as “*Amor igneus*, or a Divine heate,” and it is precisely by this heat that Vaughan supposes the Spirit “determines and figures the matter, which prior to being the “waters” he calls “Chaos:”²⁷⁹

The Holy Spirit moving upon the Chaos, which Action some Divines compare to the Incubation of a Hen upon her Eggs, did together with his Heat communicat other manifold Influences to the Matter...Hee did therefore hatch the Matter, and bring out the secret essences, as a Chick is brought out of the Shell...Neither did he onely generat’em then, but he also preserves them now, with a perpetuall efflux of heat and spirit.²⁸⁰

Vaughan further adds that this process consisted of a “congelation,” whereby the heat of the Spirit congealed the “fuliginous” darkness into the waters upon which the Spirit moved.²⁸¹ Vaughan explains elsewhere the same idea but explicitly in the terms of the Hermetic cosmogony:

²⁷⁸ Eugenius Philalethes, *Anthroposophia Theomagica*, 3, 6.

²⁷⁹ Eugenius Philalethes, *Anthroposophia Theomagica*, 7; Eugenius Philalethes, *Anima Magica*, 15.

²⁸⁰ Eugenius Philalethes, *Magia Adamica*, B7-B7½.

²⁸¹ Eugenius Philalethes, *Magia Adamica*, B6½.

Trismegistus having first exprest his Vision of Light, describes the Matter in its primitive state thus. And in a short time after—he saith—the darkness was thrust downwards, partly confused and dejected, and tortuously circumscribed, so that I appeared to behold it transformed into a certain humid substance and more agitated than words could express, vomiting forth smoke as from fire and emitting an inexpressible and lugubrious sound...Certainly these Tenebra he speakes of, or Fuliginous spawne of Nature, were the first created Matter, for that Water we read of in Genesis was a Product or secondary Substance. Here also he seems to agree further with the Mosaicall Tradition; For this Fumus which ascended after the Transmutation can be nothing else but that Darknesse which was upon the Face of the Deepe.²⁸²

In other words, the matter first appeared as the “darkness” on the “face of the deep,” which through the activity of the Spirit was transformed into a “secondary Substance” that Vaughan also calls “matter.” The “first” and “second” matter are therefore essentially the same substance, but the latter has become, through the activity of the Spirit, more “material” so to speak. Later it will be shown that Vaughan thought in terms of a *scala natura*, a chain of being from God as pure light to pure darkness, and that the process of creation consists precisely in this movement from the rarified to the gross, from the spiritual to the material. Along this ladder of nature are various “grades” or “levels” as the result of the mixing of light and darkness.

Vaughan next points out that as of yet, there is no “light,” which he explains as an absence of the “Word.” However, with God’s utterance of “*Fiat Lux*,” the *logos* was emanated, and it is this “second person” who is both light and life. It “pierced the Bosom of the Matter,” imbuing it with “the Idea, or Pattern of the whole Material World.” Vaughan then says that it was with this Pattern “that the Holy Ghost fram’d and modelled the universal Structure.”

Vaughan explains elsewhere that the persons of the Trinity each have different functions in the cosmogony: “God is the Basis or supernaturall Foundation of his

²⁸² Eugenius Philalethes, *Anthroposophia Theomagica*, 12-13.

Creatures; God the Son, is the Patterne in whose expresse Image they were made; And God the Holy Ghost is *Spiritus Opifex* [i.e., craftsman spirit], or the Agent.²⁸³ Later, Vaughan adds that

God the Father is the Metaphysicall, supercelestiall Sun, The second Person is the light, and the Third is *Amor igneus*, or a Divine heate proceeding from Both. Now without the presence of this Heate there is no Reception of the Light, and by Consequence no Influx from the Father of Lights. For this *Amor* is the Medium which unites the Lover to that which is beloved.²⁸⁴

Vaughan therefore conceives of the activity of the *logos* and the spirit as essentially united, even though they both ultimately serve very different functions. Concerning the Word, Vaughan says “Light originally had no other birth then manifestation, for it was not made but discovered, it is properly the life of every thing, and it is that which Acts in all particulars.”²⁸⁵ These “particulars” are *logoi* [that is, *logos* in multiplicity]: “These invisible, centrall Artists [the *logoi*] are Lights seeded by the first light, in that primitive Emanation [which is rendered in the Vulgate as *Fiat Lux*]. For Nature is *phone tou Theou* [the voice of God], not a meer sound or Command, but a substantiall active Breath, proceeding from the Creatour, and penetrating all things. God himself is *logos spermatikos*.”²⁸⁶ The Spirit, on the other hand, “moves in the Center of all things, hath the matter before him, as the Potter hath his clay;” it “exerciseth his chymistry in severall Transmutations,” producing the various parts of the things of Nature.²⁸⁷ Here in the center of things it “applies himself to the matter, and actuates in every Generation.”²⁸⁸

²⁸³ Eugenius Philalethes, *Anthroposophia Theomagica*, 6.

²⁸⁴ Eugenius Philalethes, *Anthroposophia Theomagica*, 7.

²⁸⁵ S.N., a Modern Speculator [Thomas Vaughan], *Aula Lucis, or, The House of Light: A Discourse written in the year 1651* (London: Printed for William Leake and are to be sold at his Shop, at the Sign of the Crown in Fleet Street, between the two Temple Gates, 1652), 5-6.

²⁸⁶ Eugenius Philalethes, *Anima Magica*, 17.

²⁸⁷ Eugenius Philalethes, *Anima Magica*, 15-16.

²⁸⁸ Eugenius Philalethes, *Anima Magica*, 8-9.

Although separate hypostases, it is together that they are applied to the matter in the cosmogony. Vaughan takes the first person plural “let *us* make man in *our* image” in Genesis 1, as well as the use of the plural “*Elohim*” [gods] for God in the same chapter, to indicate the conjoined spirit-*logos* whose “Union in the Worke” consists of being “applied...to the Matter,” with a two-fold result. First, the “waters” are again “congealed,” “coagulated,” and “condens'd to a Chrystalline moisture, unctious and fiery, or nature Hermaphroditical”²⁸⁹ The matter takes on a “fiery” nature in that it is now a mixture of light and darkness, no longer a simply passive substance but “Nature” itself; it is “Hermaphroditical” in that it is the union of the “masculine” and “active” agency of God, and the “passive” and “feminine” potentiality of matter. The second result is that now begins the alchemical *separatio* by which the fundamental principles and elements of Nature are created.²⁹⁰

MATTER AND THE VITAL AGENT IN THE ELEMENTAL WORLD

For Vaughan, the creation of Nature and the elemental world was in reality a series of “extractions” by which God separated the four primary elements from the potentiality of the prime matter:

Now as soone as the holy Ghost and the Word (for it was not the one nor the other, but both *Mens opifex una cum Verbo* [The Craftsman Mind with the Word], as Trismegistus hath it)...had applyed themselves to the Matter, there was extracted from the Bosome of it [the Matter] a thinne Spirituall Coelestial Substance, which receiving a Tincture of Heat and Light proceeding from the Divine Treasuries became a pure sincere innoxious Fire.²⁹¹

²⁸⁹ S.N., *Aula Lucis*, 5-6; Eugenius Philalethes, *Anthroposophia Theomagica*, 10.

²⁹⁰ Eugenius Philalethes, *Anthroposophia Theomagica*, 13.

²⁹¹ Eugenius Philalethes, *Anthroposophia Theomagica*, 13; Waite, *The Works of Thomas Vaughan*, 20.

Fire, for Vaughan was the Empyrean fire, a highly rarified type of substance of which “the Bodies of Angells consist, as also the Empyreaall Heaven, where Intellectual Essences have their Residence.”²⁹² This fire is “the *primum Matrimonium Dei & Naturae* [the primeval marriage of God and Nature], the First and best of Compositions.”²⁹³ This “Extract” was separated from the “Masse” and was composed of “a vast portion of Light.” But as the *logos*-spirit continued to shine into the darkness, the darkness was pushed downward and “it became more setl'd and compact toward the Centre, and made a Horrible thick Night.”²⁹⁴ A secondary separation then occurred, whereby an “*aer agilis*, as Trismegistus calls it a Spirit not so refined as the former, but vitall and in the next degree to it.”²⁹⁵ This substance “fill'd all the space from the Masse to the Empyreaall heaven [that is, it is a sort of aether],” and the lower portion of this substance, from the moon down to earth, became air “chiefly for the Respiration, and Nourishment of the Creatures.”²⁹⁶ This air also “is spread through all Things, hinders Vacuity, and keeps all the parts of nature in a firm, invincible union.”²⁹⁷ What remained, after these two initial extractions, were “Lees” at the bottom, that is, elemental water, “Phlegmatick, crude, and...not so vitall as the former Extractions,” and elemental earth, “an impure Sulphureous subsidence, or *Caput mortuum* [literally “dead head,” but refers to the waste matter of distillation that rests at the bottom of the retort] of the Creation.”²⁹⁸ These latter two elements were prepared by the “Divine Spirit to make his work perfect moving also upon These imparted to them Life and Heate, and made them fit for future Productions;”

²⁹² Eugenius Philalethes, *Anthroposophia Theomagica*, 13.

²⁹³ Eugenius Philalethes, *Anthroposophia Theomagica*, 13.

²⁹⁴ Eugenius Philalethes, *Anthroposophia Theomagica*, 13.

²⁹⁵ Eugenius Philalethes, *Anthroposophia Theomagica*, 14.

²⁹⁶ Eugenius Philalethes, *Anthroposophia Theomagica*, 14.

²⁹⁷ Eugenius Philalethes, *Anthroposophia Theomagica*, 14.

²⁹⁸ Eugenius Philalethes, *Anthroposophia Theomagica*, 15, 17.

in other words, water and earth formed yet another type of matter upon which the vital agent could work to form physical substance.²⁹⁹

Vaughan thus saw Nature as the intermingling of the primordial waters and the spirit-*logos*, and imagined it much like real waters when exposed to the light of the sun. In this illustration, the sun (God) emits its light and heat (*logos* and spirit), which when it comes into contact with a pool of water such as a lake or ocean (the matter), diffuses into it. The light and heat of the sun warm and brighten the top layers of the waters, which is where fire is extracted. However, as the light and heat continue to travel ever deeper, less and less of it filters through, creating various grades of the mixture of heat, light, and waters, to the point that ultimately, the light penetrates it no more and there is only darkness and cold. Nature is thus this area where light and darkness meet; beyond these are simply the two poles of divine existence, that is, light and darkness:

When I seriously consider the System or Fabric of this world, I find it to be a certaine Series, a Link or Chaine, which is extended *a non Gradu ad non Gradum*, From that which is beneath all Apprehension to that which is above all Apprehension. That which is Beneath all Degree of Sense, is a certain Horrible Inexpressible Darknesse. The Magicians call it *Tenebrae Activae*, and the Effect of it in Nature is Cold, &c. For Darknesse is *vultus Frigoris* [the face of cold], the Complexion, Body, and Matrix of Cold, as Light is the Face, Principle, and Fountaine of Heat. That which is above all Degree of Intelligence, is a certaine Infinite Inaccessible Fire or Light... The middle Substances, or Chaine between these Two, is That which we Commonly call Nature. This is the *Scala* of the Great Chaldee, which doth reach *a Tartaro ad primum Ignem*, from the Subternaturall Darknesse to the Supernatural Fire.”³⁰⁰

Elsewhere, Vaughan says that:

[T]here is in Nature a Certain spirit which applies himself to the matter, and actuates in every Generation...there is also a passive Intrinsic principle where he is more immediatly resident then in the rest, and by mediation of which he communicates with the more gross, material parts. For there is in Nature a

²⁹⁹ Eugenius Philalethes, *Anthroposophia Theomagica*, 15.

³⁰⁰ Eugenius Philalethes, [Thomas Vaughan], *Lumen de Lumine: Or A new Magicall Light discovered, and Communicated to the World* (London: Printed for H. Blunden at the Castle in Corne-Hil, 1651), 44-45.

Certain Chain, or subordinate propinquity of Complexions between Visibles, and invisibles, and this is it by which the superior spiritual Essences descend and converse here below with the Matter.³⁰¹

This idea of a chain of being was integral to Vaughan's understanding of matter, spirit, nature, and the elements. For him, Fire is the highest substance "*in Scala Natura*," and also the vital agent and God's vehicle within the sphere of Nature: "This Fire passeth through all things in the world, and it is Nature's Chariot, in this she rides, when she moves this moves, and when she stands this stands...this is the Mask and skreen of the Almighty; wheresoever he is, this Train of Fire attends Him."³⁰² Elsewhere, Vaughan calls fire "the Hands of the divine Spirit by which He did worke upon the Matter," and the "subtil, vital limosity" that "impregnates" all things in Nature.³⁰³ This attribution of fire to the Natural vital agent makes sense in light of his view that fire is the first "extraction" of nature, and is composed mostly of the heat and light of the cosmic vital agent, the spirit-*logos*, with only a small part of matter.

It should be noted here, too, that Vaughan thought that there were only "two genuine elements," namely, earth and water. Fire is something properly belonging to the empyreal heaven, and air is "something more" than an element, in that it extends to the empyrean and composes the celestial bodies.³⁰⁴ Earth, on the other hand, is "the Subsidence, or Remaines of that Primitive Masse, which God formed out of Darkness;" it is the "Lees" that settled to the center.³⁰⁵ Vaughan also notes that "In her is the Principall

³⁰¹ Eugenius Philalethes, *Anima Magica*, 8-9.

³⁰² Eugenius Philalethes, *Anthroposophia Theomagica*, 20.

³⁰³ Eugenius Philalethes, *Anthroposophia Theomagica*, 12-13; S.N., *Aula Lucis*, 12.

³⁰⁴ Eugenius Philalethes, *Anthroposophia Theomagica*, 16.

³⁰⁵ Vaughan's conception of the elements is thus fundamentally different from the Aristotelian conception. Aristotle's elements are all ontologically equal, that is, one is not higher in a chain of Being than another, but all are equally basic elements. In Vaughan's conception, which matches the Hermetic conception as found in the *Poimandres*, some elements are higher on the Great Chain than others, and are therefore more divine than the others. Vaughan's fire is similar to that of the *Corpus Hermeticum*, where

Residence of that Matrix, which attracts, and receives the sperm from the Masculine part of the world;” “she is the Nurse and Receptacle of all Things.”³⁰⁶ In other words, just like fire is composed mostly of light and little of darkness, and is the natural version of the vital agent, so too is Earth, which is composed of only a small part of light and mostly darkness, is the natural version of *prima materia*: “There are in the world two Extremes, Matter and Spirit: one of these I can assure you is earth. The influences of the spirit animate and quicken the matter, and in the Material Extreme the seed of the spirit is to be found.”³⁰⁷ The “middle Natures,” i.e. air and water “are but *Dispenseros*, or *Media*, which convey [the seed] from one extreme to the other, from the Spirit to the Matter, that is to the Earth.” But, by “earth” he does not mean “this common, faecund, impure Earth,” but the “*Coelum Terrae*, and *Terrae Coeli*, not this dirt and dust, but a most Secret, Coelestiall, Invisible Earth.”³⁰⁸ The material earth is but a “Faeculent, gros Body upon which we walk, it is a Compost, and no Earth, but it hath Earth in it;” true Earth is “invisible.”³⁰⁹

Elsewhere, however, Vaughan likens the *prima materia* of Nature to water, calling it “a certaine kind of Oile of a Waterie Complexion. A viscous, fat, mineral nature.”³¹⁰ Matter, “in plaine Terms,” he explains, is “dissolved and flowing water.”³¹¹ However, Vaughan eventually qualifies this statement, which explains how the matter is both earth and water: it is “something melted, that is a solution of earth, a certain plasticity of earth,” and “an exceedingly soft, moyst, fusible, flowing Earth: An Earth of

the *demiourgos* itself is composed of this Empyrean fire. Eugenius Philalethes, *Anthroposophia Theomagica*, 17.

³⁰⁶ Eugenius Philalethes, *Anthroposophia Theomagica*, 17.

³⁰⁷ Eugenius Philalethes, *Coelum Terrae*, 89.

³⁰⁸ Eugenius Philalethes, *Coelum Terrae*, 89.

³⁰⁹ Eugenius Philalethes, *Magia Adamica*, B6-B6½.

³¹⁰ Eugenius Philalethes, *Lumen de Lumine*, 8.

³¹¹ Eugenius Philalethes, *Lumen de Lumine*, 45.

wax, that is capable of all Formes and Impressions.”³¹² This flowing earth is “coagulated” water; it is “viscous and slimie...Spermatic water,” that “with the least heat...nature concocts and hardens it into metals,” in the same way that egg whites harden and congeal under heat.³¹³ And, as with many of his other ideas, Vaughan justifies and supports his statements by the authority of Hermes Trismegistus:

Hermes affirmeth, that in the Beginning the Earth was a Quakemire, or quivering kind of Jelly, it being nothing but water congealed by the Incubation, and heat of the Divine Spirit...When as yet the Earth was a quivering, shaking substance, the Sun afterwards shining upon it, did compact it, or make it Solid.³¹⁴

Regardless of its attribution of water or earth, Vaughan insists that matter on the level of Nature is dual; it is no longer the absolute passive Chaos or darkness of the initial stages of the cosmogony, but is now a self-animated, plastic (“like a peece of wax”) substance that contains within itself “seeds” of light, or an internal “fire” and “heat” that has been implanted in it by the active, vital agent.³¹⁵ As Vaughan notes, “The Heavenly light descends [into the water]” and “this light being hotter than the water, makes her turgid and vitall.”³¹⁶ Having entered the matter, the vital spirit remains, just like “in Animal Generation...[where] the sperme parts not from both the Parents, for it remaines with the Female, where it is perfected.”³¹⁷ And, Vaughan points out, such cannot be otherwise, for a body without a “Soule... doth discompose, and can no longer retaine its former figure, for the Agent that held and kept the parts together is gone.”³¹⁸

³¹² Eugenius Philalethes, *Lumen de Lumine*, 45; Waite, *The Works of Thomas Vaughan*, 269.

³¹³ Eugenius Philalethes, *Lumen de Lumine*, 10.

³¹⁴ Eugenius Philalethes, *Magia Adamica*, B6½.

³¹⁵ Eugenius Philalethes, *Coelum Terrae*, 91.

³¹⁶ Eugenius Philalethes, *Euphrates* 71.

³¹⁷ Eugenius Philalethes, *Coelum Terrae*, 86.

³¹⁸ Eugenius Philalethes, *Lumen de Lumine*, 8.

MATTER AND THE ACTIVITY OF THE VITAL AGENT WITHIN NATURE

Thus matter in the elemental realm necessarily has two natures: it is both “material and spiritual.”³¹⁹ The former “may be seen with the eyes, and felt with the hands, and it is subject to Alteration.”³²⁰ However, “the other Nature, or Principle of Substances, is incorruptible, immutable, constant, One and the same for ever, and always existent.”³²¹ As a dual substance, it is called “*Azoth*,” and the “twofold Mercurie.”³²² The term Azoth reveals its two natures in that the word refers to the “Alpha and Omega,” that is, the first and last, or Spirit and Matter in Vaughan’s cosmogony; the word is composed of the first letter of the Latin, Greek, and Hebrew alphabet (“A,” “*Alpha*,” and “*Aleph*”), and the last letter of the same languages (“Z,” “*Omega*,” and “*Tau*”), forming A-ZOTH. This dual matter Vaughan also calls the “Catholic Magnesia,” which is made up on the one hand of the sulphureous and fiery “red Magnesia” and the virgin, mercurial “white Magnesia.”³²³ Vaughan explains that the white Magnesia “is exceedingly White and transparent like the Heavens;” it is “a most pure, sweet Virgin; for nothing as yet hath been generated out of her.”³²⁴ In the red Magnesia, however, “the Chaos [i.e., the *prima materia*] is Bloud-red, because the Central Sulphur [or Fire of Nature, the vital agent] is stirr’d up.”³²⁵ This “Central Sulphur,” Vaughan calls “The Philosophicall Fire.”³²⁶

[It] is at the Root, and about the Root (I mean about the Center) of all things both Visible, and Invisible. It is in water, earth, and ayr; It is in Minerals, Herbs, and Beasts; It is in Men, Stars, and Angels; but Originally it is in God Himself, for he

³¹⁹ Eugenius Philalethes, *Coelum Terrae*, 82.

³²⁰ Eugenius Philalethes, *Coelum Terrae*, 82.

³²¹ Eugenius Philalethes, *Coelum Terrae*, 82.

³²² Eugenius Philalethes, *Coelum Terrae*, 85.

³²³ Eugenius Philalethes, *Coelum Terrae*, 83.

³²⁴ Eugenius Philalethes, *Coelum Terrae*, 83.

³²⁵ Eugenius Philalethes, *Coelum Terrae*, 83.

³²⁶ Eugenius Philalethes, *Lumen de Lumine*, 58.

is the Fountain of Heat and fire, and from Him it is derived to the rest of the Creatures in a certaine streame, or Sun-shine.”³²⁷

Later, he says that this fire is no “Vulcan” but a “Philosophicall Vesta.” The former, which should be understood as real fire, or as Vaughan calls it, “kitchen fire,” is “excessively hot,” and therefore “destructive.” The latter, however, is the “Magicall Agent;” it is “temperate” and “Bloud-warme.”³²⁸ With this “gentle heat” (which is the heat of life), “Nature in her Generations [concocts] the Chaos.”³²⁹ In other words, it is the fire of the vital agent by which physical objects are created out of the formless matter, through a process of congelation, much like the waters by the heat of the Spirit in the earlier stages of the cosmogony.³³⁰ The fire is not just formative, however, as it also “begins every motion, and motion begins Generation.”³³¹ To prevent the world from a cessation of movement, and to endure perpetual generation, “the Almighty God placed in the Heart of the World, namely in the Earth...a Fire-life.”³³² Vaughan calls this inner fire the “Light of Nature” and “the secret Candle of God.”³³³ He notes that “Every naturall Body is a kind of Black Lanthorne, it carries this Candle within it.”³³⁴ And, just like “The great world [the macrocosm] hath the Sun for his Life and Candle,” so too do all things have this inner light, “according to the Absence and presence [of which], all things in the world flourish or wither.”³³⁵ For, this fire is simultaneously the heat of our bodies, the cause of life and generation, and the agent that differentiates matter into its various forms: by it “All Vegetables grow, and augment themselves, they put forth the fruits and

³²⁷ Eugenius Philalethes, *Lumen de Lumine*, 59.

³²⁸ Eugenius Philalethes, *Lumen de Lumine*, 60-61.

³²⁹ Eugenius Philalethes, *Coelum Terrae*, 115.

³³⁰ Eugenius Philalethes, *Euphrates*, 24-6.

³³¹ Eugenius Philalethes, *Euphrates*, 35-6.

³³² Eugenius Philalethes, *Euphrates*, 36.

³³³ Eugenius Philalethes, *Lumen de Lumine*, 41.

³³⁴ Eugenius Philalethes, *Lumen de Lumine*, 41.

³³⁵ Eugenius Philalethes, *Lumen de Lumine*, 41.

Flowers;” “As for Minerals, the first matter is coagulated by this fire spirit and altered from one Complexion to Another.”³³⁶

As the meeting place of matter and vital spirit, Nature itself is the laboratory, alembic, or retort in which the alchemical processes take place. Vaughan thought that Nature reveals these inner processes in an outward form. For example, the physical sun is a “collection” of the *Fiat Lux*, and the “Tabernacle of the Spirit.”³³⁷ Through the Sun, the spirit-*logos* acts upon the physical waters, “stirring” them into generation: “it comes to pass, that wee are perpetually overcast with Clouds, and this by a Physicall Extraction or sublimation of water, which nature herself distils, and rains downe upon the earth.”³³⁸ The sun is also “stirs” the earth, warming this “matter” with light and life, causing it to bring forth the various plant life in Spring:

The Earth you know in the Winter time is a dull, dark, dead Thing, a contemptible frozen phlegmatic Lump. But towards the Spring, and Fomentations of the Sun, what rare Pearles are there in this Dung-hill? what glorious Colours, and Tinctures doth she discover...a pure eternall green overspreads her, and this is attended with innumerable other Beauties—Roses red and white, golden Lillies, Azure Violets, the Bleeding Hyacinths with their severall coelestial odours, and Spices.³³⁹

For Vaughan, not only were the processes of Nature a direct result of spirit acting upon matter, but it was also an analogy by which to know God, for Nature is “properly a meer Inclosure, or vestiment of the true One.”³⁴⁰ In its most simplest form, Nature is but Spirit and Matter, and both are ultimately identical with God:

There is an Universall Agent, who when hee was dispos'd to create, had no other Patterne or Exemplar whereby to frame and mould his Creatures, but himself, but having infinite inward Ideas, or conceptions in himself, as hee conceived so hee

³³⁶ Eugenius Philalethes, *Lumen de Lumine*, 42.

³³⁷ Eugenius Philalethes, *Anthroposophia Theomagica*, 15-16.

³³⁸ Eugenius Philalethes, *Magia Adamica*, B5½.; S.N., *Aula Lucis*, 8-9.

³³⁹ Eugenius Philalethes, *Coelum Terrae*, 88-9.

³⁴⁰ Eugenius Philalethes, *Anthroposophia Theomagica*, 10.

created, that is to say, he created an outward forme answerable to the inward Conception...of his Mind... There is [also] an Universall Patient, and this Passive Nature was created by the Universall Agent. This generall Patient, is the immediat Catholic Character of God himself, his Unitie and Trinitie. In plain Termes, it is that Substance which wee commonly call the First Matter.³⁴¹

Elsewhere Vaughan explains that this “Patient” came about when “God in love with his own beauty frame[d] a Glasse to view it by reflection.”³⁴² This theme of *amor* recurs in Vaughan’s cosmogony, and he understood both creation and the processes of nature to be the result of it; the vital spirit and matter “are like two Lovers, they no sooner meet, but presently they play and toy, and this Game will not over till some new Babe is generated.”³⁴³ “This *Amor* is the Medium which unites the Lover to that which is beloved.”³⁴⁴ Vaughan also notes that “wheresoever the fire of nature finds the Virgin Mercurie [i.e., the matter], there hath he found his Love,” and that “She yeelds to nothing but Love, for her End is Generation.”³⁴⁵

³⁴¹ Eugenius Philalethes, *Coelum Terrae*, 81.

³⁴² Eugenius Philalethes, *Anthroposophia Theomagica*, B1-B1½.

³⁴³ Eugenius Philalethes, *Coelum Terrae*, 90.

³⁴⁴ Eugenius Philalethes, *Anthroposophia Theomagica*, 7.

³⁴⁵ Eugenius Philalethes, *Coelum Terrae*, 92, 84.

CONCLUSION:
Vaughan's Place in the History of Science

As Steven Gould noted in *The Mismeasure of Men*, “Facts are not pure and unsullied bits of information; culture also influences what we see and how we see it. [Scientific] theories, moreover, are not inexorable inductions from facts.”³⁴⁶ Instead of saying, therefore, that the scientific enterprise makes objective claims of hard truth dependent solely upon the observation of an objective nature that is “out there,” independently existing and capable of being apprehended without occlusion, it is more accurate to say that one only understands or knows anything about the natural world insofar as it has been colored by the complex cultural—and necessarily, intellectual—framework of any particular age and people in which the natural philosopher does his work. Standing at the foundation of any study of nature is a set of epistemological premises that determines, before the study even begins, what is looked for, how it will be interpreted, and even what questions will be asked in the first place. Even on a microcultural level this seems to hold true, as evidenced by the differences between the alchemical and mechanical understanding of matter: each group assumes certain epistemological premises at the very outset, with the result that each arrives at very different conclusions. The study of nature is therefore “a human enterprise, not the work of robots programmed to collect pure information.”³⁴⁷ The implication is that science cannot be divorced from the real humans who do science, and therefore cannot be separated from the context in which those humans exist.

³⁴⁶ Stephen Jay Gould, *The Mismeasure of Man*, Revised and Expanded Edition (New York: W.W. Norton & Company, 1996), 54.

³⁴⁷ Gould, *The Mismeasure of Man*, 53.

Another closely allied idea to that of the “cultural constraints” of science is what Gould calls the myth of an “inexorable march toward truth,” where “science begins in the nothingness of ignorance and moves toward truth by gathering more and more information.”³⁴⁸ As Gould points out, however, what the study of history actually reveals is that “much of [science’s] change through time does not record a closer approach to absolute truth, but the alteration of cultural contexts that influence it so strongly.”³⁴⁹ The commonly accepted, modern assumption of science is that it was a logical consequence of the “progress” of thought, as if it was a necessary outcome, an inevitability of the advancement of thought bound by a guiding *telos* or *Entwicklung* within history. Further, the implication is that eventually, at some point in the future, humankind will know all of the secrets of the universe, and that therefore the older theories of science are far removed from this ultimate, future truth. This line of thinking, however, is merely a Whig History of science, and ultimately ahistorical. Modern science is not a necessary outcome in history, but is rather only a single branch on the tree of knowledge whose identity was determined by the cultural and intellectual milieu in which it developed. It is therefore only one of many possible systems of thought that could have become the dominant epistemological assumption of the West through the circumstances of history. As David Walsh notes, what we know as “modern science and technology was only the most pragmatically successful shard” of the debates over natural philosophy that occurred in the early modern period—a debate that included alchemy.³⁵⁰ What Vaughan therefore

³⁴⁸ Gould, *The Mismeasure of Man*, 55, 351.

³⁴⁹ Gould, *The Mismeasure of Man*, 54.

³⁵⁰ David Walsh, “A Mythology of Reason: The Persistence of Pseudo-Science in the Modern World,” in *Science, Pseudo-Science, and Utopianism in Early Modern Thought*, ed. Stephen A. McKnight (Columbia, MO: University of Missouri Press, 1992), 144.

represents in this regard is one side of the debate in natural philosophy that, while eventually discarded, was a crucial component to the birth of modern science.

It is in this light that the historian of science must endeavor to examine the scientific ideas of a period whose *Weltanschauung* differs so greatly from our own. Without context, Vaughan's conception of the cosmos, matter, and spirit are completely foreign, likely even strange; but, when one considers the underlying assumptions of his worldview, his ideas make more sense. In *Euphrates*, Vaughan wrote:

Philosophie and Divinity are but one, and the same science... The Myserie of Salvation can never be fully understood without Philosophie... as it is an Application of God to Nature, and a Conversion of Nature to God... To speak then of God without Nature, is more than we can do, for we have not known them so: and to speak of Nature without God, is more than we may do, for we should rob God of his glorie, and attribute those effects to Nature, which being properly to God, and to the spirit of God, which works in Nature.³⁵¹

In these statements Vaughan was expressing some of the most critical elements of the early modern alchemist's worldview. First, he affirms that *episteme* and *gnosis* are essential counterparts in any science. Second, Vaughan states that natural philosophy has a soteriological character—not only does it redeem man, but so too nature. Finally, he asserts that God is both the cause of nature and present within it; in other words, nature cannot be separated from the divine, and therefore the substance that makes up the cosmos must also have some relation to the divine.

Vaughan's ideas are therefore not “magical” “pseudo-science,” but rather an interpretation of nature through the lens of his particular worldview. As Lawrence Principe notes, in alchemy “there was nothing ‘magical’ (in the modern sense) involved,

³⁵¹ Eugenius Philalethes [Thomas Vaughan], *Euphrates, or the Waters of the East; Being a short Discourse of that Secret Fountain, whose Water flows from Fire; and carries in it the Beams of the Sun and Moon* (London: Printed for Humphrey Moseley at the Princes Arms in St. Paul's Church-yard, 1655), 14, 17.

simply a practice based on theories different from our own.”³⁵² This statement, that implicit in alchemy is a set of theories different from those of the modern scientific world, is both the key and the starting point of any analysis of alchemy in the early modern period. These “theories different from our own,” which can also be said to be the basic assumptions of the fifteenth to seventeenth century worldview, collectively form the wellspring from which early modern alchemy and related disciplines emerged. While the underlying epistemological premises of today are based in the rationalism, empiricism, and materialism of science, such was not always the case. The same questions about the nature of the world that we ask today with our own epistemological and cosmological premises were also asked in the past with philosophical assumptions that are irreconcilable with the modern scientific worldview. As a result, even though modern students of nature might be asking the same questions about the fundamental nature of the world that were asked in the past (e.g., about matter and the origins of the universe), the answers—as well as the way those answers were arrived at—will necessarily be different.

Therefore, rather than look at Vaughan’s works—or the works of any non-modern philosopher of nature who held ideas that are incompatible with our own—as products of some kind of scientific “immaturity” or even as error, we should rather understand his ideas to be culturally and ideologically derived, a view that not only allows for a more accurate look at the specific ideas involved, but also, by tracing these ideas to their root, will reveal the larger contextual framework of the period. In this regard, Vaughan offers an important access point, in that he is one of the most modern of the alchemical thinkers

³⁵² Lawrence M. Principe, *The Scientific Revolution: A Very Short Introduction* (Oxford: Oxford University Press, 2011), 80.

of this type, and someone who actively sought to place alchemy as the natural philosophy *par excellence* in an environment where mechanism was in competition for the new, dominant theory of nature. In fact, Vaughan sits on the threshold between early modern alchemy and the mechanical philosophy that would very soon come to dominate the field of physics. He is also, in a sense, one of the last of the truly Hermetic “Chymists:” although it would not be until more than a century after his death that the so-called Chemical Revolution would begin, with the publication of Antoine Lavoisier’s *Traité Élémentaire de Chimie* (1789), the chemical sciences were already in the process of being changed in Vaughan’s time by thinkers like Robert Boyle, who in his *Sceptical Chymist* (1661) removed the “mystical” components of alchemy, converting it into a more “scientific” discipline that relied on the principles of observation, experimentation, and mechanism. Vaughan is important here too in that Boyle’s use of observation and experiment in science—in itself a revolutionary way to approach the study of nature and which is foundational to the Scientific Revolution—was a major part of the theory of alchemy, which Vaughan continuously called for in his attack against the Peripatetics. What is especially interesting in this regard is that this experimental methodology had its basis in the Hermetic epistemology, and in this way we can see that the traditions usually considered on the “other side” of the scientific revolution were in actuality very important to many of its essential developments.

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