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# The alchemical quest and renaissance epistemology: with a comparitive study of Ben Jonson's:The Alchemist and William Shakespeare's: The Tempest

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# CHAPTER TWO

## Alchemy and Renaissance Thought

As suggested in the previous chapter, there was a significant symbiosis at work between the rise of alchemy and the development of other areas of learning during the Renaissance. Not only the invention of printing, but also the changing political landscape throughout most of the known world, as well as improved modes of international transport and exchange had far-reaching implications. This influenced not only the way knowledge was transmitted, but also the way people thought about themselves within the context of a changing world. Conceding that the orthodox view of human beings as the jewel in the crown of God's creation still held sway in the popular imagination, Bouwsma stresses that:

> We nevertheless encounter in Renaissance thought hints of a very different conception of the self: doubts of the value and power of reason and the blurring of the boundaries between the several supposedly distinguishable faculties arranged in order below it, language implying a view of the self as a mysterious and undifferentiated unity (22).

The proliferation of information had an inevitable impact on heretofore unquestioned belief systems, and on the way people tried to make sense of palpably evolving intellectual and social environments. "Knowledge was thus surrounded by a host of problems: problems intensified by the need to digest vast amounts of new knowledge, the result at once of historical and philological scholarship, of geographical discoveries, and of advances in science" (Bouwsma, 51).

The dynamic epistemological and artistic shifts militate against the definition of a single conclusive ideology. Indeed, Bouwsma asserts that, "Many thinkers … now doubted the possibility of any methodical or systematic knowledge" (44). However, it is possible to discern certain strands of thought and belief that were inextricably woven into the social and intellectual fabric of the times. This is not meant to suggest that these 'strands' were by any means unanimously accepted or unquestioningly adhered to. Rather, the fact that much of the 'new knowledge' referred to by Bouwsma kindled critical debate, dissent, and even outright antagonism among various schools of thought indicates that they were taken seriously enough to be considered a real threat, or at least a challenge, to conventional structures of belief. Thus Haydn points out that, "The Elizabethans found themselves trapped in a transition period of intellectual conflicts which made a consistent and positive philosophy a luxury" (14).

As established in the previous chapter, one of the chief currents of thought challenging the orthodoxies of the time was the occult theory of alchemy. In the chapter devoted to alchemy in his comprehensive study of *The Occult Sciences in the Renaissance*, Wayne Shumaker confirms that "efforts to produce the Philosopher's Stone and the Elixir absorbed immense quantities of energy and wealth and fitted well into an intellectual ambience now almost totally destroyed" (160). In the present discussion, I want to focus on a very few of the 'strands' of Renaissance conceptions of how the world worked and the effect of alchemy on these conceptions. I hope to illustrate the extent to which these theories shaped some of the early modern worldviews, and tinctured to a greater or lesser degree the religious, philosophical, scientific, social, and political beliefs and structures of the period.

The chief criterion determining my choice of subject is that it be influenced by, or linked to, alchemical theories of the time. Of course, this opens up a whole host of possible issues, because, as Hopkins points out, during the Renaissance alchemy became established "as a science of equal nobility with those of philosophy, mathematics and medicine" (140). In addition to these subjects, I will be exploring the relationship between art and nature, the implications of the various theories of transmutation, the four elements theory and its significance in the conception of a sentient universe, which foregrounds the notion of a reciprocal relationship between the microcosm of the human individual and the macrocosmic structure of the universe. These various foci will be drawn together in a consideration of the developing empirical approach to knowledge and how this affected conceptions of power, in relation both to self and to the world.

Furthermore, I will be quoting extensively from primary sources in this chapter. This is in an attempt to establish the idiom that characterised the debates around alchemy. While many of the primary texts used here do not necessarily coincide chronologically with the two literary texts I will be exploring in the last two chapters, the statements I quote from these works articulate well-established tenets that help to contextualise and demonstrate the pervading seventeenth-century worldview out of which the dramatic texts arose.

The 'Golden Age' of the Past

While the topics I will be discussing may not fall within a modern understanding of science, it is important to keep in mind that the branches of learning comprising the 'art' of alchemy were subject to the most rigorous empirical observations and assessments. Haydn makes this clear in his discussion of the magician-scientist of the Renaissance (185-196), further observing that:

> At first glance, the methods and goals of the magicians and empiricists seem extremely different. Yet curiously enough, many of those practicing primarily in the tradition of one of these two groups also dabble in the other – or occupy an ambiguous position partaking of each attitude (177).

Hawkes offers a similar perspective in his argument that:

> It may seem incongruous to us that the vogue for alchemy flourished alongside the burgeoning of positive science, but it did not necessarily seem so to the people of the seventeenth century. They did not always perceive the contradictions that we find between these systems of thought, and individuals who were interested in one also tended to be interested in the other (147).

Referring specifically to some of the period's 'magician-scientists' who had a foot in both camps, Haydn goes on to expound the 'scientific' thrust of occult practice, in which:

> The revival of ancient knowledge [was] combined with demonstrations by 'experience' or 'experiment' in the writings of Pico, Agrippa and John Dee…. A man may profess revelation, and yet need to 'find out' the revealed body of knowledge. He may adhere to magic, and yet do genuine scientific experimentation in one or another field. He may 'return' to ancient doctrine, but bolster it by 'demonstrations' of an empirical sort (220).

This new empirical approach to classical authority reflects the shift from an understanding of 'knowledge' as the accretion of abstract logic to a more utilitarian approach to knowledge as power, the power to determine the concrete realities of life in a material world. Thus Vasoli makes the point that "the humanists directed their knowledge of classical learning towards the problems of civic life, the arts by which men may live well and the *sapientia* which teaches how man may achieve perfection while still in this life" ('Renaissance Concept of Philosophy', 63).

Hopkins finds an explanation for the scientific/empirical bias in Hebrew and Arabic legacies. He argues that, "With the Arab and Jews of the Middle Ages scientific knowledge was a thing of supreme importance and this spirit of devotion to science passed to the Christians who came into contact with their learning" (152). Nicholas H. Steneck provides further insight into this phenomenon by tracing the contemporaneous developments of the Renaissance and the Scientific Revolution:

> The background against which the changes of the Scientific Revolution must be measured is extensive and extremely complex. It includes at least three hundred years of university history that witness the slow turn of the open intellectual atmosphere of its sixteenth-

> century counterpart. It includes the emergence of extra-university institutions and the many philosophies that became popular in these institutions as a result of the fifteenth-century Renaissance. It includes the spread of literacy and culture down through the ranks of society to a rapidly rising artisan class and the subsequent fusion of an artisan mentality – in the form of an emphasis on improvement, progress, and empirical utilitarianism – with the activities of 'high culture'. It includes the widening of intellectual horizons through the discovery of new lands and new ways of looking at the past (1).

The recognition of an identifiable 'past', and the conception of traceable shifts during that past and into the present was a distinctive feature of the Renaissance. Bouwsma argues that the "developments in the understanding of the past reflected a growth in knowledge of many kinds that, imaginatively projected into the future, prepared the way for the emergence of the idea of progress" (65). Shumaker observes that the Renaissance was characterised by "a deep respect for antiquity", and that "authority was still largely a function of age" (*Occult Sciences*, 204). He provides a more specific and detailed example of the weight of authority attributed to antiquity in relation to alchemy:

> Accounts [of the history of alchemy] claim that the secrets were revealed to Adam by God and were passed down to Adam's son, Seth, to the patriarchs. The attribution of alchemical knowledge to such ancients as Pythagoras, Alexander the Great, Plato, Theophrastus, Galen, Hippocrates, Isis, Iamblichus, Mary the Prophetess, and Cleopatra, suggests once more that all knowledge worth having was fathered upon persons who had lived as near as

> possible to the beginning of a world which ever since had deteriorated steadily (*Occult Sciences*, 166).

One of the core characteristics, then, of this period is a return to the 'golden age' of classicism,[1] especially the Grecian models of knowledge and society. In fact, Hopkins argues that many Renaissance alchemists represented themselves as adherents to and interpreters of Greek philosophy (14). Stanton Linden, too, makes a point of acknowledging the role of Greek philosophy in ensuring the largely favourable reception of alchemy at the time, especially amongst some of the more noteworthy natural philosophers. He contends that it is the philosophical, rather than the practical, inspiration that "constituted the ancient Greeks' chief contribution to alchemy's development" (13). Linden further maintains that this philosophical thrust of ancient Greek doctrines was one that helped to shape the consciousness of the early modern period (13). Haydn's assessment of the period coincides with these views, for he notes that "The classical aversion to extremes, the Greek ideal of moderation and harmony, decisively influenced Christian thinking about the nature of the universe, the meaning of life, the nature and purpose of society, and the nature and end of man" (308).

Art and Nature

Given that the credibility of Aristotelian logic and classification was becoming increasingly friable throughout this period, it may seem paradoxical that the philosophies of Aristotle remained quite influential to the Renaissance conception of the occult. But this was an age of paradox (Bouwsma, 51), and Hopkins maintains that alchemy, as understood during

[1] Philip Lee Ralph contends that "More than in most eras … [Renaissance] thinkers attempted to draw upon the wisdom of the past for the purpose of heightening man's awareness of his own nature and enriching his experience" (201).

this period, was "Aristotelian philosophy put to practice" (57). Copenhaver expounds the reclamation and revisioning of Aristotle by occultists. Thus:

> Certain methods or traits in Aristotle, particularly his empiricism, and some of his theories, such as the role of contact action in physics, seem to have convinced modern readers that Peripatetic philosophy and occultism are incompatible in principle, but this judgement can only rest on modern notions of magic and astrology that have little to do with the views of Thomas Aquinas, Pomponazzi or Fernel. These thinkers and many others knew the Aristotelian texts that were *loci classici* for the magical worldview of the Renaissance. Besides providing the basic physics and metaphysics for the key doctrines of occult quality and substantial form, Aristotle contributed to belief in astrological influence on earth and man, the life and divinity of the heavenly bodies, the relationship of macrocosm to microcosm, *spiritus*, imagination and the astral body, and the alchemical theory of transmutation ('Astrology and Magic', 287).

Shumaker explains that the 'four elements' theory of Aristotle provided a basis for many an alchemical doctrine (*Occult Sciences*, 161, 170), even though, as is discussed later, this theory was modified by Paracelsus and others. The 'four elements' theory informed the Aristotelian conception of the innate potential towards perfectibility of both humanity and nature. Allison P. Coudert emphasises that "The alchemical goal of transmutation was based on the Aristotelian axiom that everything in nature strives for perfection. In the same way that an acorn strives to become an oak and a child a man, the six base metals strive to become perfect gold" ('Henry More', 39). This was believed to be not only possible, but also perfectly 'natural', because as Shumaker explains, "alchemical manipulations were based … on the

assumption that the behaviour of matter imitated, or could be made to imitate, that of plants, animals, men, and of God Himself in His work of creation and redemption" (*Occult Sciences*, 161). Anticipating Coudert's point by twenty years, Shumaker observes that, "Some of the more enlightened adepts thought of themselves as merely hastening what would have happened in due course anyhow. As nature strives to perfect itself in every possible way, so it is constantly engaged in purifying the base metals into gold" (*Occult Sciences*, 195).

While one might think that entropy was the irrevocable penalty for a fallen world – as intimated in an earlier quotation from Shumaker – the alchemists believed that their art held the key to unlocking the divine power that had been buried under humanity's sinfulness. The fall from grace was thus not absolute, although the progress of Nature was believed to have been compromised and retarded. However, if nature were inherently programmed to achieve perfection then it would seem that the alchemists' operations would amount to nothing more than superfluous, and impatient, intervention. But alchemists believed themselves to be nature's 'hand-maidens': not merely assistants, but also and more importantly, accelerators of natural processes. Hopkins thus acknowledges the alchemists' perception of their vital role in relation to nature:

> The task of the alchemist was to assist nature in this upward course. By demonstrating that this assistance could be successfully brought to bear upon the course of nature, alchemy first acquired the prestige of being identified with philosophy (58).

It is this aspect of alchemy as nature's 'assistant' or 'peer' that fed into the larger art/nature debate that was such a prominent feature of Renaissance

philosophy. In her 1997 edition of Arthur Dee's *Fasciculus Chemicus*, Lindy Abraham lays stress on the fact that one of the key characteristics of the seventeenth century intellectual milieu was a revisioning of the classical debate on the relationship between art and nature, which "was employed in discussion on subjects as diverse as education, gardening and cosmetics" (liii).

Alchemy's role in the art/nature debate was complex and dynamic: some alchemists asserted the dominance of art over nature, while others took the more conservative view that art and nature were equal and co-dependent phenomena. These contrary views had implications for the different conceptions of power held by the respective camps. The former was quite radical in its belief that the alchemist was endowed with power to subjugate nature and direct her course. The latter school, probably the more prevalent and the more easily accepted, held that nature was the 'school-mistress', instructing those who are willing to learn from her the secrets which would disclose the way to the philosopher's stone, and, ultimately, to perfection, of both man and nature. This was a more modest understanding of the alchemist's power in relation to nature, for it is nature which determines her own course while the adept submits to and cooperates with nature's innate forces. Thus Dee, as a representative of this latter group, could write in the preface to the *Fasciculus Chemicus* (1631) that "in this Philosophical Work, Nature and Art ought so lovingly to embrace each other, as that Art may not require what Nature denies nor Nature deny what may be perfected by Art" (liv).

This controversy was long-standing and never quite achieved a satisfactory resolution. This may be illustrated by reference to two of the foremost figures in the debate, who were separated by almost three hundred years:

Roger Bacon and Francis Bacon. Although the former died in about 1292, his treatise on *His discovery of the miracles of art, nature, and magick* was only published in 1599, wherein he states that, "*Nature is potent and admirable in her working*, yet Art using the advantage on Nature as an instrument (experience tels us) is of greater efficacy than any natural activity" (1-2). This, of course, directly challenges Aristotle's distinction between nature and art. William R. Newman points out that in his *Physics*, Aristotle contrasts nature, which has "an innate *principle of movement (or change)*" with artificial products, which have "*no inherent trend towards change*" ('Art/Nature Division', 82).

Francis Bacon also takes exception to Aristotle's distinction between nature and art, and opposes this theory in his *De Augmentis Scientiarum* (1623). Thus he argues: "I am the more induced to set down the History of the Arts as a species of Natural History, because an opinion has long been prevalent, that art is something different from nature, and things artificial different from things natural" (*Works*, 427). Although he essentially affirms the potential of alchemy to intervene in and influence the course of nature, Bacon offers a more nuanced explication of the nature of this intervention than the relatively simplistic version put forth by many alchemists. He therefore contextualises the interaction between nature and the endeavours of alchemical 'artists' by sounding a warning:

> But there is likewise another and more subtle error which has crept into the human mind; namely, that of considering art as merely an assistant to nature, having the power indeed to finish what nature has begun, to correct her when lapsing into error, or to set her free when in bondage, but by no means to change, transmute, or fundamentally alter nature. And this has bred a premature despair in human enterprises. Whereas men ought on the contrary to be surely

> persuaded of this; that the artificial does not differ from the natural in form or essence, but only in the efficient, in that man has no power over nature except that of motion; he can put natural bodies together, and he can separate them; and therefore that wherever the case admits of the uniting or disuniting of natural bodies, by joining (as they say) actives with passives, man can do everything; where the case does not admit this, he can do nothing (*Works*, 427).

Yet the cautionary note is not meant to dissuade the sincere artist. He concludes this part of his argument by encouraging a right relationship with and appreciation of the power of natural causes: "Still therefore it is nature which governs everything: but under nature are included these three; the *course* of nature, the *wanderings* of nature, and *art*, or nature with man to help" (*Works*, 427). It is thus only by working in harmony with nature that man can exercise his own natural powers and practice his art to proper effect.

Francis Bacon (1561 – 1626)

Bacon's anti-Aristotelian stance is well known, and is especially evident in his *Novum Organum*, where he piles up the evidence against Aristotle in a manner which seems almost incontrovertible (*Works*, 271). Many critics and historians attribute his progressive scientific philosophies to this critical attitude towards classical authority. Given my previous point that Bacon was not as antipathetic towards the occult as may be expected, his anti-Aristotelianism may appear to contradict an earlier observation that Aristotelian theory informed many alchemical doctrines. However, it should be kept in mind that alchemists, no less than Bacon himself, were very selective in their appropriation of sources and credentials, and chose to highlight those authorities and theories that supported their own philosophies.

Bacon was instrumental in promoting the philosophies of transformation which were obscured by the sensationalist and often fraudulent alchemical practices of the time. Bouwsma argues that a disaffection with contemporaneous models of knowledge inspired in Bacon and others a "sense of the urgency of change, which implied the threat hovering over the present. They agreed that the time required a radical shift in knowledge to give it more certainty" (192). Bacon thus reviles the 'smoke and mirrors' aspect of the occult, and focuses instead on the useful knowledge that may be redeemed from the principles and philosophies which informed these practices. In point of fact, Linden asserts that "Little, if any, concern was shown for the philosophical bases upon which practical alchemy rested; indeed, it would seem that until Francis Bacon this side of the art was virtually unknown to men of letters" (105).

Bouwsma again offers clarification of Bacon's reforming zeal and how this relates to his interest in the occult. Referring to Bacon's conception of knowledge, he argues that:

> [Bacon's] concern for its practical uses suggests the utilitarianism[2] both of a Puritan upbringing and of the rhetorical tradition…. He was also stimulated in his early speculations by the occult traditions that were so close to the science of the period. 'The aim of magic', he noted with special reference to alchemy, 'is to recall natural

[2] Charles Webster comments on the mutual influence between Bacon and many of the Puritans of the period in *The Great Instauration*: "The Puritans were particularly impressed by Bacon's insistence on reference to utilitarian functions…. Bacon paid attention to the sociology of knowledge. His writings were framed with conscious reference to ideological obstacles preventing the transformation of intellectual values" (335).

> philosophy from the vanity of speculations to the importance of experiments' (192).[3]

But Bacon was not chiefly a philosopher. It was his scientific and epistemological interests that led him seriously to consider the legitimacy of the metaphysical aspects of alchemy, and which motivated him to construct a solid bridge of argument and experiment linking exoteric and esoteric alchemy. Haydn recognises this seemingly paradoxical nature of Bacon's work, explaining:

> [If] Bacon often seems to owe a debt to the very alchemists whom he is wont to berate, just as he shares with the Neoplatonic magician-scientists (whom he also ridicules) their dream of the mystery of nature through the discovery of a single universal method, he remains primarily the son of the naturalistic empiricists (265).

While acknowledging the excesses and abuses of alchemists and other occult practitioners, Bacon was willing to concede alchemy's ancient lineage, but urged caution and discernment in accepting the authority of archaic ideas. He counselled that ancient authority must be tested by personal experiment, and even adopts alchemical terminology to reinforce his argument:

> Neither am I of the opinion, in this history of marvels, that superstitious narratives of sorceries, witchcrafts, charms, dreams, divinations, and the like, where there is an assurance and clear evidence of the fact, should be altogether excluded. For it is not yet

[3] Copenhaver makes a similar point in relation to Bacon's pragmatic approach to the occult: "Because the utilitarian promise of the magical arts could rescue philosophy from its moral doldrums, Bacon said he 'would rather have [them] … purified than altogether rejected', and he suggested programmes for the reform of natural magic and astrology" ('Astrology and Magic', 298).

> known in what cases, and how far, effects attributed to superstition participate of natural causes; and therefore howsoever the use and practice of such arts is to be condemned, yet from the speculation and consideration of them (if they be diligently unravelled) a useful light might be gained … for the further disclosing of the secrets of nature…. I would recommend however that those narrations which are tinctured with superstition be sorted by themselves, and not mingled with those which are purely and sincerely natural (*Works*, 428).

Bacon's willingness at least to consider the validity of alchemical philosophy is not unique. Many of his arguments closely resemble those of the earlier Henry Cornelius Agrippa. When Agrippa first wrote his *Occult Philosophy* and before he published it in 1533, he sent it to his aforementioned friend Trithemius, Abbot of Wurzburg, with an explanatory letter, in which he states that it is his express intention to illuminate the occult philosophy of alchemy, so long swathed in ignorance and folly. In the letter he explores the perplexing reversal of fortunes suffered by philosophical magicians and their 'scientific' craft during recent history:

> Why Magic, whereas it was accounted by all ancient philosophers to be the chiefest science, and by the ancient wise men and priests was always held in great veneration, came at last, after the beginning of the Catholic Church, to be always odious to and suspected by the holy Fathers, and then exploded by Divines, and condemned by sacred Canons, and moreover, by all laws and ordinances forbidden? … Now the cause, as I conceive, is no other than this, viz.: Because, by a certain fatal depravation of times and men, many false philosophers crept in, and these, under the name of Magicians,

> heaping together, through various sorts of errors and factions of false religions, many cursed superstitions and dangerous rites, and many wicked sacrileges, even to the perfection of Nature; and the same set forth in many wicked and unlawful books, to which they have by stealth prefixed the most honest name and title of Magic; hoping, by this sacred title, to gain credit to their cursed and detested fooleries (28).

Bacon shares this zeal to separate the false from the true, and sometimes comes across as an apologist for genuine alchemy. According to Linden, "This interest in the restoration of alchemy and other occult sciences is grounded, significantly, in a willingness to consider alchemy's theoretical and practical aspects, distinctions that satirical writers had generally failed to observe"(106). Thus, in the *Advancement of Learning* (1605), Bacon tempers his critique of the occult with a fair acknowledgement of the worth, however incidental, of these arts, especially alchemy:

> The sciences themselves which have had better intelligence and confederacy with the imagination of man than with his reason, are three in number; Astrology, Natural Magic, and Alchemy; of which sciences nevertheless the ends or pretences are noble…. And yet surely to alchemy this right is due, that it may be compared to the husbandman whereof Aesop makes the fable, that when he died told his sons that he had left unto them gold buried under ground in his vineyard; and they digged all over the ground, and gold they found none, but by reason of their stirring and digging the mould about the roots of their vines, they had a great vintage the year following: so assuredly the search and stir to make gold hath brought to light a

> great number of good and fruitful inventions and experiments, as well for the disclosing of nature as for the use of man's life (*Works*, 57).

Although in his *Novum Organum* (1620) Bacon warns that "those things are to be chiefly suspected which depend in any way on religion … [such as] writers on natural magic or alchemy" (*Works*, 336), his endorsement of the efficacy of the art later in the same work seems closely to parallel and thus vindicate, to some extent at least, alchemical practice:

> For the operations of nature are performed by far smaller portions at a time, and by arrangements far more exquisite and varied than the operation of fire, as we use it now. And it is then that we shall see a real increase in the power of man, when by artificial heats and other agencies the works of nature can be represented in form, perfected in virtue, varied in quantity, and, I may add, accelerated in time (*Works*, 382).

The efficacy of art in significantly influencing the course of nature which Francis Bacon here advocates echoes the earlier Roger Bacon, who avers that, "As the producing so much gold or silver, as we please, not by the work of Nature, yet accomplishment of Art…. And beyond this, Nature knows no further progresse, as experience tels us. Though Art may augment gold in the degrees of purity, even to infinitesse, and compleat silver, without the least cheat" (26).

Thus, although Francis Bacon is chiefly recognised for his role in the scientific revolution, it is important to realise that his interest in empirical knowledge in no way precluded his curiosity about and direct involvement in the esoteric and metaphysical potential of alchemy. Furthermore, his

criticism of alchemy should not be taken as an unqualified dismissal of this and other occult arts. Rather, as I have tried to illustrate, his conception and application of alchemy were far more flexible and accommodating than our present idea of science will allow. Hawkes points out that scepticism about some of the more extravagant claims of alchemists "did not deter some of the best minds of the sixteenth and seventeenth centuries from diverting a huge amount of their time and energies into alchemical investigation" (149).

Bearing in mind the previous points made about the relationship between knowledge and power, George Boas offers some further clarification regarding Bacon's contribution to the knowledge revolution which gained momentum during the Renaissance. Boas explains that:

> [The] main scientific interest was astronomy and after that alchemy. That these two interests were closely allied with magic is neither to be denied or deprecated. For magic … was a set of rules for gaining power over the world, and that was also Bacon's program ('Philosophies of Science', 241).

It is therefore not surprising that Bacon relies to some extent on alchemical philosophy in his definition of natural philosophy, and draws on alchemical lore to reinforce his point: "It was not ill said by the alchemists, 'That Vulcan is a second nature, and imitates that dexterously and compendiously which nature works circuitously and in length of time" (*Works*, 458).

'Vulcan' and Transmutation

Francis Bacon's emphasis on empiricism and his appreciation of the efficacy of 'Vulcan' – the fiery agent of transmutation – are in no way radical or even extraordinary for this particular period. This is illustrated by reference to the

writings of Oswald Croll, physician to Prince Christian of Anhaltin. His tract, *Discovering the Great and Deep Mysteries of Nature*, was originally published in Latin in 1609. It was subsequently translated into English by Henry Pinnell[4] in 1657 and bound together with three other tracts, including one by Paracelsus. Croll argues for the primacy of 'Vulcan' in the occult sciences:

> Hence it comes to passe, that without Nature's *Vulcan*, which the Poets commend as the most true Inventor and Teacher of Arts Mysteries, the greatest part of them … who have written in our time of the more secret Spagyricall preparations from other mens relation & not their own handy experience … have brought this fruit to the students in Chymistry, that for the most part after great cost bestowed in vain, they have in the end ascribed to them the cause of their lost labour, and long spent time (5).

Both Francis Bacon and Croll seem to be asserting that 'Vulcan', the god of fire and metalworking and representative of human art, is much more than just the 'helper' or 'assistant' of nature.

It is probably Agrippa, in his fifth chapter of *Occult Philosophy or Magic*, who gives the most exhaustive exegesis on the significance of 'Vulcan' or fire to the human agency in art:

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[4] Webster provides a useful biographical sketch of Pinnell in *The Great Instauration*:

> Pinnell was a graduate of St. Mary Hall, Oxford. After leaving the army [as chaplain] he became a minister…. His first excursion into medicine was *Five Treatises of the Philosophers Stone* (1652), derived from various alchemical authors…. More important was *Philosophy Reformed & Improved in Four Profound Tractates* (1657), a translation mainly composed of the lengthy preface to Croll's *Basilica Chymica* and the shorter work by Paracelsus, *Philosophia ad Athenienses*; numerous marginal annotations were added by Pinnell. Although largely overlooked by modern commentators, the Croll preface provides one of the most succinct and effective introductions to Paracelsian natural philosophy and medicine…. The Croll preface also gave valuable clues to the interpretation of the numerous hermetic works which were published at this time (280).

> There are two things, saith Hermes, viz., Fire and Earth, which are sufficient for the operation of all wonderful things: the former is active, the latter passive. Fire, as saith Dionysius, in all things, and though all things, comes and goes away bright; it is in all things bright, and at the same time occult and unknown. When it is by itself … it is boundless and invisible, of itself sufficient for every action that is proper to it … renewing, guarding Nature, enlightening, not comprehended by lights that are veiled over…. Fire, as saith Pliny, is the boundless and mischievous part of the nature of things…. The Celestial and bright Fire drives away spirits of darkness; also this, our Fire made with wood, drives away the same, in as much as it hath an analogy with and is the *vehiculum* of that Superior light; as also of him who saith, 'I am the *Light* of the World,' which is true Fire, the Father of Lights, from whom every good thing, that is given, comes; sending forth the light of His Fire, and communicating it first to the Sun and the rest of the Celestial bodies, and by these, as by mediating instruments, conveying that light into our Fire (42-43).

Paracelsus (*c.* 1493-1541), too, emphasised the importance of 'Vulcan' in the alchemical operation towards perfection, and linked it more persuasively to alchemy. He therefore argues that:

> God created iron but not that which is to be made of it…. He enjoined fire, and Vulcan, who is the lord of fire, to do the rest…. From this it follows that iron must be cleansed of its dross before it can be forged. This process is alchemy; its founder is the smith Vulcan. What is accomplished by fire is alchemy…. And he who governs fire is Vulcan (qtd. in Jacobi, 93).

Within this particular paradigm, in which alchemical practice is synonymous with art, the alchemist is exalted to the noble office of nature's co-worker. Thus the ascription of relative worth seems to be pointless, as art and nature are accepted as mutually dependent in the process towards perfection. The only qualification, according to Paracelsus, is that man exercises this powerful art to its proper and ordained end, not failing in either application or faith[5]. Thus he asserts:

> Nature is so careful and exact in her creations that they cannot be used without great skill; for she does not produce anything that is perfect in itself. Man must bring everything to perfection. This work of bringing things to their perfection is called 'alchemy'. And he is an alchemist who carries what nature grows for the use of man to its destined end. But within this art distinctions must again be made: if someone takes a sheepskin and uses it untanned as a coat, how crude and clumsy it is in comparison with the work of a furrier or clothmaker! If a man fails to perfect a thing that nature has given him, he is guilty of even greater crudeness and clumsiness (qtd. in Jacobi, 93).

## The Four Elements

George Boas offers an explanation for the apparently tenacious hold the 'Four Elements' theory had on popular conceptions of the world, albeit a world radically and rapidly trying to adapt to the challenges of new knowledge and discovery. In a discussion of the main characteristics of the Renaissance 'world of science', Boas argues that:

[5] Hawkes explains that "Any attempt to use alchemy to enrich oneself was diametrically opposed to the spirit of the entire project. Even to conceive of gold as containing a financial or quantitative value, as opposed to an essential or qualitative 'virtue', is to reveal a world view in direct and irreconcilable contradiction to alchemical ontology" (153).

> First, and perhaps most important because seldom rejected, was the theory of the four elements: Earth, Water, Air, and Fire. This … was an all-embracing theory, for with each element were correlated not only certain perceptual characteristics, but also dynamic properties on which a physics could be erected, and psychological traits extending throughout the animal kingdom, human beings, and even the planets ('Philosophies of Science', 241).

Although he developed his own theory of the *tria prima* (salt, sulphur, and mercury), which were said to constitute all matter,[6] Paracelsus nonetheless pays tribute to Aristotle's four elements theory. In the following quotation, Paracelsus makes clear the connections between the elements, alchemy, man, and knowledge:

> External nature moulds the shape of internal nature, and if external nature vanishes, the inner nature is also lost … Thus man is like the image of the four elements in a mirror; if the four elements fall apart, man is destroyed. If that which faces the mirror is at rest, then the image in the mirror is at rest too. And so philosophy is nothing other than the knowledge and discovery of that which has its reflection in the mirror. And just as the image in the mirror gives no one any idea about its nature, and cannot be the object of cognition, but is only a dead image, so is man, considered in himself: nothing can be learned from him alone. For knowledge comes only from that outside being whose mirrored image he is (qtd. in Jacobi, 39).

[6] Copenhaver and Schmitt make the significant point that "Paracelsian matter-theory was certainly novel in the context of normal natural philosophy, but it can be traced to Moslem alchemical theories of the eighth century" (*Renaissance Philosophy,* 307).

The significance of the above passage will be further explored in my discussion of Renaissance epistemology in the following chapter. For the time being, though, it is important to indicate that one of the chief Aristotelian doctrines for the alchemist was that of the four elements. Building upon a Platonic foundation, Aristotle asserted that all physical matter consisted of four basic, elementary qualities: hot, moist, cold, and dry. These qualities, or properties, existed in fluid, though naturally determined combinations, to dictate the synthesis and composition of all material bodies. In 1540, Richard Clever wrote in *The Flower of Phisicke* that:

> All bodies have a conjunction of the foure elements … so such members which are insigned under any one of these [four] humors, are commoderated one by an other, untill there be a judiciall temperance raigning over all the wholl members … And for this cause it is not onely a seemely sight, that these elements after their greater portions, should be grossly mingled in a myxt body, but that in the whole they become perfectly united, and that there be no want in any part thereof (44).

This theory was sanctioned not only by eccentric occultists, but was also accepted by the most learned and respected natural philosophers of the time.

Henry Cornelius Agrippa

This may be illustrated by a brief consideration of Agrippa, a key figure in the promotion and dissemination of the esoteric sciences.[7] Agrippa was extremely well-educated as a member of the German aristocracy. Benefiting from the discovery of printing shortly before his birth, he was exposed to a

[7] Popkin refers to Agrippa as a "great expositor of occult philosophy in the Renaissance" ('Theories of Knowledge', 677).

wide range of literature. Agrippa was well-read in the Latin classics and in the writings of scholastics and mystics such as Thomas Aquinas and Albertus Magnus, and was also fluent in a number of European languages. In about 1506, he attended the University of Paris, and it was here that he became a leading light amongst those who pursued a scholarly interest in the occult.

Agrippa was vigorous and articulate in his defense of the occult and its practitioners, and drew on Platonic philosophy to corroborate both the four elements theory, and his belief in the efficacy of magic to manipulate these elements. Thus:

> There are four Elements, and original grounds of all corporeal things – Fire, Earth, Water, Air – of which all elemented inferior bodies are compounded; not by way of heaping them up together, but by transmutation and union … Plato also was of that opinion, that Earth was wholly changeable, and that the rest of the Elements are changed, as into this, so into one another successively…. There are, then, as we have said, four Elements, without the perfect knowledge whereof we can effect nothing in Magic (*Occult Philosophy*, 38-40).

Because these entities were believed to be in flux, it followed that all matter was considered to be subject to transformation, contingent upon the manipulation of an expert; in other words, an alchemist. Copenhaver explains:

> Agrippa recognised that magic was an art, a practical technique, but he also insisted on a theoretical content in magic, an analytic basis in the study of nature. Learned men had called magic 'the highest point

> of natural philosophy' because they saw in it speculative as well as pragmatic responses to the cosmos ('Astrology and Magic', 264).

Agrippa and others recruited Aristotelian and Platonic theory to substantiate and validate alchemical doctrine, although many alchemists insisted that the practical application of alchemy provided an authentication of classical principles. Hopkins corroborates this reading in his claim that "a century after the founding of the universities, scholars awoke (1) to the fact that there was in alchemy a theory of matter identical with the teachings of Aristotle, and (2) to the valuable confirmation of this theory in the accepted 'fact' of transmutation" (161).

The Sentient Cosmos

The related phenomena of the four elements theory and the belief in transmutation were founded upon an understanding of a conscious and sensible universe, in which all the constituents of the cosmos were connected with each other through a common 'spirit'. "This attitude", writes Hawkes, "assumes that the world is a system of signs in which the diligent observer can detect the presence of an ulterior reality" (149). Copenhaver and Schmitt explain:

> The universe of most of the philosophers of nature, like that of the Neoplatonists, was an enchanted world of ensouled objects linked together and joined to a higher realm of spirit and absolute being. A universal world-soul pervades all creation and makes all creatures, even rocks and stones, alive and sentient in some degree (*Renaissance Philosophy*, 288).

Croll's argument in the first chapter of his tract provides contemporary substantiation for this conception:

> This is the true knowledge, that Man may Microcosmically be known visibly and invisibly or magically. The knowledge of every sound and perfect Physition proceedeth from the true and full Anotomy (sic) both of the great and little world, unto which he may safely trust as to a most sure anchor (25).

Robert Fludd in his substantial treatise, *Mosaicall Philosophy*, provides further insight into the seventeenth-century idea of this symbiotic universe, of which each part is infused with spirit:

> Now as we see that Man, which is called the little-world, is composed of soul and body … and each of these two are informed, united, and vivified by the Spirit of life, which God inspired into it, even so we may observe, that the heaven or spirituall humid nature of the great world, is animated by the eternall emanation or spirit of the supernaturall wisdom of God, to give life and figure unto the world (147).

Although some of Fludd's ideas were daring and controversial, the belief in a sentient and interconnected world, in which humanity was the centre and focus of God's entire creation, was widely accepted. Boas confirms this in his observation that during the Renaissance there was an abiding conviction that "everything was intimately connected with everything else, and the separation between things was attributable to our perceptions, not to Nature" ('Philosophies of Science', 247). In relation to the idea of an interconnected universe, Bouwsma refers quite specifically to the alchemist's

application of this theory: "Fundamental to [alchemy] was a belief in the basic unity of all substance; hence popular hopes for the alchemical production of gold" (161). But the production of gold was not the final goal of the alchemical quest. Indeed, for the sincere adept mere riches were anathema. Thus Hawkes insists that "For an alchemist … the value of gold is not financial at all but moral and ontological" (151).

The especial relevance of this tenet to alchemy during the Renaissance will be discussed in greater depth in the following chapter, in which I will attempt to demonstrate the implications of this theory to the early modern conception of knowledge. For the moment, let it stand that many alchemical precepts and practices were founded squarely upon this principle of correspondence between the physical and the spiritual, or metaphysical. Hawkes makes it clear that, "Although that correspondence has been obscured since the Fall, it remains perceptible in the system of analogies and resemblances that careful observers notice between the subjective mind and external creation" (148). He goes on to explain that "The alchemist believed himself to be operating on the border between material appearance and spiritual essence, and his aim was to win control of that border" (152). Popkin clarifies the relevance of the belief in an interconnected world to occult philosophy. He points out:

> [N]ature philosophers held, in quite different ways, that beyond gaining an accurate account of nature, one had to develop a special power of experiencing or apprehending the real natures of things and their interrelationships. The theories of how this is to be done range over alchemical, magical, cabalistic and Neoplatonic views ('Theories of Knowledge', 677).

The doctrine of a sentient universe, endowed with life and feeling, was seminal to alchemical theory because, if the seemingly inanimate physical world was possessed of spirit, then it followed that it was subject to the same processes of generation, regeneration, corruption and death as was organic life. Thus: "Gold being the *telos* of all metals, alchemists held that all metals were developing, at an infinitesimally slow rate, into gold, which was believed to grow in the earth, like plants, through the warming agency of the sun. The alchemist merely tried to speed this natural process along" (Hawkes, 153).

Porta could therefore assert that, "We are perswaded that the knowledge of secret things depends upon the contemplation and view of the face of the whole world … for a diligent searcher of Natures workes, as he seeth how Nature doth generate and corrupt all things, so doth he also learn to do" (15).

Robert Fludd sets forth his conception of a sensible world in terms which evoke the consonance of a musical composition:

> Touching the harmony of the world, and how every sublunary element, and superlunary sphear, are disposed by an essentiall kind of symphonicall accord … [and] is effected by true wisdom…. Lo here the perfect and catholick fountain of all harmony, the taker away of discord both from heaven and earth, and the pure essentiall, and formall love and sympathy of this world; and therefore by the wisest and most mysticall Philosophers is said to be, *Vinculum seu ligamentum elementorum*, the band or tie, whereby the discording elements are compelled unto an harmonious accord: After the imitation of whose melodious tunes and concords, all the accords of our externall

> musick, as well vocal, as intrumentall, are typically framed, which are in respect of the true and essentiall symphony of this spirit, even as a shadow is unto a true subject, or an image unto a reality (*The Cosmos*, 22).

The theories of both Porta and Fludd resonate with the alchemist's belief that by penetrating the mysteries of physical nature, he would be able to recognise and learn to co-operate with the secret workings of this omnipresent spirit. However, this did not imply a straightforward empirical progression from observation to utilitarian knowledge. Although John Cotta is chiefly concerned with medical issues, he nevertheless offers some commonplace advice that would have been applicable to the medical laity, including the alchemical philosopher, who was trying to find the answers to life's questions through knowledge of nature:

> Right reason and true experience are the two sole inseparable instruments of all humane knowledge: the Empiricke trusting unto experience alone without reason, and the Methodian unto the abuse of right reason…. For ignorant experience and without reason, is a false sense, and mistaking reason is deniall of reason (10).

The Great and Little Worlds

If a single essential nature infuses all of creation, then comprehending both the macrocosm and the microcosm is an interactive process. Copenhaver and Schmitt recognise that during the early modern period "Macrocosm and microcosm, world-soul and human soul, affect one another through symmetries of psychic correspondence and mutually sustain an optimistic view of man's ability to fulfil an immortal destiny in a cosmos divinely ordered for human ends" (*Renaissance Philosophy*, 151).

The doctrine of the interrelationship between macrocosm and microcosm is validated by the *Emerald Tablet*,[8] believed to have been written by Hermes Trismegistus and "constantly referred to as exceptionally authoritative and indeed quasi-divine" (Shumaker, *Occult Sciences*, 178). The second point of the *Emerald Tablet* sets out the basic doctrine and was believed by many philosophers to reflect an eternal truth: "What is below is like that which is above, and what is above is like that which is below, to accomplish the miracles of one thing" (*Occult Sciences*, 179).

While this might come across as rather tautologous to the modern mind, Shumaker provides an explanation which would have been approved of by most Renaissance thinkers, as he points out that the common belief was that there were innate correlations between the various links in the 'Great Chain of Being': "hence it is safe to draw analogies between macrocosm and microcosm, the mineral kingdom and the human, animal, and vegetable kingdoms, etc." (*Occult Sciences*, 179). Bouwsma confirms this reading in his statement that, "Implicit in the great chain was also a conception of discrete steps between its various levels, which pointed to a recovery of a conception of ordered boundaries traditionally so important for human orientation to the world" (146). Ralph provides further insight into the reasons for the widespread belief in the macrocosm-microcosm "synthesis", which for many Renaissance scholars "embodied a view of humanity more dynamic than any known in the classical world. It nourished the hope of man's ultimate release and triumph – a hope that could be translated into temporal and earthly terms. To many idealists it seemed that man was ready, or nearly ready, to enter upon his long promised inheritance" (235).

[8] A English translation is provided in its entirety in Wayne Shumaker's comprehensive study of *The Occult Sciences in the Renaissance*, pp. 179-180.

If there exists this mutually enlightening relationship between macrocosm and microcosm, then learning about human nature feeds into and shapes one's knowledge of the physical world, and vice versa. Popkin outlines the basic contours of this theory:

> Man is a microcosm of the world and through alchemical, astrological and other means can learn the secrets of the macrocosm. The theory of man as the microcosm of the world played an important role in explaining, for the occultists, how we could pass from knowledge of ourselves to knowledge of the macrocosm, the universe. This Neoplatonic view allowed thinkers like Agrippa and Paracelsus to try to transform their data about man into data about the entire universe ('Theories of Knowledge', 678).

It is this fundamental belief in the interrelationship between all things that informs and affirms the allegorical tendency referred to previously. Thus George Boas can state with conviction that, "When it was a question of understanding intricacies of the mutable world, they [especially the Renaissance Neoplatonists] had recourse to allegory" ('Philosophies of Science', 248). This is quite well illustrated by reference to Croll, who explains that:

> The outward World is a speculative Anotomy (sic), wherein we may see, as in a glasse, the lesser World Man…. For they agree not in outward form or corporall substance, but in all their powers and vertues; as is the great world, so is the lesser, in essence and internall form they are altogether one and the same thing … For whatsoever lyeth hid and unseen in Man, is made manifest in the invisible

> Anotomy of the whole Universe, for the Microcosmicall Nature in Man is invisible and incomprehensible (24).

The interdependency and mutual illumination of the macrocosm and microcosm are also emphasised by Paracelsus, who attempts to clarify the mystery of duality in his explanation of the symbiotic relationship between the natural and the divine:

> It is nature that teaches all things, and what she herself cannot teach, she receives of the Holy Ghost, who instructs her. For the Holy Ghost and nature are one, that is to say: each day nature shines as a light from the Holy Ghost and learns from him, and thus this light reaches man, as in a dream…. There are two schools for man. The school of the earth teaches earthly things and has its schoolmaster from nature, in nature; indeed, it is nature herself. It inculcates knowledge of itself, that is to say, of those things which are in it. Then there is the other school, that from above. There, the teacher is our Father in Heaven (*Archidoxes*, 181-182).

This brief extract adequately adumbrates Paracelsus' underlying philosophy concerning the way in which the cosmos is structured, and how the various elements relate to each other. The following statement by Bouwsma serves to clarify the intellectual context in which Paracelsus was writing: "Closely related to [divine law] was natural law, the expression of the divine will in the natural order, whose regularities, accessible to human observation, were interpreted as obedience to the will of the Creator" (223). Haydn's assessment of the ethos of the time echoes and extends Bouwsma's view, for he argues that, "The resulting picture is still that of a beautifully coherent structure of thought and faith, builded upon the authority of God, disclosed

by revelation and reason, and sustained by the dominant principles of order and unity, deriving from a 'radical oneness'" (137).

Yet, although Paracelsus is careful to draw on Christian dogma, he does not shy away from adapting these in support of his own theories. This characteristic of pushing the limits of received wisdom is explained by Haydn in his comment that, "The whole intellectual climate stirred these men to a fresh and exuberant passion for the material world, and to an uneasy scepticism about orthodox values that subordinated it to spiritual good, or even condemned it outright" (365). While Paracelsus' theories provided fuel for his detractors, they also furnished new and exciting material for debate, especially amongst the medical fraternity and the various factions of natural philosophers.

Natural Philosophy and the Great Chain of Being

Philosophy, according to Croll, was the highest achievement of humanity as it was in pursuit of philosophical truth that people most nearly resembled God and gave expression to the image of God which was believed to be imprinted within each human being. Thus:

> He that devoting himself to Philosophy, shall sincerely and as he ought come to the inner rooms of Nature by a holy assiduitie of preparations, joining thereto a diligent contemplation of naturall causes, and withall shall refuse no pains and difficulties to get experience, by the industrie of his handie work he shall (if the grace of the most high favour be infused into him) bring forth far greater things out of this open bosome of Nature, than they seem to promise as the first sight (6-7).

A later passage by Croll highlights the belief in the essential Christian foundation of philosophy:

> Without Phylosophy it is impossible to be absolutely godly; nor shall any man be ever able completely and Christianly to Phylosophize in either Light, who is not truely godly. The two Lights are well known, within which are all things, without which is nothing, and no perfect knowledge of any thing. The Light of Grace, begetteth a true Theologer, yet not without Phylosophy: the Light of Nature, which is the treasury of God confirmed in the Scriptures, maketh a true Phylosopher, yet not without Theologie, which is the Foundation of true Wisdome (135).

It was therefore philosophy which was held to be the key to unlocking the secrets of nature, and the significance and role of humanity within the context of nature. But 'philosophy', like other areas of knowledge during the Renaissance, was no single definitive intellectual or moral construction. Rather, in keeping with the trend towards permeable boundaries, "Probably the most typical characteristic of Renaissance thought was its constantly changing notion of philosophy, its scope, its purpose, its objects and its methods" (Vasoli, 'Renaissance Concept of Philosophy', 61). Perhaps more important for this thesis is the understanding of the relationship between philosophy and the occult. Park and Kessler provide an explanation of how the new anti-Aristotelian epistemology was extended by the recovery and dissemination of alternative classical material. They argue that "These works proposed radically un-Aristotelian models for basic psychological phenomena – vision, for example, and intellection – and injected a new magical and theurgic element into philosophical speculation on the soul" ('The Concept of Psychology', 460).

The twofold process of observing nature in order to discover the secrets of the human mind, and striving to understand the make-up of the human mind to penetrate the mysteries of nature, was one of the central concepts of the theory of the 'great chain of being', and of its corollary, the relationship between macrocosm and microcosm. Renditions of the finely correlated philosophy of the 'great chain of being' are to be found in one form or another in most occult texts of the period. Porta's clear and succinct version draws attention to the relationship between the 'great chain of being' and occult philosophy:

> Seeing then the Spirit cometh from God, and from the Spirit cometh the Soul, and the soul doth animate and quicken all other things in their order … so that the superiour power cometh down even from the very first cause to these inferiours, deriving her force into them, like as it were a cord platted together, and stretched along from heaven to earth, in such sort as if either end of this cord be touched, it will wag the whole; therefore we may rightly call this knitting together of things, a chain, or link and rings…. These things a Magician being well acquainted withal, doth match heaven and earth together … or to speak more plainly, he marries and couples together these inferiour things by their wonderful gifts and powers, which they have received from their superiours; and by this means he, being as it were the servant of Nature, doth bewray her hidden secrets, and bring them to light, so far as he hath found them true by his own daily experience, so that all men may love, and praise, and honour the Almighty power of God, who hath thus wonderfully framed and disposed all things (*Natural Magick*, 8).

Croll, too, emphasises the religious virtue inherent in the respect for the evident correspondence between macrocosm and microcosm:

> This visible and invisible fellowship of Nature is that golden chaine so much commended, this is the marriage of heaven and riches, these are *Plato's* rings, this is that dark and close Phylosophy so hard to be known in the most inward and secret parts of Nature…. This was that which the most ancient Phylosophers studied, which by the Light of Nature that singular inspiration of God they also obtained, wherein the wonderfull and infinite power of the incomprehensible Wisdome of our Creator so shineth that we canot sufficiently admire and extol his inestimable goodnesse in the Creatures and the unutterable infinitenesse of his Mysteries ('Discovering the Great and Deep Mysteries', 42).

At the religious and philosophical levels, the formulation of an intricately coherent universe, and the mutually effective relationship between the constituent parts, served to confirm a belief in humanity's cardinal position in the universe. If a human being was the consolidation and reification of the entire cosmos, then it followed that he or she was the crowning jewel of that cosmos. All the diverse components that God scattered throughout creation, he unites in perfect harmony in a single human being. Like the angels, a human being has intellect and freedom; like animals, he or she senses; like plants, he or she grows and reproduces; and like the heavens and earth, he or she is composed of a mixture of the elements (Steneck, 122). And as the microcosmic embodiment of the macrocosm, humanity has jurisdiction and holds sway over all of creation.

Copenhaver draws attention to the relationship between the belief in the 'Great Chain of Being' and the occult. He stresses that, "It cannot be said too emphatically that this idea of chains or orders linking terrestrial to celestial entities and thereby providing a basis for astrological magic was a leading feature of a philosophy that was above all else systematic and rigorous" ('Philosophy of Magic', 86).

An understanding, then, of the sympathies and antipathies between the great and little worlds translates into the exercise of power over both. Knowledge of the world put to proper use is power over that world. Thus Ralph explains that "the feeling grew that the sympathetic study of natural phenomena could lead to an understanding of the physical world and of man himself" (237).

Copenhaver expounds on this, explaining the occult conception of knowledge as power. Thus:

> [E]ach and every species corresponds through its own seminal reason to an idea, and often through this reason it can easily receive something of value from on high. Equipped with this metaphysical information, the philosopher-magician had reason to manipulate species of material objects to attract the higher immaterial powers with which they are joined through Soul ('Astrology and Magic', 276).[9]

[9] In another of his works, *Renaissance Philosophy*, Copenhaver, along with Charles B. Schmitt, points out that, "Hidden symmetries and illegible signatures of correspondence energize and symbolize a world charged with organic sympathies and antipathies. The natural philosopher's job is to break these codes and uncover their secrets; his tools are experiential as well as magical. He watches nature closely to learn her arcane secrets, and then he manipulates them for practical use" (288-89).

This axiom may be illustrated by reference to an earlier point made about the various attempts to improve the human condition by gaining insight into and mastery over disease. This was not the exclusive province of orthodox medical practitioners, but also occupied the thoughts and efforts of many an occult philosopher in quest of the restorative elixir.

On the one hand, many apothecaries and medical experts believed that they could unearth the hidden treasures of an interconnected and harmonious nature in order to address the imbalances which they held gave rise to disease. On the other hand, natural philosophers pursued this hypothesis in the hope of discovering the virtues and qualities that they believed infused all of nature, and desired to apply this knowledge practically to the human condition. The true alchemical adept believed, too, that knowledge of the secrets of the world's constitution and processes would lead to the power to employ that knowledge for the good of humanity. The emphasis on the ameliorative aims of this quest challenged to some extent the charges of demonic activity, and lent to certain branches of the occult a quasi-religious authority. Frances Yates points out that hermetic or occult philosophy had as its aim:

> [A] way of reaching intuitive knowledge of the divine and of the meaning of the world, as a gnosis [knowledge of spiritual mysteries], in short, to be prepared for by ascetic discipline and a religious way of life … through contemplation of the cosmos as reflected in his own *Nous* or *mens* which separates out for him its divine meaning and gives him a spiritual mastery over it (*Hermetic Tradition*, 4).

Paracelsus was perhaps one of the most influential forces in the 'christianising' of the occult sciences. Lawrence Principe points out that

Paracelsus popularised the relationship between esoteric pursuits and exoteric practices, by advocating a world in which "natural and sympathetic magic played a central role in an organic cosmos" (189). In the 'Prologue' to *The Archidoxes of Magic*, the aid and sanction of God is invoked, seeming to articulate the goal of divine meaning and power:

> Having first invocated the Name of the Lord Jesus Christ our Saviour, we will enterprise the Work…. This ART was by our Lord God the Supream Creator, ingraven as it were in a book in the body of Metals, from the beginning of Creation, that we might diligently learn from them. Therefore when any man desireth throughly and perfectly to learn this Art from its true foundation, it will be necessary that he learn the same from the Master thereof, to wit, from God, who hath created all things, and onely knoweth what Nature and Propriety he himself hath placed in every Creature…. We will therefore take him to be our Master, Operator, and Leader into this most true Art. We will therefore imitate him alone, and through him learn and attain to the knowledge of that Nature…. Hereby it will come to pass, that the most high Lord God shall bless all the Creatures unto us, and shall sanctify all our Wayes; so that in this Work we may be able to bring our Beginning to its desired End, and the consequence thereof to produce exceeding great Joy and Love in our Hearts (1655 English translation by Robert Turner, sigs. B1r—B2v).

This 'christianised' conception of the occult characterised many alchemical writings. Not only were alchemical adepts convinced of the undeniable links between macrocosm and microcosm, but they also adhered to the belief that profitable interaction between the two was possible. However, in

accordance with their assertions of divine sanction, they stressed that proper converse between the two was possible only through a faithful compliance with the strictures of God. Thus serious practitioners asserted that it was only the shriven and devout elect, those who purified themselves and consecrated their work to God's service, who would be granted the power to perform acts of transformation which would lead to the restoration of God's original plan of cosmic symmetry and harmony.