The Arabic Influences on Early Modern Occult Philosophy

Liana Saif

Palgrave Historical Studies in Witchcraft and Magic

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The history of European witchcraft and magic continues to fascinate and challenge students and scholars. There is certainly no shortage of books on the subject. Several general surveys of the witch trials and numerous regional and micro studies have been published for an English-speaking readership. While the quality of publications on witchcraft has been high, some regions and topics have received less attention over the years. The aim of this series is to help illuminate these lesser known or little studied aspects of the history of witchcraft and magic. It will also encourage the development of a broader corpus of work in other related areas of magic and the supernatural, such as angels, devils, spirits, ghosts, folk healing and divination. To help further our understanding and interest in this wider history of beliefs and practices, the series will include research that looks beyond the usual focus on Western Europe and that also explores their relevance and influence from the medieval to the modern period.

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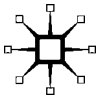

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Introduction

These are the words of the English astrologer John Booker (1603–67) extolling the knowledge of his celebrated contemporary William Lilly (1602–81):

> What! Persian, Caldee, Arabick, the Greek,
> Latin Astrologers, all taught to speak
> In English! Trismegiscus, Hercules,
> Pythagoras, Thales, Archimedes,
> Great Ptolomy, and Julius Firmicus,
> Albumazar, and Albategnius,
> Hali, Bonatus, our own Eschuidus,
> And Iohn de Regiomonte, Ganivetus,
> Risse, Leovitius, Michael Nostradame,
> Cardan, and Nabod, Ticho, men of fame;
> All these, and more, are dead, all learned Men;
> Were they alive, they might come to learn again.
> But are they dead? Behold Astrology,
> Now Pha'nix like, reviv'd again in thee . . .
>
> John Booker, 'To his honoured Friend the Author', in *Christian Astrology*[1]

Lilly claims in his *Christian Astrology* to have laid down 'the whole naturall grounds of the Art, in a fit Method: that thereby I may undeceive those, who maisled by some Pedling Divines, have upon no better credit than their bare words, conceived Astrology to consist upon Diabolicall Principles: a most scandalous untruth'.[2] To defend astrology from illicitness, Lilly drew from a rich tradition that conceived astral influences as a physical reality demonstrable, effective, and unmarred by diabolical interference.

The *Christian Astrology* provides extensive practical and interpretive guidelines for astrology. Implicitly underlying this practical stratum was a conviction central to the world-view of people from antiquity up to the early modern period. That the stars and planets regulated the world below as intermediaries of the Divine was the axis around which human experience of nature and the heavens revolved. Medicine, agriculture, astrology, magic and most human endeavours relied on comprehending how the celestial world influenced the terrestrial world. Understanding the stars as signs needed the sophisticated interpretive skills of an astrologer; as causes they required the knowledge of a natural philosopher; and as animated entities – not demons – they needed the theories of a metaphysician.

Magic also belonged to this mindset. In the *Three Books of Occult Philosophy*, Heinrich Cornelius Agrippa explains that it is 'the most perfect and chief Science, that sacred and sublimer kind of Philosophy, and lastly the most absolute perfection of all most excellent Philosophy'.[3] This status was bestowed upon magic, particularly natural magic, because it was among those undertakings whose efficacy relied on apprehending celestial mediation. The philosopher Pico della Mirandola (1463–94) affirms that the power of nature is derived from the power of the heavens which the mage utilizes in her work.[4] Agrippa also asserts that all types of natural magic are joined and knitted 'thoroughly by the powers, and virtues of the superior bodies'.[5] This is echoed by the scholar Giambattista della Porta (1535–1615) who explains that natural magic is inherently astral in its powers.[6] Astrology and magic thus entwined to become part – even an application – of natural philosophy. One may say that natural/astral magic and astrology constitute the area where natural philosophy and occult philosophy met.

This book investigates the impact of Arabic astrological and magical theories on the development of this area of early modern occult philosophy. The phrase 'Arabic theories of astral influences' is used throughout to denote a complex of ideas unified by their philosophical framework and their aim; namely, to verify the belief in the influences of the heavenly bodies by explaining how they conform to the laws of nature and cosmic order as efficient causes of generation and corruption and as the depositors of occult properties in all generated things. 'Arabic' here refers to the language used by a group of authors, active between the eighth and thirteenth centuries but who were not necessarily all Arabs.[7] The main texts that contain these Arabic astrological and magical theories are *Kitab al-Madkhal al-kabir ila 'ilm ahkam al-nujum* (*The Book of the Great Introduction to the Judgements of the Stars*) by the Khurasani astrologer Abu Ma'shar al-Balkhi, *De radiis* by the

Arabic philosopher Ya'qub ibn Ishaq al-Kindi (801–73), *Ghayat al-hakim* (*The Goal of the Wise*, known in the Latin West as the *Picatrix*) by the Andalusian Maslama al-Qurtubi (d. 964),[8] Avicenna's *Metaphysics of Kitab al-Shifa'* (*The Book of Healing*), and the two anonymous texts the *Theology of Aristotle* and *Sirr al-asrar* (*Secret of Secrets*). These texts were brought to Europe as a result of the increased contact with Muslim Spain and Byzantium and were translated into Latin during the twelfth and thirteenth centuries. They constituted to European natural and occult philosophers a body of works containing philosophical notions of astral generation and causation that validate astrology and astral magic in non-supernatural terms, or without 'Diabolicall Principles' as Lilly would say, thus contributing to the flourishing of European occult philosophy.

Epistemological framework

Early modern occult philosophy involved two parallel modes of theorization: the hermeneutic and the causal. In the first, nature and the heavens were strewn with signs that could be interpreted by the skilled astrologer or magician. The hermeneutic argument stemmed from the belief that natural operations could be known through understanding the interconnection of signs or what Michel Foucault explains as the exposition of 'the semiology of signatures'.[9] To illustrate this, Foucault refers to early modern magical conceptions since 'the form of magic was inherent in this way of knowing'.[10] Taking the example of pseudo-Paracelsus's *Archidoxes of Magic*, he explains that natural philosophers were able to discover hidden qualities by establishing analogies between stars, stones, plants and animals; 'these signs that must be interpreted indicate what is hidden only in so far as they resemble it; and it is not possible to act upon those marks without at the same time operating upon that which is secretly indicated by them'.[11] Therefore, to interpret nature's secrets and its hidden properties, natural philosophers and occultists needed to establish 'the hermeneutics of resemblance', i.e. constructing the hidden meaning based on the codes of similitude among things in nature and in the heavens which indicated useful sympathies.[12]

Indeed, astrology and magic could not be practised without knowledge of resemblances, analogies and sympathies. However, the hermeneutic interpretation converged with the causal in order to explain occult forces within a natural framework. According to Aristotle, the study of nature is an enquiry into causes: 'the natural way of doing this is to start from the things which are more knowable and clear to

us and proceed towards those which are clearer and more knowable by nature'.[13] Adopting the Aristotelian epistemological stance, Arabic natural philosophers and astrologers perceived the heavenly bodies as causes of generation and corruption, and it was precisely because of their causation that resemblances occurred in nature, for example among things that are Jovial or Saturnal in origin. Moreover, the Neoplatonic elements in the Arabic works ensured that the soul was accommodated into their causality. The World Soul and her celestial manifestations were integrated into a volitional causality in which they acted as transmitters of astral influences and principles of the universe's animation. Arabic natural philosophers, astrologers and magi devised an astral causality that was physical and psychic, compatible with a semiological approach to nature and the heavens. This epistemological framework was adopted by European medieval and early modern occult philosophers because it presented occult philosophy as a legitimate way of knowing.

Historiographic considerations

This treatment of natural and occult philosophy as a reconciliation of three epistemological strategies, namely, causal, semiological and volitional, prevents the reduction of early modern occult philosophy to a singular philosophical stream, whether it is Neoplatonism, 'Hermeticism', Kabbalah, etc.[14] It moves us a step closer to understanding the complexity of occult thought as a whole. More significantly, since the aim here is to show that causal explanations did not exclude semiological and spiritual interpretations, any evaluation based on the notion of 'rationality' imposed on astrology and magic becomes problematic, leading us to reject positing them in relation to 'modern science'. In *Religion and the Decline of Magic*, Keith Thomas discusses the history of the decline of what he considers ineffective practices of astrology and magic (ineffective – by modern standards – practices that were taken so seriously by intelligent persons in the past), arguing that this decline was causally and proportionally related to the rise of the Scientific Revolution.[15] Other historians, adopting a positivistic method, find in them the anticipation of important scientific discoveries, containing scientific potential.[16] In a more relativistic move, Allen G. Debus remarks:

> Some of the scholars 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 interests, but many could not. And we cannot relegate this interest in a mystical world view to a few lesser figures forgotten today except by antiquarians. [...] If we do this we cannot hope to reach any contextual understanding of the period. [...] controversies over natural magic and the truth of the macrocosm–microcosm analogy were then as important as the better-remembered debates over the acceptance of the heliocentric system or the circulation of the blood.[17]

Such a view moves a step away from a positivistic stance but it remains a strategic variance of it as occult 'interests' are still contrasted with a certain set of 'scientific discoveries'. In his study on the rationality of magic, Stanley Tambiah fixes the categories of science, magic and religion in his structural analysis and argues that the demarcation between science, religion and magic occurred in the sixteenth and seventeenth centuries when modern science became 'the quintessential form of rationality'. The seeds of this demarcation were sown in the early Judaic opposition between religion and magic. Within this period magic is perceived historically by Tambiah as a current that runs at various depths beneath 'science' and 'religion'.[18] Tabiah's view presents magic as a marginal subversion of scientific exactness and religious legitimacy. The cases of this present book will show that natural/astral magic and its theoretical foundations were not conceived as anomalous concerns. They drew on natural philosophy and religious beliefs, yet they were fixed in neither.

Post-Enlightenment perception of magic's inherent 'non-rationality' is contested by Kieckhefer who posits instead a 'specific rationality' to it. He writes, 'to conceive magic as rational was to believe, first of all, that it could actually work (that its efficacy was shown by evidence recognized within culture as authentic), and, secondly, that its workings were governed by principles (of theology and physics) that could be coherently articulated'.[19] However, occult philosophy resists these reductionist criteria as it includes verification through semiological interpretations and admission of universal and individual vital agencies that do not exclusively belong to the realm of physics or theology. This book lets the texts themselves divulge their own paradigms. Astrology and magic are viewed as neither distinct from, nor relative to, science as it is understood today, but as a way of knowing that approaches the universe in terms of signs, causes and spirits.

Chronological perspective

Instead of imposing modern criteria of rationality on the cases of this study of early modern occult thought, medieval continuities are emphasized. As a result, this book does not adopt a rigid periodization of Western history.[20] Frank L. Borchardt argues that 'what makes Renaissance magic a Renaissance phenomenon is, at least in part, its share in the humanists' compulsion to return to the sources, the claim to have rediscovered, restored, and drunk at the lost and forgotten spring of ancient wisdom'.[21] The early modern revival of Platonism and Neoplatonism and the discovery of the Hermetic Corpus have been considered by a generation of scholars as heralding an occult awakening with no medieval precursors.[22] Eugenio Garin writes:

> The distance between the Middle Ages and the new age is the distance between the closed universe, an unchanging, static world which has no history and an infinite universe which is open to all possibilities. In the system of the medieval universe, magic was no more than a demonic temptation, bent upon making a crack in a peaceful and perfect world. As such, magic was opposed, persecuted and burnt. It was something that could not be included among the sciences worthy of man.[23]

Frances Yates echoes these sentiments:

> The ban of the medieval Church on magic had forced it into dark holes and corners, where the magician plied his abominated art in secrecy. Respectable people might sometimes employ him surreptitiously and he was much feared. But he was certainly not publicly admired as a religious philosopher. Renaissance magic, which was a reformed and learned magic and always disclaimed any connection with the old ignorant, evil, or black magic, was often an adjunct of an esteemed philosopher.[24]

Continuing this line of thinking, Nicholas Weill-Parot claims that early modern occult thought was 'freer'.[25] However, the intelligibility of the universe, and therefore its 'openness', was a central theme in the natural philosophy of the twelfth century which came to support the natural and learned magic esteemed by Albertus Magnus (1193–1280), Roger Bacon (1214–92) and Thomas Aquinas (1225–74), which in turn influenced Marsilio Ficino (1433–99), Pico della Mirandola and John

Dee (1527–1609). Medieval continuities in Renaissance philosophy as a whole are affirmed, for example, by Luca Bianchi.[26] Similar assertions are made by Paul O. Kristeller in his analysis of Ficino, H. Darrel Rutkin in his studies on Pico, and Nicholas Clulee in his works on John Dee.[27] After all Ficino, Pico and Dee all had a scholastic training and education.[28]

As Michael Bailey explains, the differences between the Renaissance and medieval periods 'amount more to shifting points of emphasis within broadly continuous magical traditions than truly fundamental changes in magical outlook', leading to intensifications of magic which were caused by the intellectual tendencies of a specific age and author.[29] Therefore, after discussing the Arabic theories of astral influences in the contexts of astrology and magic (Chapters 1 and 2), each chapter of this present work investigates the impact of these Arabic theories on a prominent intellectual aspect or a group of ideas that contributed to the emergence of early modern occult thought. The third chapter considers the impact of the Arabic theories on the intellectual framework set by the twelfth-century schools in Chartres and Paris. They fostered the sense of the universe's knowability which includes considerations of the connection between the celestial and terrestrial worlds. In this period, the impressive translation activity and reception of Arabic materials that covered all topics of natural philosophy from medicine and astrology to natural magic provided the textual support needed for constructing and imagining a knowable universe. This is evident in the works of William of Conches (*c.*1090–*c.*1154), Bernard Silvestris (1085–1178) and Hermann of Carinthia (*c.*1100–*c.*1160). The fourth chapter moves to the thirteenth century which witnessed the re-assimilation of Aristotle and the introduction of Avicenna's metaphysics. This chapter argues that this resulted in the enunciation of volitional causality and its effects on the physical world, including its links to astrological and magical theories. It led to the emergence of an independent genre of learned magic as represented by the influential works of Albertus Magnus and Roger Bacon.[30] In the fifth chapter we enter the world of the fifteenth century which was reanimated by the revival of Neoplatonism achieved by Ficino who also made available the complete works of Plato. Through Ficino's works, revelation, metaphysics, astrology and magic intermingled to produce a world of possibilities that celebrated man's dignity and power. For Ficino, magic was power because it was a part of wisdom that demonstrated how nature works. Arabic texts and those inherited from the Latin medieval tradition provided Ficino with a natural explanation to the efficacy of magic by introducing astral causality and the

natural explication of occult properties. Pico della Mirandola, explored in the sixth chapter, adopted the same strategies of legitimization but also reworked astrology and astral/natural magic within a Kabbalistic strand of occult hermeneutics that aimed ultimately at the divinization of the soul. The seventh chapter deals with the Arabic influences on the thought of John Dee in the sixteenth century. He took the Arabic and Latin medieval inheritance and sought to quantify astral influences and natural forces, thus giving occult philosophy a mathematical dimension; in addition, he played a significant role in popularizing learned magic. The final chapter shifts from a chronological approach to a thematic one, exploring the nature of cosmic vital agents; namely, daemons and celestial souls, and their role in the theories of astral influences found in the works of all the aforementioned authors. This chapter elucidates further the meaning of volitional causality that asserted the animation of the universe and the obedience of all its natural and astral dynamics to divine will. It discusses the role of the celestial souls and daemons which constitute the vital principles behind the causal functions of the celestial bodies and their influence on the terrestrial world. This demonstrates that the early modern universe was not merely mechanical – governed by causation only – but a living entity with which the occultist could interact on empirical, hermeneutic and spiritual levels.

1
Arabic Theories of Astral Influences: Abu Ma'shar al-Balkhi

The astrologer Abu Ma'shar Ja'far ibn Muhammad ibn 'Umar al-Balkhi was definitely one of the most influential astrologers in the Middle Ages and the early modern period, in the Islamic world and Europe.[1] From *Kitab al-mudhakkarat* (*Book of Reminiscences*) written by his pupil Shadhan, we know he was born in Balkh in Khurasan on 21 Safar 171 AH/10 August 787 AD; and according to Ibn al-Nadim he died in al-Wasit in central Iraq on 29 Ramadan 272 AH/9 March 886.[2] His works on astrology display his masterful syncretic knowledge, drawing from Greek, Persian and Indian sources.[3] Among his most influential works are *Kitab al-milal wa al-duwal* (*Religions and Dynasties*) also known as *Kitab al-qiranat* (*On Conjunctions*) which deals with the effects of celestial conjunctions on nations, dynasties and rulerships; *Kitab tahawil sini al-mawalid* (*The Revolutions of the Years of Nativities*), which describes casting horoscopes for the birthdays of clients and how to derive information for the following year by comparing these horoscopes with the clients' birth charts; and *Kitab al-madkhal al-kabir ila 'ilm ahkam al-nujum* (*The Book of the Great Introduction to the Science of the Judgements of the Stars*) in which he provides a comprehensive philosophical model for astrology, presenting it as a natural science.[4] The strategies for the naturalization of astrology that Abu Ma'shar adopts in his *Great Introduction* led Richard Lemay to assert that 'Abu Ma'shar alone attempts to justify the validity of astrological science by the use of natural philosophy. Of all the astrological works of Mash'allah, Zael (Sahl ben Bisr) or Alcabitius (al-Qabisi) translated by John of Seville we find the *Introductorium* [*The Great Introduction*] alone to be of a theoretical nature, all the others having a particular subject and aim, usually for the use of the practice of astrology.'[5]

In his *Fihrist*, completed in 377 AH/987–8 AD, the biographer Abu al-Faraj Muhammad ibn al-Nadim enumerates thirty works attributed

to Abu Ma'shar including *The Great Introduction*.[6] Many anecdotes were mentioned by various authors that afford us a glance into his fame and influence. In *Niswar al-muhadara wa ahbar al-mudhakara*, we are told by Abu 'Ali al-Muhassin ibn 'Ali al-Tanukhi (891–959) that Abu Ma'shar and his companion al-Buhthuri were suffering from financial difficulties. To improve their situation they decided to gain favour with al-Mu'tazz (r. 866–9) who was at that time incarcerated. Abu Ma'shar predicted that al-Mu'tazz would eventually become a caliph. When his prediction was realized, the new caliph assigned him an allowance of one hundred dinars per month, granted him thirty dinars in real estate, and bestowed upon him a gift of one thousand dinars; in addition, he made him chief of astrologers at court.[7] Ibn Tawus (1193–1266) in *Faraj al-mahmum* relates this incident and refers to Abu Ma'shar as the 'foremost Muslim authority in astrology, [he] was exemplary in this science'.[8] We find in this work thirteen tales about Abu Ma'shar, including one that shows the astrologer predicting the appearance of a calf's foetus in the presence of al-Muwaffaq's army,[9] and another tale of an incident that took place in the presence of the same caliph who had asked Abu Ma'shar and his companion to guess the thing he was hiding. Having cast a horoscope, the companion answered that it was a fruit; Abu Ma'shar declared it an animal. When revealed, it was an apple. A perplexed Abu Ma'shar re-examined the horoscope for an hour and then rushed towards the apple. He broke it and exclaimed, 'God is great!' The apple was full of worms! Al-Muwaffaq was very impressed and granted the astrologer a reward.[10] These testaments confirm the popularity and reputation of Abu Ma'shar as a brilliant astrologer. But what they leave out are the theoretical foundations found in *The Great Introduction* that underlie Abu Ma'shar's impressive skills and placed astrology in the domain of natural philosophy. But before delving into this work, it is important to consider the cultural and intellectual context in which his theory was formulated in order to understand the special status of Abu Ma'shar and his *Great Introduction* in the intellectual history of astrology as a whole.

Astrology in medieval Islam

Astrology was certainly popular and largely accepted in the medieval Islamic world.[11] This can be attributed to the special consideration of the heavens and stars in Islam, in addition to the status of astrology as a natural science.[12] Today, astrology in popular imagination is synonymous with 'telling the future' but future-telling is a complex concept

that is represented by many traditions. In Islam predictions come under the category of *'ilm al-ghayb* – knowledge of that which is veiled – this knowledge is only available to God. In the Qur'an we read that God is the Knower of the Unseen (*'alim al-ghayb*), 'He discloses His [knowledge of the] Unseen to no one.'[13] As a result, belief in omens (*tatayyur*) is false; 'their omen came from God, but most of them know it not'.[14] But when it comes to astrology, things are a little different. A verse in the Qur'an declares that 'In the creation of the heavens and the earth, in the rotation of night and day, are sure signs for those people possessed of minds [*ulul albab*].'[15] The heavens are full of signs of God's omnipotence on which the faithful contemplate with their intellect. We also read in the Qur'an, 'I [Allah] swear by the motions of the stars – and a mighty oath it is, if only you knew! This is a Glorious Qur'an, in a Book well-sheltered.'[16] This verse reveals that the locations of the stars have a divine significance; for only by great things does the Almighty swear, and the greatness of this oath lies in its hidden significance only revealed to the wise or *ulul albab*. Astrologers then may argue that they are among those who employ the intellect to perceive and analyse the order of the celestial bodies which have great significations as God in his Sacred Book asserts. Abu Ma'shar, who started his career as a student of theology but later turned his attention to astrology,[17] begins his *Great Introduction* with, 'praise be to God who created the heavens and all its wonders, made the planets as ornaments and lanterns, made them signs and guides to be followed, and made the earth an even expanse and set its sustenance'.[18]

That astrology seemed compatible with religion also led to the open reception of foreign astrological knowledge.[19] During the reign of the Abbasids, who seized power in 750 AD and remained in Baghdad for two centuries, astrology began to be perceived as a handmaiden of sciences that were being transmitted into Islamic domains through a boom of translation activity and contact with the remains of ancient civilizations such as Persia.[20] Such texts included the Aristotelian natural corpus, Euclid's *Elements of Geometry* and the *Almagest* and *Tetrabiblos* of Ptolemy whose works were foundational to Arabic astrology.[21] During the reign of Harun al-Rashid (r. 786–809), many Indian astronomical works were also translated such as the *Siddhanta*, an Indian set of astronomical tables with instructions translated by Muhammad ibn Ibrahim al-Fazari, who was influential on Abu Ma'shar.[22]

In addition to the active reception of astrological treatises and their translation, astrology thrived due to its status in the courts of the caliphs. Harun al-Rashid and many other rulers from the

Abbasid dynasty had faith in astrology and often consulted their court astrologers before venturing on a new project. Astrologers seemed to occupy the position of military strategists and their predictions were much valued.[23] Alongside medicine, astrology was deemed in court as a beneficial science for state and individuals.[24]

We can therefore see that favourable cultural conditions existed for the development of astrological practice and theory.[25] The Qur'anic call for the contemplation of the heavens and stars and the appropriation of Hellenic, Indian and Pahlevi texts led to the production of works that presented astrological investigations as a fundamental part of the epistemological foundations of Islamic science.[26]

The astrological theory of Abu Ma'shar al-Balkhi

Under the historical conditions outlined earlier thrived Abu Ma'shar al-Balkhi who worked under the patronage of al-Ma'mun. The common Arabic term for astrology is adopted in *The Great Introduction*: *'ilm ahkam al-nujum*, the science of the stars' judgements. The words of this term can be seen as the organizing principles of Abu Ma'shar's defence of astrology as he begins with presenting astrology as a legitimate science (*'ilm*), discusses the nature and operations of the stars (*nujum*), and then highlights the nature of the events that the stars signify and judge (*ahkam*).

'ilm: astrology as science

The noun *'ilm*, the root of which is *'a-li-ma* 'to know', denotes 'knowledge', 'science' or 'theory'. All of these meanings are utilized in Abu Ma'shar's demonstration of the epistemological foundations of astrology. To express general knowledge, he mostly uses *ma'rifa* (root: *'a-ra-fa*, 'to know'), whereas *'ilm* is adopted by and large to denote 'science'. Abu Ma'shar states at the beginning the first chapter: 'I saw the lovers of science [*'ilm*] aiming toward the knowledge [*ma'rifa*] of things and the deduction of the sciences [*al-'ulum*] [...] the completion of scientists' [*'ulama'*] purpose is the perfection of the knowledge [*ma'rifa*] that they seek.'[27]

The generality of 'things' is associated with 'knowledge' whereas 'deduction' (*istinbat*) is specifically correlated with 'science' and is the occupation of 'scientists'. That science is one part of knowledge is implied here. Moreover, astrology as a science of prediction is set apart from other types of knowledge of future things known by the public (*ta'rifaha al-'amma*) due to tradition and experience.[28] In discussing prediction among farmers, herdsmen and sailors, the root *'a-ra-fa* is used

rather than *'a-li-ma*, and *ma'rifa* is used to describe the non-astrological means of knowing the sex of an unborn baby under a subsection entitled 'on the knowledge of boys and girls' (*fi ma'rifat al-thakaran wa al-inath*).[29]

That the science of astrology is supported by theory is stated clearly in the first chapter. Abu Ma'shar writes that the science of the judgements of the stars has a theoretical part (*'ilmi*) and a practical one (*'amali*).[30] The casting of horoscopes and the computational aspect of astrology is often referred to as a type of *sina'a* meaning 'practice' (from the root *sa-na-'a*, to make).[31]

Abu Ma'shar establishes the scientific status of astrology and its theoretical foundations with two strategies: comparatively, by highlighting its interconnectivity with astronomy; and epistemologically by applying Aristotelian notions of natural investigations to astrology. In the first strategy, Abu Ma'shar states that astrology is a qualitative science that contrasts with, but is also related to, astronomy, the quantitative study of the heavenly bodies since it is concerned with mathematical observations and exact calculations. Astrology is

> The knowledge of the nature of every planet and sphere, and the specifics of their significations and what is born and what occurs from the power of their diverse motions and their effects on this sublunar world, such as the difference of the seasons, the transformation of the natures that are fire, air, water and earth, and the things that result from these natures such as the genera of animals, plants, and minerals. And from the first kind of the science of the stars [astronomy], that is a universal science, the second kind is inferred that is the science of the judgements of the stars.[32]

This relationship was noted by Ptolemy in *Tetrabiblos*:

> Of the means of prediction through astronomy, O Syrus, two are the most important and valid. One, which is first both in order and effectiveness, is that whereby we apprehend the aspects of the movements of the sun, moon, and stars in relation to each other and to earth, as they occur from time to time; the second is that in which by means of the natural character of these aspects themselves we investigate changes which they bring about in that which they surround.[33]

Therefore, astrological knowledge cannot be obtained without comprehending the cosmological setting that astronomy establishes or its computations.[34] As a result, astronomy and astrology are

'interconnected' (*muttasilan*).[35] Astrology borrows part of its legitimacy from the exactitude of astronomy according to Abu Ma'shar. He emphasizes that astronomical findings are irrefutable because of their dependence on mathematics and geometry that have 'manifest and clear bases that are agreed upon [...] that are indubitable'.[36] The way to infer astrological knowledge from astronomy is by analogy (*qiyas*), deduction (*istinbat*) and verification by experience (*tajrib*). Abu Ma'shar writes:

> Many people thought that astrology is something stumbled upon by intuition and guesswork without having a sound origin to work with or from which syllogisms can be made [...] and so we composed our present book to establish the judgements [of astrology] with convincing arguments and demonstration [...] and whatever that is not there can be deduced by those who know the foundations of this practice.[37]

Here, Abu Ma'shar is establishing the epistemological principles of astrology based on Aristotelian paradigms of natural investigation. Astrological knowledge begins with empirical evidence; 'most of the science of the judgements [of the stars] is manifest, visible, and clear, and that part that is not manifest is inferred by clear syllogisms from the science of the nature of things and from what is manifest of the powers of the planetary motions on this world'.[38] This is the first Peripatetic doctrine adopted by Abu Ma'shar.[39] This type of induction is postulated by Aristotle in *Posterior Analytics*.[40] Furthermore, in *Physics*, Aristotle explains that the study of nature is an enquiry into causes from their effects, 'the natural way of doing this is to start from the things which are more knowable and clear to us and proceed towards those which are clearer and more knowable by nature'.[41] By adopting this basis for astrological investigation, Abu Ma'shar establishes astrology as a part of natural philosophy in an Aristotelian sense and as a science which reveals causes by observing effects.[42]

Nujum: the stars and planets

Abu Ma'shar composed his *Great Introduction* because he had not come across a book that justified the practice 'with convincing arguments' that are 'accepted by philosophers'.[43] The aim of the first book of *The Great Introduction*, according to Abu Ma'shar, is to explain the causes (*'ilal*) behind the signs (*dalalat*).[44] With this work he was addressing a theoretical shortcoming he had perceived in his sources, Greek and Arabic, by establishing the notion that stars are signs *because* they are also causes.

In Hellenistic astrology the interpretation of astral influences seemed to vacillate between semiological and divine interpretations, stemming from the fact that in Greek philosophy of nature generally there is no discontinuity between what appears as natural and divine; divine influence was intrinsic to understanding natural processes and sympathies and vice versa.[45] The semiological approach is clearly expressed by Plotinus who rejects the idea of astral causality. In the *Enneads* we read: 'if the stars announce the future – as we hold of many other things also – what explanation of the cause have we to offer? What explains the purposeful arrangement thus implied?'[46] He explains that the influences of the heavenly bodies proceed from their 'symbolic power'. He denies that the stars can be causes and adds: 'we may think of the stars as letters perpetually being inscribed on the heavens [...] all teems with symbol, the wise man is the man who in any one thing can read another'.[47] Therefore, the stars indicate everyday experience and their 'purposeful arrangement' aids human beings to interpret the will of the gods.

The divine interpretation is upheld by Proclus who in the *Elements of Theology* points out that the influences of the stars proceed from their divine souls and insists that they can only be good influences.[48] This view is shared by Iamblichus for whom the stars are manifestations of the gods and therefore cannot produce maleficent influences. He writes: 'it must also be remarked that the heavenly body is closely akin to the incorporeal essences of the gods'.[49] Elsewhere he adds: 'the entities visible in heaven are all gods, and in a certain way incorporeal. In your next question you ask, "How is it that some of them are beneficent, and the others maleficent?" This belief is derived from the casters of horoscopes and is completely at odds with reality. For in fact all alike are good.'[50] Another example of the divine approach is found in the astrological postulations of Julius Firmicus Maternus who lived in the first half of the fourth century. Stemming from the Stoic concept of *sympatheia* which claims an intimate relationship between everything in the universe including the stars and humankind, Maternus accepts that the sympathetic influence of the heavens is the result of their divine nature.[51] In his *Matheseos* he explains: 'planets have their own faculties and divine wisdom. Animated by pure reason they tirelessly obey that highest divinity, the ruling God who has organized all things under the rule of law to protect the eternal pattern of creation.'[52] Attributing astral influences solely to the divine nature of the stars seems to be emphasized in Greek astrology.[53]

Despite the existence of an impressive corpus of Islamic astrology, very few texts actually contain a coherent astrological theory and most were written as references for practice. *Al-Mughni fi ahkam al-nujum* (*The*

Enriching [Book] of the Judgements of the Stars) by Ibn Hibinta (d. after 929), *Kitab al-madkhal ila sina'at ahkam al-nujum* (*Book of the Introduction to the Practice of Astrology*) by Al-Qabisi (d. 967), and *Kitab al-tafhim li awa'il sina'at al-tanjim* (*The Book of Instructions on the Elements of the Practice of Astrology*) by al-Biruni (973–1048), are among the seminal and influential texts on astrology produced in medieval Islam; their content, however, comprises computational and interpretive rules but hardly any theory.[54] All of these astrologers were indebted to Abu Ma'shar who was often cited in their works.[55]

Closer to the time of Abu Ma'shar, *Kitab fi madkhal ila 'ilm ahkam al-nujum* (*On Judicial Astrology*) by his contemporary al-Kindi is one of the most influential astrological texts in the Middle Ages; like the texts mentioned above, it contains little philosophical and theoretical exposition.[56] The famous astrologer Masha'allah ibn Athari (*c.*740–815), influential on al-Kindi and Abu Ma'shar, devotes his works to the practice of astrology and the demonstration of its techniques. Some theoretical speculations are evident in a treatise attributed to him that survives only in a Latin translation by Gerard of Cremona in the twelfth century entitled *De scientia motus orbis* (*On the Knowledge of the Motion of the Orb*).[57] In this treatise, Masha'allah denies that there are any physical or metaphysical reasons why the stars influence the world below. He insists that if we believe the stars to influence our world and participate in generation 'we do not know how this is done, neither do we know its operations, nor how much and until when it does so'.[58] The heavenly bodies have a very passive role in the cosmology of Masha'allah; each of them 'is created, comprehended, compelled, commanded, and ordered according to its servitude [...] just like a compelled slave'.[59] In contrast with Masha'allah, Abu Ma'shar perceives the stars as participants in generation and as efficient *causes*; they are causing, compelling and commanding.

The lack of theory in Greek and Arabic astrological sources notwithstanding, in the context of metaphysics and cosmology, al-Kindi gave the heavenly bodies a generative and causal role in two epistles written before *The Great Introduction*, namely, *Al-Ibana 'an al-'illa al-fa'ila al-qariba li al-kawn wa al-fasad* (*On the Explanation of the Proximate Cause of Generation and Corruption*) and *Al-Ibana 'an sujud al-jurm al-aqsa* (*On the Explanation of the Bowing of the Outermost Body*). Al-Kindi is a contemporary of Abu Ma'shar and according to Ibn al-Nadim, encouraged the latter to pursue the science of astrology and abandon his theological studies.[60] Peter Adamson convincingly argues that the close doctrinal and textual parallel between the *Al-Madkhal* and al-Kindi's

epistles supports the idea that Abu Ma'shar was strongly influenced by al-Kindi.[61] He considers al-Kindi the most likely source of Abu Ma'shar's justification of astrology. Even though Abu Ma'shar could have received some of the philosophical elements of his justification from al-Kindi, he remains the first to articulate a theory of astral influences in the immediate context of astrology and its justification in a level of detail that al-Kindi does not go into as we shall see.[62] The notion of astral causation can be found in al-Kindi's *On the Explanation of the Bowing of the Outermost Body*, addressed to the son of the Caliph al-Mu'tasim as a response to the latter's question regarding the meaning of the Qur'anic verse which states that the stars and the trees bow down.[63] The philosopher explains that the act of prostration here is not literal but indicates the stars' casting influences to the earth and being causes of the generation of all terrestrial things.[64] As such, the sacred order of the stars and planets is not an arbitrary arrangement of signs but it is an order of causes.[65] In *On the Explanation of the Proximate Cause of Generation and Corruption*, al-Kindi explains that the planets and their motions are the origin of everything that exists in the sublunar world.[66]

In the context of intercultural exchange of ideas between the Islamic world and Europe, al-Kindi's epistles were not widely received or influential during the Middle Ages or the Renaissance, whereas Abu Ma'shar's *Great Introduction* was translated twice and was the most influential source of astrological theory. Moreover, Abu Ma'shar's theory includes the discussion of the astral genesis of occult qualities which facilitated its utilization in the justification of astral magic.

In *The Great Introduction*, the planets themselves are given a generative role that is responsible for the perpetual link between the world above and the world below. Abu Ma'shar writes: 'the terrestrial world is connected to the celestial world and its motions by necessity. Therefore due to the power of the celestial world and the celestial motions, terrestrial things, generated and corruptible, are affected.'[67] They are affected specifically by the heat produced from the motions of the celestial bodies which causes transformation – including corruption – among generated things.[68] In al-Kindi's aforementioned epistles, he mentions that the heat resulting from planetary motions is the *agent* (*'amil*) of astral influences.[69] In *On Generation and Corruption*, Aristotle attributes the coming to be and passing away of things to the circular motions of the heavens.[70] In *Meteorology*, he also explains that elementary transformations take place because the celestial bodies emit

heat that affects the sublunar world.[71] In *Tetrabiblos* and *Almagest*, Ptolemy does not introduce a theory of astrology and is content to attribute sublunar change to the motions and locations of the heavenly bodies which diffuse the influence without explaining how they do so.[72]

According to Abu Ma'shar, the celestial bodies act as causes in two interrelated ways: they unite form with matter (*imtizaj*) and they are responsible for the union and harmony between the body and the vital and rational souls (*ittifaq*).[73] As a result of this action a connection between the heaven and earth exists and the elements below move (*tantaqil*, *tataharrak*), transform (*tataghayyar*, *hadath istihalat*), and experience generation and corruption (*sara fiha al-kawn wa al-fasad*).[74] The diversity of genera and species is the result of the stars' determination of elementary combinations and their union with the forms in the process of generation.[75] Furthermore, Abu Ma'shar explains that in their function as efficient causes they transform the state of generated things from the potential to the actual. Change, transformation, generation and corruption occur to matter (the four elements and their natures) potentially; genera and species also exist in matter potentially (*bi al-quwwa*), but the stars make them actual (*bi al-fi'l*).[76]

So, in his account of generation and corruption, Abu Ma'shar departs from Aristotle by adding another component to the generation and corruption of natural things; namely, the astral agent. As a result of the existence of three co-principles of generation, Abu Ma'shar distinguishes between three types of natural properties (*khawass*): material, formal and astral.[77] Elemental combinations are caused by the stars and their heat, and so material properties are manifest in the combination of the four elements and their qualities. The forms united with matter through astral causation provide the properties that are equally existent in all members of the species, but it is the astral properties that determine specific traits of each member.[78] Using the example of the generation of the ruby, Abu Ma'shar writes:

> The single ruby has a nature, size, shape, colour and purity. Some rubies are purer and softer than others of the same genus. And a ruby has a property from an [astral] effect as some planets signify the genus of precious stones, and others signify the species of ruby, and other planets signify other things until all its parts are completed by the participation of [different] planets. Without the participation of the significations of all planets in one thing, it would not have parts, functions, and different states.[79]

In the case of the human individual, he explains:

> As for that which is affected in him due to the powers of the motions of the planets, by permission of God, that is not related to the elements or form, it is manifest and it is [determined by] their [planets'] significations over the particularity of his genus and individuality from among the rest of the genera and individuals, and their significations over the composition of all natural things and the commixing of the form and elements in elemented things and the harmony between the animal and rational souls and the body and other things like beauty and ugliness.[80]

This astral modelling accounts for the status of man as a microcosm – found in Plato's *Timaeus* – often used to establish the connection between the heavens and human bodies.[81]

The second manner in which the stars act as causes is by uniting the vital soul – and the rational in the case of man – with the body. Very limited space is dedicated to this crucial aspect of astral generation in the discussions of Lemay and Adamson, rendering their reformulation of Abu Ma'shar's theory of astral influence strictly mechanic.[82] Elemental transformation and the union of forms and matter take place from the physical motion and through the materialistic medium of heat. The mixture of soul and body is achieved through the volition of the living stars in addition to their motions. Abu Ma'shar writes that 'the planets are alive and have rational souls' and adds that the rational and vital souls are united with body 'through their [the planets'] rational soul, by virtue of being alive, and through their natural movement [. . .] by God's permission'.[83] The elements are forms' tools to create a body suitable for the reception of the soul, and so the stars and planets bring the formed body into actuality by motion and heat and they also secure vitality in this actual body.[84]

This psychological element of Abu Ma'shar's astrological theory could be the result of the fact that his Aristotelianism is received from post-classical works.[85] Abu Ma'shar's theory reconciles Aristotelian causality, the Platonic doctrine of the celestial souls (discussed in detail in Chapter 8), and the Stoic world-view in which the cosmos is a network of causal channels through which the vivifying power of the *pneuma* flows.[86] His mode of causality, then, encompasses in a subtle way the divine aspect, rendering astral causation non-mechanistic but rather volitional since it attributes the vitality of generated things to the planets' own rational souls and ultimately to God.[87]

In addition to explaining *why* influences occur and occult properties exist, Abu Ma'shar elaborates on *how* they act upon substances and transform generated things. They do so in two manners: through direct contact or a medium. The latter is of three kinds: first, voluntary action such as that of a person hurling a stone which in turn hits another body; second, through a proximate medium such as that of fire heating water in a pot; and third, by a distant medium such as the effect of lodestone on iron.[88] The last is the manner in which,

> The celestial bodies move the terrestrial, change and transform them into one another due to the power of the celestial bodies that moves and transforms terrestrial ones, and due to the terrestrial bodies' potentiality for being moved, changed, and transformed by the motion of the higher bodies as a result of their [terrestrial things'] connection with them [celestial bodies] in nature.[89]

The same principle of action is found among generated things. Abu Ma'shar explains that 'many things exist among the precious stones and medicines that induce, through their own nature, the motion of other bodies and attract them from a close or far distance' such as lodestone's attraction of iron.[90] He explains that this is due to lodestone's potentiality to attract and the receptive potentiality of iron.[91] Similarly, astral influences pour into the sublunar world due to the inherent potentiality in things to continuously receive actuality from the stars, and due to the attraction of generated things to the celestial bodies as a form of a natural inclination existing between effects and their causes. Astral and occult properties affect other bodies due to their inherent formal/astral readiness or potentiality to forge with them sympathetic or antipathetic relationships. This occurs because of a common astral cause or affinities between their qualities determined by the affinities that exist between the stars that united their forms and bodies.

Ahkam: judgements

So far we have discussed the influence of the stars in the context of their role in generation and corruption. But how does it relate to the practice of astrology? The answer to this question is found in a section entitled 'On Advantageous and Disadvantageous Times'.[92] Abu Ma'shar here describes the steps of inference that an astrologer takes to make a judgement. Abu Ma'shar employs the parallel between astrology and medicine to assert the plausibility and legitimacy of this process. He begins with stating that medicine and astrology are interrelated

aetiological pursuits. The first is the study of the terrestrial (*ardiyya*) causes of diseases whereas astrology is the study of their higher (*'ulwiyya*) astral causes.[93] Medicine looks into the transformations in the elements as they manifest in the different seasons and changing humoral excesses or deficiencies, but astrology looks into the astral origins of these changes. Therefore, astrology perfects medicine since it extends causal enquiries to the higher origins, which leads Abu Ma'shar to conclude that 'astrology is higher and nobler than medicine' and every physician must be an astrologer.[94] Responding to those who reject the parallel between medicine and astrology, Abu Ma'shar refers them to Hippocrates who writes in *On Airs, Waters, and Places* that 'the science of the stars is not a small part of the science of medicine'.[95] This is actually taken from Galen's *Commentary on Hippocrates' on Airs, Waters, and Places* in which we read: 'if a man thinks that the idea we have mentioned belongs to meteorology [i.e. astronomy], if he examines the matter more closely and verifies it, he will find that astronomy is not a small part of the science of medicine'.[96]

So an astrologer first ascertains if a certain period is characterized by a certain quality from the arrangement of the stars; then he would decree whether

> That is a time for the health of bodies, their staying alive, and the balance of their natures, and what indicates this is such and such planet. And if the time is not balanced due to some elements overcoming it, then he should say that this is a time for the illness of the bodies, their alteration, their corruption, and the weakness of their natures. What indicates this is such and such planet. That this planet to which this thing of goodness or badness is attributed, it is known [...by] advance knowledge, length of experience, and [the observation of] manifest and hidden signs [...]. Then he considers that planet which indicates advantageous or disadvantageous times, and if the signification points to some living individuals [...] he should say that the state of this person is so and so in terms of staying alive, damage, advantage or disadvantage.[97]

So, the stars indicate the general 'quality' of a certain period. Due to their influence on the four natures 'the nature of time is formed',[98] which creates specific external conditions that are referred to as 'the states of the period' (*halat al-zaman*). If the astrological conditions of a specific moment are determined and the characteristics and propensities of the individual are diagnosed from a birth chart, then the astrologer has what

is needed to predict 'the state of this individual' (*halat al-shakhs*) at this point in time.[99] So these conditions or states (*halat*) are determined by the motions and locations of the celestial bodies.

Problems: determinism and astrolatry

Abu Ma'shar, however, is careful not to describe the internal conditions of the rational soul as predetermined. The soul's powers of deliberation and choice are free to act according to or against the findings of astrological consultations. Abu Ma'shar responds to a group of critics who believe that astrology deprives human beings of free will and removes accountability.[100] He begins his reply with proving that the possible exists. He delineates the possible within two contexts: external conditions and individual states (*ashkhas*). Concerning the first, he proves the existence of the possible with an analogy. One person may say that tomorrow there will be rain (necessary) and another may confirm the opposite (impossible); from the perspective of the present, raining or not is a contingence.[101] As for our actions, they are possible because they do not obtain at all times. For example, an individual being good in the past does not guarantee being good tomorrow.[102] Moreover, necessary and impossible things have only a single potentiality (*quwwa*) that is occurring or not respectively, unlike the possible which has two potentialities – like iron's or lead's potentiality for solidity or liquidity.[103]

The stars and planets indicate the impossible, the necessary and the possible. External elemental compositions and the four natures are *necessitated* (*laha fi'l*) by the motions of the celestial bodies. They also *indicate* (*laha dalala*) as signs of the contingent potentiality in these external conditions. Contingence thus exists in nature, but it is also evident in human actions which result from deliberation and choice (*bi al-fikr wa al-ikhtiyar*).[104] Abu Ma'shar explains: 'just as the planets indicate possibility and choice that belong to a man, so they indicate that a man will only choose what the planets indicate, because his choice of a thing or its opposite happens through the rational soul that is mixed with the vital soul in individuals'.[105] This appears to contradict Abu Ma'shar's advocacy of free will, which led Richard Lemay to conclude that he is a determinist and Peter Adamson to label him as a compatibilist, that is, holding the view that determinism and free will are compatible since human actions are necessary within a larger causal framework.[106] Adamson also relies on 'statistical understanding of modality' – that human actions do not obtain equally at all times therefore the stars indicate them as possible – to explain the seeming

contradiction in Abu Ma'shar.[107] However, to unpack and understand Abu Ma'shar's statement above, it is important to note the terms he uses to describe causation and signification because of their connotations on the types of effects that concern the astrologer – the external conditions and human actions – and the implications these have on the matter of free will versus determinism.

The root verb of the words that imply signification in the *Great Introduction* is *dal-la* which, according to the *Oxford Arabic English Dictionary*, means 'to show', 'to demonstrate', 'to point out', 'to indicate', and 'to guide'. Also, it can mean 'to imply' and 'to suggest'. The derived noun *dalil* (pl. *dala'il*) means 'sign', 'symptom' and 'evidence'. The *Great Introduction* commences with praise to God who made the stars as 'signs and guidance' (*dala'il wa hidaya*).[108] They have a general signification pertaining to external conditions, genera and species, and they also have a specific signification on individuals.[109] As such they 'signify' and 'indicate'; the Arabic verb used here is the active form *dalla 'ala*; 'a planet signifies/indicates time, its conditions, and the individuals in it and their conditions'.[110] To denote the process of interpreting, often the Arabic verb *istadalla* is used, meaning 'to deduce'. For example, the astrologer, we are told, 'deduces [the state of] the natures from the powers of the motions of the planets'.[111] It is also used in the passive form *yustadallu min* or *yustadallu 'ala*.[112] In passive and active forms, these verbs often refer to non-astrological inferences. People, we are told, deduce from (*yastadillun bi*) the eyes of a pregnant woman the sex of her unborn child.[113]

These terms of signification lack any causal connotations;[114] there is no indication that an unborn female child directly causes physiological change leading the mother's eyes to recede and her eyelids to relax or vice versa.[115] However, there must be a pregnancy for that deduction to be made. A certain condition must exist in order to interpret possible sets of signs that are related to it. The stars are indeed causes of generation and terrestrial events, but the signs in themselves are only manifest upon reading them within a certain condition or state (*hal*, pl. *halat*) as we have seen above. Without a singular condition already determined and an interpreting eye, there are no signs. Interpretation is in the realm of the rational soul, in this case, that of the astrologer; making decisions according to the astrologer's interpretation also belongs to the rational soul; and so signs do not necessitate.

Considering that astrology is concerned with the 'possible' and 'potential', the problematic statement that an individual can only choose what the stars 'indicate' can be read as them 'inclining' towards a set of options within certain external conditions, thus Abu Ma'shar's

dal-la connotes the sense 'to guide'. These options are in the individual potentially until they are actualized, becoming only then necessary or impossible. Once necessary or impossible, they become part of a causal network and new physical and natural conditions (*halat*) that incline to different and newer potentialities. The rational soul thus remains free from determinism.

This is implied further when we contrast Abu Ma'shar's usage of the root verb *dal-la* with the root verb *fa-'a-la*, 'to do', 'to act', 'to affect', and 'to form a compound'. We find that the derived forms of the latter are used mostly in the context of necessary elementary effects and external condition with mechanistic connotations. For example, the planets are described as *fa'ila* on the elements, that is acting on them;[116] so elemental transformations *tanfa'il* – that is react – to the motions of the planets,[117] the sun has a *fi'l* – effect – on the seasons,[118] and an individual, by motion, has a *fi'l* on 'a body' through the medium of another body.[119] These are used in the context of generating and causing external conditions rather than directly influencing the soul which remains free from necessity, capable of choosing to act according to or against the indications or guidance of the stars.

If the stars and planets are living efficient causes, the artisans of generation and indicators of the possible, does not this sound like astrolatry? In a chapter on astrology in the book on divination and omens, the Hadith-collector Abu Dawud (d. 889) reports that Zaid ibn Khalid al-Juhani narrated:

> It rained during the time of the Prophet and he said: 'Have you not heard what your Lord said this night? He said: I have never sent down any blessing upon My worshippers but some of them become disbelievers thereby, saying: "We have been given rain by such and such a star". As for the one who believes in Me and praises Me for giving rain, that is the one who believes in Me and disbelieves in the stars. But the one who says: "We have been given rain by such and such a star" he has disbelieved in Me and believed in the stars.'[120]

In *On the Explanation of the Proximate Cause of Generation and Corruption*, al-Kindi begins his epistle emphasizing that God is the First Cause not caused by another; He is the Efficient Cause not affected by another.[121] In the same letter he describes celestial bodies as 'causes' and their heat as the 'agent' of generation.[122] In *On the Explanation of the Bowing of the Outermost Body*, he explicitly attributes to the heavenly bodies the role of 'efficient causes' (*al-'illa al-fa'ila*).[123] Al-Kindi thus distinguishes

between two levels of causality: the far efficient causes and proximate ones. He writes that 'the far efficient cause is like the shooter of an animal with an arrow; the shooter of the arrow is the far efficient cause of the killed [animal]. The arrow is the proximate efficient cause.'[124] Therefore, the latter kind acts as an instrument that mediates between the volition and action of the first cause and the desired effect. Accordingly, God is the Far First Cause and the heavenly bodies are his instruments of creation. Furthermore, according to al-Kindi and Abu Ma'shar, the stars and planets are efficient causes of things in the world of generation of corruption, which is the sublunar world. The supercelestial world where forms and souls exist without matter is free from generation, change and corruption. God is the proximate efficient cause of this world in a process of *creatio ex nihilo* without intermediates or instruments. In this hierarchy, generation cannot happen without creation and stars cannot generate without God's will. Abu Ma'shar uses the expression 'by God's permission' numerous times in the first book of *The Great Introduction*.[125] This is not just a case of a popular element of speech in Islamic culture, or apologetic lip service as Lemay concludes;[126] rather it is a confirmation of monotheism as 'by God's permission' appears mostly in places where Abu Ma'shar asserts that generation and corruption happen by the agency of the celestial bodies. 'Therefore due to the power of the celestial world and celestial motions, terrestrial things, generated and corruptible, are affected by the permission of God';[127] later he reiterates this expression when speaking about the role of the stars and planets in establishing harmony between the vital soul and the body;[128] and elsewhere he adopts the cosmological and causal argument to actually confirm God's existence as a Prime Mover:

> By the Will of God [...] the motion of the sphere is from the power of the First Cause [...] the sphere is forever moving and so the force of the mover must be infinite [...] if its power is infinite then it is eternal and incorruptible. Observe how we inferred the [the existence] of the Creator, Mover of all known and visible things that are observed by the senses; He is immortal, omnipotent, unmoved, ungenerated and incorruptible: Blessed is He and greatly Exalted.[129]

In conclusion, Abu Ma'shar perceived the heavenly bodies as integral parts of natural operations by being causes of generation, and as such, their qualities determine resemblances in nature. Causality supported and did not replace the hermeneutics of signs whereby resemblances, correlations and correspondences are detected by natural philosophers

and astrologers. As we have seen, Abu Ma'shar gives the stars causal agency to validate their connection with generated things and to naturalize astral influences. Stars are signs of transformation and change *because* they are causes, a fact that renders the vocation of the astrologer parallel to that of the physician since both investigate the causes of the emergence of signs/symptoms. This way, Abu Ma'shar provides in his *Great Introduction* a causal framework of natural/occult investigations necessary for representing astrology and astral magic – as we will see – as legitimate branches of natural philosophy.

2
Arabic Theories of Astral Magic: The *De radiis* and the *Picatrix*

The occult was a way of knowing, an epistemic activity in the Middle Ages and the early modern period. In part it was a metaphysical query that investigated the operations and causes of hidden things. However, as the word 'occult' may suggest sorcery (*sihr* in Arabic) and demonology, this reconciliation with aetiology seems to be in stark contrast with the dictates of orthodox Islam. In the Qur'an we read: 'it was the disbelieving devils. It was they who taught mankind sorcery [...] they learn from them what enables them to separate a man from his wife. And they do no harm to anyone with their sorcery, save by God's leave.'[1] In the Hadith too we learn that sorcery is one of the seven major sins which include murder and apostasy.[2] But if some extraordinary phenomenon can be proven not to be necessarily supernatural but is merely the case of natural yet hidden forces, then it cannot be the same as the sorcery of the devils. It would be a licit kind of knowledge and practice. In the medieval period – ninth to thirteenth centuries – the symbiotic relationship between astrology and magic was emphasized; one can say that the theories of astral influences were first articulated by Muslims in works on astrology and magic. The theories of astral influences in the context of astrology, discussed in the previous chapter, legitimized a magic that claimed to receive its power from the dynamics that govern the celestial and terrestrial worlds. Magical effects result from employing forces of a single ontological origin, that is the planets and stars whose nature is empirically evident and intellectually understood by natural philosophers and astrologers. We find a number of Arabic works which advocate magic as operational natural philosophy supported by the theories of astral influences. This chapter focuses on two such texts that were received and translated

in Europe and whose doctrines were embraced by prominent natural philosophers and occultists in the Renaissance; these are the *De radiis* by the Arabic philosopher Ya'qub ibn Ishaq al-Kindi (801–873) and the tenth-century *Ghayat al-hakim* now believed to be penned by Maslama al-Qurtubi (d. 964).

Magic in the early Islamic Middle Ages

In the *Fihrist*, Ibn al-Nadim provides a typology of magic practised in medieval Muslim culture based on agency. There were three kinds of magic: the first relied on the subjugation of devils, Jinn and other spirits by exerting their obedience to God. It required the refinement of the soul through religiosity and perfect worship of God.[3] This was exemplified by Solomon's power over demons; Ibn al-Nadim even lists the names of these demons.[4] The second kind of magic shared with the first the agency but in this case it was acquired by prohibited acts and offerings that displeased God but gratified the demons, Jinn and spirits.[5] The magic of talismans differed from the two mentioned; according to Ibn al-Nadim 'one group of philosophers and servants of the stars assert that they have talismans, based on [astronomical] observations, for all things desired in connection with wonderful actions, excitements, favour, and forms of authority. They also have designs on stones, stringed beads, and signet stones. This art is divulged openly among the philosophers.'[6]

In the introduction of the *Ghayat al-hakim*, the author confirms that magic is a type of philosophy and that the reader is about to 'be immersed in the science of philosophers, look into their secrets, and search for the strange things they immortalized'.[7] This is also announced in another text mentioned by the author of the *Ghayat al-hakim*: *Maqala fi al-tillismat* (*A Treatise on Talismans*) by the astrologer and astronomer Thabit ibn Qurra (826–901), also mentioned by Ibn al-Nadim.[8] This text no longer exists in Arabic but is known from two twelfth-century Latin translations, the first by John of Seville as *De imaginibus* and the second by Adelard of Bath as *Liber prestigiorum*. It is a practical guide to the construction of talismans. Though one does not find a theory of magic in the work, Thabit ibn Qurra asserts the dependence of talisman-making on the science of astrology. Referring to Aristotle in the incipit he declares: 'whoever studies philosophy and geometry and all other sciences and is a stranger to astrology will be hindered or obstructed, because the most valuable geometry and highest philosophy is the science of images'.[9] As we shall see, it is based

on a philosophical stance that reconciles universal causal links with emanationism.

Gazing back at the history of Muslim culture, Ibn Khaldun (1332–1406) discusses talismans and sorcery as part of the sciences practised in the eastern and western regions of the Islamic world, defining them as 'sciences showing how human souls may become prepared to exercise an influence upon the world of the elements, either without any aid or with the aid of celestial matters'.[10] Sorcerers operate without celestial aid but through a mental power that subjugates spirits and induces fantasy, whereas talisman makers need 'the aid of the temper of the spheres and the elements, or with the aid of the properties of numbers'.[11] Elsewhere he adds that in talismans 'the high celestial natures are tied together with the low terrestrial natures', confirming that this cannot be done without astrological knowledge.[12] The *Ghayat al-hakim* is considered by Ibn Khaldun to be 'the systematic treatment of this craft. It perfects it and presents its problems perfectly.'[13] He attributes the text to Maslama ibn Ahmad al-Majriti, 'the leading Spanish scholar in the mathematical and magical sciences' who 'abridged all these [ancient] books and corrected them and collected all their different approaches in *Ghayat al-hakim*'.[14]

Ibn Khaldun speaks from a very interesting juncture in the history of Islamic occult thought. In the thirteenth and fourteenth centuries there occurred a shift of emphasis from theories of magic derived from natural philosophy to foundations borrowed from religious mysticism. Due to the flourishing of Sufism in this period, most magic operated within a purely mystical cosmological framework and intermingled with devotional elements such as prayers, recital of the Qur'an, and meditating upon the sacred names of God. Magical effects now correlated with subjective mystical experiences such as performing wonders and divine inspirations which often included contact with supernatural entities. Ibn Khaldun condemns all types of magic. Concerning astral magic, he writes that despite what all its proponents say, it 'consists of directing one's self to the spheres, the stars, the higher worlds, or to the devils by means of various kinds of veneration and worship and submissiveness and humiliation [...] such notion is unbelief'.[15] In contrast, Ibn al-Nadim displays a more objective attitude and often refrains from passing a judgement about legitimacy. It was because of texts like the *Ghayat al-hakim* and *De radiis* which discuss the theoretical foundations of astral magic that the emphasis on astral/natural forces as distinct from supernatural or demonic agency became characteristic of the magic of early medieval Islam.

De radiis

One treatise in particular stands out in Islamic medieval occult thought for its unique theory of magic. Al-Kindi's *De radiis* – also known as *Theorica artium magicarum* – exists only in Latin since its Arabic original has not been discovered.[16] Its attribution to al-Kindi has been a matter of debate but studies by Weisner, Adamson, and others have established conceptual, textual, and stylistic parallels between *De radiis* and al-Kindi's other works to a degree that supports the attribution.[17] *De radiis* sets magic firmly within the bounds of natural philosophy by adopting the notions of astral causation, discussed in the previous chapter, to account for the way in which celestial and terrestrial things are linked and magical effects take place. In Abu Ma'shar's *Great Introduction* and al-Kindi's aforementioned epistles, sympathetic relationships among the planets and generated things are described in terms of magnetism – a kind of pull between cause and effect, or a motion that leads what exists potentially to emerge into actuality. In *De radiis*, however, al-Kindi explicates the physical agent of this dynamic: astral rays.[18]

De radiis comprises nine chapters, five of which deal with the ontological and aetiological foundations of magic, the role of the astral rays in generation and corruption, and the dynamics of the cosmos as a harmonious whole. The rest of the treatise discusses the rationale behind specific magical practices such as invocations, figures, images and sacrifice. The predominance of cosmological expositions and lack of any practical instructions led some scholars to downplay the magical dimension of the first five chapters and neglect the last four which constitute the explicit demonstration of the magical application of the theory of astral rays. This is a consequence of a tendency to make this text more relatable to al-Kindi's philosophy rather than occultism. Adamson and Pormann write: '*On Rays* is not primarily a practical treatise on magic, but a theoretical explanation of the fundamental principles of the universe, and the interaction of the microcosm and the macrocosm.'[19] Travaglia reiterates: 'some aspects found in *De radiis*, such as prayers, invocations and spells, which do not seem to be connected to a treatise of natural magic, need to be looked at separately'. Furthermore, she superimposes on these aspects the term 'ceremonial magic' borrowed from the Western tradition in order to distinguish them from the physical and metaphysical content of the first five chapters.[20] However, as we shall see, all kinds of magical effects are caused by astral rays; there is nothing in *De radiis* to support Travaglia's dichotomous view; we must read the ontological and cosmological through the occultist's eye.

Al-Kindi's discussion of the rays' cosmological and ontological functions marries Peripatetic notions of causation and Neoplatonic emanationism. The rays are emanations which act as the means whereby the stars and planets generate and influence. *De radiis*, therefore, can be viewed as complementary to the traditional Aristotelianism of *The Prostration of the Outermost Sphere*, *On the Proximate Agent*, and the *Great Introduction*. According to the *Enneads*, emanation is radiation through which the One can create and it is compared to the light of the sun ceaselessly flowing from the One to the rest of the cosmos. This light is an incorporeal formative power.[21]

The *Theology of Aristotle* is the most important source of Neoplatonic ideas in the Islamic world. It is an adaptation of Porphyry's edition of *Enneads* IV–VI made by al-Kindi's translation circle in ninth-century Baghdad.[22] In this work, divine creativity (*ibda'*) is an effusion of divine light (*nour*) and its first creation is the Intellect whose light flows into the Soul of the World and the celestial spheres.[23] Furthermore, the light of the planets and stars constitutes the splendour of their forms (*baha' al-suwar*).[24] An Aristotelian tone is detectable in the text beyond just its title. It is evident in the ascription of efficient causation to the stars which are like 'instruments placed as intermediates between the craftsman and his craft'.[25] Al-Kindi restates this notion of celestial mediation and writes: 'the arrangement of the stars governs the world of elements and all things in it composed of them, at whatever time or place, to such an extent that there is no substance, no accident that exists here without also being in its way figured in the sky. The influence of the stars is undoubtedly due to the rays sent from them [the stars] into the world.'[26] Elsewhere he confirms that all things come to be and exist through rays.[27] As Abu Ma'shar posits in his *Great Introduction* and al-Kindi in his epistles, *De radiis* affirms that matter receives its form from the motions of the spheres, but instead of heat, al-Kindi considers the instrument of generation to be the rays 'which prevail over the [generated] thing with all its properties'.[28] The diversity of species is the result of the diversity of rays emanating from the celestial bodies and the elemental composition of substances.[29] Growth and corruption are processes in which forms change within matter constantly. The formed matter of the seed changes into the formed matter of the barley and then into the whole harvest as determined and controlled by the rays which vary according to aspect, direction, time and place.[30] Moreover, the rays have a nature that is life-giving; they bestow vitality into a substance.[31] Clearly then, al-Kindi here applies the conceptions of astral generation found in Abu Ma'shar's *Great Introduction* and his own philosophical epistles

and further explicates the manner whereby the stars and planets – 'the heavenly causes' – exercise generative action.[32]

According to al-Kindi, there are two kinds of generation in which 'the heavenly harmony works': natural generation 'as often happens'; and unusual, that is 'when a kind of being is generated from such a kind of matter in an unusual way'.[33] The unusual manner of generation could refer to spontaneous generation; however, it also implies magic. When an operator creates a talisman 'he first imagines the form of the thing which he wants to impress into some matter'.[34] He endows the materials used in the making of the talisman, which correspond with certain planets or constellation, with a kind of 'species', imitating generation itself:

> Enumerable ensouled beings of certain species come into the world through the same constellation which has an effect on the species. For such matter is fit to receive the same species through the same constellation [...] In the same way, because the image of the mind and the real image are of the same species, they follow each other, provided that the matter of both lends itself to receive [the image's] form.[35]

In essence, astral magic is an act of 'informing' and 'ensouling' that entails harnessing the rays of planets, stars and constellations to charge an object that is constructed according to a thorough knowledge of correspondences between celestial and terrestrial things, enabling the operator to organize the elements of her practice toward a specific purpose. In the *Theology of Aristotle* we learn that the splendour and powers (*quwwa*) of the celestial bodies can be utilized in astral magic:[36]

> We say that there are in earthly things powers that perform wondrous acts. They attain this power from the heavenly bodies, because when they perform their acts, they only perform them with the assistance of the heavenly bodies. And because of this people used amulets, prayers, and [magical] illusions [...] If they use natural things of wondrous virtues at the appropriate time, they affect these virtues in the thing they desire.[37]

In *De radiis*, the vehicle of these powers is radiation. The universe resonates with rays projecting from all celestial bodies in all directions, infusing every substance and soul with the ability to cause change.[38] The nature of this received agency is determined in generated things by

the quality of radiation received from above which is also conditioned by spatio-temporal factors and the nature of the stars involved; 'each star has its own proper nature and condition [...] so the rays themselves are of diverse natures in different stars, just as the stars themselves are of diverse natures [...] it thus happens that each star produces a different effect, and in different ways, in different locations, and on different things, even if they vary a little'.[39] The rays, then, are the means whereby celestial bodies influence and connect to terrestrial things.[40] As a result of resonating with astral rays terrestrial things are able to re-emit what can be now called elementary rays, thus partaking in the 'heavenly harmony' and cosmic network:

> Everything which actually exists in the world of the elements sends out rays in all directions. These rays fill the entire world of the elements in their own way. Hence each place in this world contains the rays of all things which actually exist in it. Just as each thing differs from the next, so the rays of each thing differ in their effect and nature from the rays of all other things. For this reason the rays affect all different things differently.[41]

In addition, the rays are the medium whereby terrestrial things affect each other diversely depending on location, time and the substance itself. They also cause medicine to spread its effects throughout the body, and heat, cold, sound and colour to be transmitted to our senses.[42] The rays are also the reason behind natural magic's efficacy. Elementary rays correspond to the qualities substances received from the rays of the stars, acting according to celestially and terrestrially determined sympathies and antipathies among all things in the universe:

> This is the condition of the heavenly harmony, that all the stars are of different natures, and therefore all their rays have different effects. Consequently, in the world of elements, it occurs that the effects of the rays are helped by each other around one [kind of matter], but hinder each other in another [kind of] matter. In each thing, that is, each thing produced by the harmony, a certain star predominates and likewise a certain sign which exerts its sway when acting upon, or ruling, this thing more than others.[43]

As Travaglia points out, this 'idea of reciprocity' is essential for the explanation of magical effects as it implies the ability of the mage to re-channel astral influences towards a specific result.[44] By ordering

substances according to natural/astral sympathies or antipathies, the operator can invite specific celestial virtues that can make magical objects active such as talismans composed from these specific substances.[45] It is emphasized in the *Theology of Aristotle* that 'the beginning of magic is the mage's knowledge of the things that are attracted to each other',[46] according to their occult properties received originally from the celestial bodies and their radiance.[47] Al-Kindi asserts: 'when different rays fall upon the same thing, they mix with each other. When they agree, the kind of effect is enhanced, but when they disagree, then their effect is diminished; or they influence each other in other ways by helping or by hindering, as happens in the regions of the heavenly harmony.'[48] So the operator must be aware of the relations between the different stars, their strengths and weaknesses, and the substances they correspond to in order to channel the desired quality upon the operation.

A magical operation cannot be successful if it is not performed at a favourable time and a suitable location for the reception of celestial virtues; therefore, every magical act needs to be undertaken under specific astrological conditions since 'all different locations and times produce different individual things in this world [...] this is achieved by the heavenly harmony'.[49] Moreover, al-Kindi stresses that a focused will, strong desire and unwavering faith are also needed; they are essential components not only because of their psychological value but also because the soul through the imagination – the locus of intention and desire – emits rays and can physically influence the outcome.[50] Imagination is in the soul which impresses purposeful actuality on sensible things through the rays, linking volition with astral influences:

> The imagination, intention, and confidence have previously been conceived in man's soul. For when man wants to make something he first imagines the form of the thing which he wants to impress into some matter through his action. After conceiving the image of the thing, he judges it to be useful or harmful for himself, accordingly desires or rejects it in his mind. Next, if he decides that the thing is worth desiring, he desires that thing happen through which the thing is actualised.[51]

Astral and elementary rays seem to emerge from celestial and terrestrial bodies whereas volitional rays, perhaps a third type of radiation, are produced by the soul, and yet even these are ontologically astral. In *The Prostration of the Outermost Sphere*, al-Kindi explains that the

celestial spheres impress the souls in inferior generated bodies by means of their own souls and rational powers.[52] This notion is reiterated by Abu Ma'shar in his *Great Introduction* as noted in the previous chapter.[53] Man as microcosm contains within him psychic powers analogous to those of the heavenly souls which are individuations of the Universal Soul:

> One ought to imagine the universe a single, articulated animal, since it is a body with no void in it. In the largest [part] of it – I mean the higher, nobler body – is the psychic, noble power. In what is below it, in accordance with the power of a superior command, these psychic powers are in each of the things that possess souls, for example a single man.[54]

In the *Theology of Aristotle*, the mage is described as the one who 'likens himself to the world and undertakes its operations to the best of his ability'.[55] In *De radiis*, al-Kindi stresses that the soul's imagination possesses rays in agreement with that of the celestial world and it is through volitional rays that it is able, like the heavenly sphere, to impress actuality and even life onto things such as talismans.[56]

Talismans belong to the category of magic 'by manual action'. Magic 'by speech' is the second category of magical actions. Al-Kindi emphasizes that spoken words have physical effects on animals, plants and the elements due to their own rays which fill them with occult/astral properties 'just as have herbs and other things'.[57] They are part of the celestial harmony and so certain utterances correspond or resonate with powers of certain planets or constellations. The act of speaking itself is an act of generation. When utterances emerge from the mouth they are immediately assigned astral and occult properties by the celestial powers and rays active at the time of utterance. These properties become 'eternal, just as species of herbs have their proper powers assigned by the same harmony which they do not lose as long as the species remains'.[58] This corresponds with Abu Ma'shar's view of substantial and accidental properties (*khawass*) bestowed by the stars. Also, just as diverse astral influences cause variation in species, they also cause diversity in verbal powers, 'because of this it happens that certain utterances have their particular effect when spoken under one constellation and the lordship (of one planet), and others under others'.[59] These powers are not merely psychological but are described as collisions of bodies [sound and matter];[60] hence it happens that 'the rays which they [words] emit when they are actually spoken sometimes initiate movement in matter, at other times not, and sometimes the movement is greater, at

other times less'.[61] In addition to observing astrologically suitable timing, concentration and intention are necessary to optimize the magical effects of words, sounds and utterances.[62]

Magic by manual operations includes images, characters and symbols, and sacrifice. We have seen that the talisman encapsulates celestial powers that are channelled into it by the mage's will and attracted by the materials used. The power of imagination and the special status of the mage as a microcosm allow the creation of a magical species. Created at the right time and in a suitable place, these new species exert the desired influence by resonating with astral rays and emitting their own.[63] This influence can be strengthened further by drawing characters and symbols on talismans and other materials because they too emit rays; each character, symbol and figure possesses its own nature and occult property that it receives from the heavenly harmony. Their forms correspond with celestial forms and as such, some of them strengthen Saturnal operations, others Jovial, etc.[64] But the greatest manual action of all and the most efficacious magical operation according to al-Kindi is animal sacrifice. Its effects are also described as inducement of motion on external things conditioned by solemnity and powerful will. As part of the elemental world, a living animal emits rays and so when it dies from natural causes the rays do not cause any discernible modification on the natural world. Al-Kindi here does not elaborate on what happens to the rays upon natural death, perhaps they dissipate or even get reabsorbed into the universal network of rays. However, if the death is unnatural and achieved by human intervention then the rays will have a strong impact on the material world. The implication here is that the violence of the action will result in a sudden release of the animal's rays, causing a kind of ripple in the universal harmony thus affecting the immediate natural world. Even the efficacy of animal sacrifices is given natural reasons (*rationem naturalem habere*) by al-Kindi.[65]

Ghayat al-hakim (*The Picatrix*)

As we have seen, *De radiis* does not contain instructions but elaborates on the ways in which rays are utilized in diverse magical practices. Belonging to the same era, we find another influential text that contains magical theory expressed in terms of astral agency. *Kitab al-siyasa fi tadbir al-ri'asa* (*The Book of Politics on the Management of Administration*) takes the format of an epistle from Aristotle to Alexander the Great offering political, moral and dietary advice. The final part of the text, entitled *Sirr al-asrar* (*The Secret of Secrets*) is concerned with magic. The work itself

claims in the proem to be a translation from Greek into Syriac then into Arabic by the translator Yahya ibn al-Bitriq who flourished in Baghdad in the ninth century. But there is not enough evidence to ascertain the existence of a Greek original.[66]

The author echoes the theories concerning the role of the stars in generation and corruption that we encounter in Abu Ma'shar and al-Kindi. He begins the chapter on magic by asserting that 'all the variation you see in the corporeal world [...] and what is generated in it from minerals, plants, and animals – it is done through the surrounding world [...] that is its cause and administrator. This means that all the terrestrial forms are ruled by the celestial higher and spiritual forms.'[67] The stars and planets are 'partners' in the composition of every mineral, vegetable and animal; and from them each receives occult properties.[68] The author relates this to magical practices and writes: 'this is the foundation of the works of talismans. The forms of the fixed stars and the seven planets [...] are transferred into lower things, leading minerals, plants, and animals to accept their powers constantly.'[69] He then adds that magical sigils or engraved forms correspond to celestial forms and they secure the 'connection with the celestial bodies and the reception of their rays which enable you to achieve or destroy what you want'.[70] Later the author explains that if one wants to create a talisman, one needs to select the right material to correspond with the planet or configuration whose influence is desired. It is essential to choose the opportune time when the influence of the planet or configuration is most powerful, making sure Saturn is benign and ensuring that the rays are falling into the area in which the operation is taking place. Sigils and symbols must be inscribed in order to channel astral influences into the body of the talisman.[71] This theoretical exposition is then followed by instructions for making various talismans such as those for repelling snakes and scorpions and for pacifying a storm.[72]

The magical theory found in *De radiis* and *Sirr al-asrar* and the practical applications found in the latter are expanded and systematized in a text that holds a prominent and special place in the history of medieval magic, intriguing natural philosophers and occultists from the Middle Ages to the present day. The *Ghayat al-hakim* is a compendium containing a description of practices from diverse sources, Sabean, Indian, Greek, Nabatean and more. The author – now believed to be Maslama al-Qurtubi – claims in the introduction to have completed the work in 348 AH/959 AD.[73] Its content includes spells that range from the most beneficent to the most malicious, interspersed with philosophical justifications of magic. It presents us with a relationship

between metaphysical theory and hands-on practice which has not been satisfactorily studied and therefore deserves further attention.

Despite the scholarly interest in the *Ghaya*, its theoretical content has been either overlooked or undermined. Hartner advocates a reading of the text with the intention of discovering a unifying theoretical system but limits his discussion to generalizations over the theory of celestial magic, reducing the system to the 'indissoluble coherence between the upper and the lower worlds'. But he finds himself at a loss to explain the 'amoral', 'crude' and 'barbaric' theurgic practices.[74] In his extensive studies on the sources of the magical practices mentioned in the *Ghaya*, Pingree highlights their Greek, Indian, Hebrew, Harranian and Mesopotamian origins. His exposition on theory is built upon a distinction he makes between sympathetic/natural and celestial magic. The efficacy of the first is received from inherent connections among sublunar things according to sympathetic or antipathetic natural qualities and between things and their symbolic representations.[75] Celestial magic utilizes the link between the heavens and the terrestrial regions. This link is explained in 'purely Neoplatonic' terms received from Syriac and Greek philosophical sources in addition to Jabir ibn Hayyan's *Kitab al-khamsin* (*The Book of Fifty*) and *Kitab al-bahth* (*The Book of the Search*).[76] 'Neoplatonic magic' uses the emanative powers which descend ultimately from The One – the first hypostasis – and proceed into and from the Intellect, Soul and Nature.[77] According to Pingree, Neoplatonic 'celestial magic' is what 'the *Ghaya* pretends to be devoted to'.[78] The author adopts the theories of celestial magic but only as 'a pretence' to legitimacy and a 'guise of comprehensiveness' and sophistication which is contradicted by some of its 'nauseous' practices 'cruder than talismans',[79] 'wretched remnants of the late antique magic preserved in the Greek Papyri and in Byzantine manuscripts' of practical nature and not theoretical.[80] He is distinguishing between the planetary magic found in the *Ghaya* and the practices there that can be described as non-astrological recipes or spells intended for mundane purposes. This contradiction, according to Pingree, presents us with 'major historical problems' as the author seems to 'pervert Neoplatonic explanation' to support mundane practices as opposed to lofty aims.[81] He concludes his article with uncertainty regarding the theoretical rationale of the 'magics' of the *Ghaya*.[82]

Pingree unfairly supposes morality, or lack thereof, a theoretical problem or a shortcoming in the *Ghaya*'s occultism. Sophistication is assigned to any practice whose sources are lofty and Neoplatonic, whereas crudity is reserved to practices that are not motivated by

Neoplatonic ideals. But the most significant problem with Pingree's classifications of magic is underestimating the ontological and cosmological framework of the *Ghaya* that was received from the Arabic theories of astral influences formulated in the works of Abu Ma'shar, al-Kindi and *Sirr al-asrar*. According to these theories everything is inherently astral since the stars and planets are the efficient causes of generation and corruption, and the reasons behind magical efficacy of all practices regardless of purpose whether high or low. Sympathies are determined by the celestial bodies; nature itself is ordered by the stars. Though we can distinguish between astrological, natural and even spiritual practices, in the *Ghaya* all of them fall under the term 'astral magic' according to this framework. Pingree's judgement is based on agency as it is understood in the sources of the *Ghaya* rather than the text itself.

Images et Magie, an anthology dedicated to unpacking the visual and theoretical content of the *Ghaya*, by and large reiterates Pingree's theoretical typology of magic which results from emphasizing the 'compilatory' nature of the work thus redirecting the scholarly gaze towards the sources. In the introductory chapter, the authors reassert that it is very difficult to identify a single theoretical system that contains the collected materials and practices contained therein and that the relationship between the theoretical claims and practices is 'problematic'.[83] This perceived contradiction leads them to exaggerate the distinction between natural, spiritual and astral agency.[84] Citing Pingree, the improbability of solving the 'historical problem' of reconciling theory with practice is emphasized by Weill-Parot and instead he enumerates the different types of magical agencies in the *Ghaya*; first, the force of the stars expressed in the naturalistic concept of movement and heat which is then, according to Weill-Parot, contradicted by other practices; second, the spirit of the magician which connects her to the heavens; third, planetary spirits, the pneumatic power of the universe; fourth, 'demonic' spirits or astral entities; and finally, similitude, meaning agency through resemblance.[85] Although Pingree considers the first theoretical motif to be essentially Neoplatonic, Weill-Parot focuses on the final motif seeing it as a Neoplatonic interpretation of talismanic efficacy. Consequently he distinguishes image magic – figures resembling the target – from 'astral magic' with its scholastic and Peripatetic explanation of influxes based on motion and heat.[86] In the same anthology, Compagni investigates the philosophical foundations of the *Ghaya*, focusing on the operator's cultivation of the soul and intellect. She argues that knowledge of cosmic hierarchy, the animation of the universe, similitude and causes displays the mage's God-given control over

nature.[87] She, therefore, theoretically unifies the various pursuits in the text and accepts that a philosophical discourse, encompassing 'science' and gnostic endeavour, underlies the magic of the *Ghaya* as a whole.[88] Our own exposition heads towards the same direction.

The aim here is to show that semiology, causality and spirituality are reconciled in the *Ghaya*. Peripatetic causality is used to account for the existence of occult properties in all things – minerals, plants, animals, anything used in a magical operation – which are given by the stars in the process of generation and corruption. Neoplatonism elucidates the power of signs and its impact on the soul of the operator whose knowledge of these signs enables her to organize the elements of magical practice towards a specific purpose. Furthermore, the spiritual powers mentioned in the text, especially those related to the stars, are explained as the multiplication and individuation of the Universal Soul through emanation, distancing them from traditional 'demons' or 'devils', Jinn or *shayateen* (Arabic: devils) as we shall see in detail in Chapter 8.

Magic in the *Ghaya* is part of 'wisdom, a science of the distant causes – through which existing things exist – and the proximate causes of things'.[89] This wisdom has a gnostic dimension since it is 'exalted and seeking it is an obligation and an excellence [*fadila*]; this is because it illuminates the intellect and the soul with beautiful eternal radiance'.[90] This radiance is an emanation flowing from God (The One) into the Intellect, the World Soul, the celestial spheres, Nature, elements and all individual souls. The Neoplatonic scheme is indeed prominent but causal relations – described in Peripatetic terms – are given to the hypostases. Each one is a cause (*'illa*) to what is below it and an effect (*ma'lul*) of what is above it. It is therefore a volitional structure of causality resonating with divine virtues.[91] The author rejects a purely mechanical reality and explains that the celestial world can be experienced empirically (*bi al-hiss*) by understanding how motion and heat can be causes, and spiritually by moving the individual soul towards the celestial world through the ether by means of a spiritual desire for union with the World Soul, seeking celestial excellence described, like magic, as *'fadila'*.

The author of the *Ghaya* asserts that everything in the world of generation and corruption is composed by the celestial bodies, from which they receive their forms.[92] Forms are defined as 'the force that the Creator, glorified and sublime, made as the cause to set generation and corruption'; 'they contain the power of life',[93] a definition that was given by Abu Ma'shar in his *Great Introduction*.[94] The motion of the celestial bodies, and the resulting heat, affect generated minerals, plants and

animals,[95] influence the motions of all elementary bodies,[96] and cause 'the tying of the higher nature with the lower natures'.[97] They do so by means of their rays which fall upon the bodies of generated things.[98] Astrology, according to the author, is the study of these motions. The power of the constellations stems from the motions of the wandering planets that emit various influences, affecting the things that received their forms from the celestial bodies in the process of generation.[99] As a result of this intrinsic connection between the world above and world below, between causes and effects, it is necessary for astrologers and magicians to be aware of astrological correspondences. Lists of correspondences are provided in the *Ghaya* such as those between colours, body parts, flavours, locations, animals, constellations and planets.[100] Again we encounter the notion that everything is inherently astral; that occult properties (*khawass*) are determined by the astral forms in generated things. Astrologers and magicians, the author insists, need to know and understand the properties 'that issued from the wandering planets, and these are known as *khawass*'.[101] These *khawass* can be active either naturally or induced to work artificially: '*khawass* can do wondrous things on their own such as the ruby's action as a repellent of plagues and others. And this can be done by a talisman [...] through what was deposited [in it as a result] of celestial configurations.'[102] We are reminded here of Abu Ma'shar's words concerning the ruby:

> The single ruby has a nature, size, shape, colour and purity. Some rubies are purer and softer than others of the same genus. And a ruby has a property from an [astral] effect as some planets signify the genus of precious stones, and others signify the species of ruby, and other planets signify other things until all its parts are completed by the participation of [different] planets. Without the participation of the significations of all planets in one thing, it would not have parts, functions, and different states.[103]

Elsewhere, the author of the *Ghaya* asserts that even medicine works because of the natural attraction between generated things due to their astrological affinities, as demonstrated by the effect of scammony on bile. He goes so far as claiming that cooking and making dyes in the household are unintended magical operations due to the harmony between the *khawass* of the ingredients used.[104]

The causal explications in the *Ghaya* call to mind the astrological theories posited by Abu Ma'shar and al-Kindi: the role of the stars in generation, rays, *khawass* and parallels to medicines are detailed in the

Great Introduction and *De radiis* as shown earlier. The author of the *Ghaya* was acquainted with the *Great Introduction*. The images of the decans given in the *Ghaya* are borrowed from the *Great Introduction*.[105] Al-Kindi is mentioned, though not his *De radiis*.[106]

Causal explications are integrated within a spiritual and symbolic framework. This weaving of epistemological modes is expressed rather elegantly in the fourth book of the *Ghaya*. It opens with a statement demonstrating the author's intention to establish a philosophical foundation for the practice. Having discussed the practices of many peoples and presented 'examples of magical operations' he asserts that his book will not be left without 'philosophical discourse with which he refines the soul' of the reader.[107] God created five essences: Prime matter, Intellect, Soul, the Heavens, and lastly the body. Each hypostasis receives 'splendor', wisdom and excellence from the one above it. This is described as a process of 'pushing' or even delivery. Each hypostasis, the author writes, 'pushes down its heaviest in order to be similar to what is underneath it, leaving the subtlest, so that the pushed will long for the pusher, need it, love and never forget it'. This activity of love extends to the planetary and elementary spheres.[108] Moreover, the entire Neoplatonic hierarchy receives divine light from God.[109] These levels resonate with divine generative power in two ways: motion and emanation, thus we see combined the mechanical (motion) and the emanative (light), the Aristotelian and the Neoplatonic.

The world is also animated and has a Universal Soul. This concept is crucial for the *Ghaya*'s theory of generation, the justification of magic, and asserting human control of nature. The Universal Soul is the second hypostasis and emanation;[110] it is also 'from the spirit of God' created as the intermediate (*wasita*) between the Intellect and corporeality.[111] The author considers the soul as 'a simple essence that accepts the forms of all things [...] they are in the soul potentially'.[112] He adds that according to Aristotle the soul 'is a completion of the natural body [...] the soul is the formal cause of the breathing body'.[113] But the soul accepts forms from the celestial spheres.[114] The souls of individual things or particular souls (*nufus juz'iyah*) stem and emanate from the Universal Soul (*al-nafs kulli*); through the celestial spheres which it permeates they obtain astral nature.[115] Most unique of all these souls is that of man:

> He is a small world analogous to the big world as his reality is that he is a whole part with rational, vegetal, and animal souls, made unique among animals by the rational [soul]. The meaning of rational is 'the

> distinguisher' because it causes operations, brings the absent into his thought, composes forms, and visualises what he has not seen [...] He is the small world contained within the big world adapting to it due to the connection of his form with its forms and all things in it.[116]

This is very reminiscent of al-Kindi's description of the unique position of man in the cosmic scheme:

> Through his balanced existence, man turns out to be similar to the world itself. Therefore, he is called a 'microcosm'. Therefore, he possesses the ability to initiate movement in suitable matter through his actions, just as the macrocosm does, although the imagination, intention, and confidence have previously been conceived in man's soul. For when man wants to make something he first imagines the form of the thing which he wants to impress into some matter through his action. After conceiving the image of the thing, he judges it to be useful or harmful for himself, accordingly desires or rejects it in his mind. Next, if he decides that the thing is worth desiring, he desires that thing happen through which the thing is actualised.[117]

This 'making of things' is composing forms after deliberation and imagining that which is absent; a process to which the creation of talismans belongs. In the *Ghaya* a talisman is defined as an enforcing object (*musallit*) constructed by placing 'celestial secrets' in its body;[118] it cannot be realized without astrological knowledge needed to determine when and where to harness the powers of the planets and stars whence it receives efficacy.[119] The author writes that the 'knowledge of celestial configurations is the foundation of talisman-making and they diffuse their [talismans'] actions'.[120] That the operator is the microcosmic counterpart of the living universe implies an ability to imitate it, i.e. to inform matter and ensoul it as we have seen advocated by al-Kindi in his *De radiis*. Magic is then an imitation of generation: 'the action wanted is a unification, it is an impression to accept a form so that the matter and the form become one [...] like the unification of a soul in a body. Comprehend this and contemplate it.'[121] This is possible due to a natural preparedness (*tahayyu'*) in the operator to redirect the astral influences needed to make a talisman pregnant with power, and also a readiness (*isti'dad*) in the materials used in the making of its body. The preparedness of the operator originates in the rational soul as stressed by al-Kindi.

This potentiality is activated by a strong will that 'connects the powers of the soul with the celestial forces'.[122] The 'readiness' of the natural materials is twofold; it refers to the potentiality in matter to take a form magically through the soul of the operator. It refers also to the potentiality of the occult properties – whose source is the celestial bodies – to be prompted into magical action.[123] As a result, the celestial powers inserted into the talisman 'take the role of the spirit in the body'.[124] Therefore, as Compagni notes, magic 'makes concrete the likeness of Man to his Creator' and the universe. He too can create and generate.[125]

To assess the level at which this theory is corroborated practically, we need to look at the types of astral magic mentioned in the *Ghaya*. The first type is astrological talismans. These are the images that cannot be created without adhering to specific astrological conditions. For example, we find a set of instructions for an astrological love spell very similar to one found in Thabit ibn Qurra's *De imaginibus*. To bring two people together, the author recommends creating two human images from tin, silver, gold, wax or clay, each to be named at the hour of Jupiter, the ascendant containing the north node, the moon in Venus, and the lord of the seventh house aspecting the lord of the ascendant in trine or sextile. One figure should be placed against the back of the other, wrapped in clean cloth, and then placed in the house of the person to whom the first image belongs.[126] Sometimes such talismans and figures will have symbols, sigils and images which, the author informs us, correspond with the planets and astrological configurations.[127] In the second category are non-astrological magical concoctions and amulets that rely on the inherent occult properties and natural sympathies or antipathies among different materials; for example, pure emerald causes the eyes of a snake to fall out instantly.[128] The skin of large cats such as lions alleviates recurrent fever if sat on. The excrement of elephants, if hung on a tree or a woman, causes infertility.[129] This distinction is based on method but underlying both types is the desire of the operator to harness astral forces, whether the rays of an advantageous celestial configuration, stars and planets, or the occult properties that are inherently astral, in other words given to things by the celestial bodies during generation. Some of these magical operations are aggressive. Indeed, such practices seem to contradict the spiritual honing emphasized above; however, aggressive magical effects can still be explained in terms of natural agency or rather by the power of the operator, as a microcosm, to create an object resonating with astral power channelled and directed through the will.

Therefore, the *Ghaya* presents a living universe ordered according to causal relations. The theory of the *Ghaya* and that of *De radiis* show that if we know the causes, we can control the emergence of effects; if we recognize the signs, through similitude we can link purpose with agent and target; and by the rational soul we can connect with the vital force of the world that pulsates in the stars and pours into our world.

3

Textual and Intellectual Reception of Arabic Astral Theories in the Twelfth Century

The twelfth century witnessed a translation movement that invigorated medieval intellectual culture by making available Arabic scientific and philosophical works containing a 'new' perspective on the workings of nature without an overt materialism that sidelines the divine will.[1] The earliest texts to be translated were medical and astrological,[2] thus epistemologically making knowable man and the heavens. The revival of Galenic medicine was initiated by Constantine the African (d. *c*.1087) who brought from Qairouan an Arabic medical corpus to be translated in Salerno and the Benedictine monastery of Montecassino. It was part of the project in which the most influential medical text in the twelfth century was translated, the *Pantegni* by Haly Abbas (*The Complete Book of Medical Art* of 'Ali ibn al-'Abbas al-Majusi). A high number of astrological texts were being translated in Spain, especially Toledo. Gerard of Cremona (d. 1178) translated Ptolemy's *Almagest*, and John of Seville translated al-Qabisi's *Introduction to Astrology* and Abu Ma'shar's *Great Introduction* (1133). He translated many texts on astrology, magic and talismans including Pseudo-Aristotle's *Secretum secretorum* (*Secret of Secrets*), Mash'allah's *De rebus eclipsium* (*On Eclipses*), al-Tabari's *De nativitatibus* (*On Nativities*) and Thabit ibn Qurra's *De imaginibus*. To John of Seville was attributed the translations of Abu Ma'shar's *Flores* (*The Flowers*; *Kitab tahawil sini al-'alam*) and *De magnis conjunctionibus* (*On the Great Conjunctions*; *Kitab al-qiranat*). Abu Ma'shar's *Great Introduction* was translated again in 1140 by Hermann of Carinthia who also translated Euclid's *Elements*, Ptolemy's *Planisphere*, the *Zijs* of al-Khawarizmi, Sahl ibn Bishr's *Fatidica* (1138), and Abu Ma'shar's *De revolutionibus nativitatum* (*On the Revolutions of Nativities*; *Kitab ahkam sini al-mawalid*).[3] As Burnett notes, the translations of Arabic astrological texts formed a

complete and coherent curriculum of astrological science in the twelfth century, especially the works of Abu Ma'shar.[4]

The novelty of the Graeco-Arabic astrological texts was practical and theoretical. Computative methods and instruments for measuring celestial motions and locations were lacking in the early Middle Ages; furthermore, handbooks on the significance of these motions – whether for meteorology or judicial astrology – were also missing. Both of these kinds of texts were essential for understanding the heavens and their influences on earth as part of natural philosophy that promoted the intelligibility of the cosmos.[5] The enthusiastic reception of Arabic astrological texts that provided techniques for prediction and a clear system of signification can be observed in the works of Roger of Hereford who was active in Norman England in the 1170s.[6] He knew Hermann's translation of the *Great Introduction* and it was a major source for the system of signification he presented in his handbook *Liber de astronmice iudicandi* (*Book of Judicial Astrology*) which includes the geographical attributes of the twelve signs of the zodiac.[7] Furthermore, the philosophical content of some Arabic texts on astrology provided an epistemological foundation for the science of the stars and an ontological exposition of the celestial bodies and their cosmological and generative functions. All of these contributions enabled cosmologists and philosophers of the twelfth and thirteenth centuries to envisage and develop a coherent cosmogony and to incorporate the heavens into natural philosophy.

This sense of the universe's intelligibility cultivated a cosmological philosophy; 'an intellectual act, a way of thinking about, and thinking through, significant problems of existence. It became the science of analysing "life, the universe, and everything", working out humanity's place in creation.'[8] Hugh of St Victor (1096–1141), in his *Didascalion*, defines philosophy as 'the discipline which investigates comprehensively the ideas of all things, human and divine'.[9] He stresses that there is a 'dignity of our nature which all naturally possess in equal measure' and with intellect and reason we can comprehend nature.[10] He adds that the power of our rational soul is 'rooted entirely in reason, and it exercises itself either in the most unfaltering grasp of things present, or in the understanding of things absent, or in the understanding of things unknown'.[11] We can understand 'things present' as manifest and visible phenomena, 'things absent' as metaphysics, and 'things unknown' as the occult. The natural philosopher, Arabist, and translator Adelard of Bath (1080–1152) writes in his *De eodem et diverso* (*On the Same and the Different*): 'nothing more certain than reason, nothing more deceptive

than the senses [...] for who has ever comprehended the whole area of the heavens in his sight? Who has cupped its sound and the celestial harmony in his ears?'[12]

The world has a knowable order and humans through their intellect are capable of conceiving it.[13] Behind natural phenomena there is a series of intelligible causes leading ultimately to God. Thierry of Chartres (d. *c*.1150), master in the universities of Paris and Chartres and teacher of Hermann of Carinthia, writes: 'the world would seem to have causes for its existence, and also to have come into existence in a predictable sequence in time'.[14] In *On the Same and Different*, the persona Philosophia announces: 'happy is the man who has been able to understand the causes of things'.[15] Philosophy 'reaches not only things in themselves, but also their causes and the beginnings of their causes, and from present things understands those to come, a long time in distance'.[16] 'Things to come' denotes the predictability of nature through the knowledge of the order that governs it. But it can also refer to the celestial bodies and their influence on human conditions and events predicted through astrology. Thierry of Chartres knew the *Great Introduction* of Abu Ma'shar which elaborates on astral causality as discussed in the first chapter.[17]

In this chapter, the Arabic theories of astral influences, particularly Abu Ma'shar's astrological theory, are argued to have contributed significantly to twelfth-century cosmogony and cosmology which include the study of the heavens. These theories imply that the astrologer and the natural philosopher can understand the workings of the celestial and natural worlds. They establish that the celestial world is the realm of the causes of generation and corruption where the stars and planets act as instruments of God's creative will. This causal and generative connection was behind the efficacy of astrology. The Arabic astrological theories were adopted in works that aimed to reveal the emergence of the universe and to unravel the order of created and generated existence. They began with establishing God's status as the ultimate cause of all coming to be. The *Hexameron* of Thierry of Chartres, the *Cosmographia* of Bernard Silvestris, *De essentiis* (*On Essences*) of Hermann of Carinthia, the *Dragmaticon* of William of Conches, and the *Liber de naturis inferiorum et superiorum* (*On the Nature of Inferior and Superior Things*) of Daniel of Morley (*c*.1140–*c*.1210) are prominent examples of such cosmological expositions of the twelfth century. Causality is also discussed in texts dealing with the concept of nature such as Adelard of Bath's *Questiones naturales* (*Natural Questions*). Furthermore, the impact of Arabic astrology is also discernible in twelfth-century astrological texts such

as *Liber de astronmice iudicandi*. It is to some of these texts that we turn our attention.

The heavenly cause

Natural philosophy in the twelfth century encompassed knowledge of the heavens. Hugh of St Victor explains that the world is divided into two parts: the superlunary which the astronomers called nature 'because in it all things stand fixed by primordial law', and the sublunary which they called 'the work of nature, that is the work of the superior world'.[18] Most discourses on nature include exposition on astral generation and the influence of the spheres and celestial bodies. One may even say that the science of the stars itself was impetus for the study of causes encouraged by Hugh of St Victor and Adelard of Bath. After conversing with a wise man in Tours on the positions of the constellations, the qualities of the planets and the distances of their orbs, Adelard encounters Philosophia who discourses with him on the causes of things.[19] She eventually introduces him to Astronomia, one of her maidens who,

> Explains to those who are intelligent whatever mobile and celestial quantity is contained beneath the *aplanos* [the fixed stars]. For this maiden sketches the shape of the world, as contained in her teaching, the number and size of the circles, the distances of the orbs, the courses of the planets, the positions of the signs of the zodiac; she paints in the parallels and colures, she divides the zodiac into twelve parts with thoughtful reason, she is aware of the size of the stars, the opposite position of the two poles, the axis stretching between them. If anyone could make her his own he would be confident in declaring not only the present condition of lower things, but also their past or future conditions. For, those higher and divine animate beings are the principal causes of the lower natures.[20]

So the heavens are intelligible and by understanding the action of the celestial world, nature and terrestrial events become more predictable. Hugh of St Victor calls the knowledge of causes *physis* 'which searches out and considers the causes of things as found in their effects, and the effects as derived from certain causes [...] the word *physis* means nature'.[21] Thus *physis* is the study of 'the work of nature' that is generated by the celestial world according to Hugh.

It has been claimed that astrological interest from the early modern to the present age is merely a remnant of the superstition which the

twelfth century and the Middle Ages as a whole could not discard; it has been described as an 'intellectual fuzziness' that blemished exact astronomical thinking.[22] Edward Grant even claims that 'the astrological part is virtually devoid of relevance or utility for understanding medieval cosmology'.[23] However, as Lipton asserts, the empirical basis of astrology and its concern with causation legitimizes the advocacy of knowable and intelligible heavens, especially during the time when Arabic texts were received and translated such as those of Abu Ma'shar and particularly his *Great Introduction*.[24]

Before the full assimilation of Aristotle's *libri naturales* in the thirteenth century, twelfth-century cosmologists received their notions of *physica* via the Graeco-Arabic traditions. The *Enumeration of the Sciences* of al-Farabi (870–950) was translated twice in the twelfth century. A complete and accurate translation was undertaken by Gerard of Cremona (*c*.1114–1187).[25] In his *Enumeration*, al-Farabi defines physics as the science that makes known the principles of natural bodies and their causes.[26] Then he enumerates the different aspects of physics. The first is concerned with the essences common to all beings such as primary matter and forms. The second aspect deals with the study of the universe and all its parts including the heavens according to Aristotle's *On the Heavens*. The third aspect is concerned with the generation and corruption of natural things based on Aristotle's *On Generation and Corruption*. These are followed by aspects concerned with minerals, plants and animals, all supported by references to the works of Aristotle.[27] Astrology is conceived by al-Farabi as part of physics.[28] He deeply influenced Dominicus Gundissalinus (fl. *c*.1150), another classifier of medieval knowledge who composed the most important classificatory work in the twelfth century *De divisione philosophiae* (*The Division of Philosophy*).[29] According to Gundissalinus, cosmology is concerned with three 'worlds': first, the sublunar which encompasses things visible and corruptible. This world is investigated by *scientia naturalis*, i.e. physics. The second world is the celestial which is visible and incorruptible. It contains the planets and stars; this is the world of the fifth essence which is investigated by astrology whose subject matter is the motion of the celestial bodies. Gundissalinus affirms that astrology is a part of speculative and theoretical natural science since it investigates the coming to be of natural things. The third world is that which is beyond the heavens, invisible and investigated by theology.[30]

In the first chapter, I have shown that the astrological theory of Abu Ma'shar's *Great Introduction* – which would have been available

to Gundissalinus in John's and Hermann's translations – is based on Aristotle's theory of generation and corruption which designates the coming to be of all things to celestial motion. Motion facilitates the union of form and matter. Abu Ma'shar uniquely assigns a specific role to the planets in the generation of things and uses his hypothesis to devise a theoretical and philosophical model for astrology. Abu Ma'shar explains exactly how astrology ties in with *physica*: 'most of the science of the judgements [of the stars] is manifest, visible, and clear, and that part of it that is not manifest is inferred by clear analogies from the science of the nature of things [*taba'i' al-ashya'*] and from what is manifest from the powers of the movements of the planets on this world'.[31] *Physica* in the twelfth century thus acquired from the Arabic astrological works an astrological dimension beside the more classical physical (four elements) and medical (humoral pathology) associations.[32]

To understand the twelfth-century heavens, it is necessary to consider what the available non-Arabic sources had to offer. The frameworks of cosmological investigation and cosmogonical narratives in this period were essentially Platonic and Neoplatonic as they evolved by the late classical period. The Platonic and Neoplatonic sources were available in limited material. Prominent among those are Macrobius's *Commentary on the Dream of Scipio*, Martianus Capella's *On the Marriage of Philology and Mercury*, Calcidius's incomplete translation of Plato's *Timaeus*, the Hermetic *Asclepius*, and the astrological text *Matheseos* by Firmicus Maternus. These provided a discourse in which the universe was ontologically coherent; they asserted that man can employ reason, rhetoric and imagination to envision and understand the emergence of the microcosm from the macrocosm.[33] They met in their assertion that human beings received their dignity from a universal volition made multiple by the Creator via emanative hypostases, namely the Intellect and the Universal Soul. These texts presented a validation of anthropocentricity and an abstraction of the concept of Nature.[34] Furthermore, they emphasized that the intellectual comprehension of the universe is a precondition to the divinization of the human soul which is the aspiration of wise individuals.[35] They offered 'possibilities for abstract and idealised thought within a structure that might be considered "holistic", and open to spiritual – even Christian – interpretation'.[36]

The *Timaeus* is an account of the creation of the world. God causes the world to emerge from Chaos and gives it a soul, making it a living whole.[37] Finally, man is created as a microcosm containing all the principles of the universe: he is composed of the elements, endowed with a soul constituting his divine nature, and he is of celestial proportions.[38]

Contemplation upon the universe is necessary for man to realize his role in the universe and his divine potential.[39] The wandering stars are created to generate time and are of wondrous complexity that cannot be described without instruments and models.[40] Other than this, an exposition on the nature of the celestial bodies is notably lacking in the *Timaeus*.

In addition to the impact of the Timaean notion of ontological coherence, the mystical and allegorical language of *Timaeus* was deeply influential more than its natural doctrines.[41] B. M. Ashley writes:

> The Timaean approach to nature harmonized with Augustinian theology, and was characterized by its mystical purpose – to discover in the order of the visible cosmos the vestiges and images of the invisible God manifested in nature. Its mode was esthetic and impressionistic, so that it gave little stimulus to the detailed investigation of natural phenomena.[42]

An amalgamation of ontological and mystical expositions is found in Capella's *On the Marriage of Philology and Mercury*. It is an allegorical account that introduces and describes the seven liberal arts. Astronomy is personified as a maiden accompanied by seven 'planetary deities especially those which determine men's destinies, [who] were bathed in its glare, the mystery of their behaviour and orbits revealed'.[43] Astronomy calculates as she holds a sextant and a book in which the movements of the planets are measured.[44] As for qualitative, even astrological, influences of the heavens on the world below, they are explicated in terms of a heavenly music whose harmony and dissonance affect man and his world.[45] From this brief exposition on the nature of the stars we get the impression that they are divine deities who influence by means of emanation. We find a similar perspective in Macrobius's *Commentary on the Dream of Scipio*. There, the Neoplatonic hypostases are firmly established:

> Mind emanates from the Supreme God and Soul from Mind, and Mind, indeed forms and suffuses all below with life, and since this is the one splendour lighting up everything and visible in all, like a countenance reflected in many mirrors arranged in a row, and since all follow on in continuous succession, degenerating step by step in their downward course, the close observer will find that from the Supreme God even to the bottommost dregs of the universe there is

> one tie, binding at every link and never broken. Through the Soul of the World, man and stars are animated.[46]

The universe is a vibrant and animated whole and the celestial world is an intermediary, a link, between the above and below. In Macrobius's *Commentary* the relationship between different celestial bodies is also expressed in terms of a celestial harmony.[47] Furthermore, the planets and stars *signify* baneful and beneficial events in the lives of individuals. Here Macrobius reiterates Plotinus's rejection of astral causality:

> Indeed, Plotinus declares in a treatise Are the Stars Effective? That the power and influence of stars have no direct bearing upon the individual, that his allotted fate is revealed to him by stations and direct and retrograde motions of the seven planets, just as birds in flight or at rest unwittingly *indicate* future events by their direction or cries. And we have good reason to call this planet beneficial and that one baneful since we obtain premonition of good or evil among them.[48]

And so the connection between the stars and the fates of people is a semiological one, not causal. The relationship between the heavens and the world below is also one of signification; in the *Timaeus*, as another example, the planets send alarming *portents* of future things.[49] In addition to being semiological, astrological knowledge can be noetic and revealed. Firmicus Maternus writes:

> It is this Divine Mind which had handed down to us the theory and technique of this science. It has shown us the courses, retrogressions, stations, conjunctions, waxings, risings, settings, of the Sun, Moon, and other stars which we call the 'wanderers' but which the Greek call planets [...] this is how we can recognize in what sign the planet Saturn is exalted and see how his cold is warmed by another's heat.[50]

It is evident then that what is lacking in all these texts is a causal explanation of astral influences.[51] This prevents us from overestimating the role of these texts in the development of twelfth-century natural philosophy as has been done in some scholarship.[52] Regarding *Timaeus*, Southern explains: 'if you read it as a scientific text-book, in isolation from Plato's other works and in total ignorance of the scope of Greek scientific experience, it cannot take you very far'.[53] The *Timaeus* lacks a

detailed natural philosophy based on comprehensive physical and metaphysical principles.[54] In the *Timaeus* we learn about man's relationship with the heavens as a purely semiological one; the gods 'copied the shape of the universe and fastened the divine orbits of the soul into a spherical body, which we now call the head, the divinest part of us which controls all the rest'; one finds no theories on how things came to be just that they were 'copied' into being and a soul emanated into their bodies. The *Timaeus* treats the microcosmic nature of man as an extrinsic copy of the universe, but in Abu Ma'shar's *Great Introduction*, man's composition is intrinsically linked and even determined by the stars. The Sun governs the vital spirit, the brain and the heart, Saturn governs the spleen, Mars the blood, Venus the kidneys, the Moon the stomach, etc.[55] In *Timaeus*, the eyes are 'copies' of the two luminaries and the head is 'copied' in the shape of the universe,[56] whereas, in his *Great Introduction*, Abu Ma'shar explains that the organs of the human body are governed by the planets because they are their causes; they formed them.[57] In Plato we find a description, in Abu Ma'shar an explanation.

Firmicus Maternus says that those who do not believe in the planets' divinity 'are trying to destroy the whole force of astrological divination'.[58] For twelfth-century cosmologists, a causal principle was needed not only for establishing cosmic intelligibility and integrating the heavens into natural investigations; it was essential for avoiding astrolatry. In *Asclepius* and Cicero's *On the Nature of the Gods*, also an influential text in the twelfth century, planets are described as gods; theurgy and worship are stressed as means to receive their bounty.[59]

The animation of the celestial bodies is discussed by William of Conches in the *Dragmaticon*.[60] He stresses that though their souls are derived from the Universal Soul, it does not mean that they are gods. He considers the myths assigned to the planets as one mode for expressing their significances and qualities rather than facts about their actions as actual gods. According to William, the celestial world is epistemologically accessible in many valid ways: through the imaginal, empirical and hermeneutic experiences of the stars. He writes:

> Authors deal with celestial matters in three ways: namely, in terms of myth, astrology, or astronomy. Nemroth, Hyginus, and Aratus deal with this mythically, maintain that a bull was taken up into the heavens and changed into a constellation [Taurus] and the like. This way of treating such things is most necessary, for thanks to it we know something about each particular constellation: namely, in

> which part of the heavens it is situated, how many stars are in it, and how they are arranged. On the other hand, to deal with these matters astrologically is to state what appears to be there, whether that really be so or not. For many heavenly bodies appear to be in the higher regions when in fact they are not. Martianus and Hipparchus deal with this in this way. However, to deal with the same things astronomically is to declare what is true about the stars, whether it seems to be so or not. This is how Julius Firmicus Maternus and Ptolemy approach the subject.[61]

He adds that 'according to myth, Jupiter is said to have expelled his father Saturn from his kingdom, since when he is closer to Saturn, he removes from him his natural harmfulness'.[62] In terms of astrology, Saturn is harmful and malevolent; and in astronomical terms, Saturn takes 30 years to journey through the zodiac.[63] This is very similar to the description of the science of the stars in *Ut testator Egaphalau*, a Latin text of Arabic origin. A twelfth-century manuscript of this text, now in Jesus College (Cambridge), forms the preface of a copy of Adelard's *De opere astrolapsus* (*On the Use of the Astrolabe*).[64] In *Ut testator*, *physica* is defined as the study of the movement of natural things; *astronodia* is a branch of *physica* defined as 'the science of magnitude in motion, which investigates the two movements of the matter which is not subjected to generation and decay, and which, by judging the threefold passing of time, reveals present things, predicts future things, and recalls to mind past things'.[65] This is reminiscent of the statements of Hugh and Adelard regarding the scope of philosophy and human knowledge. Furthermore, the study of the stars is divided into 'fabulous astrology' consisting of myths that reveal the significances of the stars; 'historical astrology' which correlates historical events with the annual revolutions of the stars; and 'natural astrology'.[66] William too speaks of a causality of the stars that is compatible with the imaginal and semiological modes; 'the same star is called malevolent, either because it *does* or because it *signifies* something evil for people, and especially during its retrograde motions'.[67] This epistemological reconciliation is missing from the Latin sources but it forms the foundation of Arabic astrological theories which interweave classical systems of astrological signs with Aristotelian notions of causality. That the stars do cause is expressed in William's discussion of astro-medical aetiology, where diseases are seen to occur because of change in the atmosphere caused by the motions of the celestial bodies.[68] This is an aetiology that combines the ideas contained in the *Pantegni* to which William refers and the *Great Introduction*

of Abu Ma'shar that he knew.[69] According to Abu Ma'shar, medicine and astrology are interrelated aetiological pursuits. Medicine looks into the changes in the elements and humors and astrology discovers the astral causes of these changes.[70]

So the celestial bodies occupy a higher and nobler place in the cosmological hierarchy but they are still not divine entities. Adelard of Bath in his *Natural Questions* emphasizes to his nephew that the celestial bodies must never be conceived as gods though they are animate and rational as evinced by their constant order and fixed measurements. The evidence of their animation is taken from Cicero's *On the Nature of the Gods*, but natural causality is used by Adelard to establish that they influence the world below not as gods with arbitrary volition but as proximate causes.[71] Adelard's *Natural Questions* was written after being exhorted to explain the causes of things according to *Arabicorum studiorum*. There he writes that life and death, generation and corruption, are caused by the stars;[72] and in *On the Same and Different* we read the following verses:

> Let him not know the causes or first principles of
> things not know himself [...]
> Let him not know why some stars look balefully on
> our affairs, while others are benign [...]
> Deprived of light, let him seek falsehood instead of truth,
> Arguing that there is no such thing as a natural causation.[73]

Adelard of Bath practised astrology and translated Abu Ma'shar's *Abbreviation of the Introduction of Astrology* (*Ysagoge minor*), the *Elements* of Euclid from Arabic to Latin and the astronomical tables of al-Khawarizmi. He provided a second translation of Thabit ibn Qurra's *Book on Talismans* entitled *Liber praestegiorum* and was probably familiar with the *Great Introduction* either directly from the Arabic original or through John of Seville's translation.[74] *On the Same and the Different* was dedicated to William bishop of Syracuse in Sicily whose bishopric fell between 1105 and 1124, several years before the emergence of John's translation of the *Great Introduction* in 1133. However, *Natural Questions* was dedicated to Richard bishop of Bayeux who could be either Richard FitzSamson, bishop from 1107 to 1133, or Richard bishop of Kent, bishop from 1135 to 1142.[75] In both cases, John's translation was available to Adelard of Bath by the time he wrote the *Natural Questions* which was widely read throughout the Middle Ages.[76] That Adelard personally undertook these translations has been questioned. Burnett suggests that they might be Latinizations of translations made by his teacher Petrus Alphonsi.

In another scenario it is possible that Petrus dictated the Arabic texts for Adelard who then translated them into Latin immediately.[77] The depth of Adelard's Arabism was also denied by Brian Lawn, and D'Alverny prefers to say that the Arabic influences are not so obvious in his thought.[78] Though indeed one fruitlessly searches for a citation of an Arabic text or author, Adelard's concern with astral causality is testimony to the influence of Arabic astrology. Adelard states in *On the Same and the Different* that the planets and stars 'are the principle and causes of the lower natures'.[79] As Crombie notes, 'Adelard's use of reason marks the first explicit assertion in the Middle Ages that recognition of divine omnipotence did not preclude the existence of proximate natural causes.'[80] It was Abu Ma'shar, with whose works Adelard was acquainted, who posited that the celestial bodies are causes of all change in the terrestrial world and as a result they are both connected by necessity (*sit iunctus* [. . .] *necessario*).[81]

Astral causality became the foundation of twelfth-century defences of astrology as well as cosmological works. Seeking *doctrina arabum*, the astrologer Daniel of Morley (d. *c*.1210) went to Toledo after a disappointing stint in Paris studying Roman law.[82] He tells us that in Toledo he listened to Gerard of Cremona interpreting *Almagest* and debated with him the matter of fatalism in astrology.[83] In his *Liber de naturis inferiorum et superiorum*, Daniel states that the inferior world is linked by necessity to the superior world. The movement of the celestial bodies causes diverse effects in the sublunar world.[84] Moreover, the celestial world is the agent of generation and corruption.[85] Referring to Abu Ma'shar, he states that the motion of the celestial bodies affects the complexion of generated things as they move from one sign to the other.[86] Thus we see that the Arabic texts that dealt with the way in which the heavens influence the world below, in addition to medical texts concerned with external influences on the human body, enriched the concept of causality in the twelfth century and complemented the mystical perspective found in the available Latin sources.[87]

The heavens generate

The most intriguing aspect of Abu Ma'shar's astrological theory is the generating agency attributed to the celestial bodies. They function ontologically and as a result impact lives and events astrologically. Abu Ma'shar's *Great Introduction* was the only text available to the cosmologists of the twelfth century that treated the mediation of the planets in the process of generation. Abu Ma'shar's ideas on astral generation were

clearly adopted in two cosmological texts: Hermann of Carinthia's own *De essentiis*, and Bernard Silvestris's *Cosmographia*.

Of central importance to the history of the textual and intellectual reception of Arabic astrology generally and Abu Ma'shar's *Great Introduction* specifically is the activity of Hermann of Carinthia. He was a contemporary of Adelard of Bath, William of Conches and Bernard Silvestris, and may have had direct links with the school of Chartres as he referred to Thierry of Chartres as his teacher.[88] As a translator of the *Great Introduction* he was an agent of reception but his work entitled *De essentiis* shows a deeper concern with the Arabic content and a desire to recondition and integrate Arabic/Aristotelian ideas into twelfth-century cosmology to support the available Platonic texts.[89] With *De essentiis*, which is an account of creation and the process of generation, Hermann of Carinthia became 'the first author from a Latin background to construct a philosophical system based on a deep understanding of the Arabic tradition'.[90] In the Preface he writes of the knowledge which 'our most earnest labour had acquired for us from the depths of the treasuries of the Arabs'.[91]

To argue for the impact of Abu Ma'shar by introducing Aristotelian natural philosophy, Lemay focuses on finding conceptual parallels between *De essentiis* and the *Great Introduction* without affirming how these concepts were woven and synthesized within the Platonic cosmological framework. Burnett in the introduction to his critical edition and translation rightly points out that the cosmological framework of *De essentiis* cannot be attributed to Abu Ma'shar and that he was not the sole source of Hermann's Arabic Aristotelianism. Al-Kindi's *De quinque essentiis* (*On the Five Essences*) inspired the divisions of movement which echoes doctrines from *On Generation and Corruption*. Furthermore, Hermann's exposition on the soul, reminiscent of *De anima*, is derived from Qusta ibn Luqa's *De differentia spiritus et animae* (*On the Difference between Spirit and Soul*) translated by John of Seville.[92] Lemay was 'not concerned with the effect of this translation [of the *Great Introduction*] on astrological traditions so much as with the discovery by the Latins of Aristotle natural philosophy in the twelfth century'.[93] However, Hermann's concepts of astral causation and generation and astrological material are indeed derived from Abu Ma'shar.

Investigating the reconciliation of Aristotelian concepts from the various Arabic sources with the Platonic cosmological setting is paramount for understanding how the Arabic material was received and reconditioned. *De essentiis* provides the perfect opportunity for such a study. Hermann writes that Plato was concerned with universal ideals;

'Aristotle, however, though also concerned with the whole, in the end finished off the extremes without weaving in the mediators.'[94] These mediators are the planets which were 'weaved in' by Abu Ma'shar. Astrology was the subject that connected Platonic metaphysics with Aristotelian natural philosophy.[95] No wonder that Abu Ma'shar is the most cited authority in *De essentiis*.[96]

De essentiis is divided into two parts: the first is on primary generation (the world of essences) and the second is on secondary generation (the world of substances and of generation and corruption). God is the All-Powerful 'author of the whole universe', and the creative 'Craftsman'.[97] He conceived in His mind the principles of matter and form *ex nihilo*.[98] This act is called creation:

> Creation is of principles, at the beginning out of nothing; generation is of things from the pre-given principles, and is continuous up to the present day [...] In creation, the same thing is craftsman and instrument. In generation, however- since it is in the second position of worth – the craftsman has prepared another instrument for himself.[99]

Through primary generation God produced the five essences: cause, movement, place, time and habitude. In the case of secondary generation, all generated individual things (*genitura*) require form, matter and a moving cause.[100] Secondary generation is the 'information of matter [...] a taking on [by matter] of a condition [form]'.[101] Form 'moulds that formless necessity by the movements of its property, as the active element, into various actualisations. For thus according to Hermes the Persian: "Form is the adornment of matter, whereas matter is the necessity of form." '[102] Habitude is the potentiality of matter to receive form and the impulse in form to come together with matter; it is also 'a kind of tension within all things which are born'.[103] Form designates species but may contain what Hermann refers to as 'individual signs' – the differentiating principles: 'Priam and Hecuba are different people, not different things; since the complete consummation of the universal substance is found in form, and things do not take any difference from that source, outside causes distribute the individual signs of everything.'[104] These outside causes are the planets.[105]

The influence of Abu Ma'shar can be immediately discerned in Hermann's description of secondary generation. Abu Ma'shar identifies the planets as the moving cause that brings form to matter.[106]

Although the term 'signs' (*notio*) is derived from Thierry of Chartres's commentary on Boethius's *De trinitate*,[107] that the stars are responsible for the diversity of these signs in individuals is from Abu Ma'shar who writes:

> As for that which is affected in him due to the powers of the motions of the planets, by permission of God, that is not related to the elements or form, it is manifest and it is [determined by] their [planets'] significations over the particularity of his genus and individuality from among the rest of the genera and individuals, and their significations over the composition of all natural things and the commixing of the form and elements in elemented things and the harmony between the animal and rational souls and the body and other things like beauty and ugliness.[108]

Referring directly to Abu Ma'shar, Hermann writes: 'the participation of the planets is in the "universal" guidance, since the other heavenly bodies refer rather to "singular" guidance. "Universal", as Abu Ma'shar defines it, is in the genus and species, whereas "singular" is in the property of single individuals.'[109] The singular guidance can be understood as individuation in generation but also the effects of all kinds of planetary configurations on individuals. Abu Ma'shar stresses that it is because of the participation of the planets in the generation of individuals that they are astrologically linked to their movements.[110]

Hermann of Carinthia adds a Platonic dimension to his cosmology derived from *Timaeus*, Macrobius and Boethius when he describes the link between higher and lower motions. He explains that because the celestial bodies determine the signs of individuality 'it is not surprising that Essence drags Substance'.[111] According to Hermann the eighth sphere of the zodiac and the planets belong to the world of Essence;[112] 'Matters have been taken from here [below], forms come from above [...] Therefore, when the mixture of Substance follows the movement of Essence in this way, the differences described above inform what is conceived.'[113] This 'dragging' causes 'alterations' in a singular fashion.[114] Unlike Abu Ma'shar, magnetism is not adopted by Hermann to explain 'the lawful bond' between the celestial world and the terrestrial.[115] Even though he explicitly refers to Abu Ma'shar to say that a bond exists due to motion, Hermann rejects the idea that a fifth essence is the celestial medium of astral influences.[116] The emergence of the spheres, the zodiac, the planets and the elements is described Neoplatonically.[117] In the *Great Introduction*, the heat which is produced from the friction

of celestial motions is the agent uniting form and matter. This is lacking in Hermann's account of secondary generation. He adds that the planets 'drag round this sluggish world and rouse it into every movement of *genitura* [...] by a feeling of natural relationship between the higher parts and the lower parts'.[118] This feeling is love which is emphasized as a cosmological bond in a Timaean and Boethian fashion before the introduction of Plotinus's discussion of cosmic love in the *Enneads* or Plato's *Symposium on Love*; 'in every constitution of things the most cohesive bond of the construction is love. That love (if I can describe it as closely as possible) seems to be a kind of internal condition of unanimity of partners leading to a state of mutual obedience to each other.'[119] This bond is also described in terms of numerical relationships and harmony exactly as found in *Timaeus*, and in Macrobius's and Capella's works.[120]

Though his account of astral influences differs in some ways from Abu Ma'shar's, in his exposition of the stars' role in generation Hermann relies heavily on the *Great Introduction*. As a result, the *De essentiis* offers a unique insight into the twelfth-century episteme that used Arabic/Aristotelian notions of astral causality to explain generation within a Platonic and Neoplatonic framework. Another case which exemplifies this model is Bernard Silvestris's *Cosmographia*.

Bernard Silvestris was a teacher of humanities at the school of Tours and had links with the School of Chartres where he might have come across Abu Ma'shar's *Great Introduction* and Hermann's *De essentiis*.[121] He enjoyed a wide reputation during the Middle Ages.[122] Several texts were attributed to him such as the *Mathematicus* and a commentary on Capella's *On the Marriage of Philology and Mercury* though both attributions are weak.[123] He is most known, however, for his allegorical account of the coming to be of the macrocosm and the microcosm known as the *Cosmographia*, written sometime between 1143 and 1148. It was dedicated to Thierry of Chartres and was read by Pope Eugene III in 1147.[124] This text circulated widely as evinced by the existence of many glosses in the twelfth and the thirteenth centuries.[125] It influenced Dante, Chaucer, Nicholas of Cusa and Boccaccio.[126]

The *Cosmographia* is a crystallization in poetic form of the intelligibility of the universe, drawing from influential texts, ancient and Arabic, and explicitly expressing causality as an epistemological mode reconciled with the mythic, the symbolic and the psychic. The Platonic/Neoplatonic emanative and mystical setting derived from Capella and Macrobius is syncretized with the notions of generation and causation derived from Arabic astrological and medical texts, all to demonstrate the intelligibility of cosmic and natural order and to confirm

the dignity of man as advocated in *Asclepius*.[127] We have mentioned before that the naturalization of cosmic order helped clear the discourse from any deification of the celestial bodies and yet in the *Cosmographia* some cosmological principles, such as Nature, are often referred to as gods and goddesses. What we have here, however, are not entities deified but philosophical concepts or cosmic principles personified.[128] As we shall see, cosmic ontological principles preside over the celestial bodies and it is these principles that are personified.[129] The pagan/allegorical figures show the humanistic tendencies characteristic of the twelfth century which are also reflected in the poetic fashioning based on Ovid and Virgil; but as Silverstein notes, 'humanism is not paganism'.[130]

The cosmological narrative begins with introducing three of the macrocosmic principles: Silva, Noys and Natura. Silva (Latin: forest) is primeval matter in formless chaos; 'a hostile coalescence, the motley appearance of being, a mass discordant with itself, longs in her turbulence for a tempering power [...] demands the shaping influence of number and the bonds of harmony'.[131] Medieval authors used the term *silva* in consequence of Calcidius's *Commentary on Timaeus*.[132] Calcidius dedicates the longest section of his *Commentary* to the matter of Matter; this section is called *tractatus de silva*.[133] In *Timaeus* and Calcidius's commentary, *Silva* is the primary substratum of all corporeal or material things.[134] Natura implores Noys to make Silva 'more malleable and [to] give her order'.[135] Noys, the first emanation issuing from God, 'god born of God' and 'profound reason of God',[136] agrees and proceeds to refine the unformed condition by endowing her with 'eternal ideas' and 'images of the ideal'. Silva is changed from chaos into a generative principle.[137] As such she is referred to now as Hyle. From now on Silva is used interchangeably with Hyle (timber and woodland) which is also a Chalcidian influence. In Platonic terms, Silva existed outside the Divine Mind whereas Hyle emerged as a result of a synergetic connection mediated by Natura and established by Noys who imbued it with the ideas of all existents.[138] In Aristotelian terms, Silva is a temporary state of primitive chaos but Hyle is the material cause underlying change.

Noys is the shaper of the material substratum.[139] From Silva to Hyle, 'then comes the elementing nature; the elements [*elementa*] appear in response to this elementing nature [*elementanti nature*], and elemented substances [*elementata*] take their rise from the elements'.[140] There is an elementing nature that causes the elemental qualities (moist, cold, dry, hot) to emerge from Hyle into material elements (fire, water, air, earth) from which all bodies are composed. According to Bernard, the

minimal and simplest parts are the qualities which pair up to make the material elements. He explains that the elementing nature which readies the material cause of generation 'is in fact the firmament, and those stars which traverse the circle of the Zodiac, for it is these that arouse the elements to their natural capacity'.[141] It has been suggested that the *Dragmaticon* of William of Conches is the source for Bernard's discussion of the elements since the former expresses the concepts of qualities as the simplest parts, the elementing cause, and *elementatum* as the elemented or material elements originally coined by John of Seville.[142] However, the differences and discrepancies between the *Cosmographia* and William's works especially regarding the matter of astrology and astral causality make the *Great Introduction* and *De essentiis* better candidates. As we have seen, William of Conches's treatment of causality is brief and restricted to medical aetiology whereas Bernard's treatment is explicitly astrological as we make evident below. William rejects the idea that celestial bodies are made of the quintessence or the fifth element whereas Bernard asserts it.[143] Furthermore, William rejects the idea of primordial chaos with which Bernard commences his narrative.[144] It is possible that *De essentiis* was Bernard's source as Hermann of Carinthia discusses the emergence of the elements in *De essentiis* but does not use John of Seville's terms.[145] He refers to primary qualities as incorporeal pure and simple principles (*principia pura et simplicia*) brought forth *ex nihilo*. The material elements in *De essentiis* constitute a 'middle substance' (*media substantia*), between incorporeality and body, from which composites are made (sensible bodies).[146] The intermediacy of the *elementata* (medium substances) is based on the theory of elements and minimal parts found in Constantine's *Pantegni*.[147] Hermann's and Bernard's elaborate astrological treatment of generation and causation distinguishes them from William's but only Bernard speaks of an astral elementing cause. This is derived from Abu Ma'shar who explains in his *Great Introduction* that natures or the four primary elements (*taba'i'*, *elementa*; fire, air, water and earth) are older than the composite bodies of animals, plants and minerals (*matbu'*) which John of Seville translated as *elementata*. For these to emerge from the elements there must be a cause (*'illa*, *causa*). Abu Ma'shar refers to this as the elementing cause (*'illat al-tab'*) which John of Seville translated as *causa elementans*. Finally, Abu Ma'shar states that the natural motion of the celestial bodies is this elementing cause, the same cause that unites form and matter to produce species and individuals.[148] Abu Ma'shar's treatment of the elements is also adopted by Daniel of Morley in his *Liber de naturis inferiorum et superiorum*. In a section copied from Hermann's translation of

Abu Ma'shar, Daniel writes that matter is the four elements (fire, water, air and earth) and forms shape them into recognizable species.[149] A composition (*compositio*) denotes bodies made up of the elements; this state cannot be actualized without a *compositum* which can be defined as the composing/elementing cause that corresponds with the Arabic *'illat al-tab'* assigned to the celestial world.[150] Instead of attributing it to the motion of the celestial bodies, Morley, however, opts for the Platonic conceptualization of influence that we encountered in Macrobius's and Capella's works and describes the *compositum* as a kind of generative harmony.[151] Some scholars restrict the influence of Abu Ma'shar in the works of William of Conches and Bernard to the discussion of the elemented and elementing cause;[152] while others deny that the terms were derived from John of Seville's translation of the *Great Introduction* and instead suggest an early twelfth-century commentary on the *Isagoge Iohannicii ad artem Galieni*.[153] However, the strong astrological streak in the *Cosmographia* and the enunciation of astral causality affirms the debt it owes to the *Great Introduction* beyond just terminology that describes the material cause.

After elaborating on the material and astral causes, Bernard turns his attention to the animating principle. Enter Endelechia: she is the Universal Soul, the second emanation in the Neoplatonic scheme, issuing from Noys.[154] She is also described as a 'vitalizing spark' which gives life to the cosmos and its members. Now we have a 'mutual agreement of soul and cosmos'. Furthermore, Endelechia has the power to eternally sustain life in the stars and planets, but in the lower levels of existence her power is diminished by 'the sluggishness of bodily existence' and the hold of corruption in it.[155] The stars, however, are intermediaries between the Universal Soul and the terrestrial world. They are also responsible for the harmony between body and soul in individuals reflecting that harmony between the Universal Soul and its Body.[156] As noted before, Abu Ma'shar establishes that the motions of the celestial bodies produce heat that initiates generation, namely union of matter and form and bringing together body and soul in harmony.[157] Bernard conceives this heat as 'ethereal fire' which 'effecting the generation of all things, gives over that life which he has begotten by his heat to the nurture of the baser elements. When the vital spirit of animate life has been summoned from the vault of heaven, earth applies herself to providing nurture for bodily existences.'[158]

It is hence confirmed that all generation is from the celestial world; 'for anything which is brought forth to assume the mode of being proper to its kind derives the causes and nature of its substantial existence from

the celestial sphere. As if from a life-giving god.'[159] Natural things thus receive their substantial form – formed matter – from the heavens.[160] Furthermore, every creature receives vitality from the Universal Soul or Endelechia.[161] Therefore, it is evident that the causality established in the first part of the *Cosmographia* dealing with the macrocosm is identical to that posited by Abu Ma'shar.

After ordering the macrocosm, Natura sets out to create man, the completion of the success and glory of Noys's creation. To do so she needs to summon Urania and Physis, the sources of the higher and lower natures respectively that make up man.[162] Urania represents the celestial world and she is Noys's offspring and Natura's sister.[163] In her search for Urania, Natura has to traverse the vast heavenly region. In this journey the nature of heavens and its functions are described. Natura reaches Aplanos – a term used in Macrobius's *Commentary on the Dream of Scipio* and borrowed by Adelard of Bath to refer to the fixed stars.[164] Aplanos is 'all-forming region' where Natura finds the Usiarchs who have the 'office of delineating and giving shape to the forms of things'.[165] The word 'Usiarch' is derived from *Asclepius*'s 'Ousiarches of heaven' who are generators of the inferior world.[166] Those encountered by Natura represent the celestial principles responsible for fashioning and assigning the forms of all things that join matter in the process of generation;[167] therefore, for each planetary sphere there exists a Usiarch.[168] The forms of the Usiarchs are derived from patterns based on manifold celestial configurations dominated by the planetary spheres (Saturn, Jupiter, etc.) in which they reside; 'for the whole appearance of things in the subordinate universe conforms to the heavens, whence it assumes its characteristics, and it is shaped to whatever image the motion of the heavens impart'.[169] This is an allegorical rendering of Abu Ma'shar's discussion of forms in the *Great Introduction* where he states that the variation (*tafsil*) of forms and species results from 'the power of the natural motions' of the celestial bodies.[170]

Usiarch directs the gaze of Natura towards the dazzling sight of Urania.[171] Urania's role is limited to the soul and the noetic potential of man. She must establish a link between his soul and the heavens before the soul is joined with its earthly vessel so that a consciousness of his heavenly nature is instilled. With wisdom and astrology, this consciousness can be nurtured after being dulled by the body:

> The human soul must be guided through all the realms of heaven, that it may have knowledge: of the laws of the fates, and inexorable destiny, and the shiftings of unstable fortune; what occurrences are

> wholly open to the determination of will, what is subject to necessity, and what is subject to uncertain accident; how, by the power of memory, she may recall many of these things which she sees, being not wholly without recollection [...] what virtue is in the stars, what power in the firmament, what vitality is in the poles of the heavens, what potency the rays of the two luminaries possess, and the five planets, these things let her know when she enters the vessel of the body.[172]

It is implied that astrological and heavenly knowledge is inherent and that knowledge is a recollection which is a notion probably received from Boethius's *Consolation of Philosophy*.[173]

The concern with astrology here, however, is Arabic-Aristotelian.[174] The forging of a link with the human soul by Urania is followed by an explicit reference to natal astrology: 'by the laws of the firmament, man is assigned at birth his term of life and the means of its final disposition'.[175] This is the result of the causal link between the celestial and the terrestrial worlds. The stars are signs that enable the wise to 'recall' and understand this causality and its impact on their fate:

> The firmament is inscribed with stars, and prefigures all that may come to pass through decree of fate. It foretells through signs by what means and to what end the movement of the stars determines the course of the ages. For that sequence of events which ages to come and the measured course of time will wholly unfold has a prior existence in the stars.[176]

Therefore, causes can be understood by deciphering the signs. Noys tells Natura: 'I need not say how forms encountered substances, how it is that there is life on earth, in the sea, in the air, the arching firmament. I would have you survey the heavens, inscribed with their manifold array of symbols, which I have set forth for learned eyes, like a book with its pages spread open, containing things to come in secret characters.'[177]

Urania thus gives man psychic and intellectual access to the heavens. It has been suggested by Lemay that Urania represents astronomy and Natura astrology;[178] however, none of the personae of the *Cosmographia* represents a classification of knowledge or a discipline but universal principles, and in the case of Urania and Natura they can also represent ways of knowing. As a universal principle, Urania collaborates with the Universal Soul to instil celestial nature in man through his soul,[179] but as a way of knowing, Urania is revelation and intuition of heavenly knowledge. Natura is the mother of generation,[180] the universal generating

impulse; she 'bring[s] created life into substantial existence';[181] by uniting the power of the soul with the potentiality of the body and by joining the celestial and terrestrial natures.[182] In *De essentiis*, Hermann of Carinthia opens his discourse on secondary generation, which includes the generation of man, with defining nature as 'a law of certain universal condition which in common speech is called "nature" '; from 'nature itself [it] seems most appropriate to begin'.[183] As a way of knowing, she represents the twelfth century's new 'natural philosophy' based on the knowledge of causes. Urania calls Nature 'so diligent a seeker of causes'.[184] As such, she is a personification of the intelligibility of the cosmos.

Now that celestial nature is imbued in the soul of man, his terrestrial nature and corporeality needs to be created. To this purpose Urania and Natura seek Physis who is 'occupied with the study of created life [...] She had taken the subject of her thought the origins of all natural things, their properties, powers and functions.' By deduction and analysis she studies the natural world and the properties of natural substances. The most superior aspect of her occupation is medicine and creating cures and poisons.[185] As Kauntze points out, she 'represents the study of medicine informed by natural science, while Natura stands for a broader conception of the study of nature – she is simply the "rerum prudentior indagatrix" – and one who encompasses and unites both medicine and astrology'.[186] To know the behaviour and properties of things below, Physis also considers the causes above; 'whenever her thoughts descended from the heavens and heavenly bodies, she sought to explain by their composition the behaviour of animate creatures'.[187] Physis is occupied with 'the origins of all things natural' from the sublunary world, whereas Urania works 'from the summit of the firmament'.[188]

As a universal principle, Physis is responsible for the composition of the body by reconditioning matter; her guide in this fashioning is the archetypal pattern of the cosmos and thus man becomes a microcosm;[189] 'Physis knew that she would not go astray in creating the lesser universe of man if she took as her example the pattern of the greater universe'[190] – a very Timaean idea. And so man is created with a dual nature – heavenly and bodily – and his intellect navigates the cosmos in two ways: by revelation and by reason; moreover, astrology will be essential for this navigation. Noys declares to Physis, Urania and Nature:

> He will derive his understanding from heaven, his body from the elements, so that while his body sojourns on earth his mind may dwell far above [...] He shall be both divine and earthly, comprehend

> the universe about him through knowledge and commune in worship with the gods [...] he will possess the gift of reason [...] will lift up his noble head toward the stars, that he may employ the laws of the spheres and their unalterable courses as a pattern for his own course of life. The heavenly powers, the stars, the firmament, will speak to him.[191]

Hermann of Carinthia expresses a similar view and writes: 'the human mind ascends; the divine goodness descends. The former by speculation, the latter by revelation.'[192] Physis and Urania also leave a bit of themselves in man. Reason will enable him to know 'why' phenomena happen – an occupation of Physis – but his soul will try to interpret the signs, symbols and pattern of the heavens – Urania is called by Nature a 'divine interpretess'.[193]

From the works of Hermann of Carinthia and Bernard Silvestris, we conclude that Arabic astrological and medical learning as exemplified by Abu Ma'shar's *Great Introduction* and Constantine's *Pantegni* gave impetus to the belief in the intelligibility of universe and nature. The available Latin sources, on the other hand, provided the noetic, emanative and mystical universal structure. As a result, natural philosophy – represented by the persona of Natura in the *Cosmographia* – encompassed both causal and semiological modes through which man knows the order of the cosmos and, more importantly, knows himself. This knowability is the essence of the twelfth-century episteme.

The twelfth century is indeed a 'century of change' and many scholars explored its cultural and intellectual achievements, making it stand out in the history of the European Middle Ages as a 'renascence', a prelude interrupted before the 'actual' Renaissance.[194] The intellectual activity in the field of natural philosophy has been conceived as a brief manifestation of scientific potential – its explorers as proto-scientists – before the 'Scientific Revolution' and the 'Enlightenment'.[195] Tina Steifel sees in the twelfth century an interesting episode in the history of rationality 'before the beginning of modern science' that had its origins in Greek philosophy, especially Plato's *Timaeus* as a 'gate to rational thinking'.[196] She is tempted to credit Adelard of Bath 'with having an eighteenth-century spirit within his twelfth-century body' because of his advocacy of a knowable universe, open to human understanding.[197] According to Steifel, the mysticism of Neoplatonism and the Hermetic tendencies were 'anti-intellectual reaction to Greek rationalism' and can be explained as a 'response to the increasing difficulties of life in this period', a mere escape.[198] This perspective diagnoses the twelfth century

with an intellectual dysmorphia and bipolarism because its paradigms of historical evaluation belong to a period that is centuries ahead. A more sober approach sees it as a century of change because of a mindfulness about the reconcilability of what was considered before the twelfth century as incompatible: the mystical view of the universe's workings and the natural perspective. Most importantly, the mystical elements of Neoplatonism and Hermetic thought were reworked in order to accommodate Christian spirituality. William of Conches concludes his *Dragmaticon* by stressing that 'it is through the knowledge of the creatures that we arrive at the knowledge of the Creator'.[199] Southern aptly pronounces that it is the century's triumph 'to make the universe itself friendly, familiar, and intelligible'. Natural philosophy in the twelfth century is firmly founded upon a reconciliatory epistemological attitude between the natural and mystical, the revelatory and deductive, the reasoned and the enchanted, and indeed 'this is an essential part of the heritage of Western Europe which we owe to the scholars of the twelfth and thirteenth centuries'.[200]

4

Magic in the Thirteenth Century: Albertus Magnus, Thomas Aquinas and Roger Bacon

Having considered the Arabic theories of astral influences and their appropriation in twelfth-century cosmology, we can say that astral dynamics obtained three interpretive levels: aetiological, considering them as causes of generation, corruption, and terrestrial events; semiological, the celestial bodies constituting signs to be interpreted by the astrologer;[1] and operational, astral influences harnessed by the magician to control and divert nature. The first two levels occupied a considerable space in the cosmological works of the twelfth century as we saw in the previous chapter. Magic was only subtly present. In many cases, translators of medical, astrological and philosophical texts also translated magic works: Constantine the African translated Qusta ibn Luqa's book on *Physical Ligatures* which is concerned with the occult properties of natural things. It formed part of the *Pantegni* and was diffused as such in the twelfth and thirteenth centuries, leading to its attribution during these centuries to Constantine himself.[2] Adelard of Bath and John of Seville produced independent translations of Thabit ibn Qurra's *Treatise on Talismans*.[3] In Adelard's *Natural Questions* we read about the time when he and his nephew approached an old sorceress to learn natural magic.[4] He wore a green cloak and a ring set with an engraved emerald.[5] In *De essentiis*, Hermann of Carinthia quotes a passage from the Hermetic text *Kitab al-Istamatis* and Burnett suggests that since the quotation is found in the *Picatrix* it could be the intermediary source since Hermann could have read the Arabic original.[6] Physis in Bernard's *Cosmographia* can be viewed as a magician who took as her subject 'the origin of all natural things, their properties, powers, and functions [...] not content with herbs, plants, and grasses, she wrung curative effects from metals and stones [...] by artful mixing she could use even the deadliest poisons most effectively in the work of healing'.[7]

The intelligibility of the universe generally and the heavens specifically formed the framework of magical knowledge. As we will see, natural/astral magic came to be seen as the practical application of natural philosophy and it was understood in physical and emanative terms based on the understanding of causes, signs, radiation and sympathies. This was reflected in the place magic occupied in the classification of sciences. In the twelfth century, it was related indirectly to astronomy which was taught to include astrology, the latter being often the context in which the efficacy of astral magic was explained.[8] Petrus Alphonsi points out that for those who are inclined to occult matters, magic can be the seventh art, the other six being dialectic, arithmetic, geometry, medicine, music and astronomy. But the seventh art could also be philosophy or grammar.[9] More explicitly, however, Gundissalinus, in his *On the Division of Philosophy*, includes magic 'according to physics' and the science of talismans, amongst the natural sciences, along with medicine, agriculture, navigation, alchemy and optics.[10] This division is derived from a translation of an anonymous Arabic text called *De ortu scientarum* (*On the Rise of the Sciences*).[11] Gundissalinus's distinction between the science of talismans and magic 'according to physics' is very significant. Magic according to physics seems to imply the theory of magic inferred through the study of nature and the origins of things. Daniel of Morley includes 'nigromancy according to physics' among the sciences in addition to the science of images, astrology, agriculture, illusions and the science of mirrors. The words 'necromancy' and 'nigromancy' were often used to denote magic and not only raising the dead or dark arts. In *Ut testator*, the twelfth-century anonymous division of sciences of Arabic origin, the author regards magic as the part of the science of astrology concerned with astral influences harnessed in a form or image representing the movement of the celestial bodies.[12] Furthermore, although Bernard Silvestris does not allude to magic in his *Cosmographia*, in *the Commentary on Martianus Capella's De nuptiis philologiae et mercurii* attributed to him, we encounter a discussion of the five different types of the magical arts (*De arte magica*): tricks of illusion, incantations of demons (*maleficium*), divination by drawing lots (*sortilegium)*, necromancy, and mathematical magic (*mathesis*) which includes horoscopes, auspice and augury from the locations of the stars.[13]

Magic, then, was not excluded from the 'scientific' episteme of the twelfth century. However, it was in the thirteenth century that it became a more pronounced area of investigation in the field of natural philosophy.[14] In addition to the epistemological support inherited from

the twelfth century, new translations of magic texts and other sources of astral theories arrived on the scene and became widely diffused. Al-Kindi's *De radiis* was probably translated in the thirteenth century. D'Alverny identifies 20 manuscripts, the earliest of which is from the thirteenth century. It was known by Thomas Aquinas, refuted by Giles of Rome in his *Errores philosophorum*, and its doctrines were included in the condemnations of 1277 and 1398.[15] It was one of the books donated by John London to the library of St Augustine, one of the largest and most important Benedictine houses in medieval England.[16] *De radiis* was associated with works on natural philosophy and astrology, for example manuscript Selden Supra 76 transcribed in England, perhaps in 1240, contains two small works of judicial astrology attributed to Roger of Hereford, an anonymous astronomical treatise sometimes attributed to Robert Grosseteste, and a treatise on magical seals engraved on stones. The manuscript Digby 183 contains two excerpts from a work by Roger Bacon which has a long note in the lower margin that quotes a long passage from *De radiis*.[17]

A partial version – a folio or two in length – of the *Secret of Secrets* was first translated by John of Seville in the first half of the twelfth century. This was dedicated to Queen Teresa (r. 1112–28) who had asked the translator to write a little work for her on diet and health. This version had modest circulation.[18] Around 1230, a certain Philip of Tripoli came across the original when he was with his superior Bishop of Tripoli (Lebanon) visiting the city of Antioch. Philip made a complete translation of the *Secretum* and this version had an impressive diffusion, in Spain, Salerno, England and Paris, until the fifteenth century.[19] The translation differs from the Arabic in several aspects: the illustrations in the original, though they could have been included in Philip's translation, are missing from most versions. The original's section on onomancy is omitted. Moreover, the chapter *De viperis*, an extract from the Latin translation of Avicenna's *Canon*, is interpolated. The content is often rearranged, and in most manuscripts the section on talismans is excluded. During its circulation, different versions and degenerations appeared.[20] Roger Bacon finished an edition of the *Secretum* around 1280 in Oxford. He claims to have used four different exemplars of Philip's translation. Bacon's edition includes a long explanatory introduction, diagrams and notes; it also retains the section on talismans but does not contain the section on the names of the daemons which is found in the Arabic.[21] As we will see, it exerted a strong influence on Bacon's own magical theories and it is cited frequently.

The *Ghayat al-hakim* was translated into Spanish sometime between 1256 and 1258 at the request of King Alfonso X. Pingree suggests that this translation was performed by Yehuda ben Moshe who also translated the famous *Lapidario* of Alfonso in 1250. It was translated into Latin not long after.[22] The irregularity of the circulation of the *Picatrix* is peculiar, as it only picks up in the early modern period.[23] It is found in the collection of John Argentine (b. *c*.1442), doctor of medicine in Cambridge and later doctor of divinity. He was physician to Edward V and his brother Richard Duke of York until they were assassinated in 1483. He also had in his library the *De imaginibus* and sections from the *Secretum secretorum*.[24]

In addition to the *Great Introduction* of Abu Ma'shar, these Arabic magic texts formed a comprehensive corpus on theories of astrology and natural/astral magic. Natural magic is essentially astral because the inherent occult properties (*khawass*) of all natural things are aetiologically astral, and because the generation of all terrestrial things is mediated by the celestial bodies; doctrines that we have shown to be advocated by the aforementioned Arabic texts.[25] It is not an exaggeration then to say that the translation of Arabic astrological and magical texts provided the theoretical platform from which European occult philosophy launched, since this discourse could not have flourished without a legitimizing theoretical model that would distinguish it from demonic operations and idolatry. We discern this in the works of William of Auvergne, Vincent of Beauvais, Guido Bonatti, Arnald of Villanova and Peter of Abano. The Arabic theories of astral influences, particularly the astrological theory of Abu Ma'shar, constituted the main sources for their defence of a natural type of magic.[26] It is not within the scope of this present study to unpack in detail the works of these men and the Arabic theories contained therein, our main concern being the theories' presence in the early modern period; however, I will focus on three major medieval figures in the history of occult thought who exerted a deep influence on early modern natural philosophers and occultists; these are the Franciscan Roger Bacon, the Dominican Albertus Magnus and his student Thomas Aquinas.

Heavens and astrology: Aristotle, Abu Ma'shar and Avicenna

By the thirteenth century two intellectual events that have a bearing on our discussion took place: the introduction of Avicenna's philosophy in the second half of the twelfth century by Gundissalinus, and the

translation of Aristotle's complete *libri naturales* from Greek by William of Moerbeke.[27]

In the *Metaphysics*, Avicenna defines metaphysics as a divine science 'in which the first causes of natural and mathematical existence and what relates to them are investigated; and [also investigated is] the Causes of Causes and Principle of Principles – namely, God, exalted be His greatness'.[28] Avicenna explicates the universal principles of generation and corruption, hylomorphism, motion and astral influences but is attentive to the creative force that brings these principles together to generate. This force can work all at once or by setting something into motion.[29] God is the originator of all and He is the Principle of Principles, who by emanation creates all at once.[30] The language becomes Platonic in Avicenna's exposition of God's creative power:

> In Him there is no variety of forms arranged and differing, such as there is in the human soul, in the sense previously discussed in Psychology. For this reason, He intellectually apprehends things all at once, without being rendered multiple by them in His substance, or their becoming conceived in their forms in the reality of His essence. Rather, their forms emanate from Him as Intelligibles. He is more worthy to be an intellect than the forms that emanate from His intellectuality.[31]

Astral causation is an aspect of Avicenna's metaphysics that has often been overlooked. According to Avicenna there are two kinds of generation: by influx (all at once) and through proximate causes. The first is an emanation and the second is achieved by motion.[32] The realm of generation by motion is the celestial world and the mover of the celestial spheres is 'neither a nature nor an intellect but a soul'; this is the Universal Soul defined as 'the perfection of the body of the heavenly sphere and its form'.[33] It is described as a 'psychological power which would be the proximate cause of motion'.[34] It is directed towards the generation of particular things that are changeable; therefore, the motion of the spheres by the Universal Soul is changing and transitioning. Because of this fact, the principle of motion is soul and not intellect as the latter does not change and never transitions. However, an intellectual force apprehends the good which includes the desire for propagation and generation.[35] The pure intellect emanates separate intellectual agents into which it instils the universal ideas which act

as archetypes of generated forms. 'To each sphere there would belong a separate intellect whose relation to it is as the relation of the active intellect to us.'[36] The multiplicity of forms – which cannot be in God – occurs in these separate intellects 'helped by a difference in the states of the celestial spheres'. The forms thus emanate from the separate celestial intellects. The active intellect, the last in the emanative order, bestows forms on matter thus producing the world of generation and corruption, but it does so 'by the association of the celestial influences'.[37]

Celestial bodies also exert influence on terrestrial bodies 'through the qualities proper to them, some of which flow to this world. [...] the nature that governs these bodies in terms of perfection and form comes to be from the soul dispersed in the heavens, or through its aid'.[38] As a result, 'the temporal events that take place in this [terrestrial] world come about [as a result] of the collision of the active celestial powers'.[39] And so according to Avicenna the celestial bodies influence in two ways: according to the 'natures of the celestial bodies and their powers, in accordance with the configurations joining with the terrestrial powers and the relations between them', and also through the volitional powers of the celestial souls.[40]

Avicenna does defend this kind of causality from rigid determinism by insisting that the motions of the celestial bodies, though they incline towards a certain event, are not the only acting causes. Celestial influences 'terminate in nature', meaning that in the terrestrial world there are other causes or factors that can interfere which also include the free will of man. There may even be an absence of natural/terrestrial causes that facilitate the completion of the astral ones: the stars may incline me to ride a bike but I might not own one in the first place; or there may exist other natural causes: I own a car not a bike.[41] And there lies the problem of astrology. Astrologers rely on one aspect of causation which is astral and do not take into account natural causes that temper or change them:

> If it were possible for some human to know all temporal events on earth and heaven, and their natures, [which is empirically impossible] he would comprehend the manner of all that will occur in the future. [But] this astrologer who professes astral [prediction] – in addition [to the fact] that his first positings and premises are not based on demonstration [*burhan*] (although he may claim [for them] experiment or inspiration and may attempt poetic and rhetorical syllogisms [*qiyas*] to establish them) – depends on [only] one genus of evidential

> indicators of the causes of generated things; namely, those that are in heaven [...] We thus have no reliance on their statements, even if we admit as a concession that all that they give us of their philosophical premises are true.[42]

And so, though Avicenna accepts and elaborates on astral aetiology similar to Abu Ma'shar, he is critical of the semiological approach of astrology due to the impossibility of empirical corroboration. One is tempted to read the criticism quoted above as directed against Abu Ma'shar himself as it is he who claims:

> Many people thought that astrology is something stumbled upon by intuition and guesswork without having a sound origin to work with or from which syllogisms [*qiyas*] can be made [...] and so we composed our present book to establish the judgements [of astrology] with convincing arguments and demonstration [*burhan*] [...] and whatever that is not there can be deduced by those who know the foundations of this practice.[43]

He confirms that 'most of the science of the judgements [of the stars] is manifest, visible, and clear, and that part that is not manifest is inferred by clear syllogisms [*qiyas*] from the science of the nature of things and from what is manifest of the powers of the planetary motions on this world'.[44] Notwithstanding, Abu Ma'shar's theory of astral causation is based on Peripatetic philosophical premises that are approved of and adopted by Avicenna: the stars being the efficient causes of generation and their role in the union of matter and form. He expands the theory by exploring the way the stars as agents perform the union of matter and form. Abu Ma'shar does not clarify how this agency is imparted to the celestial bodies, how they receive the forms that they unite with matter, or the origin of the celestial souls. Also, Abu Ma'shar does not give sufficient detail regarding the relationship between the creative God and the generative stars. These are all issues addressed by Avicenna syncretizing Platonic cosmological hierarchy, Neoplatonic emanationism, and Aristotelian causality. Furthermore, Abu Ma'shar indeed does not account for the interjection of natural and terrestrial circumstances, and his advocacy of free will is reliant on the argument that the actions of souls are not necessitated by astral influences though they incline them towards one action or another; whereas for Avicenna rigid causality terminates in the natural world due to the terrestrial causes that may oppose the astral influences.

Roger Bacon and Albertus Magnus

The deeper assimilation of Aristotelian philosophy that resulted from the reception of Abu Ma'shar and Avicenna shifted the emphasis from cosmogony and universal aetiology that we observed in the cosmological works of the twelfth century to a substratum of natural investigations concerned with particular phenomena in the terrestrial world. In *De mineralibus* (*On Minerals*), Albertus Magnus, restating Aristotle's opening lines of *Physics*, clarifies such an approach:

> Dealing with many particulars we must first understand their natures from the evidences and effects [observed], and proceed from these to their causes and compositions; for the evidences and effects are more obvious to us. But in [dealing with] the nature of universals, which we have mentioned in all the preceding books, we had to proceed in the opposite way, [reasoning] from the cause to the effects and powers and evidences.[45]

So in the case of minerals, Albertus is concerned with conclusions that can be drawn about their composition from direct experience, their physicality and effects in nature. There are, then, two levels of causality: the universal and the particular, each with distinct sets of effects; the first is astral and the second is natural; 'once we know the cause producing stones, we should know the efficient cause of everything that can be produced. For we know that the motion and power of the heavenly bodies, the rising and setting and rays of the stars, are causes different [from other natural causes].'[46] *Liber de causis proprietatium elementorum* (*On the Causes of the Properties of the Elements*) is another of Albertus's works that demonstrates these aetiological levels; 'for there is a certain first efficient cause of bodies that does not enter into their composition through substance and being, but infuses its powers into all things both simple and composite, and this is called the fifth element'; that is the astral element.[47] He proceeds to explain all kinds of natural phenomena and their natural causes.

Roger Bacon, teacher of Aristotelian philosophy and commentator, defines metaphysics in his *Opus Majus* as 'this science [that] deals with what is common to all things and all sciences'.[48] He provides in his *Opus Majus* mathematical and geometrical methods that explain principles such as astral influences, or particular phenomena as shown in his *De multiplicatione specierum* (*On the Multiplication of Species*). These two modes of investigations, however, are not separate or independent for

he writes elsewhere that 'when we speak of the power of a particular agent we do not exclude the regimen of the universal agent and first cause, for any first cause has a greater influence on the effect than any second cause'.[49] On the aetiological and ontological level, Bacon fully accepts astral causation as postulated by Abu Ma'shar and Avicenna whom he calls 'the imitator and expositor of Aristotle'.[50] Both are among the most cited references in Bacon's works.

In his *Opus Majus*, Bacon asserts: 'celestial things are the causes of the terrestrial. Therefore these terrestrial things will not be known without knowledge of the celestials.'[51] For terrestrial events and phenomena to manifest, they require not only celestial causes but material ones too. Whereas Avicenna tends to speak of the terrestrial causes as opposing astral influences in his comments on astrology, Bacon expresses their interaction in terms of reciprocity between celestial and terrestrial agents that can be expressed mathematically and geometrically.[52] Bacon adopts al-Kindi's theory of rays to explain this reciprocity. Accordingly, the astral agent is responsible for the universal forms or species but individuation is the result of their interaction with the rays of terrestrial things. Abu Ma'shar posits that the celestial bodies are responsible for the individuation of species; whereas Bacon, like al-Kindi, ascribes it to the diverse radial aspects linking celestial, elementary and psychic causes:

> Every efficient cause acts by its own force which it produces on the matter subject to it, as the light of the sun produces its own force in the air, and this force is light diffused through the whole world from the solar light. This force is called likeness, image, species, and by many other names, and it is produced by substance as well as accident and by spiritual substance as well as corporeal [...] this species causes every action in this world; for it acts on sense, on intellect, and all the matter in the world for the production of things.[53]

Radial reciprocity among terrestrial things and celestial bodies expressed geometrically forms the foundation of Bacon's natural philosophy inspired by al-Kindi's *De radiis* and also his *De aspectibus*.[54]

Theories of astral influences and causation also occupy a central place in the natural philosophy of Albertus Magnus.[55] As Rutkin demonstrates, Albertus was concerned with 'astrologizing Aristotelianism' in his own account of causality that became influential on some early modern occult philosophers.[56] The science of the stars, according to Albertus, provides the link between natural philosophy and metaphysics

as it investigates how 'inferior motion obeys superior motion'. God uses the celestial bodies as instruments of generation and corruption.[57] However, this astrologization is not unique to Albertus as Rutkin argues; rather it is received from the Arabic sources available to Albertus particularly the works of Abu Ma'shar, al-Kindi and Avicenna. He refers to Abu Ma'shar and Avicenna often in his works; the *Great Introduction* is mentioned in the *Speculum astronomiae* (*The Mirror of Astronomy*) as a seminal work of astrology alongside Ptolemy's *Tetrabiblos*.[58] In Albertus's works we discover many notions found in Abu Ma'shar's *Great Introduction*; namely, the sun's role as a universal efficient cause of generation, the attribution of generation and corruption to celestial motion, and the dependence of astrology on correlating patterns of causation. Rutkin enumerates copious instances where these notions are expressed in Albertus's commentaries on Aristotle and other works; however, the influence of Abu Ma'shar and Avicenna is overlooked.[59] What is unique about Albertus's treatment of astral influences and astrology is its application in a stratum of natural philosophy not dealt with in Abu Ma'shar's *Great Introduction* or Avicenna's *Metaphysics*; this is the world of the particulars and the natural world. In his *On Minerals*, Albertus writes: 'here we are not looking for first causes which are responsible for action and movement, and which are perhaps the stars and their powers and positions: for this is the proper task of another science. But we are looking for immediate, efficient causes, existing in the material and transmuting it.'[60] However, for a complete understanding of the nature and behaviour of particular things, universal efficient causes must be known, otherwise our knowledge is deficient; 'once we knew the cause producing stones, we should know the efficient cause of everything that can be produced. For we know that the motion and power of the heavenly bodies, the rising and setting and rays of the stars, are causes different [from other natural causes].'[61]

On the celestial/universal level, Albertus explains that the celestial bodies are the efficient causes of generation, the power of the moving divine intellect is the formal cause, and the elements constitute the material cause. In combination, they make up what Albertus calls 'the formative power'.[62] We have already shown that Abu Ma'shar attributes the actual union of forms and matter to the celestial bodies but it is unclear in the *Great Introduction* whence the forms originate. Albertus generally adopts the theory of inchoate forms (eduction) which proposes that everything is generated from pre-existing formal information inherent in matter.[63] Albertus is positioning himself in opposition to Avicenna's concept of the active intellect as the giver of forms

(*dator formarum*) which bestows them through emanation when matter is disposed towards a form. The active intellect becomes responsible for the production of the world of generation and corruption. Abu Ma'shar's hylomorphism differs from Avicenna's in that in the former's astrological exposition the stars and planets – corporeal substances – unite forms with matter by a process of natural causation achieved by motion only without any mention of intellect. Abu Ma'shar and Avicenna are in agreement, however, over the fact that forms are given and do not somehow pre-exist in matter and thus educed. The problem of Avicenna's theory is that it seems to imply that creation is achieved by an independent intellectual agency that is not God.[64] Albertus is wary but his attitude is not clear cut and he negotiates the concept in several ways.[65] In *Sentences*, he gives God the title of *dator formarum* and says that it is He who fills everything with forms according to the disposition and preparedness of matter.[66] In his commentary on pseudo-Dionysius's *De divinis nominibus*, he establishes eduction theory but argues that the rays of the divine intelligence transfer the power of motion into the celestial realm which then educes forms from the potentiality of matter.[67] Yet, Albertus affirms the existence of separate intellects that move the spheres and participate in generation; he uses vague terms to describe their action of formation by emanation. In his commentary on the *Metaphysics* he writes:

> [It is] in this manner [that] the active intelligence, which moves the orbit and the star or stars, transmits forms through the agency of the luminous stars, [as it is] by means of the light of the stars that translates them into matter which it moves; and by touching matter in this way, the intelligence leads it from potency to act. This is shown by the fact that astrologers, committed to these principles, which are the localization of stars, are able to prognosticate about the effects, induced in inferior bodies by the light of stars.[68]

Here we notice a position that does not affirm the *dator formarum* as a separate intellect but accepts that the celestial spheres bring about a formed state of matter, 'transmitting' forms carried by the rays, 'touching' matter. On the whole, this can be reconciled with al-Kindi's theory of rays and Abu Ma'shar's hypothesis that the motion of the spheres leads to the actualization of a formed state.

Ultimately, generation and corruption are regulated by God. Albertus confirms that God is the mover of all things and He does so by emanations and radiation that cannot be analysed or understood by reason.

The stars and planets themselves are dumb and deaf even though the formative power is emitted through them and despite them being universal efficient causes.[69] This conviction is upheld by Masha'allah. In his *De scientia motus orbis* the celestial world 'is created, comprehended, compelled, commanded, and ordered according to its servitude [...] just like a compelled slave'.[70] Masha'allah's text is included in Albertus's *Mirror of Astronomy* among the books on astronomy that 'cannot be contradicted, save by someone who opposes the truth'.[71]

So far we have looked at Albertus's understanding of universal/celestial causality. From the point of view of the particular, the formative power is not enough to bring something into actuality in the terrestrial world; a 'productive power' is required. Albertus writes: 'most universal forms become increasingly determined with regard to matter, according to their differing descent towards one or another matter'.[72] In the case of minerals, this is called a 'mineralising power', defined as a seminal active force existing in nature, attached to matter, though it originated in the stars.[73] This is consistent with Avicenna's limiting of the power or necessity of astral causality. According to Albertus the natural conditions contain the determining productive power which is also responsible for diversity. In the case of minerals the particular mineralizing powers are heat and moisture. Heat draws out moisture and digests the material bringing about its solidification into the form of a stone. Cold causes intense hardening and solidification. It is effective in producing stones 'because stones are not so far removed from the elements, and in the material [of stones] the elements are only slightly transmuted; and therefore the qualities of the elements remain very little altered'.[74] Among these conditions, place is especially important:

> The stars by the amount of their light, and by their positions and motions, move and regulate the world through [influencing] the material and the place of everything that can be produced or destroyed. The power thus determined by the stars is poured down into the place where each individual thing is produced, in the way that has been explained in the Nature of Things. For this is the power that brings forth and produces the elements and everything composed of the elements.[75]

Here Albertus adopts the celestial elementing cause. Furthermore, reciprocity in the elements and the intersections of rays in a specific place are very al-Kindian notions.[76] Al-Kindi writes in *De radiis*: 'each star has

its own proper nature and condition [...] so the rays themselves are of diverse natures in different stars, just as the stars themselves are of diverse natures [...] it thus happens that each star produces a different effect, and in different ways, in different locations, and on different things, even if they vary even a little'.[77] In the works of al-Kindi and Avicenna, Albertus encountered the idea of reciprocal determination which results in diversity and emphasizes natural factors, thus modifying and expanding Abu Ma'shar's theory of efficient astral causality in which the species (universal) and the characteristics of the members (particulars) are determined by the motion of the celestial world.

Thomas Aquinas

Similar arguments to those of Roger Bacon and Albertus Magnus are expressed by Thomas Aquinas. In the *Summa contra gentiles* he adopts the theory of eduction rather than bestowal of separate forms by an intellectual moving substance.[78] Rejecting the Platonic theory that the actualization of a generated natural thing is achieved by Ideas as separate determiners, Aquinas asserts that what causes natural things to be is not form alone but the composite of form and matter.[79] However, he accepts that these substantial forms are derived from 'first principles' through the power and movement of the heavenly bodies that are moved by an intellectual substance.[80] Through the mediation of the heavenly bodies, the forms of inferior things arise in the material substance.[81] The intellectual substance moving the planets and stars is not the active intellect acting by emanation but the principle of celestial motion which leads to the actualization of substantial forms.[82] Due to the motion of celestial bodies and their link with the generated world, and due to the fact that the celestial bodies are noble and closer to intellectual substance than elementary bodies, lower things are ordered and 'governed' by the celestial bodies.[83] In the lower bodies alteration is a type of motion and the heavens are declared by Aquinas to be the cause of all their motions.[84] This is compatible with Abu Ma'shar's astrological theory in the *Great Introduction* which Aquinas mentions in the *Summa contra gentiles*.

The issue that most concerned Aquinas with regards to astral causation is determinism. In Bacon and Albertus too discussion of causation is followed by establishing free will. Bacon points out that false astrologers are those who believe in determinism and the necessity of astral judgements and agrees that astrology involves a lot of speculation because the interpretation of diverse signs (*signis diversis*) is never certain and

because God can change the whole order at will. True astrologers know that they are dealing with the possible and their judgements are general and not final.[85] He writes:

> Ptolemy also and Aristotle, Avicenna, Messehalac, Hali, and Albumazar, who in comparison with others have spoken with greater authority in regard to these matters, do not maintain that there is an absolute necessity in things below due to the influence of the heavens, because free will is not subject to the things of nature. [...] they do not place any necessity on free will.[86]

It is probable that al-Kindi is excluded from this list of authorities as in *De radiis* he insists that contingency is only perceived by human beings on account of their inability to comprehend causal totality; astral influences are in fact necessary.[87] Bacon, elsewhere, explains that astral influences are necessary as universal causes but are restricted by the particularization of nature; meaning that the *effects* of these causes are not necessary as their manifestation in nature might be altered by other terrestrial causes.[88] So, how can he reconcile this notion with his belief in true astrology? He adopts Abu Ma'shar's concept of inclination and adds that astral influences remain stronger than terrestrial ones. Astrologers, he explains:

> Do not presume certain knowledge, but they consider how the body is altered by the heavens, and when the body is changed the mind is aroused now to private actions and not to public ones, yet in all matters is the freedom of the will preserved. For although the rational soul is not compelled to its acts, yet it can be strongly influenced and aroused, so that it gratuitously desires those things to which the celestial force inclines it [...] the forces of the heavens are stronger than those of the visible and audible things below and of many other objects of sense perception, and are able to alter substance, not merely accidents, and to corrupt and destroy all things here below.[89]

Similarly, Albertus Magnus points out that when it is said that the stars exert power on inferior things, it is to be understood that they have such power as universal first causes moving immediate and 'propter quid' causes; for that reason a constellation is not always followed by its effects in a necessary way.[90] In his commentary on Aristotle's *De fato* he explains in a very al-Kindian terms that terrestrial effects are derived from the intersection of astral rays, the quality of the places in which

they intersect and the matter of things these rays fall on; 'whatever belongs to the motions of celestial orbs, is, in fact, necessary, whereas, whatever belongs to the matter of things which can be generated and corrupted is mutable and possible'.[91] Furthermore, the soul is always free. In *On Minerals* he explains that nature is moved and inclined by the stars and as a result the will may be influenced; however, it is always free to follow the inclinations or not.[92] In his *De intellectu et intelligibili* he reiterates: 'that the soul is especially subject to the motions of stars is against the doctrine of all the Peripateticians and of Ptolemy. The soul does, in fact, understand those things the highest in the sphere, and freely moves away from those things towards which the motion of the stars would incline it.'[93] The role of the astrologer is thus to discover inclinations from the celestial movements and configurations. From below, the stars are signs of potentiality before natural actualization; from above they are causes. The astrologer 'will be able to make prognostication within the limits of celestial influences, concerning the entire life of the newborn; nevertheless, this act would not cause necessity, since, as we have said, the prognostication could accidentally be hindered'.[94] Such astrologer is among 'the true mathematicians' of Roger Bacon.

In his *Summa theologica*, Aquinas mentions two kinds of divinatory practices: the first acquires foreknowledge of the future with the help of demons and is a type of 'necromancy'; the second depends on observing the disposition of things. The latter is divided into astrological and non-astrological practices such as augury and geomancy. Demonic divination is unlawful, but even in non-astrological divination the demons thrust themselves to deceive, it is therefore unlawful and vain.[95] As for astrology, Aquinas's strategy for allowing yet restricting its lawfulness is first to establish astral causation. He rejects the opinion 'that the stars signify rather than cause [...] since every corporeal sign is either the effect of that for which it stands (thus smoke signifies fire whereby it is cause), or it proceeds from the same cause, so that by signifying the cause, in consequence it signifies the effect (thus a rainbow is sometimes a sign for fair weather, in so far as its cause is the cause of fair weather'.[96] Therefore, it is possible to acquire knowledge of the future by observing the stars insofar as effects indicate their causes.[97] Astrology is distinct from demonic divination as it is a form of natural knowledge; as it is not strictly semiological, it is distinguished from non-astrological divination. Interpreting signs without underpinning natural and astral causes allows demons to interfere in interpretation and the placement of signs. Aquinas then describes kinds of effects that 'escape the causality of the heavens': first, accidental events as they have no causes; second, acts

of the free will that stem from intellect and reason; third, since bodies cannot make an impression on incorporeal things then the celestial bodies cannot directly influence the intellect and will. The influence of the celestial bodies is observable only on natural and terrestrial bodies. Nevertheless, 'they can be a dispositive cause of an inclination', as astral forces act on the organs and sensitive powers which have an effect on behaviour.[98]

Aquinas rejects necessity on both the celestial and terrestrial levels. Not only is it impossible for the celestial bodies to impose necessity on human choice; in fact, not even corporeal effects in terrestrial things necessarily result from them. That is because corporeal and terrestrial things are constantly fluctuating and changing.[99] Aquinas then explicitly rejects Abu Ma'shar's argument that an event is possible and potential until it is actualized, becoming necessary. According to Aquinas this is nonsensical as how can something be the cause of an event without immediate actualization.[100] He then rejects Avicenna's argument that contingence is from predictable natural causes:

> Avicenna uses an argument like this in his *Metaphysics* [X, 1]. If any effect of the celestial bodies is blocked, this must be due to some voluntary or natural cause. But every voluntary or natural cause is reducible to some celestial source. Therefore, even the blocking of the effects of the celestial bodies results from some celestial sources. So, if the entire order of celestial things be taken together, it is impossible for its effect ever to fail to come about.[101]

Aquinas sees in Avicenna's account of astral causation a contradiction then: how can he claim that natural factors impede celestial necessity if he accedes that everything is ultimately caused by the stars? And so in *Summa theologica*, Aquinas concludes:

> Accordingly if anyone takes observation of the stars in order to foreknow casual or fortuitous future events, or to know with certitude future human actions, his conduct is based on false and vain opinion; and so the operation of the demons introduces itself therein, wherefore it will be a superstitious and unlawful divination. On the other hand if one were to apply the observation of the stars in order to foreknow those future things that are caused by heavenly bodies, for instance, drought or rain and so forth, it will be neither unlawful nor a superstitious divination.[102]

Natural astrology is thus allowed and judicial astrology is restricted to the prediction of natural events that may indirectly influence the will through the body. However, this restriction to physical influence is loosened to include inherent personality characteristics discoverable in natal astrology. He writes:

> The condition of the human body does come under the influence of celestial motions. In fact, Augustine says, in the *City of God* V, that 'it is not utterly absurd to say that certain influences of the stars are able to produce differences in bodies only'. And Damascene says, in Book II [*De fide orthodoxa*], that 'different planets establish in us diverse temperaments, habits and dispositions'. So, the celestial bodies work indirectly on the good condition of understanding.[103]

He adds that just as physicians can assess the strength of an intellect from the condition of the body, the astrologer can make judgements regarding natural conditions from the celestial motions, 'in this way, then, it is possible that there is some truth in what Ptolemy says in his *Centiloquium*: "When, at the time of a man's birth, Mercury is in conjunction with Saturn and is itself in a strong condition, it gives inwardly to things the goodness of understanding." '[104]

Albertus, Bacon and Aquinas accepted that the celestial bodies exert influences on human beings and their surroundings. They saw the planets and the stars as intelligible causes – not only signs. The inherited theories of astral influences were, however, revised by distinguishing between universal and particular influences; the former resulting from the motions of the celestial bodies but restricted and made variable and contingent by specific terrestrial determinates such as location, elementary behaviour and other circumstances. Agency is thus extended to the natural world and so an emphasis on the behaviour of matter is noted in the works of the discussed natural philosophers. A different kind of *physica* emerges that focuses on the particular and the terrestrial.

Magic: rays and secrets

So far we have looked at the theories of astral influences in the works of Roger Bacon, Albertus Magnus and Thomas Aquinas from an aetiological (generation) and semiological (astrology) perspectives. These Christian figures, however, included in their discourse the more controversial aspect which is the operational or magical. As a matter of fact, Albertus's occupation with this subject gained him a reputation as a

magician. His student Ulrich of Strassburg (*c*.1220–1277) described him as being 'experienced in magic'. He was defended from this reputation in two fifteenth-century versions of Peter of Prussia's biography of Albertus.[105] Roger Bacon too gained a similar reputation in the early modern period.[106]

The *Mirror of Astronomy* attributed to Albertus is a defence of a careful selection of books on astrology and natural/astral magic, written by a man 'zealous for faith and philosophy'. 'For, since many of the previously mentioned books by pretending to be concerned with astrology disguise necromancy, they cause noble books written on the same [subject] to be contaminated in the eyes of good men.'[107] The same sentiment is expressed in his *On Minerals* when he discusses images and seals:

> For although this [subject] belongs to the part of necromancy which is dependent on astrology, and is called the necromancy of images and sigils, yet, because it is good doctrine, and because the members of our Order have desired to learn this from us, we shall say something here – though rejecting all incomplete and false statements [...] nor is it possible to understand them without at the same time understanding the science of astrology and magic and necromancy.[108]

He is keen to distinguish between licit magic which is based on real astrological doctrines and illicit magic that pretends to be informed by them but in fact hides behind them lies and demonic principles. The first type is part of a 'great wisdom'; it is the *practice* of natural philosophy because of its connection with the practice of astrology.[109] Quoting Thabit ibn Qurra's *De imaginibus*, Albertus confirms: 'the most sublime part of astronomy is the science of images'.[110]

Albertus introduces three types of magical practices. The first is called 'abominable' because it requires devotional elements such as suffumigations, invocations and sacrifices, expressed in Hermetic and Pagan books. The second 'is somewhat less unsuitable [but it is] nevertheless detestable' and it comprises Solomonic type of magical practices with goetic Judaeo-Christian elements, including foreign languages and characters that aim to subjugate demons. Even though there are no devotional elements like the first type, 'it is suspected that something lies under the names of the unknown language, that might be against the honour of the Catholic faith'.[111] The third type is called astronomical images 'which obtains [its] virtue solely from the celestial figure'.

It belongs to the category of particular 'science' with which Albertus is concerned and exhibits in his *On Minerals* and *On the Causes of the Properties of the Elements* since this type of magic receives its efficacy 'from the celestial virtue by the command of God, because [the images] found in this sensible world [made] from the four elements obey the celestial images'. He adds that 'a most certain numerical datum which nothing [either] small or large should be lacking' is needed to make this image. Interrogations and elections should be performed to determine the most advantageous time for the operation thus ensuring the flow of the suitable astral qualities and influences.[112]

In *On Minerals*, Albertus distinguishes between natural images and those achieved by art, that is, astrological images or talismans. In this discussion, he relates a peculiar incident he had witnessed. When he was in Venice observing the cutting of marble slabs, he noticed one piece of marble on which appeared the head of a king with an elongated forehead and a crown. He explains that the elongation was caused by the vapours rising too far up because of the greater proportion of heat there. However, if such 'vapours were subjected to the influence of a place and a [mineralizing] power, they would fashion many figures in the stones'.[113] On a more universal level, this exceptional natural phenomenon is caused by specific celestial configurations.[114] Amulets, which are made by nature, and talismans made by art also receive their peculiar powers or occult properties from the celestial world.[115] We have seen how this is asserted in the Arabic works of astral magic, particularly *De radiis*, *Picatrix* and *Secretum secretorum*. The last of these was cited frequently by Albertus and he could have been introduced to it during the time he held a Dominican chair of theology at the University of Paris where Philip's translation was well known.[116] In the *Secretum* it is emphasized that celestial forms and configurations have power over natural forms and artificially prepared ones (talismans). The rays of the celestial bodies transfer these powers into natural bodies impregnating them with potency.[117] In terms very similar, Albertus writes: 'the configurations of the heavens are the primary figures, having precedence over the figures of all things made by nature and by art. For that which is first in kind and order among productive powers undoubtedly pours its causal influence into everything that comes after, in a manner suitable to each [thing].'[118]

So in natural things there are inherent occult properties received from the stars. Albertus's theory of occult properties draws from two major Arabic sources: Abu Ma'shar's theory of *khawass* and Avicenna's notion

of specific forms. Abu Ma'shar distinguishes between three types of natural properties (*khawass*): material, formal and astral.[119] Respectively, these produce primary qualities, substantial forms and the specific traits within the species and genus. Albertus explains that there are material, formal and astral properties; occult power is from the 'form that is conferred by the heavenly powers acting diversely in matter'. This is the 'specific form' of Avicenna which does not belong to either the properties of elementary complexions or substantial forms but it is an active 'predisposition inherent' in the complexion of species and individuals.[120] According to Albertus, the specific form 'is [intermediate] between two [things] – the heavenly powers by which it is conferred, and the matter of the combination into which it is infused'.[121] To create a talisman, an artificial potent object, the inherent occult properties in the materials used need to resonate with specific astral powers that correspond with the purpose in order to empower the object. Astrological timing is thus paramount to this kind of operation.[122] Moreover, the desire itself to make the talisman is, according to Albertus, due to a celestial impulse that 'incites the heart of man to make [something]'. That is not to say that the will is controlled by the stars, but 'when nature is moved by the motions of the stars, then the will also begins to be influenced by the motions of configurations of the stars'; in other words, the will is inclined to perform a magical act and therefore the timing of the desire is crucial in the making of a talisman.[123] It is an act of aligning matter, form and desire, with the stars.

Aquinas's own exposition of occult properties in particular species and individuals is linked to his view of generative agency. We have seen that he states that whatever occurs in the terrestrial world is the result of its natural subordination to the higher world. In *De Operationibus occultis naturae* (*On the Occult Operations of Nature*), Aquinas explains that there are certain occult workings (*operationes occultae, actiones occultae*) of natural objects that cannot be the result of elemental qualities such as the attraction of lodestone to iron and purgative medicine. These are occult powers resident in the body and common to all species but can be traced to higher principles; namely, the celestial bodies.[124] To explain these properties or powers Aquinas too resorts to the theory of the specific form. Every accident which is unique to a certain species is derived from the essential principles of that species. The essential principle is a form existing in determinate matter, this is the specific form. The rise and fall of the celestial bodies cause generation and corruption in inferior things – an Albumasarian notion – and therefore it follows that their specific forms are caused by them.[125] However, Aquinas takes this *astral*

connection further by imparting astrological uniqueness to the single member of the species. He explains that it is impossible for an individual of a species to have some kind of power or activity beyond the other individuals of the same species, just because it came into being under a definite configuration of heavenly bodies. Yet it is possible that the power of the specific form of an individual is found in various levels of intensities depending on the diverse states of matter and the different configuration of the heavenly bodies at the time coming-into-being occurred. This is reminiscent of al-Kindi's and Albertus's assertions that material constitution as well as celestial influences contribute to the variation of occult properties in natural things. But, unlike al-Kindi and Albertus, Aquinas restricts the magical application of this theory of natural/astral specific forms to amulets and medicine and excludes talismans.

As in his delineation of astrology's lawfulness, Aquinas's discussion of magic is structured upon the kind of agency active in the operation. In the *Summa theologica*, he first addresses magical practices that require gazing at symbols, shapes and words; 'this art does not make use of these things as causes, but as signs; not however as signs instituted by God, as are the sacramental signs'. Like non-astrological divination that interprets arbitrary signs, these empty signs can be demonic tokens. Therefore, these practices are 'absolutely repudiated'.[126] However, there are other lawful procedures that aim to produce physical effects naturally. They employ natural forces or occult properties that 'result from their substantial forms which they acquire through the influence of the heavenly bodies; wherefore through this same influence they acquire certain active forces'. He rejects the suggestion that artificial bodies can receive potency and life from the power of the celestial bodies because all life and properties come from the substantial forms and it is impossible for a thing to receive a new substantial form from generated natural things without losing the form which it previously possessed.[127] Therefore, talismans and 'astronomical images' must derive their power from the actions of demons which is why they often require the inscription of characters and symbols that do not induce any natural effect.[128] In *Summa contra gentiles* he explains that figures, symbols and shapes that are often found on talismans cannot be powerful as they cannot be principles of action or passion. Hence, it is not possible to dispose matter by special figures so that it will be receptive to a natural or astral effect even if they use celestial figures and symbols. They are, like mathematical bodies, abstract from sensible form and matter and have a rational meaning not a natural effect. Therefore, if they do have potency, it is

because they address another intelligent being. The power of magical words is also intellectual and therefore supplication and invocations can only be addressing entities that understand them: demons.[129]

Classification of magical practices and the legitimization and defence of astral magic are themes in the works of Roger Bacon. In his *Opus Majus*, Bacon explains the link between astrology and magic.[130] Astrological knowledge is computational and analytical on one level; 'this information is secured by means of instruments suitable for these purposes and by tables and canon, that is, rules invented for the verification of these matters, to the end that a way may be prepared for the judgements'. Astrology is also the understanding 'of wonderful works so that all things prosperous in this world may be advanced, and things adverse may be repressed, in a useful and glorious way'.[131] Astrology is the basis for true magic. False magic, however 'usurps a consideration of the heavenly bodies which is marred by characters, incantations, conjurations, superstitious sacrifices, and various frauds. It maintains that all things by virtue of the constellations happen of necessity, that nothing may happen in one of two ways, that nothing happens by chance.'[132] Like Albertus, Bacon distinguishes between magic that includes any demonic or devotional elements – practices that Weill-Parot calls addressative – and astrological/astral magic which relies purely on astral influences.[133] He considers those magicians who 'summon to their aid demons of celestial natures by means of conjurations and sacrifices wholly wicked'.[134] The other problem of magic is the claim that its effects, demonic or astral, are necessary; but true magicians accept its contingency and that there is no violence to the will.[135] In his introduction to the *Secretum* Bacon reiterates that in astral magic the will, though inclined by astral influences, is never forced.[136] He also denounces demonic magic performed by false magicians, and, like Albertus, lists dangerous books that promote this wickedness. He does so again in his *Epistola de secretis operibus artis et naturae* (*Letter Concerning the Marvellous Power of Art and of Nature*).[137]

Licit magic for Bacon is essentially the magic described in the Latin *Secretum secretorum*. He completed his edition in Oxford around 1280. This text was really important to him; he valued it as an authentic Aristotelian work promoting the practical application of natural philosophy.[138] The importance of this work is reflected in the care exerted to provide an accessible and 'user-friendly' edition of a text that underwent many rearrangements and degenerations. He reorganized it into ten even chapters, included the sections on astrology and talismans, and composed a long introduction in which he explains some

astrological principles that might be needed in order to understand the content.[139] Missing from his edition are the names of the daemons or celestial souls that are invoked during the making of the Amulet of Hermogenes. These names are found in the original but were probably missing from Bacon's exemplar due to their illicitness. These being omitted, the magic of the *Secretum* appears to be astral which, according to Bacon, 'can show us the forms of the celestial forces, and the influences of the heavenly bodies on this world without the difficulty of ordinary astronomy'. This assertion is followed by an example of such magic:

> When Alexander asked Aristotle in regard to the nations which he had discovered, whether he should exterminate them because of the ferocity of their character, or should permit them to live, he replied in the book of Secrets, that if he can alter the air the nations' characters will change and bodies and minds will be influenced by the air and their complexions as a result.[140]

To Bacon, astral/natural magic is 'art using nature' and 'whatever is beyond the operation of nature or of art is not human or is a fiction and the doing of fraudulent persons'.[141] Demonic magic, we are told in the introduction of the *Secretum*, is 'nec est ars nec natura'.[142] The 'natural force', manifest in astral/natural magic, is expressed in the *Opus Majus* as being behind natural sympathies such as the sympathy which exists between lodestone and iron.[143] He explains in his *Letter* that 'a conformity with nature' is what gives a magical object its power rather than symbols and characters. Regarding these, he expresses caution reminiscent of Albertus's opinion on 'detestable' images:

> I doubt very much whether all things of this complexion are now false and dubious, for certain irrational inscriptions have been written by philosophers in their works about nature and about art for the purpose of hiding a secret from the unworthy, so that it should be as if it were wholly unknown – as that lodestone attracts iron, for instance. [...] yet this may be an entirely erroneous interpretation. Therefore, while many things are hidden by many means in the books of Philosophers, the wise man ought to be prudent in dealing with them, to the end that he may reject the magic symbols and characters and study the work of nature and of art.[144]

Natural sympathies are behind the occult properties of licit magical objects. However, Bacon favours amulets to talismans and is cautious about the latter. In his *Letter* he refers to the 'Amulets of Constantine', meaning Qusta ibn Luqa's *Physical Ligatures*, in order to demonstrate the power of natural sympathies.[145] The main problem with astral talismanic magic is that our own comprehension of astral influences is limited:

> It is difficult to perceive the certitude of the heavens, there is much error about these matters among many people, and there are few who know how to conduct the matter usefully and veraciously. Because of this, crowds of Mathematicians who judge and act according to magic stars accomplish but little, while those who are well-skilled and understand the art sufficiently may be able, at chosen times, to do many useful things both in act and in judgement.[146]

And so Bacon does acknowledge the utility of astral magic; after all he explains in his *Opus Majus* that 'it can show us the forms of the celestial forces, and the influences of the heavenly bodies on this world'.[147] But because of the incertitude of astrological knowledge, astral magic and astrological principles cannot be demonstrated 'by experiment', which, for Bacon, takes a little away from its 'dignity'.[148] On the other hand, amuletic magic based on natural sympathies is demonstrable by experimental science:

> This science alone, therefore, knows how to test perfectly what can be done by nature, what by the effort of art, what by trickery, what the incantations, conjurations, invocations, deprecations, sacrifices, that belong to magic, mean and dream of, and what is in them, so that falsity may be removed and the truth alone of art and nature may be retained.[149]

From the works of Albertus Magnus and Roger Bacon, we can conclude that they both viewed magic as a science that demonstrates and makes manifest principles of natural philosophy. This was expressed by them mathematically, geometrically and empirically. Magic's underlying rationale drew from theories of astral influences that had been first received and established in the Latin Middle Ages as part of the cosmological investigations that stressed the knowability of the heavens and earth through an awareness of signs and comprehension of causes. Then magic became a 'particular' science that operated in nature but was

founded upon universal/celestial principles. These principles were formulated by Abu Ma'shar whose astrological theory was adopted in the works of twelfth-century cosmologists, such as Hermann of Carinthia, Bernard Silvestris and William of Conches, particularly in their discussion of astral causation in the process of generation and corruption. Then in the thirteenth century, a new wave of Arabic sources were translated and diffused; philosophical texts such as Avicenna's *Metaphysics*, and magical ones such as *De radiis*, *Picatrix* and the *Secretum secretorum*. The theories contained therein supported the belief that astral magic was not superstition but a dignified pursuit that was not always demonic and suspicious. Albertus referred to it as 'good doctrine' that interested his Order and we know that the library of the Benedictine house St Augustine held various Arabic texts, including *De radiis* and *De imaginibus* of Thabit ibn Qurra because of the interest in natural/astral magic among its residents.[150] The intelligibility of nature and the heavens and the theoretical legitimacy of magic advocated by figures as Albertus Magnus and Roger Bacon became foundations essential for the coherence of what we can call 'occult philosophy'; a philosophy that became most widely articulated in the early modern period in the works of Marsilio Ficino, Pico della Mirandola, John Dee and others.

5
Early Modern Astral Magic: Marsilio Ficino

Two intellectual events took place in the early modern period, particularly the fifteenth century, which had a strong impact on Western occult philosophy: the revival of Platonism and Neoplatonism, and the discovery of the *Hermetic Corpus*. The first led to the re-animation of the universe and endowed a coherence and unity to the universe: the particulars were part of a vibrant whole. This was reinforced by the *Hermetic Corpus* whose discovery resulted in a kind of mystical humanism that recalls an ancient time when divine knowledge was purer and heavenly wisdom accessible, personified by the legendary Hermes Trismegistus who became a member of the *prisca theologia*. This brought about a new enthusiasm for esoteric and occult thought.[1] Behind both events was the Florentine philosopher, priest and humanist Marsilio Ficino.[2] He translated and interpreted all Plato's works and wrote commentaries on them. He also translated works by Iamblichus, Proclus, Porphyry, Synesius, and Psellus.[3] In 1460, the *Hermetic Corpus* was brought to Florence from Macedonia by a monk and presented to Cosimo de' Medici who then gave orders to Ficino to translate it. Ficino completed the first translation of the *Corpus Hermeticum* in 1463, and in 1471 it was printed under the title of *Pimander*.[4]

The works of the Neoplatonists and the *Hermetic Corpus* excited in Ficino's imagination a magical and enchanting universe. His occult thought culminated in his *De vita libri tres* (*Three Books on Life*) that contains an influential articulation of an early modern theory of astrology and magic. Copenhaver describes it as 'the fullest Renaissance exposition of a theory of magic and the most influential statement written in post-classical times'.[5] Thirty editions were produced by the middle of the seventeenth century.[6] The significance of the *Three Books on Life* lies in its formulation of a theory of natural and astral magic that distanced it

from illicit practices. It was adopted by other early modern occultists and natural philosophers such as Pico della Mirandola, Heinrich Cornelius Agrippa, Giambattista della Porta and John Dee.[7]

In addition to Neoplatonism and Hermetic beliefs, early modern discourse of natural magic was buttressed by the Arabic texts on magic and astrology and their theories of astral influences. As Burnett confirms, the period of rebirth in a way depended on a 'second revelation of Arabic philosophy and sciences'.[8] Abu Ma'shar's *Great Introduction* was published in 1489 by Ratdolt in Augsburg.[9] His work on *The Great Conjunctions* (*De magnis coniunctionibus*) was also published by Ratdolt in the same year and by another publisher in Venice in 1515. Abu Ma'shar's *Flores* was also published in Augsburg by Ratdolt in 1488 and in Venice by Sessa in 1500.[10] A Florentine manuscript of the *Great Introduction* that belonged to Cosimo de' Medici existed in San Marco.[11] It was also widely read; for example, Pontus de Tyards (*c.*1521–1605) in his *Discourse de la verite de divination par astrologie*, Benito Pereyra (1535–1610) author of a widely read *De magia, de observatione somniorum, et de divinatione astrologica*, and Rudolph Goclenius (1572–1621) in *Acroteleution astrolgicum*, all refer to Abu Ma'shar's suggestion regarding choosing an astrologically opportune time for praying.[12] We can find copies of most of his works in the libraries of Pico della Mirandola and Simon de Phares.[13] The wide reception of Abu Ma'shar's works and the appropriation of his astrological theory made him the most influential Arabic writer on the topic of astrology in the early modern period.[14] The circulation of the *Picatrix* becomes evident in the high number of manuscripts extant in the libraries of Paris, Florence, Oxford, London, Krakow, Hamburg, Prague and Darmstadt, as identified by David Pingree in his edition of the Latin *Picatrix*, all copied between the fifteenth and seventeenth centuries.[15] Pico owned a copy in his library, and Rabelais mentions it – though disparagingly – and writes that the *Picatrix* is a devil 'rector of the diabolical faculty'.[16] It was known to Lodovico Lazzaralli (1447–1500), and the physician Symphorien Champier (1471–1538).[17] Al-Kindi's *De radiis* was also popular among early modern natural philosophers and occultists and circulated widely on the Continent and in England.[18] In the introduction of her edition of *De radiis*, D'Alverny identifies 20 extant manuscripts and elsewhere she lists another five.[19] They were copied between the thirteenth and seventeenth centuries.[20] It was admired by Pico della Mirandola, refuted by his nephew Gianfrancesco Pico della Mirandola, and its theory of rays was denounced by Martin Del Rio (1551–1608) in his *Investigations Against Magic*. In addition to the inherited Latin medieval traditions exemplified by the works of

Albertus Magnus, Roger Bacon and Aquinas, the Arabic texts supplied early modern occultists with a natural explanation of magic's efficacy by introducing astral causality and the astral origins of occult properties.[21]

The Arabic theories of astral influences with their Aristotelian basis had to find their philosophical place in the syncretic magical thought of the Renaissance alongside the intellectual forces of Neoplatonism and so-called Hermeticism. At first glance they seem to have been competitive and mutually exclusive systems; Eugenio Garin claims that 'there could never be any agreement between medieval philosophy and magic; for medieval philosophy was a theology of order, articulated temporarily as Aristotelianism'.[22] Though William Hine detects a stream of early modern Aristotelianism, he accepts Garin's exclusion of Aristotelianism from magical philosophy, and, insisting on the view that Renaissance magic cannot be naturalized, he remarks: 'in contrast to the Aristotelianism of Renaissance naturalism, Renaissance magic rested on Neoplatonic thought, particularly as represented by the *Hermetic Corpus* translated and used by Marsilio Ficino, to which Pico della Mirandola had added the cabala'.[23] However, as argued here, a continuity can be detected in the magic and astrology of the early modern period traced back to the earlier Arabic and Latin medieval astrological and magic theories, maintaining their Aristotelian premises only now reconciled with newly-revived philosophical streams. Aristotelianism, Neoplatonism, so-called Hermeticism, and Kabbalah as we will see in the next chapter, each supported a different epistemological level of occult thought: the physical, the semiological and the mystical.

On one level, natural philosophers and occultists considered astrology and astral magic as branches of natural philosophy. They demonstrated that astrology and astral magic derived their effectiveness from nature's own forces and their interpretive skills. The stars and their configurations were seen as signs that could be deciphered by the astrologer or magician. The semiological argument stemmed from the belief that natural operations were known through understanding the tokens of sympathy or antipathy between natural things. The sources of this mode of investigation were Neoplatonism and ancient astrology. Neoplatonic philosophy is essentially based on a hermeneutic approach to nature and the heavens propelled by a theurgic objective. This is achieved by the rational soul enabled by its ontological link to the Universal Soul. Some scholars have treated the ability of the soul to interpret codes of resemblances as the nexus of early modern occult philosophy and the base of magical theory, leading to a reductionist Neoplatonic reading. In *Spiritual and Demonic Magic*, D. P. Walker tries to assemble a coherent

early modern theory of magic focusing on Ficino's astral magic. He contends that the power of magic comes from the soul through the faculty of imagination which is 'the fundamental, central force, and the others are usually used only as aids to heightening it or ways of communicating it'.[24] In astral magic, influences of the stars act directly or indirectly on imagination which then channels them into the operation.[25] As a result, magic is 'purely psychological, remaining within the imagination or soul, or psychosomatic, affecting the body through imagination'.[26] According to Walker, what makes magical effects different from magnetism in nature is the imagination; he adds: 'the main magical importance of occult qualities is in the resultant planetary grouping of objects [. . .] or one could just sit and imagine them'.[27] Angela Voss follows and argues that the active principle in Ficino's magic is found in the 'soulful realm of imagination'.[28] She relates it to the Neoplatonic view of the stars as signs whose meaning is unpacked through the soul and their significance merely imaginal. Moreover, the legitimization of magic and theurgy in the works of Plotinus, Proclus, Porphyry and Iamblichus, in addition to the presence of the Neoplatonic theory of the soul in the works of early modern occultists, particularly Ficino, led scholars to overemphasize Neoplatonism as the essence of early modern occult philosophy. Reductionist terms like 'Neoplatonic magic' emerged and we hear of the 'Neoplatonic magus' who 'attempts to ascend through that language towards the "One beyond being" ' and 'the magic of signs and symbols'.[29]

Imagination is indeed an essential tool for recognizing signs, matching corresponding material, heightening of intention, and refining the spirit. However, the magical operation itself, towards which imagination is directed, requires setting up a situation constructed according to the operator's knowledge of causes, making it conducive to certain propitious conditions, external and internal, that are necessary for achieving magical effects. Concerning intention and imagination, Ficino writes: 'in fashioning images and medicines they [intention and imagination] do not have much power as they do in applying and swallowing them [images and medicine]'. He concedes that the imagination can have a placebo effect when using an image itself without efficacy, 'wearing an image may have efficacy but only because the wearer yearns vehemently to get help from it and believes with his heart and hopes with all his strength, he will surely get a great deal more help from it'.[30] As we shall see, Ficino constantly displays his preference for the infusion of astral influences through diet and medicines. Discussing astral rings he states: 'but I, indeed, would compound the things which pertain to stars of

this sort in the form of a medicine rather than a ring, applied internally or externally, waiting, of course, for the foresaid proper time'.[31] He believes that the most effective practices are those that invite celestial goods into our bodies. He accepts that talismans are beneficial but constantly reminds the reader that they are not as efficient as medicine in a very physical language. Medicines, he explains:

> Seem to have in them a more probable and obvious explanation than do images: first, because powders, liquids, unguents, electuaries, made at the right time receive celestial influences more easily and quickly than the harder materials from which images usually are made; second, because once impregnated with celestial influences, they are either taken internally and converted into our very selves, or at least when they are applied externally they stick closer and finally penetrate; third, because images are constructed of only one or very few materials, but medicine can be made of as many as you like.[32]

He supports his claim with the authority of Thomas Aquinas: 'if I were to say that celestial things confer something beyond physical health to one's intelligence, skill, and fortune I would not be at variance with our Thomas Aquinas, who in his third book Against the Gentiles proves that something is impressed in our bodies by celestial bodies'.[33]

As Kristeller and Vickers note, the Neoplatonic setting was an amenable receptive body that absorbed causality and did not preclude it.[34] Kieckhefer even contends that early modern Neoplatonic claims are not unique to the period. The dignity of man, the animate cosmos, and the powers of the soul are not newfound concepts and thus cannot produce a 'Renaissance magic'.[35] Rutkin too rejects the purely Neoplatonic reading and introduces the Aristotelian elements and causality in the magic of Ficino, particularly as they were received from Albertus Magnus and al-Kindi.[36] This chapter aims to provide a fuller exposition of the medieval inheritance and to highlight the impressive syncretic undertaking by early modern natural philosophers and occultists to whom the interpretation of signs converged with the knowledge of *causes* to emancipate occult powers and magic from astrolatry and idolatry.

The other philosophical force that was argued to be the source of the theoretical basis of early modern magic generally and Ficino's occult thought specifically is 'Hermeticism' which was related to Neoplatonism. Eugenio Garin claims that the 'Hermetic Man' – a terms seen as interchangeable with 'magus' – drew his justification from 'within the speculative framework of Neoplatonism'.[37]

Hermes Trismegistus (Thrice Great) is the eponymous author of a collection of writings that deal with astrology, magic and alchemy.[38] Early modern scholars believed that these writings belonged to remote antiquity, when in fact they were written in the second and third centuries AD.[39] Before them, the Arabs too believed this error.[40] The fictional identity of the author and the chronological error accepted in the European early modern period and the Islamic Middle Ages lent themselves to form a fanciful aspect of the Hermetic tradition. Hermes had a mythical geneology. In *Kitab al-Uluf* (*Book of Thousands*), Abu Ma'shar tells us about three sages named Hermes. The first Hermes was the grandson of Adam who lived before the Flood. The Hebrews believed he was Enoch and the Arabs took him to be Idris, a prophet mentioned in the Qur'an. He was the first astrologer who built the pyramids of Upper Egypt. The second Hermes saved divine knowledge from loss and lived after the Flood. He was skilled in philosophy, medicine and numerology. He taught philosophy and mathematics to Pythagoras. The third Hermes wrote a book on alchemy and was the teacher of Asclepius.[41] The Arabic association of Hermes with the prophet Idris was an attempt to declare that their astrology and their magic was supported by a tradition of ancient knowledge that was reconcilable with the Qur'an itself, making Hermes a personification of syncretism which was fundamental to the magic of the Arabs and later early modern natural philosophers.

Ficino too explores the fictional genealogy of Hermes Trismegistus. At the time of Moses's birth, there lived Atlas, the astrologer, who was the brother of the physicist Prometheus and, on the mother's side, the grandfather of the elder Mercury, whose grandson was Mercury Trismegistus. In a letter to Cosimo prefacing the *Pimander*, Ficino mentions that according to Cicero, Hermes Trismegistus was the fifth Mercury called Thoth by the Egyptians and Trismegistus by the Greeks; Trismegistus because he was a great philosopher, priest and king.

Ficino, then, like Abu Ma'shar, gives a religious guise to Hermes. We have seen that for Abu Ma'shar, the existence of Hermes is confirmed by the most important religious authority – the Qur'an – where he is called Idris. Ficino, a priest himself, considers Hermes a priest king. Following Plato, Ficino relates that in Egypt there was a tradition of choosing priests from among the philosophers, and the king from the community of priests.[42] Furthermore, Ficino renders Hermes as a true Renaissance emblem by verifying his existence with the authority of Cicero and Plato, the fathers of Renaissance rhetoric and philosophy. Doing so, the image of Hermes Trismegistus is morphed to

suit Renaissance Christian mentality thus increasing the appeal of the *Hermetic Corpus* and the importance of Ficino's translation.[43]

But Hermeticism is an illusion. Yates explains:

> The content of the Hermetic writings fostered the illusion of the Renaissance Magus that he had in them a mysterious and precious account of most ancient Egyptian wisdom, philosophy, and magic. Hermes Trismegistus, a mythical name associated with a certain class of gnostic philosophical revelations or with magical treatises and recipes, was, for the Renaissance, a real person, an Egyptian priest who had lived in times of remote antiquity [...] [this] confirmed the Renaissance reader in his belief that he had here a fount of pristine wisdom whence Plato and the Greeks derived the best that they knew. This huge historical error was to have amazing results.[44]

Hermeticism is also nostalgia for a magician's utopia located in Egypt:

> Egypt is an image of heaven [...] O Egypt, Egypt of your reverent deeds only stories will survive, and they will be incredible to your children! [...] A land once holy, most loving of divinity, by reason of her reverence the only land on earth where the gods settled, she who taught holiness and fidelity will be an example of utter {un}belief.[45]

But this sacred nostalgia should not be confused with the deep philosophical influence Yates seems to argue for. She emphasizes that Hermes Trismegistus 'is the most important figure in the Renaissance revival of magic'. For Yates, anthropocentricity and the micro–macro link are concepts Ficino received from the *Hermetic Corpus* supported by Neoplatonism.[46] Garin agrees and claims that '*De vita*, full of magic, is an extensive exegesis of Hermes (of the Asclepius rather than a commentary on Plotinus.'[47] The Hermetic interpretation has been contested by Kieckhefer and Copenhaver.[48] The latter argues in several articles that there is little real influence of the *Hermetic Corpus* on early modern occult thought and magic theory.[49] He is supported by Allen who writes:

> It is now generally agreed that there is no consistent philosophy or even a fundamental metaphysical framework underpinning the treatises [...] scholars are agreed, however, that they incorporate some basic features from Middle Platonic thinking and particularly concerning the relationship between the sensible world and man and the intelligible reality of Mind (*nous*).[50]

This revisionist view has been extended to the studies on Pico della Mirandola and John Dee all of whom Yates considers as generators of what is essentially a Hermetic philosophy.[51]

The context in which we do find references to Hermes, in the Arabic and early modern works, is mainly related to practice rather than theory. Abu Ma'shar's *Kitab al-Uluf* is concerned with looking at historical events – past and future – that result from astrological cycles; it is a technical book of astrology without a theoretical exposition. We find several references to Hermes in the more theoretical *Great Introduction*; however, they are found in its practical parts. For example, a chapter on the decans is claimed to be derived from Hermes, probably referring to the Hermetic *Book on Thirty-Six Decans*.[52] We find similar Hermetic references in the context of magical practice in the *Picatrix*, whose author writes that the first Hermes built statues on the banks of the Nile and founded a city in Egypt with four gates on which he inscribed apotropaic magical images. The *Picatrix* refers to Hermes mostly in relation to magical practices such as *nairanjat* which are magical concoctions comprising various complex natural ingredients.[53] Many works attributed to Hermes were circulating in the Middle Ages, such as *Liber imaginum Lunae*, *Liber de quindecim stellis*, *Liber Lunae ex scientia Abel* and *Liber Hermetis Trismegisti*.[54] All these astrological and magical works are practical in nature, unlike the *Corpus Hermeticum* which contains more philosophical and cosmological observations, yet they are derivative and vague. Fourteen years after the publication of his translation of the *Hermetic Corpus*, Ficino finished writing the *Three Books on Life*. As in the case of Abu Ma'shar's works and the *Picatrix*, referencing Hermes is also restricted to the practice of magic not its theory. For example, in a chapter on the powers of the fixed stars, Ficino writes that 'certain major stars discovered by Mercurius [Hermes] have the greatest power possible, such as: the Mercurial and Venereal Navel of Andromeda in the twenty-second degree of Aries'.[55]

All this led Charles Schmitt to conclude that 'Hermeticism never becomes a real driving force of any significant cultural movement during the Renaissance.'[56] Hermes Trismegistus became, to both Arabic and early modern natural philosophers and occultists, a personification of a magical nostalgia for a world where divine knowledge was pure and accessible, unblemished by materiality. In the nebulousness of the legend of Hermes, the Arabic and early modern philosophers saw different personas which fitted within different culturally specific nostalgias and religious appeal. Francis Peters explains: 'it is important to realise that Hermeticism is in fact a historical mirage [...] no different from

what passed in Late Antiquity as wisdom of Zoroaster or Apollonius of Tyana'.[57]

The rhetoric of Hermeticism and Neoplatonic semiology and animated universe were aspects reconciled with Aristotelian causality received from Arabic texts on astrology and magic and/or Latin medieval sources influenced by them. The attribution of a generative and causal role to the stars is a unique element in the Arabic theories of astral influences developed by Abu Ma'shar and applied to magic by al-Kindi and Maslama al-Qurtubi. Their works were very influential on early modern occult philosophy. For example, Agrippa, who was acquainted with the works of Abu Ma'shar, al-Kindi and the *Picatrix*, explains that astral magic receives its efficacy from the link between earthly things and the stars which give them their forms and thus are their causes.[58] Also, Giambattista della Porta writes: 'I suppose that no man doubts that these inferior things serve their superiors, and that the generation and corruption of mutable things, everyone in his due course and order, is over-ruled by the power of those heavenly Natures.'[59]

Agrippa and Giambattista were heavily influenced by Ficino who articulated a natural theory of magic supported by the Arabic theories of astral influences.[60] He refers to Abu Ma'shar in the *Platonic Theology* and counts him among the distinguished authorities on astrology who assert that the planets are endowed with rational minds, an opinion expressed by Abu Ma'shar in the *Great Introduction*.[61] In the *Three Books on Life*, Ficino refers to the authority of Abu Ma'shar in his description of the first face of Virgo, also found in the *Great Introduction*.[62] We can consider Abu Ma'shar one of the sources, if not *the* source, of Ficino's notion of astral causation. He also read the *Picatrix*. In a letter written to Michele Acciari in response to Filippo Valoris's request to borrow the *Picatrix*, Ficino expresses caution about the work and claims to have only transferred what is good in it regarding medicine and healing into the *Three Books on Life*, leaving out anything illicit.[63] He also knew al-Kindi's *De radiis*, as evidenced by the permeation of the theory of rays, and as shown by a reference to al-Kindi's doctrine of the magical power of words found in *De radiis*.[64]

In the *Three Books on Life*, Ficino approaches the stars in three ways: allegorical, semiological and aetiological. The allegorical mode looks at mythical narratives as metaphors, the contemplation of which leads to understanding the self and its interaction with the world and the divine. For Ficino, this mode enables him to subordinate pagan myth surrounding the planetary gods to Christian contemplation by means of intuitive exegesis. The allegorical approach is adopted by Ficino in

his letters more than in his other works.[65] In a letter he writes: 'I do not so much teach astronomy as search out the divine through morals and allegories.'[66] In his *Commentary on Phaedrus* he confesses: 'I too have been accustomed in my commentaries similarly to interpreting and distinguishing the spirits, using one way here, another there, as the context requires. Between literal, moral, allegorical, and anagogical.'[67]

As for the semiological mode, it looks for signs in nature and the sky to predict or interpret occurrences and events that are outside the self, but may incline the soul towards a specific action. This approach to the stars and planets – considering them as signs only – is expressed clearly in the *Enneads*. Plotinus explains that the influences of the heavenly bodies proceed from their 'symbolic power'. He denies that the stars can be causes and adds: 'we may think of the stars as letters perpetually being inscribed on the heavens [...] all teems with symbol, the wise man is the man who in any one thing can read another'.[68] Therefore, the stars indicate everyday experience and by discerning their 'purposeful arrangement' human beings can interpret the will of the gods. Iamblichus too adopts this view and explains that astrology is the art of interpreting signs linked to the divine.[69] These allegorical and semiological modes are often presented as indistinct.[70] However, signs indicate and allegories edify.

In the aetiological approach, Ficino treats the stars and planets as causes. In his *Platonic Theology* (1482) he writes that the heavenly bodies generate living substances 'by way of their own nature' as 'natural causes' (*causae naturales*).[71] The causal mode is derived from the Arabic sources that Ficino was familiar with; namely, Abu Ma'shar's *Great Introduction*, al-Kindi's *De radiis*, the *Picatrix* and Avicenna's *Metaphysics*. In the *Three Books*, Ficino alludes to astral causation in a way very similar to Abu Ma'shar. The celestial world, Ficino explains, 'governs and mixes things into one'.[72] The forms exist in the celestial bodies and he posits that from 'celestial temperateness' 'composite things acquire life'.[73] According to Abu Ma'shar, they are responsible for the union of matter and form to generate species and also to give individuality to members. He also argues that the celestial world is responsible for uniting body and soul, and sustaining the harmony between both. We have seen how these ideas were incorporated in *De radiis* and the *Picatrix* as part of their theory of magic. In the *Three Books on Life*, Ficino asserts that astral magic is 'practiced by those who seasonably subject natural materials to natural causes', i.e. the stars and the planets.[74]

The fact that Ficino alternates between these modes has led some scholars to consider him as inconsistent and evasive about his belief

in astrology or magic.[75] Ficino's *Disputations against Astrology*, written in 1477, is generally cited as an example of Ficino's vacillations; however, this text is an assertion of a principle that he has always maintained: that astral influences do not impinge on free will.[76] Ficino accepts that astral and natural causes produce or generate effects which allow us to 'identify a reason'. He actually mentions the Aristotelian categories of causes: formal, material and celestial causes, and adds that there is also a divine cause, through the understanding of which the soul comprehends its relation to the divine.[77] Astrological interpretation and edification, however, are achieved by the rational soul which is not causally affected by the motions of the stars as stressed in the *Three Books*, the *Commentary on Plato's Symposium* and the *Disputations*.[78]

It has been suggested that this alternation in discourse demonstrates the historical evolution of Ficino's thought. Perhaps, but in the *Three Books*, it is clear that Ficino intends different epistemological targets with different modes of expression. The *Three Books on Life* begins with highlighting the different layers of meaning (*sensu*) a narrative or a myth has: exoteric and esoteric, allegorical and causal, mystical and natural:

> The poets sing that Bacchus, the supreme prelate of priests, was born twice – signifying perhaps either that one who is going to be a priest should be reborn at the moment of his initiation or else that when one is at length a perfected priest, his mind, deeply drunken with God, seems now to have been reborn. Or perhaps, in a less exalted sense, they mean that wine (the seed of Bacchus) is born once on the vine (Semele) when the clusters are ripe beneath Pheobus, and born again after the thunderbolt of the vintage as pure wine in its proper vessel (the thigh of Jupiter). But our task is not at present to speak of sacred mysteries, when we are presently about to bring help to the sick by natural means.[79]

This clearly states that what follows is a natural exposition. As we shall see in the *Three Books on Life*, Ficino's aetiological and ontological treatment of the influence of the stars is consistent and is also reconciled with the semiological. It is these two modes that make up the language of Ficino's theory of magic. This chapter will look at all the three books and will demonstrate the coherence of his theory and magical universe by highlighting the way in which his sources and concepts are interweaved.

Published in 1489, the *De vita libri tres* consists of three books: the first is entitled *De litteratorum valetudine curanda* (*On Caring for the Health of*

Learned People) which was completed in 1480 and is concerned with the health of scholars and gives advice on resisting their inherent melancholic nature. The second book is entitled *De vita longa* (*On Long Life*) which was completed in 1489 and is concerned with the prolongation of life. The third book *De vita tum valida tum longa coelitus comparanda* (*On Obtaining a Life both Healthy and Long from the Heavens*) is concerned primarily with the attainment of a healthy and wholesome life through receiving celestial virtues. The last of these is most explicitly magical; however, it cannot be considered in isolation from the first two books. Ficino is 'joining them in one body, since their limbs have now been compacted into one form, let life be present forthwith. This work of *natural science*, this my body, so to speak, cannot receive any life but mine; but such life depends entirely on my soul.'[80] As a whole, then, *De vita libri tres* is a text on well-being and its attainment on all levels – physical, spiritual and astral – all contained within a natural philosophical discourse.[81]

Medicine

Ficino states at the beginning of the first book that 'Hippocrates promises health of bodies, Socrates, of soul.'[82] In the holistic medicine of Ficino, the spirit holds together body and soul. The medical spirit is defined as a subtle, hot and clear vapour of blood. It is generated by the heart then travels to the brain and from there the soul uses it for perception and contemplation.[83] The theory of the medical spirit is developed by Aristotle and Galen and systematized by the Arabs.[84] Employing the Galenic description of the physical spirits or *pneuma*s, the translator and physician Qusta Ibn Luqa (820–912) in his text *Fi al-farq baina al-ruh wa al-nafs* (*On the Difference between the Spirit and the Soul*) defines the spirit as a substance that is vaporous and thin which can exist only within the body and therefore is corruptible and mortal.[85] It is also described as the medium between body and soul.[86] He divides the spirits or *pneumas* into vital and animal. The former is a subtle body that is distributed in the body by the heart through the veins and gives life, breath and pulse. The latter is distributed by the brain through the nerves and promotes understanding, thought, opinion and differentiation.[87] As for the soul, Ibn Luqa gives it a more superior nature and a higher origin. It is an essence and the 'first perfection of the natural mechanical animal';[88] essence because it is immaterial and incorporeal, and perfection because it is the source and realization of actuality.[89] The soul is also the incorruptible and immortal first cause and the unmoving mover of the body.[90]

Qusta ibn Luqa's text was translated in the twelfth century by John of Seville.

According to Ficino, illness occurs if the spirit is agitated or disturbed in some way. For example, in the case of melancholic scholars, 'on account of the repeated movements of inquiry, the spirits continually move and get dispersed. But when the spirits are dispersed, they have to be restored out of the more subtle blood. And hence, when the more subtle and clear parts of the blood frequently get used up, the rest of the blood is necessarily rendered dense, dry, and black.'[91] In addition, Ficino explains that there are three other causes that conspire against the health of the learned: natural, mental and celestial. Naturally, the pursuit of science leads the soul to draw into itself and contract leading it to become earth-like which makes it susceptible to black bile. Mentally, the frequent agitation of the mind by enquiry dries up the brain, making it dry and cold. Astrologically, 'Mercury who invites us to investigate doctrines, and Saturn, who makes us persevere in investigating doctrines and retain them when discovered, are said by astronomers to be somewhat cold and dry [...] just like the melancholic nature.'[92]

We can say that a medical theory of astral aetiology was articulated in the ninth century, emerging from the Arabic astrological texts.[93] It grew out of an assertion made by Hippocrates that astrology 'is not a small part of the science of medicine'.[94] Abu Ma'shar quotes the aforementioned Hippocratic dictum,[95] and in the *Great Introduction* we find an explanation of the role of the stars in the preservation and perversion of health.[96] According to Abu Ma'shar, medicine and astrology are interrelated sciences. The first is the study of the terrestrial (*ardiyya*) causes of disease whereas astrology is the study of their astral and higher (*'ulwiyya*) causes.[97] Medicine looks into the changes in the elements that manifest in the alteration of the seasons and humors, whereas astrology looks into the astral origins of these alterations. Therefore, astrology perfects medicine since it extends causal enquiries to the higher origins. This leads Abu Ma'shar to conclude that 'astrology is higher and nobler than medicine' and every physician must be an astrologer.[98]

Understanding aetiology and causality is essential in the *Three Books*. Ficino states in the first book that 'one must have the courage, God showing the way, to search out causes'.[99] His exposition of causality does not exclude the spirit and the soul and so it remains a non-mechanical one. Explaining why black bile makes people intelligent, he provides natural and celestial causes. On a lower aetiological level, the spirit generated from this humor is conducive to intelligence due to its subtlety and rarefaction. On a higher level, 'the soul [...] seeks the centre

of all subjects and penetrates to their innermost core. It is congruent, moreover, with Mercury and Saturn, of whom the second, the highest of planets, carries the investigator to the highest subjects. From this come original philosophers.' The brain, as a result, 'is filled from above with divine influences and oracles, and it always invents new and unaccustomed things and predicts the future'.[100] Even psychic and noetic predilections require the astral conditioning of the mind and spirit. Such a notion can be traced back to Avicenna's *Metaphysics* known as *Liber de philosophia prima sive scientia divina* or *Metaphysica*, translated into Latin by Gerard of Cremona and Dominicus Gundissalinus. Avicenna explains that the best of humans who attain the rank of prophets are those whose souls are perfected by reaching out to the Intellect through morals and spiritual discipline. This perfection is attained by mediation of 'celestial principles'.[101] This is a 'non-material causation' as described by James Hankins that Ficino received from Avicenna to explain the soul's ability to perform miracles, revelation and prophecy.[102] Thus it becomes evident that different modes of knowing are reconciled to provide an epistemological whole. 'Soul, Body and Spirit work to unfold the true reasons of things – reasons which are contained in it [i.e. in the divine mind] and by which all things remain in existence.' This is achieved by discipline through religion, love of the divine and emancipation from fleshly desires.[103]

Concerning therapeutics, melancholics have to adhere to a suitable regimen and diet, and avoid sex, satiety and insomnia.[104] They can also avail themselves of two kinds of pills: natural and medical. The first is for the more robust and receives potency from the natural properties of its components. The other type of pills is suitable for delicate people 'composed partly in imitation of the Magi, and partly through my [Ficino's] own invention under the influence of Jupiter and Venus; they draw out phlegm, choler, and black bile without difficulty, strengthen the individual parts, and sharpen and illumine the spirits'. Ficino states that he composed these pills 'in imitations of the Greeks, Latins, and Arabs'.[105] The potency of magical pills is derived from the celestial world. In the second book, Ficino writes: 'hope thou in this, and that God is going to favour you when you supplicate him, and that the things created by him, especially the celestial things, have without a doubt a marvellous power to lengthen or preserve life'.[106] This book is replete with celestial correspondences and astrological considerations. Under the category of magical pills comes 'The Medicine of the Magi'. Ficino gives instructions for making this medicine primarily from frankincense, myrrh and gold, when the moon is in a favourable aspect with

the Sun or Jupiter. 'Beyond any question, this will guard your natural moisture from putrefaction, this will ward off for a longer time the resolution of the moisture, this will foment, confirm, and strengthen in you the three spirits – natural, vital, and animal; again, this will quicken your senses, it will sharpen your intelligence, it will conserve your memory.'[107] Magic and astral influences thus permeate the most medical of the three books.

But it is in the third book that we find the most explicit articulation of magical theory. The aforementioned pills are paralleled in the talismans Ficino describes in the third book. There one finds 'life-giving medicines' that are 'aided by the heavens'.[108] However, Ficino anticipates the objections that might arise from his advocacy of astrological medicine and images:

> If you do not approve of astrological images, albeit invented for the health of mortals – which even I do not so much approve as report – dismiss them with my complete permission and even, if you will, by my advice. At least do not neglect medicines which have been strengthened by some sort of heavenly aid, unless perhaps you would neglect life itself. For I have found by a long and repeated experience that medicines of this kind are as different from other medicines made without astrological election as wine to water.[109]

Astrological medicine does not mean exclusively medicinal magic. Ficino stresses that elections are essential for successful therapeutics; so if one is offended by the use of talismans, he insists that one pays attention to astrological conditions and correspondences. Astrological medicine and therapy are, however, useful. Ficino confronts the apprehensions that may ensue as a reaction to this.[110] He asserts that it is the duty of a priest to attend to the well-being of the soul and body which requires medicine to be joined with astrology 'since medicine is quite often useless and often harmful without the help of the heavens'.[111] Regarding magic, he confirms: 'Marsilio is not approving magic and images but recounting them [...] Nor do I affirm here a single word about profane magic which depends upon the worship of daemons, but I mention natural magic, which by natural things, seeks to obtain the service of the celestials for the prosperous health of our bodies.'[112] Natural magic utilizes natural elements and harnesses the astral influences and virtues without supplicating any entity; it is thus like the pills advocated in the first book.[113] Ficino read Albertus Magnus's *Speculum astronomiae* (*The Mirror of Astronomy*) – he refers to it – and so he stays

clear from the addressative abominable type and his natural magic conforms with the astrological images that Albertus approves of.[114]

Cosmos

The third book is primarily a theoretical defence of magic and a systematic positioning of magical agency within a cosmology that is ruled by causes, vibrates with life and soul, and is accessible to the rational soul. Ficino begins this book by setting up the hypostases within which all the powers of the universe are contained. The Universal Soul is the intermediate between its Intellect and the Body. The Soul 'attracts' the Intellect to the body since the Intellect is motionless and the body is too far removed from it. These are the principles that make the Whole, the Soul is the bond: 'she is the means of things, in her own fashion she contains all things [...] equally connected to everything [...] on the one side she conforms to the divine [Intellect] and on the other side to the transient, and even turns to each by desire, at the same time she is wholly and simultaneously everywhere'.[115]

Ficino then proceeds to the ontological dynamics through which multiplication occurs. God is perfectly Simple, One, and Good. In the divine Intellect, the first emanation, the ideas are determined and therefore it is the hypostasis where multiplication begins.[116] We have already encountered this notion in Avicenna's *Metaphysics*. For species to be formed the ideas need to be transferred into a dynamic and generating hypostasis.[117] The ideas are universal 'divine forming powers', but it is the seminal reasons that determine the number of species in matter and shape living beings.[118] These are the *logoi spermatikoi* of the *Enneads* which was translated by Ficino.[119] The Soul receives the ideas from the Intellect and from her they proceed as seminal reasons.[120] She initiates further multiplication with the seminal reasons that she possesses by divine power; there are 'as many seminal reasons of things as there are Ideas in the Divine Mind. By these seminal reasons she fashions the number of species in matter.'[121]

So the Soul has a double nature: one that gazes upwards to receive the divine power and identify the ideas from which the seminal reasons stem, and another that directs itself towards the world of generation; 'it is partly a seminal reason so she can generate, and partly an exemplary reason so she can know'.[122] In the *Platonic Theology*, Ficino explains that the Intellect's function is 'to order by means of forms', but to generate living things the vital motion of the Soul is required. In the formless prime matter 'certain seeds of forms lie hidden and ferment'.[123]

As Hiro Hirai notes, in his concept of seeds, Ficino adopts the theory of inchoate forms.[124] As seen in the previous chapter, Albertus Magnus adopts this theory, so does Thomas Aquinas in *Summa contra gentiles* which is one of the texts Ficino refers to in the *Three Books*.[125] According to Ficino, the Soul, as intermediary between Intellect and Body, instils these seminal reasons in matter. It has been noted that the concept of the seminal seeds has no Latin predecessors after St Augustine,[126] but it is reminiscent of Albertus Magnus's notion of 'productive power'. According to Albertus 'most universal forms become increasingly determined with regard to matter, according to their differing descent towards one or another matter'.[127] In the case of minerals, this is called a 'mineralising power' defined as a seminal active force existing in nature, though its origin is celestial.[128] It also corresponds with Hermann of Carinthia's concept of 'individual signs' as differentiating principles between members of species, distributed by celestial causes.[129]

In addition to being the vital principle of generation, the Soul also constructs the heavens, the stars and all celestial figures. She impresses certain qualities on all of these.[130] The ontological discourse now moves from the supercelestial to the celestial. The process of multiplication and generation is taken to a deeper level of specification; 'in the stars, moreover – in their figures, parts, and properties – are contained all the species of things below and their properties'. The forms of all things are now contained in the stars and by them seminal seeds are sown; moreover, individual properties are endowed according to the location of the individual stars in relation to the other celestial bodies and fixed stars.[131] In addition, the Soul establishes the celestial images – constellations – which 'have their own coherence from the rays of their stars directed toward each other by their own special property'.[132] So the celestial bodies take part in the process of generation by determining and assigning species, properties and powers reflecting their qualities.[133]

From Avicenna and Aquinas, Ficino adopts the notion of the specific form received from the stars in this process of individuation.[134] He writes: 'when, therefore, the Soul gives birth to the specific forms and the powers [*speciales formas vireque*] pertaining to the species of things below, she makes them through their respective reasons with the aid of the stars and the celestial forms'.[135] As a result of the Soul's association with the stars in the process of generation, the celestial world becomes the administrator of the world below. Ficino asserts: 'on these well-ordered forms [celestial] the forms of lower things depend; they are ordered by them'.[136] Here we have a clear adoption of the Arabic notion of astral mediation, causation and generation formulated

by Abu Ma'shar, and found in al-Kindi, Avicenna and the *Picatrix*, and also appropriated by Albertus Magnus and Aquinas, all sources known to Ficino which provided the ontological principles of his emanative universe and, as we shall see, the theories underlying his magic.[137]

Ficino introduces another medium that communicates the seminal reasons to matter and instils the individual properties and specific form in generated things. This is the World Spirit:

> Just as the power of our soul is brought to bear on our members through the spirit, so the force of the World Soul is spread under the World Soul through all things through the quintessence, which is active everywhere, as the spirit inside the World's Body, but that this power is instilled especially into those things which have absorbed the most of this kind of spirit.[138]

So on one level this is the universal counterpart of the medical spirit. It functions as the macrocosmic subtle principle that links the World Body and Soul. Ficino writes: 'between the tangible and partly transient body of the world and its very soul, whose nature is very far from its body, there exists everywhere a spirit, just as there is between the soul and body in us'.[139] The World Spirit is celestial; it is referred to as 'the heavens' and 'quintessence'.[140] It is also life-giving; and so it generates and animates by the power given to it by the Soul: 'this spirit assuredly lives in all as the proximate cause of all generation and motion [...] it is wholly clear by its own nature, moist, and life-giving, having acquired these gifts from the higher gifts of the soul'.[141]

It is related to the Stoic notion of *pneuma* that vivifies the universe through a network of causal channels.[142] But generally it has been attributed to the Neoplatonic tradition.[143] Walker related it to the Neoplatonic concept of the astral body which is a very fine substance identical to the substance of the stars that acts as the vehicle of the soul in its descent to earth.[144] However, the *Picatrix* is the more likely source as it elaborates on the cosmic spirit, its function as an intermediary, and its role in astral causation. Frances Yates notes that there is nothing about the spirit in the *Enneads* but that the *Picatrix* is the text from which it is derived and its magical application.[145] Kaske rejects Walker's association of Ficino's *spiritus* to the Neoplatonic astral bodies, and following Yates believes the *Picatrix* to be the source.[146] Neither, however, looks deeper into the textual evidence of this influence.

The appropriation of the spirit theory is most likely a result of a mistake or instability in the translation of the Arabic *Ghayat al-hakim*. The

word *nafs* in Arabic means soul (*anima*) but it is often translated as *spiritus* which should be *ruh* in Arabic. In the Latin *Picatrix*, it is the *spiritus* that occupies an intermediary position and disperses the forms from the celestial souls. Ficino read the Latin and seems to have accepted the *spiritus* as distinct from soul and, reconciled with the medical meaning, considers it as another intermediary in the cosmic hierarchy which links the celestial world with the terrestrial; whereas the soul connects the supercelestial with the celestial and works upon the terrestrials by the mediation of the cosmic spirit.

The author of the *Picatrix* dedicates long sections for the exposition of the cosmic hierarchy. He considers this foundational to magical knowledge. The Intellect (*Intellectus*, *'aql*) is followed by the *spiritus* (*nafs*, that is, soul, in the Arabic original), the heavens, elements and nature.[147] The *spiritus* is referred to as an intermediary (*medium/wasita*) that acts on bodies.[148] Moreover, the *spiritus* is connected to the celestial world (*virtus spiritus cum virtute celi iungatur*), and we are told that God placed it in the middle celestial sphere between the supercelestial and the terrestrial.[149] So when Ficino speaks of the quintessential nature of the *spiritus* he is recalling the *Picatrix*'s *spiritus*/*nafs* and its celestial position. In the Arabic *Ghaya* the quintessence or the fifth element is described as the stuff of planets and stars and the *spiritus* takes on that nature.[150] Ficino found the concept of quintessence, however, in the works of Avicenna, Aristotle, Plato and Plotinus and associated it with the celestial *spiritus* of the *Picatrix*.

Most importantly, in the *Picatrix*, Ficino found the application of the spirit theory and astral causation/generation in magic which presents it as natural and astral without demonic agency. The operator merely takes advantage of the surrounding natural and astral dynamics. Referring to the Platonists and alluding to the *Picatrix* and al-Kindi's rays, Ficino explains:

> The cosmos is animate just like any animate thing, and more effectively so, not only by Platonic arguments but also the testimony of Arabic astrologers thoroughly proves. In the same works, the Arabic writers also prove that by the application of our spirit to the spirit of the cosmos, achieved by physical science and our affect, celestial goods pass to our soul and body. This happens down here through our spirit within us which is a mediator, strengthened then by the spirit of the cosmos, and from above by way of the rays of the stars acting favourably on our spirit, which not only is similar to the rays by nature but also then makes itself more like celestial things.[151]

As Rutkin points out, Ficino's animate cosmos here is 'a strongly Platonising move'.[152] We have seen in Chapter 3 that twelfth-century cosmologists subscribed to this view of the cosmos as presented by the available classical texts and supported by Arabic material. Then in the thirteenth century (Chapter 4) we have seen Albertus Magnus, Roger Bacon and Thomas Aquinas being cautious about accepting the notion of an ensouled universe.[153] As Kristeller shows, it is unlikely that Ficino read the works of twelfth-century cosmologists and natural philosophers.[154] He read, however, a selection of sources that contained the same idea. The animated cosmos is a central theme in his Neoplatonic sources, particularly the *Enneads*.[155] It is also found in the Arabic *Theology of Aristotle*, the adaptation of Porphyry's edition of *Enneads* IV–VI. There we read: 'the good man is he who, if he surrounds himself with lower things and made himself beautiful by good works, causes the First Light to emanate onto his soul'.[156] And elsewhere; the mage 'is he who likens himself to the cosmos'.[157]

Magic

In *De radiis*, al-Kindi presents the rays as the spirit's vehicle that delivers celestial virtues.[158] Indeed the rays are central to Ficino's universe and magic and he is greatly indebted to both *De radiis* and Albertus Magnus's works in which the theory of rays is central:[159]

> They are animate rays unlike the rays of the lamp because they shine forth from the celestial and they bring with them marvellous gifts from the imagination and mind of the celestials, also a very intense force from their strong mental disposition and from the very rapid motion of their bodies; and they act in particular and to the greatest extent on the spirit, which is most similar to the celestial rays.[160]

The diversity of rays resulting from the various qualities of the celestial bodies is the reason behind the diversity of properties in generated things. Ficino writes: 'there are also in various stars various forces; and they differ among themselves in just this respect of their rays. Besides, from the impact of the rays falling in one way and another, diverse powers arise. Finally, diverse powers come into being in combinations of rays with each other of one sort or another.' In magical terms, 'If you would diligently consider these things, perhaps you will not doubt, they will say, but that instantly with an emission of rays forces are imprinted in images, and diverse forces from a different emission.'[161] In *De radiis*,

al-Kindi confirms that the diversity of species is the result of the diversity of rays emanating from the celestial bodies.[162] Diversity is determined and controlled by the rays which vary according to aspect, direction, time and place.[163] Before a talisman is created, the operator first imagines the form of the thing to be impressed with the power of a specific configuration of rays determined by astrological conditions, time, location, etc.[164] The operator endows the materials used in the making of the talisman – which correspond with certain planets or constellation – with a kind of 'species':

> Enumerable ensouled beings of certain species come into the world through the same constellation which has an effect on the species. For such matter is fit to receive the same species through the same constellation [...] In the same way, because the image of the mind and the real image are of the same species, they follow each other, provided that the matter of both lends itself to receive [the image's] form.[165]

So rays, stars and the ensouled universe of Ficino conform closely to al-Kindi's theory of rays and the *Picatrix*'s concept of the *spiritus*. Ficino had all the elements he needed to form the metaphysics of astrological magic. So 'if you want your body and spirit to receive power from some member of the cosmos, say from the Sun, seek the things which above all are most solar among the metals and gems, still more among the plants, and more yet among the animals, especially human beings'.[166] The result is the absorption of celestial/spiritual forces:

> You will bend your efforts to insinuate into yourself this spirit of the world above all, for by this as an intermediary you will gain certain *natural* benefits not only from the world's body but from its soul, and even from the stars [...] we are permitted to absorb its spirit [...] especially if it is made akin to it by art, that is, if it becomes in highest degrees celestial.[167]

To understand the magic of Ficino, the reader of the *Three Books* must appreciate that it incorporates two ways-of-knowing: the causal and emanative, with the spirit playing a vital role in both. He highlights the causal when he writes: 'no one should doubt that we ourselves and all things which are around us can, by way of certain preparations, lay claim to celestial things. For these lower things were made by the heavens, are ruled continually by them, and were prepared from up

there for celestial things in the first place.'[168] This creates a unified and coherent universe:

> the cosmos is itself an animal more unified than any other animal, the most perfect animal, provided that it is an animal. Therefore, just as in us the quality and motion of any member, in particular a principal member, extend to our other members, so in the cosmos the acts of the principal members move all the rest, and the inferior members easily receive from the highest, which are ready of their own accord to give.[169]

The language is that of reception and volition. The Universal Soul makes the cosmos a living whole and the spirit courses through, synchronizing the motion of all its members. Ficino thus accepts a causality that is volitional and spiritual; 'the more powerful the cause the more ready it is to act and therefore the more inclined to give'.[170] The world below is governed and ruled by the higher, and by controlling certain terrestrial conditions we can channel these causes to get certain effects.

Ficino's universe is, therefore, inherently magical; 'all these discussions are for this purpose, that through the rays of the stars opportunely received, our spirit properly prepared and purged through natural things may receive the most from the very spirit of life of the world'.[171] It is to the *De radiis* and the *Picatrix* that Ficino refers when he adds:

> The Arabs say that when we fashion images rightly, our spirit, if it has been intent upon the work and upon the stars through imagination and emotion, is joined together with the very spirit of the world and with the rays of the stars through which the World Spirit acts. And when our spirit has been so joined, it too becomes a cause why (from the World Spirit by way of the rays) a particular spirit of any given star, that is a certain vital power, is poured into the image – especially a power which is consistent with the spirit of the operator.[172]

This can be done by ingesting things that correspond to the astral quality needed, or by music and astrological images, or talismans. In a statement that must have impressed Ficino, the author of the *Pictarix* writes: 'all of these [magical] things are availed to the way the physician avails himself to the abundance of materials of foods and medicines'.[173]

So to perform natural/astral magic we need to align our spirit with the World Spirit in order to receive celestial virtues. We also need to understand and recognize occult properties and their astral correspondences and discover the optimum astrological timing. The alignment of the

spirit is achieved through 'love and faith toward a celestial gift [which] are often the cause of celestial aid'. It is 'the kindness of the heavens' that allows the channels between our soul and the celestial world to be forged.[174] The gifts from the celestial bodies come into our bodies through our rightly prepared spirit and 'through their rays the same gifts flow into a spirit exposed to them either naturally or by whatever means'. Furthermore, 'the goods of the celestial souls partly leap forth into this our spirit through the rays, and from there overflow into our souls and partly come straight from their souls'. The link can be reinforced 'by prayer, by study, by manner of life, and by conduct that imitates the beneficence, action and order of the celestials'.[175] Elsewhere we read: 'always remember that through a given affect and pursuit of our mind and through the very quality of our spirit we are easily and quickly exposed to those planets which signify the same affect, quality, and pursuit'.[176]

The author of the *Picatrix* explains that one of the main conditions of magic is a preparedness (*tahayu'* and *isti'dad*; *disposicio*) which enables the mage to connect the rational soul to the Universal Soul and receive celestial virtues as a result.[177] Al-Kindi also explicates that all magical operations require a careful directing of the will of 'those imbued with a holy desire for knowledge [who] strive most to understand the hidden conditions of things'. To be a mage, one has to have sacred zeal, therefore be in harmony with the universe, aligned with it, receptive to its rays, and made powerful by them.[178]

Next, one needs to know the occult properties of natural things. Ficino explains: 'we do not say that our spirit is prepared for the celestials only through qualities of things known to the senses, but also and much more through certain properties engrafted in things from the heavens and hidden from our senses [*et sensibus nostris occultas*]'. Ficino then adds that the occult properties – *occultae proprietas*[179]– are different from the qualities that arise from the elements; they 'proceed from the life and spirit of the cosmos, particularly through those very rays of the stars; and that therefore through them the spirit is affected as much and as soon as possible and exposed very much to celestial influences'.[180] As these originate from the stars, Ficino often speaks of solar gifts, jovial gifts etc.[181] The way these powers work is similar to the lodestone's attraction to iron; 'both are comprised in the order depending on the Bear [Ursa Major?], but the lodestone holds the superior rank in the very property of the Bear; iron, however, the inferior'.[182] The attraction is caused by the common celestial origin of both lodestone and iron; a concept formulated in the Arabic works. Abu Ma'shar explains that elemental combinations are caused by the stars and their heat, and so

the material properties are manifest in the combination of the four elements and their qualities. The forms united with matter through astral causation provide the properties that are in equal measure in all members of the species; but it is the celestial bodies that determine the astral qualities and traits in the species and the members.[183] Occult properties (*khawass*) are determined by the astral forms in generated things. Astrologers and magicians, the author of the *Picatrix* tells us, need to know and understand the properties 'that issued from the moving planets, and these are known as *khawass*'.[184]

Since Ficino seems to be familiar with the *Metaphysics* of Avicenna and *De Operationibus occultis naturae* of Aquinas, his idea of occult properties incorporated the specific form.[185] He explains:

> Who does not know that the occult virtues of things which are called 'specific virtues' by natural philosophers, are made not by the elemental nature, but by the celestial? As so the rays can (as they say) imprint in images forces occult and wonderful beyond these we know, just as they introduce them to all things.[186]

So the mage must know the occult properties of things and arrange them in the work according to their astral correspondences; and so if solar gifts are required then solar things are needed and through the seminal reasons placed in the material of the talisman's body deposited by the stars, it will resonate with celestial power; 'if in the proper manner you bring to bear on species [precious stones for example], or on some individual in it, many things which are dispersed but which conform to the same Idea, into this material thus suitably adapted you will soon draw a particular gift from the Idea, through the seminal reason of the Soul'.[187] As a result of this process, 'this material is violently agitated by art under a similar celestial influence and begins to get warm from the agitation. And so art arouses inchoate power there'.[188] Thus, Ficino refers to correspondences and magically activated seminal reasons as 'magical baits' and 'divine lures' as Synesius and Zoroaster did before him.[189] To capture celestial gifts with these lures astrological timing and the right location are essential.[190] 'For just as the body is disposed according to the place and time, so motion and action are disposed according to the time. Therefore, just as in various places, certain bodies and their forms coalesce at certain places and times and are preserved; so also certain actions properly achieve efficacy in their own certain seasons.' 'Timeliness' as Ficino writes, is 'the principle of all things'.[191] As we have

seen, in all the Arabic and medieval Latin texts there is no natural magic without astrology.

In Ficino's magic, the Platonic and Neoplatonic metaphysics in which the soul takes centre stage is reconciled with Arabic astrological hylomorphism and the theory of the specific form.[192] This syncretism is expressed concisely in a statement that brings together all the cosmological foundations aforementioned and the principles of astral magic:

> Through such seminal reasons the Anima Mundi can easily apply herself to materials since she has formed them to begin with through these same seminal reasons, when a Magus or a priest brings to bear at the right time rightly grouped forms of things – forms which properly aim towards one reason or another, as the lodestone toward iron [...] Sometimes it can happen that when you bring seminal reasons to bear on forms, higher gifts too may descend, since reason in the Anima Mundi are conjoined to the Intellectual forms in her and through these to the Ideas of the Divine Mind.[193]

So exactly what kind of magical practices does Ficino's theory justify? He mentions amulets, talismans (astrological images), figures, rings and statues. Amulets are natural objects that are worn, carried or hung that exert influence only by their natural inherent properties. These are recommended by Ficino. He writes: 'if you have acquired the gems which we listed as Phoebean a little while ago, there will be no need to imprint images on them. Accordingly hang them set in gold from your neck on threads of yellow silk, when the Sun is in Aries or Leo and is ascending or else occupies the mid-heaven and aspects the Moon.'[194] As shown in the previous chapter, Albertus Magnus and Roger Bacon distinguished between objects that are magical 'by nature' or 'by art'. Magnus condoned amulets and astrological images.[195] Bacon approved of amulets but was cautious about talismans, claiming that their deficiency lies in the limitation of our understanding of astral influences.[196] As Ficino notes, Aquinas approved amulets but rejected talismans.[197] A talisman is a magical object that is made up of one or more materials that are artificially brought together, sometimes imprinted with inscriptions and images. Referring to the pseudo-Ptolomaic *Centiloquium*, Porphyry and Iamblichus, Ficino explains that talismans manufactured from terrestrial things are subject to the celestial forms.[198] Figures are talismans whose shapes signify an external recipient or represent a celestial figure. Their power lies in their mathematical forms and as such they acquire the

status of quasi-substances, making them of a sublime nature sensitive to celestial influences. However, compared with talismans 'they claim the most dignity in the primary – that is, the celestial – levels of the cosmos'. Their properties 'have been appointed in the heavens along with the species. Indeed, they have the greatest affinity with the Ideas in the Mind, the Queen of the World.'[199]

Even though Ficino dedicates many chapters to legitimize the use of talismans, apprehension is detectable. As noted earlier, he confirms that medicines are much more efficient because 'powders, liquids, unguents, electuaries', receive celestial influence in an easier way due to their suppleness, they are also absorbed by the body, and finally medicines incorporate the properties of various materials at once.[200] Reiterating his cautious approach to the *Picatrix* in his letter to Acciari, after discussing the type of celestial talismans that a mage can use in his art taken from the *Picatrix*, Ficino asserts that he only enumerates those talismans that are medicinal; notwithstanding, 'even the medicine I suspect to be mostly vain'.[201] Referring to some talismans found in the *Picatrix*, he adds:

> It would be unduly curious and perhaps harmful to recite what images they fashioned and how, for the mutual meeting of minds or their alienation, for bringing felicity or inflicting calamity, either to some individual, or to a household, or to a city. I do not affirm that such things can be done. Astrologers, however, think such things can be done, and they teach the method, but I dare not tell it.[202]

Ficino afterwards refers to the *Speculum astronomiae* of Albertus Magnus 'professor of both theology and of magic' and his approval of astrological talismans and disapproval of figures and mysterious inscriptions.[203] This is followed by reference to Aquinas's *Summa contra gentiles* and *De Operationibus occultis*. In the former Aquinas rejects magical words and figure magic, maintaining that these are elements that have effects only because they address and are only comprehended by some intellect and thus can only be illicit.[204] So we can see that Ficino's cautious attitude is similar to Albertus's, though a little more liberal than Aquinas.

Magical rings capture the power of a certain star by inserting its stone or herb underneath a gold or silver band under specific astrological conditions. They are reminiscent of the ring of Adelard of Bath, the translator of Thabit's magical treatise on talismans mentioned in the *Three Books*.[205] Ficino also mentions Hiarchas's seven planetary rings

given to Apollonius of Tyana.[206] Yet soon after, he seems hesitant to attribute a celestial power to the rings and explains that if there is such power then it works on the body quite naturally through heat and influence on the medical spirit:

> If rings of this sort have any power from on high, I do not think it pertains so much to the soul or to our gross body as to the spirit, which is affected in this way or that way as the ring is heated little by little, so that it is made firmer or clearer, stronger or milder, more austere or more joyful. These influences pass over completely into the body and somewhat into the sensual part of the soul which quite often gives in to the body.[207]

The magical practice that received most attention from scholars and mentioned by Ficino near the end of the *Three Books* is statue animation. According to Ficino, these statues capture 'cosmic' vital power from the Universal Soul and the celestial bodies. They are made of materials that correspond with the celestial powers and act as 'magical lure'.[208] In the *Enneads*, we read that the ancient sages were similarly able to capture celestial influences; this was because the statues and their materials reproduce the Reason-Principles or seminal reasons and as a result the Universal Soul became tractable.[209] Ficino reiterates:

> Hermes says that the Priests received an appropriate power from the nature of the cosmos and mixed it. Plotinus follows him and thinks that everything can be easily accomplished by the intermediation of the Anima Mundi, since the Anima Mundi generates and moves the forms of natural things through seminal reasons implanted in her from the divine.[210]

This section led Yates to conclude that Ficino's magic is Hermetic and mystical. She writes: 'not only do we have in the Asclepius an actual description of magical practices in the admiring reference to the methods by which the Egyptian "made god", but also even the loftiest and most mystical of the philosophical Hermetic treatises presuppose, as we have seen, an astrological pattern in the cosmos'.[211] And again she infers that it provided the outline of a Neoplatonic theory of magic due to the statues – and talismans – being mere 'reflections' of the Intellect's Ideas or celestial forms.[212] Similarly, Walker contends that Ficino's talismanic magic is essentially Neoplatonic and Hermetic. He quotes the passage on 'the art of making gods' and claims that it is a capital

source for Ficino's general theory of magic and stresses that Plotinus and Hermes were his sources.[213] Kaske too accepts Yates's and Walker's interpretations.[214]

The content of the Hermetic texts and the deep impact of other sources do not support such claims. In *Asclepius*, Hermes speaks of 'statues ensouled and conscious, filled with spirits'; however, these spirits are temple gods represented by the figures of the statues.[215] No natural explication is given. Plotinus considers them as 'divine beings' too. Ficino is aware of this and states that according to Plotinus and Hermes the statues attract airy daemons and mentions that Iamblichus condemns the Egyptians and Chaldeans who animate their statues with worship.[216] In *Asclepius* the methods are theurgic and in the *Enneads* they are mystical. But Ficino emphasizes throughout his work that his medico-magic is natural, astral, and not concerned with 'sacred mysteries'. Therefore, agreeing with Copenhaver, the god-making section poses a threat to Ficino's claims regarding the possibility of natural/astral magic.[217] Ficino admits:

> The Arabs and Egyptians ascribe too much power to the statues and images fashioned by astronomical and magical art that they believe the spirits of the stars are enclosed in them. Now some regard the spirits of the stars as wonderful celestial forces, while others regard them as daemons attendant upon this or that star. [...] This could indeed be done, I believe by daemons, but not because they have been constrained by a particular material as because they enjoyed being worshipped.[218]

By 'Arabs' Ficino is most likely thinking about the *Picatrix* as the author dedicates a chapter on the planetary statues built by Hermes in which spirits reside,[219] leading Yates to stamp the 'Hermetic' badge on the magic of the *Picatrix* as a whole.[220]

The reference to the Hermetic animated statues is made by Aquinas in *Summa theologica*. Representing divinities by some sensible form or shape is considered a superstitious and idolatrous practice:

> Divine worship was given to idols in various ways. For some, by means of a nefarious art, constructed images which produced certain effects by the power of the demons: wherefore they deemed that the images themselves contained something god-like, and consequently that divine worship was due to them. This was the opinion of Hermes Trismegistus.[221]

In addition to the religious problem, Aquinas also provides a metaphysical reason why animated statues cannot receive life from the celestial world naturally. He argues that the principle of life is received from the substantial form. It is impossible for a thing to receive a new substantial form without losing the form which it previously possessed, 'for the generation of one thing is the corruption of another thing'. Now, in the process of making a statue, no new substantial form is created; rather, what is accomplished is a change of shape only, and this is an ineffective accidental manipulation. So, it is not possible for these statues to receive a principle of life.[222] Aquinas extends this to talismans thus differing significantly from Ficino who attributes the efficacy of talismans to the specific and substantial form and celestial influences, following the *Picatrix*, *De radiis*, Avicenna and Albertus Magnus.

The Neoplatonic texts of Plotinus, Proclus, Iamblichus and Porphyry and their discussion of magic were perhaps the impetus behind Ficino's magical project, especially since they mentioned sympathies and antipathies, and the idea of talismans as ensouled objects.[223] They also provided a new level of legitimacy in which magic was supported with metaphysics expressed in a spiritual language and elevated as a wisdom and an awareness of vital and psychological forces. However, their magic was theurgic and for Ficino magic was natural/astral and did not involve addressative rituals. It is not the intention of this chapter to reduce the thought of Ficino as a whole to a natural and causal discourse; however, his medico-magic is expressed with terms belonging to such discourse. This magic should not be confused with his discussion of revelation and prophecy that stem from the power of the soul and the ability to transcend the physical to meet and commune with the divine whether it is through Orphic hymns or asceticism which indeed channel celestial and even supercelestial virtues into the body and soul. This process is described by Avicenna and elaborated in the Platonic and Neoplatonic sources.[224] The god-making section, often treated as the key to understanding Ficino's theory of magic, is a small one compared with the other books and sections that show Ficino's debt to Arabic and medieval Latin sources in devising a theory for ensouling and enforming a talisman with astral virtues conditioned by the alignment of the operator's spirit, and facilitated by the knowledge of correspondences, occult properties and astrology.

6
The True Magic and Astrology of Giovanni Pico della Mirandola

Count Giovanni Pico della Mirandola stands out in fifteenth-century Italy as a precocious, idiosyncratic, controversial yet accomplished and influential humanist and philosopher. He was a great networker, corresponding with poet and humanist Angelo Poliziano, Ficino's patron Lorenzo de' Medici, and preacher reformer Girolamo Savonarola among others.[1] He knew Ficino well as he was attracted to the Platonism and Neoplatonism newly revived by the Florentine philosopher. At 19 years of age while studying in Padua, Pico requested a copy of Ficino's *Platonic Theology* following its publication in 1482. He moved to Florence to study with Ficino and remained there for a year.[2] But Pico was critical of Ficino's interpretations of Platonic philosophy particularly his own translation of the *Enneads*.[3] The issues raised by Pico against Ficino's methods have been referred to by scholars as 'controversies'. The first of these is Pico's view of Ficino's interpretation of *Plato's Symposium on Love* as being too materialistic; the second is his rejection of the metaphysical and theological interpretation of Parmenides; the third is finding problematic Ficino's application of astral causation to particular events and individuals.[4] Nevertheless, both philosophers played an integral role in developing an early modern syncretic episteme that reconciles Aristotelian causation, Platonic universal animation and Neoplatonic emanationism, to which Pico specifically introduced Jewish mysticism or more specifically Kabbalah.[5] With the mystical language of Kabbalah, Pico turned up the volume on the esotericism that was inspired by the Hermetic mystical language. His syncretism – bolder than Ficino's – is achieved through coding various levels of reality – physical, psychic and divine – using terms from various systems, particularly Kabbalah, astrology and mythology. In the *Heptaplus* (1489), he claims to be following Plato in concealing 'his doctrines beneath coverings of allegory,

veils of myths, mathematical images, and unintelligible signs of fugitive meaning'.[6] This is not merely a way of protecting secrets but also a method he uses to show his genuine conviction that all systems of knowledge and philosophies are essentially true and that they are semantically variant but conceptually similar.[7] In his *Oration*, Pico explicitly refers to syncretism as his 'philosophical method':

> Those who devoted themselves to any one of the schools of philosophy, siding for instance with Thomas or with Scotus, who are now most in fashion, can surely put their doctrines to the test [...] I have resolved [...] to pore over all masters of philosophy, to examine every page, and to become acquainted with all schools [...] And confining oneself within a single Porch or Academy certainly does show narrowness of mind [...] In addition, there is in each school something distinctive that is not shared in common with any other.[8]

In the previous chapter, we have explored the medieval Arabic inheritance in the occult thought of Marsilio Ficino. This chapter will look at the Arabic theories of astral influences in the thought of Pico and their place among the various intellectual and mystical strands that make up his syncretic philosophical outlook. The Arabic elements in Pico's works have often been overlooked even though he was familiar with many medieval Arabic sources.[9] He owned in his library Abu Ma'shar's *Great Introduction*, *Flores* and *De revolutionibus*; possibly *De radiis*; Roger Bacon's edition of *Secretum secretorum*; and the *Picatrix* to which was bound *De imaginibus* of Thabit ibn Qurra.[10] Furthermore, Pico was studying Arabic under the guidance of Flavius Mithridates and he borrowed the Qur'an from Ficino.[11] He also had access to Latin medieval works that promulgated the Arabic theories such as the works of Roger Bacon, Albertus Magnus and Thomas Aquinas.[12] This analysis will enable us to note the continuity of medieval Arabic and Latin thought in the early modern period in the case of Pico and also see the innovative reconditioning of medieval ideas in a new context.

The Arabic theories of astral influences have been articulated in three fields often feeding into one another: magic, astrology and metaphysics. Pico tackled all these in various works: *The Commentary* (1486), a commentary on a poem by Girolamo Benivieni and published posthumously, contains ideas on emanationism, causality and the animation of the universe; *The Nine Hundred Conclusions*, published in Rome in 1486, tackles issues on metaphysics, magic and Kabbalah; the *Oration* (1486), an essay introducing the *Conclusions* published posthumously, contains

material on metaphysics, the animation of the universe, the dignity of man, and magic; *The Apology* (1487), a defence of the controversial conclusions, addresses the legitimacy of magic in relation to Kabbalah; *The Heptaplus*, an interpretation of Genesis 1:1–27, is mainly cosmological and metaphysical; and finally, *The Disputations against Astrology* (*c*.1494) rejects astrological practices and exposes the nature and limits of astral influences. To perceive Pico's own ideas on astral influences specifically and the occult generally is not straightforward due to the varied nature and motives behind these works. The *Conclusions* has a format that does not lend itself to a coherent analysis of Pico's worldview as it is essentially a list of opinions and ideas, stemming from classical, medieval Latin and Arabic authorities and Pico's own conclusions, all intended to be debated in Rome in late 1486 in front of Pope Innocent VIII. The debate, however, was suspended by the Pope, the conclusions related to magic and Kabbalah proved to be problematic, Pico was excommunicated, and, as a result, he fled Rome.[13] The defensive and apologetic motives behind the *Apology* and the *Disputations* arouse hesitations regarding sincerity or at least the stability of these ideas in the thought of Pico. However, if we begin by looking at the less contentious *Oration*, the *Heptaplus* and the *Commentary* we encounter a more stable perspective on the nature of the heavens and the role of the celestial bodies in generation and their influences. Another difficulty in constructing Pico's occult thought is caused by his vacillation between different set of signifiers that stem from alternating epistemic stances; in other words, Pico advocates employing different languages to different modes of knowing in order to understand the various levels of the universe, ultimately leading to the divinization of the soul which is the ultimate project.

Reason vs. intellect

The *Oration* is an articulation of a mystical vision that emphasizes the potentiality in humans to ascend with their souls towards the divine.[14] Evoking the authority of a 'Saracen' called Abdullah[15] and Hermes Trismegistus, Pico inaugurates his *Oration* with stating: 'there is nothing to be seen more wonderful than man [...] a great miracle'.[16] God 'decreed that the creature to whom He had been unable to give anything wholly his own should share in common whatever belonged to every other being'.[17] And so man is created as a microcosm. He is placed at the centre of the universe and is made neither earth nor heaven.[18] He is given a prestigious place in the cosmological scheme and therefore he

can grasp the various layers of reality;[19] as 'an interpreter of nature' he can perceive and even manipulate the physical world but he is also the 'companion of higher things'.[20] Gaining knowledge of these lower and higher realities depends on the soul – 'in accordance with the judgement of your soul'.[21] God has planted seeds in man to become anything he wants: if he cultivates his sensitive seeds by the faculty of reason he comprehends the terrestrial world and its laws; if he cultivates the rational seeds he will become a heavenly being; if the intellectual seeds are nurtured then he becomes an angel and a son of God.[22] But to become superior to all things and unite with God man needs to 'gather himself into the centre of his own unity, thus becoming a single spirit with God in the solitary darkness'.[23] This is the ultimate spiritual praxis that does not come in degrees but in an effusion of the inward light of the soul piercing through the darkness rather than dispelling it gradually. It is a rebellion against matter rather than a refashioning or the cultivation of the seeds. Mystical theology and contemplation are its tools. Quoting Avicenna, Pico explains that 'if you see a pure contemplator, oblivious to his body and absorbed in the recesses of his mind, this is neither an earthly nor a heavenly creature: this is a still more eminent spirit, clothed in human flesh'.[24] According to 'the most secret Hebrew theology', this is the way that Enoch transformed into the angel of divinity known as the Metatron.[25] Natural philosophy aids man through reason to understand the dynamics of nature and his place in the order of natural things; it 'will allay the differences of opinion and disagreements that vex, perplex, and afflict our restless soul from all sides'.[26] But directing the intellect towards the divine through the supreme intellectual faculty and contemplation leads it to receive divine light which perfects the soul.[27] This division of transformative potentiality is also expressed in the *Nine Hundred Conclusions* where Pico explains that there are four types of demonstration: descriptive or 'simple demonstration', deductive or 'demonstration through effects', aetiological or 'demonstration through causes', and finally, a fourth genus of demonstration, more powerful than all those, which can be called 'demonstration through convertibility' which is receiving divine light as a result of a metamorphosis through contemplation (the gathering of oneself in the centre of one's own unity). He asserts:

> Not only Platonic philosophers, but even among the Peripatetics, in whom it is less apparent, the followers of Averroes have to concede that the soul can acquire a perfect knowledge of everything knowable through purgatorial path [inspiration], without any other

> study or investigation, through a single moderate and easy collation of, and direction of attention towards, intelligibles possessed from above.[28]

Indeed, as Hankins shows in the case of Ficino, the revelatory aspect in Renaissance occult thought is unique.[29] Pico represents this more forcefully than Ficino by his emphasis on the possibility of revealed knowledge without syllogisms or discursive investigations and that this is the high talent of the soul. He accepts revelation through the intellect albeit as a degree inferior to the ultimate method of gathering oneself and achieving an angelic or Enochian transformation. In Roger Bacon's annotations of the *Secretum secretorum*, which Pico owned, the natural philosopher is not merely an interpreter of nature but an adept with access to the divine when the soul is engaged in contemplation of the universe and the harmonies that govern it. This is found in the *Picatrix*, also owned by Pico. Ficino too stresses the mediation of the rational soul to reconcile the opposites, matter and form, mind and body, celestial and terrestrial, divine and mundane.[30] In the *Platonic Theology*, which Pico read, we find an emphasis on the exaltation of the soul. Ficino writes that the soul's mind is bound to the higher world through the *idolum* which is the lower part of the soul that is connected to the body. Our souls are in accord with the *idola* of the higher souls and thus are linked to the world's body – 'mind to mind, *idolum* to *idola*, by our natures to nature'. According to Ficino, wondrous things are performed because the soul acquires an ability to affect the natural and celestial world as a result of its ascent.[31] Pico uses a similar yet more scholastic description of this interconnection that facilitates ascension. In the *Conclusions*, he explains that, according to Adelard of Bath,[32] 'the active intellect is nothing but the part of the soul that dwells above and does not fall'.[33] Pico tells us that according to Averroes prophecy is a gift to those sacred individuals who receive divine light through the illumination of the active intellect over the soul.[34] In the *Heptaplus*, he asserts that the intellect is a nobler faculty than reason as it is 'transparent to the rays of divine illumination' which it receives through the active intellect:

> It remains for the statement to concern those which are above the heavens. Here an important doctrine about the soul is revealed to us. A greater, even divine, intellect illuminates the intellect in us, whether it be God (as some would have it) or a mind more nearly

> related to man's, as almost all the Greeks and Arabs and many of the Hebrews hold.[35]

Using his skill of semantic layering, Pico refers to this mind or intellect symbolically as the Sun and theologically associates it with the Holy Spirit.[36]

While Pico exceeds Ficino in mystical exhortations and prioritizes the supercelestial, Ficino, particularly in the *Three Books on Life*, focuses more on the terrestrial and celestial. Pico says: 'let us spurn the terrestrial, disdain the celestial; disregarding all that is of this world, let us fly off to the otherworldy court that is near to the most eminent Divinity. There according to the sacred mysteries, seraphim, cherubim, and thrones occupy the first places; let us emulate their dignity and glory.'[37] In the *Three Books*, Ficino seems to call for an epistemic switch when natural philosophy and medicine are being treated: 'our task is not at present to speak of sacred mysteries, when we are presently about to bring help to the sick by natural means'.[38]

Looking at the oeuvre of Pico as a whole we find that different motives can underlie different approaches to magic and astrology. The challenging part of our analysis is figuring out which approach Pico is adopting in the instances when magic and astrology are discussed, for as we shall see they are not merely practices or knowledge of effects and causes and their manipulation, they can also be exercises in contemplating symbols and allegories that contribute to the divinization of the soul.

For Pico, the ultimate system designed for divine illumination is Kabbalah: Jewish mysticism whose adherents believe that an oral tradition was revealed to Moses in Mount Sinai that complements the written law.[39] It calls for the spiritual navigation of the Sephirot which comprises the ten emanations through which the Divine and Infinite or Ein-Sof reveals himself.[40] It developed in the thirteenth and fourteenth centuries.[41] However, the development of Jewish thought in the Renaissance is described by Moshe Idel as 'unprecedented in the earlier stages of Jewish intellectual history' as 'several of the most creative personalities in Jewish culture were in communication with leading spokesmen of Renaissance thought [...] In the Renaissance period, on the other hand, a considerable number of Christian thinkers took instructions from Jews.' Among them was Pico. In Spain, where the classical formulation took place, there was a greater emphasis on theosophical and theurgic meaning of the commandments of Jewish law. Italian Kabbalah made universal and simpler the mythic and symbolic

system by reconciling the Sephirot with Neoplatonic emanationism; though the theurgic element was still present, in Italy this element was de-emphasized in this universalization to make it reconcilable with Christianity.[42]

Pico had major sources available to him that were translated from Hebrew by his teacher, Flavius Mithridates, a converted Jew and a Kabbalist. In the *Commentary*, Pico describes Kabbalah as a theology coded in a symbolic system that targets the intellectual part of the soul to achieve the highest and most divine knowledge.[43] In the *Conclusions*, Kabbalah is Christianized particularly in 11>5–9. The Persons of the Trinity – Father, Son and the Holy Spirit – are represented by three of the Hebrew divine names, Ehyeh, YHWH and Adonai respectively. The name 'Jesus' is interpreted according to 'the method and principle of the Kabbalah'. Therefore, Kabbalah becomes for Pico a hermeneutic tool.[44] He writes: 'whoever profoundly and radically grasps the order of the Hebrew language, and knows how to preserve that order proportionally in the sciences, will possess the rule and pattern of perfectly discovering everything knowable'.[45] Contemplating Kabbalistic symbols on the practical level, and constructing a system of layered meanings – mythological, astrological and Christian – on the epistemological level, eventually reveal universal philosophical principles. On an eschatological level, they achieve a mystical alignment of the soul with the multiple facets of realities represented by those symbols and meanings thus reconfiguring the self for the reception of divine effusion.[46] Each level of reality is expressed using a different set of terms. Technical descriptive terminology is a mundane form of expression that requires the reasoning faculty; supplanting it by symbols and allegories creates a linguistic manoeuvre that elevates the soul's focus. Technical language is still suitable for aetiological explanations. In the *Commentary*, discussing the generation of created things, Pico writes that 'for present purposes we can use the following terms for them: causal being, formal being, and participated being. The distinction can hardly be stated in less technical terms.'[47] This is the language that has been used by Arabs, Latin medieval cosmologists and philosophers, and to a large extent Ficino, to describe the generative dynamics of the universe and the influences of the celestial world on the world below.

Despite the mystical, Kabbalistic and exegetical mission of Pico, these theories are adopted to describe the natural and celestial dimensions from which the soul launches towards the divine. To perceive the place of the Arabic theories of astral influences in Pico's works, we need to inspect the types of magic and astrology he engages with in his works.

Magic

Pico goes to great textual lengths to distinguish licit from illicit magic. In the *Oration* he writes: 'I have also proposed some theses regarding magic in which I have shown that there are two forms of magic: one is based entirely on the deeds and powers of demons [*demonum*] (and is, in truth, an execrable and monstrous thing); the other, when keenly examined, is nothing but the absolute perfection of natural philosophy.' The first is abhorred by religion, the second is 'approved and embraced by all wise men and by all peoples devoted to heavenly and divine things' such as al-Kindi, Roger Bacon and William of Auvergne.[48] This is maintained in the *Apology* where natural magic is described as 'the practical part of natural science' and 'science of natural agents';[49] the same medieval authorities on the topic are cited and Albertus Magnus is referred to as an example of those who practised natural magic.[50]

So what is the theoretical foundation of this kind of legitimate magic? Yates considers it to be the natural sympathetic and talismanic magic of Ficino. She writes: 'Pico means the establishing of the "links" between earth and heaven by the right use of natural substances in accordance with the principles of sympathetic magic [...] the use of talismans must (or so I would think) be included in the methods by which Pico's natural Magus "unites" virtues in heaven with those on earth.'[51] For Yates this is ascertained by Pico's description of legitimate magic as marrying heaven and earth, that is, establishing correspondences between the celestial bodies and natural materials.[52] This interpretation was contested by Farmer in his critical edition of the *Conclusions*. He accepts that early modern natural magic centres around natural sympathies, but rejects the claim that Pico's natural magic is in any way astral like Ficino's and supports his view by noting that Ficino's own *Three Books on Life* was published after the *Conclusions*, *Oration* and *Apology*.[53] He also quotes a passage from a miscellany where Pico writes:

> Therefore let us not form images of stars in metals, but images of him, that is, the Word of God, in our souls. Let us not seek from the heavens goods of the body or fortune, which they will not give; but from the Lord of heaven, the Lord of all goods, to whom is given every power in heaven and on earth, let us seek both present goods – insofar as they are good – and the true happiness of eternal life.[54]

Farmer also insists that the absence of *spiritus* as a main agent in the magic of Pico indicates that it cannot be Ficinian.[55]

Farmer's argument is problematic: firstly, he considers Renaissance magic to be grounded on non-astral sympathetic magic which originally belonged to 'primitive' practices and 'non-literate' practitioners – an outdated view outlined by James Frazer in *The Golden Bough* and quoted by Farmer. In the Renaissance it developed into a practice fused 'with the broader hierarchal cosmologies of late Greek Neo-Platonism and related traditions'.[56] Though he diverges from Yates by rejecting imposing the category of 'astral magic', he reverts to her reductionist view of Renaissance magic as essentially Neoplatonic–Hermetic which functions on the basis of interpreting signs or tokens of sympathies only. In the previous chapters I have shown that the theories of astral influences explain how and why things are connected to each other, to the celestial bodies and to the various celestial configurations; and for Pico, Nature is extended to the heavens. In the *Conclusions* he affirms that 'the definition of nature includes celestial things, and the bond between them is conjunctive, not disjunctive'.[57] Furthermore, three conclusions hint at the importance of astral influences to the magic of Pico:

> 9>16 That nature that is the horizon of eternal time is next to the magus, but *below* him.
>
> 9>17 Magic is proper to the nature of that which is the horizon of time and eternity, from whence it should be sought through due modes known to the wise.
>
> 9>18 The nature of that which is the horizon of temporal eternity is next to the magic but *above* him.[58]

What he means by 'the horizon of eternal time' and its two other variations is unclear. Following Wirszubski's view that these three have different meanings, Farmer assigns them 'respectively to the realms of corporeal, rational, and intellectual natures'.[59] However, I contend that they refer to the same thing: the heavens, eternal and whose motion generates time, the knowledge of which is essential to all magicians. 'Below him' implies the heavenly virtues reflected in nature and the forms of natural things; 'above him' refers to the astrological conditions that must be observed in order to receive specific astral virtues; all of these underpin the magic of both Pico and Ficino. Magic as an espousal of the above and below is expressed in the *Oration*; concerning the power of occult properties, Pico explains that magic 'brings out into the open, as if it were itself their cause, the miracles lying hidden in the recesses

of the world, in the womb of nature [...] just as the farmer marries elm to vine, so does the magus marry earth to heaven – that is the lower things to the endowments and powers of the higher'.[60] The analogy of the farmer was used later by Ficino to defend his astral magic:

> When the celestial harmony conduces it [celestial influences] from all sides. This harmony is thought to have such great power that it oftentimes bestows a wonderful power not only in the works of farmers and on artificial things composed by doctors from herbs and spices, but even on images which are made out of metals and stones by astrologers.[61]

And so the natural/astral magic of Pico is akin to that of Ficino. The second problem with Farmer's argument lies in considering Ficino's *Three Books on Life* as his only text dealing with magic. As Zambelli points out, his *Commentary on Plato's Symposium* (1469) is an earlier articulation of his magical ideas.[62] This text was known to Pico and is at the centre of the 'first Pico–Ficino controversy'. That Pico rejected Ficino's methods of interpreting the *Symposium* does not mean that it could not have provided him with some magical concepts. This text has generated many modern interpretations: as a philosophical text dealing with metaphysical notions of Love and Eros; and as a text exploring the Christian notion of Divine love and *agape*.[63] As Jayne points out: 'it was intended to say one thing to the initiate and something else to the rest of the world; it was meant to have two meanings, one exoteric and the other esoteric'.[64] The coexistence of several meanings for a single concept must have been attractive to Pico who, as noted above, adopted it as a mystical method. He picked up the meaning of the *Commentary on the Symposium* pertaining to magic. We read in Ficino's *Commentary* that 'love is a magician'.[65] This is explicated using concepts we have seen in the *Three Books on Life*:

> But why do we think that the whole power of magic consists in Love. The work of magic is the attraction of one thing by another because of a certain affinity of nature. But the parts of this world, like the parts of a single animal, all deriving from a single author, are joined to each other by the communion of a single nature. Therefore just as in us the brain, lungs, heart, liver, and the rest of the parts draw something from each other, and help each other, and sympathize with any one of them when it suffers, so the parts of this great animal, that is all the bodies of the world, similarly joined together, borrow and lend

> nature to and from each other. From this common relationship is born a common love; from love, a common attraction. And this is true magic.[66]

With this passage Ficino explains that magic employs the sympathies and antipathies that relate all things to one another and connects the lower parts with the higher. He later writes: 'thus also the lodestone draws iron [...] Therefore the works of magic are works of nature.'[67] In the *Commentary on the Symposium* we learn that 'likeness is a certain nature which is the same in several things'.[68] There is a likeness and 'friendship' between the terrestrial world and the celestial studied by astrologers.[69] This is a form of love with which 'the heavens distribute their gifts to all inferior things'.[70] In the *Oration*, Pico reiterates that good magic 'discerned the mutual kinship that natures share'.[71] For Pico, an analogizing skill is needed to discover sympathies and correspondences; one conclusion states: 'for each natural or divine power the analogy of properties is the same, the name is the same, the hymn the same, the work the same, with proportion observed. And whoever tries to explain this will see the correspondence.'[72] Love is also a cosmic desire to propagate and when the superior things produce inferior things they place some of their own nature in them and thus endow them with astral/occult properties; love becomes also the attraction between generated things and between effects and causes.[73] Thus all things 'are bound to each other by a certain reciprocal love; so love may rightly be called the eternal knot and link of the world, and the immovable support of its parts, and the firm foundation of the whole machine'.[74]

Pico states in his *Conclusions* that 'no power exists in heaven or earth seminally and separated that the magician cannot actuate and unite' and elsewhere he affirms that 'the miracles of the magical art exist only through the union and actuation of those things that exist seminally and separated in nature'.[75] As shown in the previous chapter, in the *Three Books* the seminal reasons are the means through which the Universal Soul fashions species in matter, but she does so by the aid of the celestial bodies.[76] In the *Commentary on the Symposium*, this mediation is the result of an innate love in the celestial bodies for the Universal Soul. With their rays, they scatter the seminal reasons they receive from the Soul into nature and also preserve order and sympathies among all parts of the universe. This preservation is an act of celestial love which produces a cosmological coherence described as 'an exchange of peace and love'.[77] Celestial rays or splendour are called 'the eternal knot and link of the world' and 'the firm foundation of the whole machine'.[78] In his

'conclusions according to Albertus', Pico refers to the seminal principles when he states: 'in every point in matter the essences of all natural forms exist in a habit containing the power of generation – co-eternal with matter according to the philosophers'.[79] These are contrasted with 'animate reasons' which are the divine principles that are life-giving but are actual outside matter.[80] In the *Oration* Pico explicitly relates the seminal seeds with natural magic in a manner reminiscent of Ficino's doctrines: 'the latter [good magic], in calling out, as it were, from their hiding places into the light, the good powers sown and scattered [*interseminatas*] here and there in the world by God's beneficence, does not so much perform miracles as sedulously act as the servant of nature, which in turn performs them'.[81] He maintains this view on natural magic in the *Apology* where he insists that natural magic employs the powers (*virtutes*) and activities of natural agents, bringing about magical effects 'by their own power' (*virtus propria*).[82] However, unlike Ficino, who deals with practice in addition to theory, Pico is very vague about how his magic is practised.[83] He does exhort 'let us not form images of stars in metals, but images of him, that is, the Word of God, in our souls'. However, as Farmer himself notes, this was written at a time when Pico was trying to salvage his relationship with the Church.[84]

Kabbalah shares with magic the employment of techniques that attract certain forces to the operator. But they are very different. Kabbalah is 'singularly theurgic', with God as its subject. The commandments symbolically represent the dynamic activities and processes of the Sephirot. Performance of these activities is accomplished by prescribed esoteric meditations. Supercelestial and preternatural methods supercharge these meditations. Agency in the magic that we have been dealing with is natural and celestial, and control of nature is its objective.[85] Kabbalah intersects more closely with spiritual and even demonic magic. As Idel notes: 'the demonic elements of magic were rejected by authors such as Ficino and Pico, but these elements came to the fore later and occupied a place of increasing importance in magical literature. The most outstanding representative of this development was Agrippa of Nettecheim.'[86]

The similarity between magic and Kabbalah led many scholars to refer to Pico's magic in general as 'Kabbalistic' usually based on Pico's conclusion that 'no magical operation can be of any efficacy unless it has annexed to it a work of Kabbalah, explicit or implicit'.[87] However, here he does not equate Kabbalah with magic or state that Kabbalistic 'magical operations' are natural as claimed by Rabin.[88] The typology of Kabbalah given by Pico in his *Conclusions* and *Apology* is also often

invoked to support interpreting Pico's magic generally as Kabbalistic. In the *Conclusions* Pico divides Kabbalah into two branches: speculative and practical. The former is philosophical and contemplative; it also employs alphabets and names as divine codes. Practical Kabbalah is defined as that part which 'practises all formal metaphysics and inferior theology'; that is, metaphysics and worship according to the Law.[89] So here, practical Kabbalah is still different from magic. In the *Apology* Pico expands this dichotomy of contemplative and practical Kabbalah and explains that 'true Kabbalah' is a spiritual system that confirms and conforms to Christian esoteric theology.[90] This 'primary and proper' form eventually acquired secondary senses: as the investigation of the power of superior things (*de virtutibus rerum superiorum*) – elsewhere asserted to be the celestial bodies (*de virtutibus corporum coelestium*) – which was also perverted by necromancers to liken the miracles of Christ to magic.[91] Kabbalah has come to include the transumptive application called the *ars combinandi* (letter-combinatory mysticism) that is similar to the Christian equivalent the *ars Raymundi*.[92] The latter was developed by Raymon Lull in late thirteenth-century Spain.[93] It is a practice based on contemplating Divine attributes or names which combines elementary theory and includes a technique of letter combination. These two arts are exegetical and constitute part of Kabbalah's hermeneutics.[94]

Exploring the celestial powers is subsumed in the *Apology* under a deviated kind of Kabbalistic knowledge; although celestial powers constitute part of natural magic this fact does not necessitate that Pico's magic is wholly Kabbalistic as implied by Copenhaver and Wirszubski.[95] The contemplative practices of Pico are also not necessarily magical as Farmer claims.[96] The *ars combinandi* can be considered only marginally magical though it is more accurate to perceive it as a contemplative exercise that directs the intellect towards the Divine. The supreme intellectual faculty readies the soul to receive divine light. Transumptive and contemplative practices constitute an intellectual praxis that requires a superior epistemological method, whereas astral/natural magic engages reason and senses which are inferior to intellect. In the *Conclusions* Pico states: 'just as through the influence of the first agent, if that influence is individual and immediate, something is achieved that is not attained through the mediation of causes, so through a work of Kabbalah, if it is the pure and immediate Kabbalah, something is achieved to which no magic can attain'.[97] Magic operates through understanding and manipulating causes to achieve natural and magical effects. If we concede that transumptive practices are a kind of magic then it is one that surpasses natural magic and transcends causality. We also then accept that

Pico distinguishes between natural and Kabbalistic magic. Yates is then correct when she writes:

> The other kind of magic which Pico added to the equipment of the Renaissance Magus was practical Cabala, or Cabalist magic. This was a spiritual magic, not spiritual in the sense of using only the natural spiritus mundi like natural magic, but in the sense that it attempted to tap the higher spiritual powers, beyond the natural powers of the cosmos.[98]

This Kabbalistic magic was very influential in the early modern period. John Reuchlin's *De verbo mirifico* (*On the Wonder-Working Word*, 1494) and *De arte cabalistica* (*On the Kabbalistic Art*, 1517) and Heinrich Cornelius Agrippa's *Three Books on Occult Philosophy* owe a lot to Pico's introduction of Kabbalistic magic. It also influenced John Dee.[99] Natural magic belongs to an inferior ontological and epistemological sphere and as a result it is a less potent level of operation even though it is still 'sure, reliable, and firm' and a 'high philosophy'.[100] It serves a different, lower level of human control of nature; thus it is explained causally incorporating notions of seminal reason and astral generation all of which is received from the medieval sources: Arabic and Latin. Kabbalistic magic is spiritual and superior in its goals, namely the divinization of the soul and knowing God.[101]

Astrology and astral influences

Just as there are different magics in Pico's work, there are different astrologies too. The term 'astrology' is not unproblematic. Traditionally, judicial astrology is distinguished from natural astrology which is less controversial since it aims to find astral causes for natural phenomena rather than the free actions of will, mind and soul. Its predictability can be utilized to the benefit of mankind as in the case of meteorology. The *Oration*, *Conclusions*, *Heptaplus* and *Commentary* exhibit an elementary knowledge of traditional astrology.[102] Pico often uses basic astrological correspondences not as practical references but as expressions of metaphysical and mystical concepts; a kind of celestial allegory that demonstrates the harmony between different systems of signification. For example Pico associates the different occupations of the soul with elementary and traditional interpretive elements: 'speaking Platonically of the soul, I say that the soul lives a contemplative life with Saturn, with Jove a political and practical life, with Mars an irascible and ambitious life, with Venus a sensual and voluptuous life, with Mercury

a vegetative life with the dull senses'.[103] This set is repeated in the *Commentary*.[104]

To traditional and judicial astrologies, Pico adds two more categories: 'true astrology' which has an exegetical function; and 'speculative astrology' which has an aetiological one. The first is exemplified in the *Commentary* when the Neoplatonic hypostases are coded astrologically; 'in the Ancient theologians, who concealed their mysteries under poetic veils, the first three hypostases, that is, God, the First Mind and the World Soul, are denoted by these three names: Uranus, Saturn, and Jupiter'.[105] Pico calls this method 'the science of allegorical interpretation' which is when 'celestial or even earthly names are often given to divine things, which are presented figuratively now as stars, now as wheels and animals, now as elements; hence the heavenly names are often to earthly things. Bound by the chain of concord.' This astrology is thus purely hermeneutic, established by those who 'aptly symbolized the natures of one world by those which they knew corresponded to them in other world'.[106] This hermeneutic function makes this kind of astrology akin to Kabbalah. This is made explicit in the *Conclusions* where Pico associates each sphere or emanation of the Sephirot with a planet.[107] Such correspondences are understood by those who are aware of the 'conjunction of astrological truth with theological truth' and anyone who 'is knowledgeable in astrology and Kabbalah'.[108] The last of the *Conclusions* states: 'just as true astrology teaches us to read in the book of God, so Kabbalah teaches us to read in the book of Law'.[109] The practice of true astrology is a contemplative exercise that engages the intellect and reconfigures the nature of the soul into a higher mode of being. Therefore, unlike some studies, we must distinguish it from natural astrology.[110]

The *Disputations*, Pico's most elaborate exposition on astrology, mainly confronts the problems of judicial astrology such as the reliance on deficient conjunctions, the ignorance and neglect of astrologers, particularly their 'incautious analogies', and the claim that astrology serves religion.[111] In truth, this text condemns all traditional astrological practices, natural and judicial, which Pico never as explicitly discusses and condones in any of his works.[112] But there is one type of astrology that Pico elaborates on approvingly and consistently in most of his works, including his *Disputations*; namely what Savonarola – Pico's friend at the time of writing the *Disputations* – calls 'speculative astrology'. In his own *Treatise against Astrology*, he considers it 'a true science, because it tries to recognise the effects through the true causes [...] but divinatory astrology which consists entirely of effects which proceed indifferently from their own causes, especially in human affairs which proceed

from free will [...] is wholly vain and can be called neither art nor science'.[113] Speculative astrology investigates how the celestial bodies act as causes without predictive purposes. The main contention of 'speculative astrology' is that astral causality is only universal and never particular. It thus challenges traditional astrology because it questions the particular predictions astrologers announce. It does not deny astral influences but limits them.

Some early interpretations of the *Disputations* have focused on a different angle of attack, that is, astrology's infringement on free will which also diminishes the dignity of man.[114] As Craven, Broecke and Copenhaver show, the free-will argument was overemphasized at the expense of the epistemological and ontological arguments that revolve around the limitation of the power of the heavens and astral causation.[115] However, as shown here, speculative astrology and its theories of universal causality have been consistent throughout Pico's works not only in the *Disputations*; they partly stem from the theories of astral influences that were explored in previous chapters.

Since speculative astrology is an aetiological investigation, it is important to unpack Pico's understanding of causes. In the *Commentary*, he adopts the traditional Aristotelian divisions of causes. He writes: 'every created thing has three kinds of beings. The three are given different names by different Platonists, but they all mean the same thing': these are the causal being, the formal being, and the participated being. They stand respectively for efficient causes, formal causes, and material causes.[116] These are repeated in the *Conclusions* under those statements 'according to Averroes'.[117] A fuller exposition on causality is found in the *Heptaplus*. The material cause is the capability of matter to take on form; as for the formal cause 'the efficient cause draws it from the womb of matter'.[118] The extraction of *forms* from the potentiality of matter asserts Pico's acceptance of the theory of inchoate forms. Referring to Albertus Magnus, whom we have seen adopts this theory, Pico explains that in the state called privation – being unformed – matter contains 'this very beginning of form of which we spoke, and which this same philosopher has discussed fully and subtly'.[119] So far, the language is very scholastic and Peripatetic. However, Platonic language is used when Pico notes that the universal form/idea of a species is channelled into matter by the efficient cause after its creation in the Intellect. Every cause contains in itself the form of the thing which it wishes to produce:

> Just as an architect has within himself, in his mind, the form of the building which he wants to build, and following that form as

> his model, designs and constructs his work in imitation of it. This kind of form the Platonists call ideas or exemplar, and they say that the form of the building which the builder has in his mind is truer and more perfect [...] That first form of being they call ideal or intelligible being; the other they call material or sensible being.[120]

However, at this ontological level, Pico maintains that without the material or inchoate form, the ideal has nothing to correspond to in matter.[121]

The efficient cause is what makes a formed state actual.[122] There are two kinds of efficient causes that participate in generation: primary and secondary; the first is determined by a first volitional impulse that resides in the mind of the maker and it is divine and ideal. In the cosmos it is God who is the primary cause of all. Secondary causes are the natural instruments that 'obey and serve' the divine principle; 'The Peripatetics call the workman himself a cause rather than a principle. The divine Platonists, always mindful of the divine, remind us that although only natural agents seem to us to move, shape, and transform bodies, nevertheless they are by no means primary causes of the things which are made but rather instruments of divine art.'[123] This is maintained in the *Conclusions* where Pico states: 'the world could be produced, and was in fact produced according to Aristotle and the Commentator, from eternity by God with an efficiency that produces a natural flow and effectual succession'.[124] Pico then uses a reference to Aristotle that we come across in Albertus's *On Minerals*; 'The Peripatetics do not deny this but confirm it by their old saying that every work of nature is the work of intelligence.'[125] Across Pico's work, proximate instrumental causality is assigned to the celestial bodies. In the *Heptaplus* the efficient cause is referred to as the heavens, and emphasized as the active cause of generation in a manner reminiscent of Abu Ma'shar's and al-Kindi's concepts of astral causality.[126] Animals, plants and minerals are produced by the heavens: by 'whose force and influence they are formed from rarefied earthly matter, that is, from vaporous exhalations'.[127] It is the celestial powers that 'channel' and translate the ideas of the intellect into inchoate forms. According to Albertus Magnus, it is the celestial bodies that educe forms from the potentiality of matter.[128] For Pico, like Albertus, the forming power of the heavens originates and collaborates with the material forms and terrestrial causes to produce species and individuals.[129] In the *Disputations* Pico references Aristotle and accepts that the heavens are the active secondary causes of the generation of

species (*caelum autem efficientem causam*).[130] In the *Heptaplus* Pico writes that 'what has been asserted of the sun and moon has been asserted of the rest, since these two planets hold dominion over the heavens and exercise a universal influence, while the virtue of the other planets is particular'.[131] He retracts this in his *Disputations* and states that astral causality determines only common and universal things, species and not individuals. Individuals and particulars are determined by material composition, the seminal reasons, the location of generation, and, in case of human beings, education too.[132] As astral causes cannot be the direct causes of the particular and the individual then they cannot signify them and therefore astrological practice is deficient and astrologers cannot claim to draw specific predictions from the sky.[133]

However, Pico does not intend to discredit astral influences completely but seeks to reinforce some of their truer doctrines gathered under the title of 'speculative astrology'. So he describes how celestial bodies act as universal efficient causes in a way that is consistent across all his works. The celestial bodies act through motion and illumination and this conforms to natural philosophy and theology.[134] From their motion all inferior movements originate. Moreover, this motion contains all life. Light in itself is not life-giving but it is disposed and disposing to life.[135] Life, which is a perfection of generated things, is the property of soul and spirit. The soul 'arises rather from a divine origin as asserted by Plotinus, whom, to the public advantage, our Marsilio Ficino will soon give us to read in Latin, illuminated by ample comments'.[136] This is Plotinus's light which is an incorporeal formative power.[137] *De radiis* could be the source too as there al-Kindi considers the vehicle of this power to be radiation. The universe resonates with rays projecting from all celestial bodies in all directions, infusing every substance and soul with the ability to cause change, and also endowing them with agency, both natural and volitional.[138]

The light of heavenly bodies transfers heat that permeates all created things; this is a celestial form of heat not elementary.[139] Pico writes in the *Heptaplus*: 'in our world there is the elemental quality of heat, in the heavens there is a heating power'.[140] In a conclusion according to Isaac of Norbonne, it is stated that 'celestial bodies do not distribute anything formally to inferior bodies except heat'.[141] In another conclusion according to Abumaron the Babylonian – Avenzoar (d. *c*.1161) – the celestial world heats inferior things through its light.[142] This is the same heating power proposed by Abu Ma'shar that draws form to matter. According to Pico, this heat – 'offspring of light'[143] – also makes the substance of

the medical spirit which is a subtle body that acts as a medium between soul and body.[144] It carries out the office of the soul in the body and nurtures the heat in semen as well as the seminal reasons in matter.[145] In the *Heptaplus*, Pico confirms:

> But between the earthly body and the heavenly substance of the soul there had to be a connecting link to join together such different natures; to this task was assigned the delicate and airy body which physicians and philosophers call the spirit and which Aristotle says is of diviner nature then the elements and corresponds by analogy to heavens.[146]

We have seen in the thought of Ficino that the spirit is the medium between body and soul, the agent of efficacy, and carrier of astral influences. In the *Three Books on Life* he provides an exposition of it as a cosmological principle in addition to instructions on how to absorb the invigorating cosmic spirit into our own body through foods, habits and talismans. In his *Commenary on Plato's Symposium*, Ficino gives a basic explanation of the function of the subtle substance of the spirit: 'the soul itself is the home of human thought; the spirit is the home of the soul; and the body is the home of this spirit'.[147] However, Pico's spirit remains very different from Ficino's. Pico was concerned with the microcosmic spirit and its Aristotelian-medical context rather than its cosmic counterpart.[148] The cosmic spirit of Ficino is presented as the vehicle of astral influences that are infused in the body of the talismans. Since Pico only accepts universal astral influences, his spirit cannot participate in a magical act.[149] However, the autonomy of Pico's spirit from the cosmos should not be exaggerated as he explicitly states that it 'corresponds' to the heavens since it is formed from the heat and light emitted by the moving celestial spheres, and as such it is similar but not identical to Ficino's spirit.

True and speculative astrologies then are not divinatory tools but means for transcendence through the intellect in the case of the first, and understanding of the causal function of the celestial spheres and bodies through reason in the case of the second. True astrology is akin to Kabbalah in that they focus on contemplating symbols and allegories. Speculative astrology is unlike Kabbalah since its language is less esoteric and more technical.[150] It is suitable for a text like the *Disputations* which is presented to an orthodox Christian audience. And yet Pico was apprehensive about how some may misunderstand the motives behind his approval of hermeneutic true astrology and speculative astrology and so

his explications come with warnings: 'let us take care not with ourselves be the slaves of the celestial bodies', and adds:

> Therefore we ought to beware lest, like many assigning and attributing to heaven more than is necessary, we resist the will of the Artificer and the order of the universe and, while seeking to please, actually displease the very heaven which has the plans of God and the order of the world much at heart [...] Our prophet teaches this elsewhere, reminding us that man should beware lest, honouring the sun, moon, and stars, he worships what God created for the service of people.[151]

Astral causality in Pico's thought comprises ideas derived from medieval sources: Arabic such as al-Kindi and Abu Ma'shar, and Latin such as Albertus Magnus. Even though the notion of magic in Pico is vague and the direct and indirect impact of the Arabic theories of astral influences is less evident in his natural magic, its definition as a science that actuates the seminal seeds through arranging materials that correspond to the celestial bodies and which are sympathetically linked to one another suggest a conception of natural and astral magic that we find in al-Kindi's *De radiis*, the astral magic of Ficino, and the magical arts of Albertus Magnus and Roger Bacon. Aetiology expressed in technical scholastic terms is perhaps the most mundane of all possible modes of expression according to Pico; however, it forms the basis for his speculative astrology. His works constantly layer the technical and physical level of reality with symbols and allegories. It is perhaps through this process of codification that one can launch the soul from the lower level of knowledge to the divine realm; from reason to inspiration. This is Pico's ultimate aim as inspired by Neoplatonism and Kabbalah.

7
The Magic and Astrology of John Dee

The sensational life of John Dee (1527–*c*.1608) guaranteed him a firm place in the who's who list of the history of Western occult thought. The British Museum houses a group of objects associated with his divination and magical practices in 'The Enlightenment Room'. These are three wax discs bearing the mystical great Seal of God and names of angels, an obsidian mirror from which spirits were supposedly gleaned, and a gold disc inscribed with 'the vision of the four castles'.[1] The British Library displayed Dee's spell book in the *Comics Unmasked* exhibition (2 May–19 August 2014), serving as an example of visually evocative texts. *Dr Dee: An English Opera*, debuted in July 2011, was composed by frontman, Damon Albarn, of the British pop rock band Blur.

A quintessential Renaissance man, Dee was a mathematician, geometer and astronomer; a sincere Renaissance occultist, immersing himself in astrology, alchemy and magic – astral, natural and angelic. For Dee, the expanse between the earth and the heavens offered a stage on which man could test and display the power and dignity of his soul. His universe was intelligible and he believed the wise mage could take advantage of the spiritual and physical gifts it offered to advance in life and transcend to higher realms of existence.[2] His grip on popular imagination is partly a result of his role as a popularizer of mathematics and its handmaiden astrology as evinced by the preface he wrote for Henry Billingsley's English translation of Euclid's *Elements* which was published in 1570. Without condescension, it was intentionally addressed to the public to be navigated by those other than Latin-reading university students.[3] Dee's taxonomy of knowledge in his *Preface* introduces the basic principles of subjects and practices that he himself undertook, including experimental and occult sciences.[4] His fame, in the present and past, is also attributable to the intimate chronicles of his adventures and enterprises found in his surviving diary and the detailed account of

his angelic conversations preserved and published by the scholar Meric Casaubon (1599–1671). We have access to his library catalogue; Julian Roberts and Andrew Watson's edition of *John Dee's Library Catalogue* was published by the Bibliographical Society in 1990.[5] So John Dee appears to be an accessible – so to speak – Renaissance mage.

Not restricted to the atmosphere of English universities, Dee travelled in pursuit of knowledge and manuscripts. In Louvain, he nurtured his interest in mathematics, astronomy and astrology by associating with mathematicians and cartographers such as Gemma Frisius and Gerard Mercator.[6] The knowledge Dee accumulated during his sojourn in the Low Countries in 1540s culminated in his *Propaedeumata Aphoristica* (1558).[7] He was willing to travel far and pay considerably for procuring and preserving manuscripts, particularly those dispersed as a tragic result of the Dissolution of the Monasteries;[8] he owned between 22 and 27 manuscripts of St Augustine's Library, 80 per cent of which were works on astrology, magic and alchemy.[9] He acquired a rare manuscript of Johannes Trithemius's cryptograph the *Steganographia* (1499) in Antwerp.[10] In England, he was very well-connected to influential figures including Queen Elizabeth I herself. When he returned to England from the Low Countries he was introduced to King Edward through William Cecil and as a result received a yearly pension.[11] He also tutored the children of the Duke of Northumberland, including Robert Dudley who later became the Earl of Leicester.[12] Duke beheaded and a new Queen ascending to the throne, Leicester and the Earl of Pembroke introduced Dee to Elizabeth whom he instructed and performed small services to such as astrologically electing a date for her coronation. It is during this period that Dee was most prolific and produced the *Propaedeumata Aphoristica*, the *Mathematical Preface* and his perplexing symbolic discourse the *Monas Hieroglyphica* that preoccupied him from 1557 and was eventually published in 1564.[13]

His erudite knowledge of mathematics, geometry, metaphysics and magic gained him an appreciable amount of support. Dee's student Thomas Digges (*c*.1546–1595) saw in Dee 'a most expert in these sciences, and admirable in philosophy'.[14] Supporting Dee's endeavours, Thomas Powell (1608–1660), in *Humane Industry*, referring to the science of catoptrics mentioned in the *Propaedeumata* and *Monas Hieroglyphica*, considered Dee as 'an eminent Mathematician of this Nation'. The latter work was explicitly referred to by Powell.[15] The astrologer William Lilly in *The Starry Messenger* described Dee as 'a most learned man' and displayed knowledge of Dee's *Propaedeumata Aphoristica*.[16]

John Webster (1610–1682) in *The Displaying of Supposed Witchcraft* rebuked those who accused Dee of being a conjurer. He recalled Dee as 'the greatest and ablest Philosopher, Mathematician, and Chymist that his Age (or it may be ever since) produced', acknowledging his 'known abilities in the most parts of abstruse learning, the great respect that he had from divers Princes, Nobles, and the most learned in all Europe'. Webster considered Dee's *Preface* as 'most learned' and quoted the author's passages of self-defence against accusations of sorcery.[17] In an earlier work, Webster praised Dee's practical applications of all branches of science and commended his *Preface* for asserting the importance of geometry, astronomy, optics, geography and experimental demonstrations.[18] In *A Discoursiue Problem Concerning Prophesies*, John Harvey (1564–1592) accepted the general predictions of astrologers and compared them to medical prognoses, adding that the former could be 'wrought by the right vse, and skillful application either of Mathematiques, or of meere Natural Magique, as it is lawful and allowable before God and man, without any corruption, or mixture of demonicall or supernatural magique'. To support this claim he referred to Roger Bacon, 'a man deeply seene in such magicall, and mathematicall experiments', and also John Dee, 'a man sufficiently knowen for his long studie, and skill in such matters, [who] hath effectually confirmed, in his Speculum vnitatis, and Apology of Bacons, profound cunning in philosophy, as himself not many yeeres since professed unto me'.[19] Harvey's sentiment was later shared by Gabriel Naudé (1600–1653) who, in his *History of Magick* testified: 'John Dee, Cittizen of London a very great Philosopher and Mathematitian saies he had written in defence of Roger Bacon, where he shews that whatever was said of his miraculous operations is rather to be attributed to the knowledge of nature, & the Mathematicks than to any commerce or conversation he ever had with Daemons.'[20]

Through his erudite knowledge in magic and astrology, Dee promoted continental occult philosophy in England.[21] He promulgated this tradition through direct knowledge of early modern works on magic and astrology, and through direct engagement with the medieval sources, Arabic and Latin. He owned Ficino's *Three Books on Life* and the *Platonic Theology*, and read the Italian philosopher's translations of Plato including his *Commentary on Plato's Symposium*.[22] He owned Pico's *Nine Hundred Conclusions*.[23] He also acquired copies of Albertus Magnus's *Commentaries on Aristotle*, *De natura locorum* (*On the Nature of Places*), *Speculum astronomiae* and *De mineralibus*; in addition to many

of Roger Bacon's works including the *Opus Majus*, *De multiplicatione specierum*, *Epistola de secretis operibus artis et naturae* and Bacon's edition of the *Secret of Secrets*.[24] As for Arabic texts, he owned numerous astrological, alchemical and magical works including several copies of Abu Ma'shar's *Great Introduction*, *Liber Florum* and *De magnis conjunctionibus*; in addition to al-Kindi's *De radiis*, Thabit ibn Qurra's *De imaginibus*, and Avicenna's *Metaphysics*.[25] The library reflects Dee's omnidisciplinarity and syncretism that he inherited and contributed to as part of his belief in the universalization of knowledge and the inherent truth in all belief systems.[26] In this chapter, the syncretism gleaned from his book collection will be corroborated by an analysis of three works: the *Propaedeumata Aphoristica*, the *Mathematical Preface*, and the *Monas Hieroglyphica*. These works represent a period in Dee's life between the 1550s and 1570s in which his occult pursuits centred on astrology and astral/natural magic. In the 1580s, John Dee shifted his attention to angelic and spiritual practices. These later interests are exceptionally interesting and certainly fundamental to understanding the scope and development of Dee's occult thought. However, the scope and theme of this present study cannot accommodate an analysis of Dee's conversations with spirits.[27]

The career of Dee and his works have attracted many interpretations since the earliest part of the twentieth century. Generally speaking, three strands of interpretation have developed: the first developed in the 1950s which highlighted the significance of Dee's works by sanitizing them from the occult and focusing on the more 'exact' aspects of his mathematics, presenting them as proto-scientific endeavours. This strand is represented by the works of E. G. R. Taylor.[28] Another strand emerged in the 1960s and 1970s that saw the occult elements to have inspired the 'scientific' outlook of Dee. This is represented by Frances Yates's *The Occult Philosophy in the Elizabethan Age*, Peter French's *The World of an Elizabthean Magus*, and I. R. F. Calder's thesis 'John Dee Studied as an English Neoplatonist'. Yates placed Dee in the Hermetic tradition in which she had included Ficino and Pico in her *Giordano Bruno and the Hermetic Tradition*. In her later work she emphasized the Kabbalistic elements that were amalgamated into early modern Hermeticism.[29] Considering Dee's mathematization of astrology in the *Propaedeumata* and the Kabbalistic *Monas Hieroglyphica* inspired by the Art of Lull founded on a 'universal religious and scientific basis', Yates claimed that 'we may begin to see Dee in his true historical context'. He appeared to her as truly a man of the late Renaissance

developing occult philosophy in scientific directions thus stimulating the Scientific Revolution.[30] French, Yates's student, adopted her interpretation and considered Dee a personification of the Hermetic mage, dignified and powerful. Dee's 'erudite' gnostic Hermeticism accommodated Kabbalah and thus he joined Pico and Ficino as 'rehabilitators' of Hermetic philosophy.[31] Calder, on the other hand, argued that the Neoplatonic/Pythagorean mathematics Dee advocated formed a scientific precursor of modern physical science; 'it was the devising of means for investigating experience in mathematical terms that was undertaken by various Renaissance theoreticians, that marks the beginning of specifically modern experimental methods'.[32] Calder accepted that this form of Neoplatonism also created the mystical expression of astrology and its rhetorical contemplation which he attributed to the Arabs (Avicenna and Averroes mainly):

> The characteristic emphasis on the natural power of the Intellect to arrive at truth [...] ran through much of the scientific thought of the Arabs; which current, by insisting that the cosmos was a logical and necessary unfolding of intelligible principles, emanating from and manifesting the nature of God, gave strong support and encouragement to the study of natural science and mathematics.[33]

In his study on magical exaltation in the works of Dee, György E. Szony accepted Yates's and French's interpretive models, arguing that Dee's eschatological project exercised through Kabbalah and contemplation of the Monad was inspired by Hermeticism and Neoplatonism placing him in the same milieu of Ficino and Pico.[34]

Yates, French and Calder thus legitimized Dee's occult and mystical pursuits – categorized as Hermetic and Neoplatonic – only in their contribution to developing a recognizable 'modern' scientific discourse.[35]

The first strand, which undermines occult tendencies, was continued in the 1970s by J.L. Heilbron who explicitly trivializes the magical elements and rejects the second strand which legitimizes occult thought as a proto-scientific mentality. In his introduction to Wayne Shumaker's translation of the *Propaedeumata Aphoristica*, he adopted a limited typology of early modern magic: the works of Francis Bacon marked the break from the earlier 'hermetic magic' which was essentially spiritual and demonic to which Dee's angelic magic belonged.[36] It was irrational and thus could not be the 'ancestor' of experimental physics. Natural magic, on the other hand, was understood by Heilbron exclusively

as 'mechanical tricks [...] philters and cosmetics [...] cryptograms [...] playing with mirrors and magic lanterns [...a] thousand amusing silly, practical, or useless things'.[37] He recommended 'sharpening' Yates's interpretation by suggesting that the Platonic mathematics of the Hermeticists was only 'part of an explanation of the remarkable growth of interest in, and knowledge of, mathematics in the sixteenth century' and that the main factor behind the 'advancement' of mathematics was its utility and application in warfare inventions and constructions.[38] Such positivism was endorsed by Robert Barone's more recent *A Reputation History of John Dee* whose paradigm of legitimacy was 'a rational scientific age'.[39] Forging an alliance with Heilbron, Barone only considered as magic Dee's 'seedy' angelic conversations, overlooked astral/natural magic, and contended that 'such practices [...] did not in any way aid in the advancement of modern physical science. They only served in darkening Dee's reputation for posterity.'[40] Håkan Håkansson studied the various classical, early modern and medieval sources of Dee's notion of sacred affective magical words but he only gave prominence to the Neoplatonic influence by investigating the notion of the stars and planets as signifiers. He argued that Neoplatonism 'treated the natural world as a vast network of cross-referring signs'.[41] He depended in his argument on Foucault's notion of the semiologies of nature and natural resemblances which according to him constituted Renaissance epistemology, especially as related to natural philosophy.[42] Håkansson argued that 'likeness' is the agent of influence; it is in itself a cause. Therefore for him, Dee's astrological theory was based on semiological sympathies; 'likeness was in itself the very property that linked them together, and could thereby provide a basis for magical manipulation of natural and celestial forces'.[43]

Nicholas Clulee, however, questioned the interpretive model of Yates, French and Calder and criticized their method of imposing a homogeneous intellectual tradition into which they tried to fit Dee; that tradition being either early modern Hermeticism or Neoplatonism.[44] The problem is the assumption of coherence in Dee's works, when in fact the works themselves demonstrate the various epistemological stances that Dee adopted as he treated occult matters.[45] The Neoplatonic interpretation was eventually challenged by Clulee.[46] He confirmed: 'I did not find in [Dee's] works in natural philosophy a further elaboration of Renaissance Florentine Neoplatonism or of a coherent recognized "Hermetic" tradition, or of a Renaissance "occult philosophy" with a Hermetic, or Neoplatonist, or Pythagorean, or Cabalist core as Yates variously specified.'[47] He also criticized Calder for dissociating Dee

from Renaissance traditions of natural magic by portraying him as a Neoplatonist mathematician in an attempt to defend him from 'esoteric numerical fantasy' and 'the intricate and unprofitable maze of cabala and occultism'.[48] Instead, Clulee highlighted the influence of Aristotle on Dee's natural philosophy which weakened Calder's conclusion that Dee's chief influences had 'little relation with and are frequently running counter to Aristotelian doctrines'.[49] Clulee asserted that Dee's early notes were quite traditional and emphasized Aristotelian physics which formed the basis of traditional astrology.[50] In the early years of the development of Dee's thought, when he received his Bachelor's and Master's degrees from St John's College, Cambridge, Aristotle's philosophy was the fundamental cornerstone in the arts curriculum.[51] In his *Mathematical Preface*, Dee refers to Aristotle when describing the way in which the motions of the planets initiate the process of astral influences:

> And therefore saith Aristotle in the first of his meteorological bookes in the second chapter [...] this world is of necessity, almost, next adjoining, to the heavenly motions, that from thence all his virtue or force may be governed for that is to be thought the first cause unto all from which the beginning of motion is. [...] and in his second book of *De generatione et corruptione* in the tenth ch. [...] Wherefore the uppermost motion is not the cause of generation and corruption but the motion of the Zodiac for that both is continual and is caused of two movings.[52]

On the same page he mentions his own *Propaedeumata* as a reference to the Aristotelian-based theoretical and mathematical demonstrations of the art of astrology. Moreover, in the preface to his angelic conversations he reiterates his admiration of Aristotle and writes:

> As for Aristotle, I confess his authority is very great with me; not because I am superstitiously addicted to any of his opinions, which I shall ever be ready to forsake when better shall be showed unto me; but because (besides the judgement of all accounted wise and learned in former ages.) I am convicted in my judgement, that so much solid reason in all arts and sciences never issued from mortal man (known unto us by his writings) without supernatural illumination.[53]

So we have a clear indication of the respect Dee had for Aristotelianism. However, as I have shown in previous chapters, Aristotle himself does not discuss astrology and astral influences in his natural corpus.

Nonetheless, Abu Ma'shar and al-Kindi requisitioned the natural philosophy of Aristotle to serve as the metaphysical basis for their astrological theory.[54] And Dee, as will be shown in this chapter, relied extensively on al-Kindi's theory of stellar rays and Abu Ma'shar's theory of astral causation.[55]

Inaugurating a third strand of interpretation or historiographic method, Clulee delineated the main elements of Dee's natural philosophy, its sources, and its engagement with Renaissance and medieval intellectual traditions. He advocated closely examining texts of a theoretical nature and letting them enunciate Dee's own world-view. Three texts come to the front: the *Propadeumata*, the *Monas* and the *Preface*.[56] I adopt such a method in my investigation of the Arabic theories of astral influences in the works of Dee and their place in his syncretic universe. I do not wish to look at Dee's activities as leading to the emergence of a new science that subscribes to a post-Enlightenment dichotomy of triumphant science vs. embarrassing superstition and the occult, but aim to understand the texts in their own context where such a sharp dichotomy did not exist. Before studying the texts I shall briefly introduce the status of astrology and magic in sixteenth-century England.

Astrology and magic in the English Renaissance

Before the sixteenth century the lack of astrological writings indicates a time of little astrological activity; however, it has been argued that aspiration to wealth and military progress promoted mathematics in England during the sixteenth century.[57] With his popularization of mathematics, Dee contributed to a mathematical Renaissance.[58] Astrology and astronomy were often subsumed under mathematics.[59] There is in fact evidence of high astrological activity during this period.[60] Astrology was also widespread in the English court as exemplified by the Earl of Leicester's employment of Richard Forester (1546–1616) as his astrological physician in addition to commissioning the mathematician and astrologer to set some horoscopes. Leicester invited Dee to elect the most astrologically propitious day for Elizabeth's coronation. The Queen herself leant an ear to Dee's astrological views.[61] Furthermore, a large percentage of the astronomical and astrological works in Elizabethan England were published in the vernacular, contributing further to the popularization of these subjects.[62] Even though Yates and French pointed to some hostility towards the occult sciences in English universities, Feingold challenged their claims and showed that mathematics and astrology were strong by the end of the century. This

is evidenced by the surviving student notebooks showing interest in the occult as a whole.[63] Another interesting piece of evidence for the participation of astrology in the intellectual climate of the sixteenth century is the *ludus astrologorum* (Astrologer's Game) which was a board game used as a teaching aid for students of astrology in universities. The players of the game moved the pieces, representing the planets based on Ptolemaic astronomy, in imitation of the heavenly motions. The players aimed to obtain positions for their pieces that would exert the strongest astrological influences over opponents according to the rules of aspects and dignities. These relations were represented by lines that signified celestial rays probably inspired by the now widespread al-Kindian notion of celestial rays which, as we shall see, was quantified by Dee in his *Propaedeumata*. A Spanish game of the same name was present in the court of Alfonso X in the thirteenth century. John Dee owned several copies of its English counterpart, as did some other early seventeenth-century academics.[64]

Moreover, the English reception of Arabic astrology and astronomy contributed to the popularity of astrological practices and theories. Works of Arabic science were rediscovered in the sixteenth and seventeenth centuries.[65] In London, by the end of the sixteenth century, Gresham College was established to develop the sciences of navigation and the knowledge of the stars.[66] In the seventeenth century, John Greaves, Gresham College's own Savilian professor of astronomy (chosen in 1643), travelled in Arabic regions to improve his knowledge of Arabic language and to make astronomical observations. He owned an illustrated manuscript of Abu Ma'shar's *Great Introduction* in the original Arabic which was brought to him by Edward Pococke and later torn apart by soldiers who ransacked Greaves's office in search of subversive materials.[67] Pococke himself held the Laudian chair in Arabic at Queen's College in Oxford.[68] John Bainbridge, a physician and astronomer, was the first Savilian professor of astronomy at Oxford in 1619,[69] and he collected Arabic astronomical works and learned Arabic to better understand them. Gerard Langbaine, Provost of Queen's College, produced a notebook in which he lists works gathered from different Oxford libraries to delineate the history of Arabic studies in England; among which were the astronomical tables of al-Khawarizmi and Abu Ma'shar's *Abbreviation of the Introduction of Astrology*.[70] So, it becomes evident that the popularity of astrology in English universities was concomitant with Arabism.

Abu Ma'shar specifically was a recognized authority on astrology in England. In a treatise called *Prosopopeia containing the teares of the holy,*

blessed, and sanctified Marie, the Mother of God, the English dramatist Thomas Lodge (*c*.1558–1625) refers to Abu Ma'shar to prove the celestial evidence of the holiness of the mother of Christ:

> This is shee of whom Albumazar prophesied who speaking of the signe of the Virgine, sayde that there shoulde an immaculate virgine be borne, fayre, elegant, and modest, that should norish an infant in *Iudea*, who shoulde be called Christ. Of this virgin there was found a testimony on the tomb of a pagan; where in a plot of ground these wordes were written, & found in Constantine and his mother Irenes time, An infant named Christ shall bee borne of a virgine, and I beleeue in him. O sonne thou shalt see mee againe in the time of Constantine and his mother Irene.[71]

The Puritan theologian Thomas Adams (fl. 1612–53) uses the same reference in a sermon delivered at Paul's Cross on 3 December 1615 whilst talking about the Star of Bethlehem.[72] So does William Austin (1587–1634), a benefactor of the Church of St Mary Overy in Southwark.[73] He writes in his *Devotionis Augustinianae flamma*: 'Albumazar (The Arabian) foretold of such a Starre, or rather Constellation, (in suo majore introductorio, Tract *6*.) which should have the Appearance of a Virgin, with two Eares of Corne in her hand, nourishing a Child; which a certaine Nation, should call Iesus.'[74]

However, references to 'Albumazar' were not always favourable. Abu Ma'shar's claim that a prayer was most likely answered when timed astrologically received much criticism. Reginald Scot (1538–1599) mentions this 'impious' claim in his *Discovery of Witchcraft* (first published in 1583):

> But I am sure the opinion of Julius Maternus is most impious, who writeth, that he which is borne when Saturne is in Leone, shall live long, and after his death shall go to heaven presently. And so is this of Albumazar, who saith, that whosoever prayeth to God, when the moone is in Capite draconis, shall be heard, and obtaine his prayer.[75]

The physician Thomas Ady, in his treatise against witchcraft *A candle in the dark shewing the divine cause of the distractions of the whole nation of England and of the Christian world*, echoes Scot's censure by writing: 'Albumazar saith, Who so prayeth to God when the moon is in Capite draconis, shall obtain his prayer. These Planetarians, for these and the like impious devices, in pretence of a lawful Science, are described in

the text among Witches.'[76] The presence of such opprobrious references to Abu Ma'shar shows that the polemics of astrology included his doctrines, and hence testify to his influence. For example John Chamber in *A Treatise against Iudicial Astrology*, condemns Abu Ma'shar for suggesting that 'he that shall pray to God for anything, when the Moone and Jupiter are joined in the head of the Dragon shall obtain whatsoever he asketh'.[77] And John Gaul criticizes Abu Ma'shar for 'feigning *Virgo* the Sign in the Zodiack, to be compacted of many starres, resembling a Virgin, carrying a Child in her arms, and it holding an eare of *starres* in its hand'.[78] However, Sir Christopher Heydon (1561–1623) defends Abu Ma'shar from these exact accusations in his *Defence of Iudiciall Astrologie* by asserting that his errors are those of 'Chronologie, but not in Astrologie'.[79] Abu Ma'shar is included in Heydon's index of astrologers who lived *post Christum* annexed to his *Defence*.[80]

On a more literary level, a significant piece of evidence for Abu Ma'shar's popularity is the play entitled *Albumazar* by Thomas Tomkis (*c*.1580–1634). In act I, scene 5 Abu Ma'shar (Albumazar) demonstrates his knowledge:

> Albumazar: *Ronca*, the bunch of planets new found out
> Hanging at th'end of my best Perspicill,
> Send them to *Galilaeo* at *Padua*;
> Let him bestow them where hee please. But th'starres
> Lately discouered 'twixt the hornes of *Aries*,
> Are as a present for *Pandolfo's* marriage
> And henceforth stil'd *Sidera Pandolfaea*.
> Pandolofo: My marriage *Cricca!* hee foresee's my marriage:
> O most Celestiall *Albumazar!*[81]

The combination of positive and negative references illustrates the fact that Abu Ma'shar was often evoked in different popular discourses, testifying to his deep influence and the acquaintance of Renaissance English culture with his works.

As for magic, the relation between mathematics and astrology and their link to Pythagorean number mysticism, mechanical tricks and optical marvels led to their association with magic.[82] As noted, universities were not completely inimical to the occult. John Cheke, a fellow of Cambridge's St John's College, the first Regius professor in Greek and tutor to Prince Edward, was deeply interested in astrology. He assigned Prince Edward a Latin exercise in which he praised astrology. Dee was acquainted with Cheke and it was through him, William Cecil,

and Princess Elizabeth's tutor Roger Ascham that he was introduced to the Duke of Northumberland.[83] Magical knowledge and practice were probably nurtured further and more freely through domestically centred activities at a time when the practice of natural philosophy was extended from monastery and university to the household; Dee's case is an example.[84]

Arabic texts contributed to the flourishing of magic in Dee's time. A significant number of manuscripts of *De radiis* circulated in England, including one (Oxford, Bodleian, Digby 91) that was copied alongside Roger Bacon's *Perspectiva* and al-Kindi's *Iudicia*. The owner of this manuscript was Thomas Allen, the well-known mathematician and a friend of Dee.[85] A number of manuscripts of the *Picatrix* were in circulation during the English Renaissance. Among them is the British Library Sloane 3679 copied in the early seventeenth century. It was acquired by Richard Napier of Great Linford (1559–1634) from Simon Forman. It was then inherited by Napier's nephew in 1634 and later given to William Lilly. Another manuscript was owned by the Duke of Northumberland himself.[86]

So the cultural climate of Dee's time fostered his dedication to mathematics, astrology and magic. He had at his disposal seminal Latin and Arabic works which contributed to forming an occult philosophy that integrated and accommodated different epistemological approaches: hermeneutic and intellectual, causal and rational. We have seen this in the case of Ficino and Pico; and here we shall show how John Dee's works echo their reconciliation.

Propaedeumata Aphoristica

The *Propaedeumata Aphoristica* (1558), dedicated to Gerard Mercator, is a collection of 120 aphorisms that explicate the 'main principles' of astral influences and the cosmological setting within which the stars and planets act as causes of terrestrial events.[87] The text can be seen as the unpacking of the last aphorism: 'suitable divine things and their revolutions are sufficient to preserve the continuity of everything generated physically in the cosmos'.[88] Its treatment of causality is conventional in that it is based on astrological theories supported by Aristotelian concepts that were formulated by the Arabs and received by medieval and early modern natural philosophers discussed in this present study.[89] This is not surprising considering, as Clulee notes, that the arts curriculum in Cambridge, where Dee was an undergraduate, was founded on Aristotelian logic and natural philosophy.[90] Furthermore, Dee's library

contained philosophical and astrological material that was essentially Aristotelian.[91] Astrology and mathematics were to Dee central to natural philosophy and according to his dedicatory letter the *Propaedeumata Aphoristica* was 'the first fruits of my labours while abroad' in the Low Countries where he cultivated these sciences.[92]

Dee's approach in the *Propaedeumata* is mainly 'rational'; he does not intend to 'test the infinite and unanalyzable' but establishes the 'true virtues of nature' by 'rational processes'.[93] The celestial bodies act as causes through motion, heat and light. 'By means of the first motions, those which are most proper to the celestial bodies, all other natural motion of earthly things are both produced and ordered.'[94] This echoes Abu Ma'shar's statement that 'the terrestrial world is connected with the celestial world and its motions by necessity. Therefore due to the power of the celestial world and celestial motions, terrestrial things, generated and corruptible, are affected.'[95] We also see a parallel in *De radiis*:

> an unshakeable belief that the arrangement of the stars governed the world of elements and all things in it composed of them, at whatever time or place, to such an extent that there is no substance, no accident exists here without also being in its way figured in the sky. The influence of the stars is undoubtedly due to the rays sent from the [the stars] into the world.[96]

This is the main principle of causation that supports the theories of astral influences from Abu Ma'shar, al-Kindi and Avicenna to Ficino, Pico and Dee. This motion emits heat and instigates the celestial bodies' power. Heat and light both constitute 'the most distinctive properties of heavenly bodies'.[97] As shown in the previous chapter, Pico makes the same assertion in his *Heptaplus* and the *Disputations*.[98] It is also by means of heat and light that the celestial bodies act as efficient causes of generation and corruption. Species receive their forms from the fixed stars described as 'the first forms of all things'.[99] Individuation occurs by specific astrological configurations, the place of generation, and the seminal seeds 'ripened by suitable constellations':[100] 'every seed has within itself, potentially, the entire and unchangeable order of every generation. The explanation is that both the nature of the place where conception occurs and forces of the overreaching sky that fall upon the place work together to this end.'[101] This aphorism crystallizes the physics of astral generation inherited from the Latin medieval tradition of natural philosophy. According to Albertus Magnus the formative power which originates in the heavens cooperates with the seminal active force existing in nature and the location of conception to produce members of species:[102]

> The stars by the amount of their light, and by their positions and motions, move and regulate the world through [influencing] the material and the place of everything that can be produced or destroyed. The power thus determined by the stars is poured down into the place where each individual thing is produced, in the way that has been explained in the Nature of Things.[103]

Roger Bacon too stresses this reciprocity of celestial and terrestrial causes. But as we have seen in Chapter 4, Bacon's doctrine is al-Kindian; the aspects created by the rays of the stars at a specific location and time determine the characteristics of the members of a species.[104] Al-Kindi's theory of rays is the central doctrine around which the whole of Dee's astrological theory revolves and the remarkably similar language of explication testifies to direct acquaintance with *De radiis*.[105] Dee states: 'whatever natural diversity there may be in all the things existing in the elemental world comes principally from two causes: namely the diversity of matter and the differing operation of stellar rays'.[106] In *De radiis*, al-Kindi writes: 'the diversity of things visible in the world of elements at any moment is chiefly due to two causes: the diversity of matter and the diverse effects produced by the rays of the stars'.[107] The diversity of effects is due to the astral qualities that vary from star to star and planet to planet; 'each star has its own proper nature and condition [...] so the rays themselves are of diverse natures in different stars, just as the stars themselves are of diverse natures [...] it thus happens that each star produces a different effect, and in different ways, in different locations, and on different things, even if they vary even a little'.[108] Dee points out: 'as every star has its own name from the imposition of the name of its god, in the same way it has in itself a nature and special virtue such as cannot be wholly found in any other'.[109] In any moment, two factors are at play, the complex of rays above and the conditions of their reception below; 'there is a conjunction of rays from all fixed stars and planets upon every point of the whole universe at any moment of time that another conjunction which is every way like it can exist naturally at no other point and at no other time'.[110]

Dee's explications also reflect Bacon's description of the procession of the rays as a multiplication of 'species':

> Both substance and accident emit their own species from themselves, but every substance far more excellently than accident. Also, among substances, what is incorporeal and spiritual, or becomes spiritual, far surpasses in this function what is corporeal and composed of unstable elements. Things may, however, make their own species less

> completely in the proportion in which they are more noble; for a perfect species is given the same name as its principal agent.[111]

Rays work as means of the multiplications and propagations of the superior celestial substances. They are described by Bacon as a kind of species which he defines as form, image, similitude, idols, phantasm and intention. In the case of the celestial world, their superior and nobler nature is multiplied in the inferior things they generate and rule but as accidents ontologically less noble on account of their terrestrial existence. The celestial species (rays) in generated things is 'called a virtue with respect to generation and corruption, and therefore we say that the sun extends its virtue into the matter of the world for producing generation and corruption; and thus we say that every agent produces its virtue in a recipient'.[112] Al-Kindi also describes the forms instilled by the constellations as 'species' or 'images' that exist in the bodies of terrestrial existents.[113] He asserts that the heavenly bodies influence terrestrial things – emit celestial species or forms – through radiation and any alteration or transmutation in them is due to stellar rays.[114]

Furthermore, the rays, according to al-Kindi, are responsible for transforming the state of things from potentiality into actuality; the potentiality of matter is made active by the celestial forms.[115] Dee confirms that the celestial rays impress forms on matter and 'activate' the seminal seeds.[116] Thus he continues the conception formulated by Abu Ma'shar and developed further by al-Kindi that the celestial bodies act as efficient causes of generation by bringing form and matter into a state in which species and individuals are actualized.

The matrix of influences and the link between the celestial and terrestrial worlds produce cosmological harmony; 'everything that exists in the world of the elements, no matter how paltry, is an effect of the total celestial harmony or a particular example and reproduction of it'.[117] This harmony contains the nature of all things and the bonds between all terrestrial and celestial existents; 'the entire universe is like a lyre tuned by some excellent artificer, whose strings are separate species of the universal whole'.[118] The allegory of the lyre is found in the *Enneads* and it has been highlighted as evidence of Dee's Neoplatonic and Hermetic influences.[119] However, the harmony it represents is ontologically different than Dee's. Plotinus describes the different functions of the Universal Soul as tones that represent its emanative connection to all other souls. Though the rays are indeed emanations, the harmony described by Dee is made up of causal relationships which

Plotinus completely rejects. A harmony of causal nature is described by al-Kindi:

> This is the condition of the heavenly harmony, that all the stars are of different natures, and therefore all their rays have different effects. Consequently, in the world of elements, it occurs that the effects of the rays are helped by each other around one [kind of matter], but hinder each other in another [kind of] matter. In each thing, that is, each thing produced by the harmony, a certain star predominates and likewise certain sign which exerts its sway when acting upon, or ruling, this thing more than others.[120]

The tenor of the stars participating in generation is impressed on the thing generated and thus 'rules' it. This underlies the principles of judicial astrology and the sympathies and antipathies between all things in the universe,[121] including the human body; 'the astrologer is to discover, to the best of his ability, by what proportions of the elements the various parts, humours, and spirits of the human body are composed. To investigate the same things in other natural objects is both very necessary and extremely pleasant.'[122]

The *Propadeumata*, however, still differs significantly from *De radiis* and the *Great Introduction* of Abu Ma'shar as its exposition of astral influences incorporates elaborate mathematical considerations absent in the Arabic works.[123] The unique quantification of astral influences found in the *Propaedeumata* is provided to elucidate the rays' variance of strength. Dee impressively identifies 25,000 different astrological conditions.[124] He also dedicates a series of aphorisms determining empirically the different physical conditions of heat emitted by the motion of celestial bodies which have effect over natural conditions.[125] Espousing mathematics and astrology makes Dee a reformer of astrology.[126] In his *Disputations*, Pico della Mirandola rejected the possibility of identifying mathematically and systematically the exact correlation and causation between a celestial phenomenon and a terrestrial event. In the case of Bacon, although he promotes an optical and geometric model for investigating astral influences, he contends:

> It is difficult to perceive the certitude of the heavens, there is much error about these matters among many people – and there are few who know how to conduct the matter usefully and veraciously. Because of this [the] crowd of Mathematicians who judge and act according to magic stars accomplish but little, while those who are

> well-skilled and understand the art sufficiently may be able, at chosen times, to do many useful things both in act and in judgement.[127]

Dee was inspired by Roger Bacon in his mathematization.[128] It would not be far-fetched to perceive Dee's *Propaedeumata* as a direct attempt to address Bacon's criticism of astrology and astral magic while being implicitly critical of the predominantly qualitative approach to astrology. Al-Kindi is Dee's source of the metaphysics of astral influences; and Bacon, particularly the *Opus Majus* and the *Multiplication of Species*, provided a systematized quantification based on an optical model.[129] Astrological knowledge according to Bacon can be computational and analytical; 'this information is secured by means of instruments suitable for these purposes and by tables and canon, that is, rules invented for the verification of these matters, to the end that a way may be prepared for the judgements'.[130]

Notwithstanding the mechanic and physical approach to astral influences, Dee attributes life and vitality to the celestial rays. He notes that 'the insensible or intelligible rays of the planets are to the sensible rays as is the soul of something to its body', implying that they have a nature that is life-giving as al-Kindi confirms in *De radiis*.[131] The Sun specifically is the producer of the vital heat in the bodies of living things.[132] The insensible–sensible duality set here reflects the soul–body duality. This is not only ontological but also epistemological. Dee points out that incorporeal and spiritual things propagate or 'travel' via insensible celestial rays. Such things and their multiplication are not experienced by the senses but 'come together especially in our imaginal spirit as if in a mirror, show themselves to us and enact wonders'.[133] So astral forces impress themselves on the imaginative faculty of the soul which is the reason why the stars and planets influence human actions. Astrology is thus a legitimate method of identifying such influences. Moreover, it is through the imagination that we are able to correlate intention with a certain form of magical practice.

'In actual truth', Dee writes: 'wonderful changes may be produced by natural things [...] I call nature whatever has been created.'[134] In the following aphorism he explains: 'not only are those things to be said to exist which are plainly evident and known by their action in the natural order, but also those which, seminally present, as it were, in the hidden corners of nature, wise men can demonstrate to exist'.[135] The imagination experiences and recognizes the sympathies and antipathies between all created things necessary for the practice of astral/natural magic.[136] Things correspond with one another when they share an astral origin which makes them formally related; 'whatever things are

of the same order or harmonies, or of similar form [*conformatae*] sometimes imitate each other of their own accord and sometimes even move toward one another; one protects and defends the other as much as it can even if, at the moment, it appears to be drawing energy [*vis*] from the other'.[137] Magical attraction is a natural operation that is exemplified in the attractive virtue of lodestone; a confirmation made by almost all philosophers discussed in this study.[138] Such attraction can be achieved artificially: 'by joining such natural things that exist separately in the universe, in their differing fashions, and by activating other things placed somewhat higher, seminally in nature, more wonderful things can be performed truly and naturally, without violence to faith in God or injury to the Christian religion, than any mortal might be able to believe'.[139] Astral magic is thus an 'imitation' of nature:

> Those who love pure truth and experiment studiously can infer very clearly what things, either as a whole or in some one of its parts is most subjected to what planet, or fixed star, or collocation of many stars, so that the planet or fixed stars or collocation of many stars can be judged to be the principal and, as it were, proper significator (to use the astrologers' term) of that thing or effect.[140]

Moreover, human beings are able to tap into the universe's forces due to their microcosmic nature; 'anyone who knew how to touch these [strings of the cosmic lyre] dexterously and make them vibrate would draw forth marvellous harmonies, in himself, man is whole analogous to the universal lyre'.[141]

This magical theory is found in *De radiis* as well. Al-Kindi argues that a magical operation begins with the imagination – called the imaginative spirit by Dee – that perceives corresponding elements, and forms the image – or species – of the talisman, and determines the purpose of the operation. This is facilitated by the microcosmic nature of man:

> Through his balanced existence, man turns out to be similar to the world itself. Therefore, he is called a 'microcosm'. Therefore he possesses the ability to initiate movement in suitable matter through his actions, just as the macrocosm does, although the imagination, intention, and confidence have previously been conceived in man's soul.[142]

Despite the stark similarities between both texts, the *Propaedeumata* offers an aspect of magical practice that is not found in *De radiis*. Dee

contends that the insensible rays can be amplified or diminished with optical considerations and devices. This is achieved by the science called catoptrics which complements astral/natural magic.[143] Dee asserts: 'if you were skilled in catoptrics, you would be able, by art, to imprint the rays of any star much more strongly upon any matter subjected to it than nature itself does. This, indeed, was by far the largest part of the natural philosophy of the ancient wise man.'[144] The final sentence of this theorem is reminiscent of Pico's dictum 'Magic is the practical part of natural science',[145] and his statement that astral/natural magic is 'nothing but the absolute perfection of natural philosophy'.[146] For Dee, it is also a type of applied mathematics since it can identify and manipulate quantifiable influences. As Clulee points out, this is modelled on Bacon's idea of 'art using nature' verified by mathematical and optical laws.[147] Dee elaborates these laws, creating a more elaborate system of mathematically codified magic.[148]

Dee clearly, then, formulates a theory that continues the notions of astral causality and generation found in Abu Ma'shar, al-Kindi, Albertus Magnus and Roger Bacon.[149] Their ideas are also reflected in early modern works such as those of Ficino and Pico who influenced Dee. The connection between Dee's ideas and those of Ficino has been a matter of debate. Clulee is reluctant to concede a direct influence on Dee. His first supporting fact is that Dee's 1516 copy of the *Three Books on Life*, though signed, was not dated and the annotations were done in the 1560s.[150] Clulee separates Dee and Ficino further by subscribing to Walker's primarily Neoplatonic reading of Ficino's magic presenting it as 'spiritual' and 'animistic', in contrast with the Aristotelian physical foundations of astral influences of Dee's 'natural' magic.[151] This theoretical rift is unfounded since both Ficino and Dee appropriated the Arabic theories of astral influences and were aware of the Latin medieval sources that contained them too. They provided a causal model of interpretation that supported the classical system of astrological signs, a fact that renders early modern occult thought more coherent than is often assumed.[152] Moreover, as we have seen in the previous chapter, the *Commentary on Plato's Symposium on Love* was an influential text in which Ficino expressed most of his magical ideas. As Clucas shows in his analysis of Dee's annotations to Ficino's translations and commentaries, the English mage did read and heavily annotated the *Commentary on Plato's Symposium*; he also made a note on the passage where Love is described as a magician.[153] Ficino in his *Commentary* explains that the whole power of magic is derived from love which stands for the power which unifies the whole universe:

> All deriving from a single author, [the parts] are joined to each other by the communion of a single nature [...] so the parts of this great animal, that is all the bodies of the world, similarly joined together, borrow and lend nature to and from each other. From this common relationship is born a common love; from love, a common attraction. And this is true magic.[154]

'Thus also the lodestone draws iron [...] Therefore the works of magic are works of nature.'[155] Magic in the *Commentary* is also an act imitating nature as it impregnates matter with celestial powers and avails itself of the seminal seeds with which matter was impregnated by the stars and planets.[156] We have shown in the previous chapter how Pico della Mirandola too could have received his notion of natural magic and seminal reasons from Ficino's *Commentary*.

The magical power of the imagination, the magical potential in seminal seeds, the agency of celestial rays and the 'joining' of corresponding elements in magical operations are all essential components of Dee's theory of astral magic in the *Propaedeumata*. As Clucas concedes: 'the Ficinian synthesis continued to be a potent philosophical force' in the early modern period; and Dee, we say, is no exception. His syncretism promoted medieval and early modern magical and astrological ideas and he contributed to their proliferation in sixteenth-century England.

The *Mathematical Preface*

Dee's preface to the 1570 English translation of Euclid's *Elements* is intended to demonstrate the prominence of mathematics in the classification of knowledge and its status as bedrock of all useful sciences, including astrology and magic. Dee here is concerned with definitions and 'commodity'.[157] It is similar to the *Propaedeumata* in its 'exoteric' mathematical concern. In the *Preface*, however, we begin to observe a mathematics that underlies both physical and spiritual pursuits. It becomes the tool that unifies two modes of knowledge: the first is 'spiritual, infinite, eternal, omnipotent' embodied by the doctrine of Plato and Pythagoras, and the second is represented by Aristotle who 'prescribes material bounds'.[158]

The *Preface* begins with explicating three ontological natures and the epistemological methods associated with each: the supernatural, natural and mathematical. Supernatural things are immaterial, simple, indivisible, incorruptible and unchangeable; they are 'of mind

only comprehended' and their study is a 'most sure science'. Natural things are material, compounded, divisible, corruptible and changeable, and by 'the sense exterior, are able to be perceived'. In their study there is conjecture and probability.[159] Mathematical things are 'middle, between things supernatural and natural: are not so absolute and excellent, as things supernatural: nor yet so base and gross, as things natural. They are things immaterial; and nevertheless, by material things able somewhat to be signified.' Their study surmounts the imperfection of conjecture and opinion and comes short of high intellectual perception.[160] The intermediary place of mathematics is inspired by Proclus's own *Commentary* on Euclid where mathematical entities are positioned between intelligible ideas and sensible things.[161]

Numbers are immaterial and the stuff of divine ideas of creation; 'all things (which from the very first original being of things, have been framed and made) do appear to be formed by the reason of numbers. For this was the principal example or pattern in the mind of the creator.'[162] Inspired by this Pythagorean and Timaean notion, Dee perceives mathematics as knowledge that enables natural philosophers to access the divine. Wisdom, divine and natural, 'is attained through the good skill of numbers'.[163] Dee clarifies the process and ultimate objective of mathematical comprehension:

> By numbers' property therefore, of us, by all possible means, (to the perfection of the science) learned, we may both wind and draw our selves into the inward and deep search and view, of all creatures' distinct virtues, natures, properties, and forms: and also further, arise, climb, ascend, and mount up (with speculative wings) in spirit to behold in the Glass of Creation, the form of forms, the exemplar of number of all things numerable: both visible and invisible, mortal and immortal, corporeal and spiritual.[164]

Before Dee, Pico stressed that through contemplation and speculation of divine things like numbers man can 'gather himself into the centre of his own unity, thus becoming a single spirit with God in the solitary darkness'.[165] As 'an interpreter of nature' he can grasp and even manipulate the physical world but he is also the 'companion of higher things'.[166] According to Pico, gaining knowledge of the natural and intermediate mathematical levels is achieved by the soul's higher intellectual faculty.[167]

This is the basis for Pico's notion of 'true astrology' which contemplates symbols and myths to glean divine truths. In his exposition on

astronomy, Dee refers to the mythological background of planets and stars, and rather than dismiss them he sees an opportunity to contemplate them as allegories to reflect on divinity and enlighten the soul, a process likened to an optical operation:

> By parables and analogies of whose natures and properties, the course of the Holy Scripture, also, declareth to us very many mysteries. The whole frame of God's creatures is to us, a bright glass from which by reflection, reboundeth to our knowledge and perseverance, beams and radiations: representing the image of His infinite goodness, omnipotency, and wisdom.[168]

The function of celestial myth is thus contemplative, lifting the soul's gaze to the divine realm. Astrology, by virtue of its mathematical basis, is in the middle between natural science and divine contemplation. It is 'an art mathematical, which reasonably demonstrateth the operations and effects, of natural beams, of light, and secret influence: of the stars and planets: in every element and elemental body: at all times, in any horizon assigned', thus it is related to astronomy, cosmology, perspective, natural philosophy and music.[169] For Dee, it is the science that demonstrates astral causality and the governance of the celestial world over the terrestrial; 'man's body, and all elemental bodies, are altered, disposed, ordered, pleasured, and displeasured by the influential working of the sun, moon, and the other stars and planets'.[170] A link is thus established between all things and the stars as a result of astral generation:

> All things of the elements composed [...] their whole dispositions, virtues, and natural motions, depend on the activity of the heavenly motions and influences. Whereby, beside the special order and form, due to every seed: and beside nature, proper to the individual matrix, of the thing produced: what shall be the heavenly impression, the perfect and circumspect astrologien hath to conclude.[171]

Dee mentions his *Propaedeumata* as a text in which he had 'mathematically furnished up the whole method' of understanding astral influences. He then calls for a 'reasonable reformer' of astrology, 'a modest and sober student' in the manner seen in his own *Propaedeumata*.[172] This sober reformer is the astrologer who also belongs to the category of 'the true mathematicians' according to Bacon.[173]

So, in both texts, the *Propaedeumata* and the *Preface*, mathematics formed the foundation of not only 'real astrology' but magic also. In the *Preface* Dee delineates two types of 'wonder work': Thaumaturgike and Archemasterie. The first is defined as a science that 'gives certain order to make strange works, of the sense perceived, and of men greatly to be wondered at' achieved by mechanics and perspectives.[174] Thaumaturgike is used to describe Bacon's notion of 'natural marvels' in which 'there is no magic whatsoever', meaning that it is distinguished from either legitimate astral magic or demonic arts. It is 'art joined with all the power of nature' employing mechanical devices, optical contraptions, gunpowder, etc.[175] Dee's interest in mechanical wonders was demonstrated in his early student years at Trinity College, Cambridge when he created a 'flying scarab' for the production of Aristophanes's play *Peace*.[176]

Archemasterie is more obscure. It is described as a rare art that 'teaches to bring to actual experience sensible, all worthy conclusions, by all the arts mathematical purposed, and by true natural philosophy concluded'.[177] The astral magic advocated in the *Propaedeumata* falls into this category since it is based on quantifiable natural and astral forces. To Pico, it is the consummation of natural philosophy and the actualizing of the power of numbers.[178] Dee refers to it as a *scientia experimentalis* which 'by reason, it certifieth, sensibly, fully, and completely to the utmost the power of nature, and art'.[179] We should understand *scientia experimentalis* not as controlled experimentation in the modern sense but an application of reason to verify mathematically a sensible experience in contrast with a revelatory experience that engages the intellect.[180] As Clulee asserts, Dee's concept of experimental science is received from Bacon.[181] Concerning *scientia experimentalis*, the latter explains:

> This science alone, therefore, knows how to test perfectly what can be done by nature, what by the effort of art [...] so that falsity may be removed and the truth alone of art and nature may be retained [...] it investigates by experiment the notable conclusions of all those sciences. For other sciences know how to discover their principles by experiments, but their conclusions are reached by reasoning drawn from the principles discovered.[182]

Therefore, according to Dee and Bacon, Archemasterie and astral/natural magic stand the tests of observation and reason.[183] Under this category of wonder work Dee lists Alnirangiat, Ars Sintrillia by

Artephius, and 'another (as it were) optical science'.[184] Dee encountered Alnirangiat in Avicenna's *On the Divisions of the Sciences* (*De divisione scientiarum*) translated by Andrea Alpago and published in 1546.[185] In the *Picatrix*, the *niranj* is an elaborate magical concoction made of natural ingredients from animals, plants and minerals.[186] As we saw in earlier chapters, the *Picatrix*'s various types of magic receive their potency from the celestial bodies that instilled occult properties into natural things. So *al-niranj*s or *alnirangiat* constitute a kind of astral/natural magic that Dee endorses. The Ars Sintrillia refers to a work that was part of a codex owned by Dee in 1556. Artephius was often cited as a master of the occult. He practised divination by means of mirrors and celestial rays, also in line with Dee's interests. The third art based on optical science has been associated with Artephius's magical technique;[187] but it also could refer to catoptrics whereby radiation can be augmented or diminished to achieve specific magical results.

Dee's description of magic in the *Preface* is obscure compared to the astral magic of the *Propaedeumata*. Perhaps he was preserving a sacred knowledge from 'unlatined' students to whom the *Preface* was addressed. The dedicatory letter to Mercator in the *Propaedeumata* betrays Dee's anxiety about the dispersal of truths that could be abused by the ignorant. He asks Mercator: 'when you receive them, I request that you declare publically that no incautious person should strive to fish out and draw forth from them, to his own harm, things that are not written for him'.[188]

Monas Hieroglyphica

Dee adopts a much more esoteric and obscure language in his *Monas Hieroglyphica* where 'the image of the natural philosopher evolved into an exalted source of wisdom and advice in polity because as an adept he had privileged access to secret and divine understanding' coded by the figure of the Monad.[189] The Monad is a symbol that encapsulates divine secrets and the intelligibility of the universe (Figure 7.1).

The dedication to King Maximilian shows a shift of emphasis from rational to revelatory knowledge. It begins with a distinction between two kinds of wise men: the scholars who study celestial influences and 'the reasons of the rise, the condition, and the decline of other things' and those who 'surmount all difficulties' in their pursuits.[190] These difficulties are the problems of conjecture and probabilities that, we are told in the *Preface*, accompany knowledge through reason in the study of natural and celestial things perceived by 'the sense

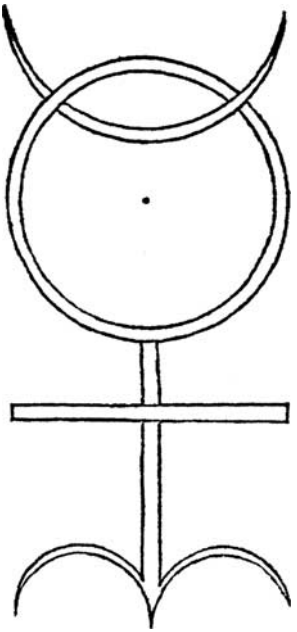

Figure 7.1 John Dee's Monas hieroglyphic, 1564

exterior'.[191] The scholar of the second type 'has aspired to an exploration and understanding of supercelestial virtues and metaphysical influence'.[192] This is in line with Pico's prioritizing of supercelestial knowledge over 'knowledge through effects and causes'.[193] Looking at Dee's works, the *Propaedeumata* and the *Preface* represent celestial studies. The language used therein is that of reason and experience. The *Monas* is a supercelestial study whose language is coded, which means it engages the intellect and is expressed by a symbol whose contemplation lifts the soul to divine reality. Dee writes: 'we shall add to this proof of rarity a hieroglyphic figure thereof, after the manner (called) Pythagorean. If your Majesty will look at it with attention, still greater mysteries will present themselves.'[194] Once more, mathematics (proportions and numerical values) is associated with this higher practice; 'though I call it hieroglyphic, he who has examined its inner structures will grant that all the same there is [in it] an underlying clarity and strength almost mathematical'.[195] This makes sense considering that for Dee mathematics acts as intermediary between sensible and intelligible things.

The Monad, then, is a symbol constructed according to 'mystical proportions'. With it Dee intends to restore dignity to signs.[196] The Monad is an amalgamation of planetary symbols, which are hence 'imbued with immortal life and should now express their special meanings most eloquently in any tongue and any nation'.[197] Dee mentions the symbolical power of planetary allegories in the *Propaedeumata*. He values the myths which give the planets their names as allegories that uplift the soul through their contemplation; they are 'parables and analogies of whose natures and properties, the course of the Holy Scripture, also, declareth to us very many mysteries'.[198] The spiritually transformative powers of the Monad make it 'a magic parable'.[199] It belongs to a universal language that transcends the mundane and is accessible to the soul without syntactic reasoning that governs normal language. Dee thus claims to have created 'a holy language'.[200] 'For so the grammarians will testify, seeing how here they are admonished that reasons must be given for the shapes of the letters, for their position, for their place in the order of the alphabet, for their various ways of joining, for their numerical value, and for most other things', in contrast with the mystical language of Dee that expresses 'the hidden mysteries of things'.[201] Unlike the language of 'vulgar grammarians', this language teaches by 'a most absolute anagogy'.[202]

Like Pico, Dee associates this holy symbolic language with Kabbalah.[203] The mystical letters of Hebrew emanated from God. The first human beings used these letters in which 'the affiliation of the divine power has been most [effectively] present'.[204] Dee then addresses the Hebrew Kabbalist and announces the superiority of his own hieroglyphic and divine language due to its universality; 'he will own that, without regard to person, the same most benevolent God is not only [the god] of the Jews, but of all people, nations, and languages'. Dee's is 'real Kabbalah'.[205] Thus, like Pico's 'true Kabbalah', it is a spiritual system that conforms to Christian esoteric theology.[206] A universal approach makes Kabbalah a hermeneutic tool for understanding the universe itself. Dee's Monad is an encapsulation of this real Kabbalah as a cosmological and mystical symbol.[207]

The spiritual metamorphosis that results from the contemplation of the Monad should not be seen as magic. Clulee and others consider it as a talismanic figure and identify it with the Gamaaeas in the *Propadeumata*, which are talismans described as celestial 'seals whose characters are imprinted differently by reason of differences in elemental matter'.[208] However, as the Gamaaeas belong to celestial wisdom they are inferior to the Monad which is based on supercelestial principles.

Moreover, as argued earlier in the case of Pico, the transformative effects of the contemplation of symbols, numbers or alphabets cannot be categorized as magic. In the *Conclusions* Pico states: 'just as through the influence of the first agent, if that influence is individual and immediate, something is achieved that is not attained through the mediation of causes, so through a work of Kabbalah, if it is the pure and immediate Kabbalah, something is achieved to which no magic can attain'.[209] Magic relies on understanding and manipulating causes to achieve natural and astral effects. The Monad and Kabbalah require a superior method of acquiring knowledge, one that engages the intellect whereas astral/natural magic engages reason and the senses to know how to achieve effects from celestial causes. Reason is inferior to the intellect which is the faculty that receives divine light independent from causal knowledge.

Investigating the *Propaedeumata*, the *Preface* and the *Monas*, demonstrates an intellectual development in Dee's thought. The *Propaedeumata* is a formulation of an astrological theory traditional and Aristotelian in essence which was obtained from the Arabic and Latin medieval sources based on notions of astral causation. In Abu Ma'shar and al-Kindi, Dee found an aetiological demonstration of the powers of the celestial bodies and the 'rationale' behind their impact on nature and human life. In Roger Bacon, he found the inspiration to create a 'canon' of quantified astral influences that showcases astrology and magic as part of natural philosophy. Having been accused of being a conjuror, demonstrating the legitimacy of astrology and magic is essential. Dee responds in his *Preface*: 'and for these, and such like marvellous acts and feats, naturally, mathematically, and mechanically wrought and contrived: ought any honest student, and modest Christian philosopher, be counted and called a conjurer?'[210] He counts himself among those pushed to provide a defence of their innocent practices like Pico; 'I am worthy to be compared: and yet, they sustained the very like injuries, that I do: or rather, greater. Patient Socrates, his Apologie will testify, Apulius his Apologies, will declare the brutishness of the multitude. Ioannes Picus, Earle of Mirandula, his Apologie will teach you, of the raging slander of the malicious ignorant against him.'[211]

In addition to the 'naturalization' of magic, legitimacy is given to occult undertakings by demonstrating that they are founded upon a mysticism that does not contradict the Christian faith but is motivated by love for the divine. In the *Monas* the aetiological language recedes and instead a highly symbolic discourse is introduced that is philosophically more akin to the *Platonic Theology* of Ficino and mystically related

to the Kabbalah of Pico. The *Preface* outlines the levels of rational and intellectual engagements scholars can pursue as they navigate through mathematical science. Hence, all natural, celestial and mystical pursuits have the potential to reap revelatory and mystical fruits since numbers mediate between the mundane and the divine. John Dee's innovative syncretism and exploration of natural, celestial and supercelestial things continued and further developed an early modern occult philosophy that revolved around the sincere belief that there is wisdom in all faiths, all epochs, and all ways of knowing.

8
Celestial Souls and Cosmic Daemons

The theories of astral influences that buttress a licit natural magic comprise ontological and epistemological dimensions. The proximate celestial world mediates between the supercelestial realm – God, Intellect and Soul – and the elementary world of becoming, generation and corruption. Natural philosophy encompasses astral aetiology in its concern with the properties and behaviour of generated things. Astrology witnesses the cosmic efficient cause in action, interprets signs of this activity – itself hidden (occult) yet demonstrable – and discovers and/or predicts effects. Natural magic – inherently astral – reconfigures natural patterns or semiological arrangements, refracts the astral influxes and achieves effects conditioned by understanding the causes that gave natural things their magical potentiality. Can we, thus, compare the workings of the universe to a machine operated by God? Can we liken the mage to the pharmacist who merely extracts and combines elements to exert a specific localized effect? This talk of causality, knowability and the eventual seems to exclude psychology, inspiration and the instantaneous. However, from Islamic natural philosophers, through the twelfth-century cosmologists and thirteenth-century occult thinkers, to their early modern counterparts, the universe is perceived as 'a bigger man', having a body with animating and moving principle – the soul/s – coursing through it; vital agents too – like medical spirits – carry out functions without which the organs become infarcted. The Universal Soul is not a second god, and these agents are not demons; they are immanent principles – beings manifesting divine plenitude and profusion. Medieval and early modern occult philosophy admits multi-agency coordinated according to difference in mode of action: causal, spiritual or intellectual. And so Abu Ma'shar, al-Kindi, Avicenna, Albertus Magnus, Roger Bacon, Thomas Aquinas, Marsilio Ficino and

Pico della Mirandola speak of celestial souls; the authors of the *Picatrix*, *Theology of Aristotle* and the *Secret of Secrets* speak of celestial *ruhaniyyat* (pl. of *ruh*, spirits); and William of Conches, Bernard Silvestris, Hermann of Carinthia and Ficino speak of d*ae*mons. This chapter explores the nature of these cosmic agents and their place and role in the theories of astral influences found in the works of the aforementioned authors, showing how astrology and astral magic accommodate them while maintaining non-addressativity and legitimacy, distinguishing these two practices from d*e*monic divination and magic.

Celestial souls in the Arabic sources

Abu Ma'shar writes: 'the planets are alive and have rational souls, for with their rational souls, by virtue of being alive, and by their natural movement they indicate the harmony between the rational and vital souls in the body by God's permission'.[1] As we have seen in the first chapter, Abu Ma'shar argues that through their motions the planets and stars act as efficient causes of generation, endowing matter with a formed state suitable for life. The planets and stars also unite soul with body.

In *On the Explanation of the Proximate Cause of Generation and Corruption*, al-Kindi asserts that the motion of the celestial bodies is the action of their souls.[2] This is reiterated in *The Prostration of the Outermost Body* where al-Kindi explains that the celestial motion is 'an animal motion', eternal and uniform.[3] Furthermore, they are rational since they are noble bodies with the power of discernment manifest in their efficient agency and power over the world below. Since they are eternal and incorruptible, they must have a perfect rational soul.[4]

How does positing a celestial soul serve astrological theory? Abu Ma'shar does not provide a clear answer in his *Great Introduction*. To 'incline' the human will into a certain action by causing certain material and external conditions, as he argues, there needs to be a kind of ontological link between the soul of man and the soul of the stars. For Abu Ma'shar, it is their presiding over the harmony between soul and body that accounts for this inclination. A fuller justification can be gleaned, however, in the works of al-Kindi according to whom there are two ways whereby causes act: by nature or by soul. The first type of action leads to natural effects, body to body so to speak, and in the case of the celestial bodies, their motion imparts heat that causes natural transformations in the four elements.[5] But al-Kindi confirms that the celestial world also gives life and this is not an action that can happen by

nature but rather by soul as only in such manner can the celestial cause impart the immaterial condition of life.[6] As it is essence-to-essence, this causality is not the same as the necessity of wood burning when thrown into fire; the dignity of the rational soul is in its independent powers of discernment and choice, so though the heaven is life-giving, it does not necessitate the actions of the soul but inclines them.

Such celestial souls stem from the Aristotelian notion of celestial movers. According to Aristotle, motion is the fulfilment of a potentiality for action.[7] The motion of the elements is straight – upwards or downwards – and that of the simple celestial bodies is perfect and thus circular; this is the motion of ether, eternal and not subject to increase or decrease.[8] These movements are caused by a substance that is unmovable in itself, eternal, and existing prior to the moved. This substance is intelligence. Being immanent and transcendent it sets into motion the first sphere and, in an interlocking mechanism, the planetary spheres become subordinated to this first motion.[9] Therefore, this is a kind of motion by nature.[10] But in a very intriguing passage in the *Metaphysics*, Aristotle mentions the divine nature of these substances:

> Our forefathers in most remote ages have handed down to us a tradition, in the form of a myth, that these substances are gods and that the divine encloses the whole of nature [...] they say these gods are in the form of men or like some of the other animals [...] we must regard this as an inspired utterance.

This should not to be dismissed but distinguished from 'scientific' analysis. Aristotle explains that sciences and arts develop and perish but such inspired utterances have proven eternal and must be preserved as relics, safe from the vagaries of discursive discourse.[11] Divinity of the heavens is not denied. Soul is not denied either. In *On the Heavens*, he states that heaven is animate and possesses the principle of life.[12] Many interpreters of Aristotle, from Simplicius, Alexander of Aphrodisias and Origen to Avicenna, have taken this to mean that the celestial spheres are endowed with rational souls that cause motion essentially.[13]

Avicenna discusses the principles of celestial motion within a Neoplatonic scheme. God is followed by Intellects denuded from matter; celestial souls proceed and they act on bodies.[14] God is the First Mover of the whole heaven but there exists for each of the celestial spheres a proximate mover proper to it, 'as the First Teacher and those peripatetic scholars of attainment after him see it. For they deny multiplicity only [in] the mover of all [things] and affirm multiplicity

in the movers, both [those] separated [from matter] and [those] not separated.'[15] Avicenna assigns for each sphere a separate intellect emanating from the Prime Intellect.[16] As a result there are ten separate intellects for ten spheres: first, the sphere of the Intellect which comprehends God and is supercelestial, the fixed stars, the seven wandering planets, and the active intellect which constitutes the bridge between the celestial and the terrestrial world.[17]

The action of these intellects is an imitation of divine will; they desire and cause the desire of the celestial bodies to gravitate towards the divine by obedience and their role in generating and administering the world below them.[18] The causation of the intellects is universal and final. They are also disconnected from matter, and so to motivate particular motion of inferior things, non-separate principles are needed that apprehend the good and mediate between the intellects and bodies. According to Avicenna, these are the celestial souls: '[it is inevitable that each of the spheres should have] a corporeal principle – that is, [a principle] continuous with the body. For you have known that the celestial motion is psychological proceeding from a soul that has choice.'[19] Thus, Avicenna asserts: 'the temporal events that take place in this [terrestrial] world come about [as a result] of the collision of the active celestial powers', i.e. the celestial souls.[20] Celestial influences are twofold: by their physical nature and by their souls which move and apprehend the particulars as intermediates between intellects and bodies. This constitutes a volitional causality, efficient and non-mechanistic, and it is in such a way that the stars and planets partake in the process of generation and corruption.[21] The active intellect, the last in the emanative order, bestows forms on matter thus producing the world of generation and corruption, but it does so according to Avicenna 'by the association of the celestial influences'.[22]

This structure is typified in human beings ontologically and epistemologically. Celestial and human souls bind the intellect with the physical body. The celestial bodies are superior in their ethereal nature, and their souls are closer to the divine; nonetheless, their sublime status offers itself as a model to the human contemplator. If the human soul orients itself towards the intellectual, the stronger the connection with the active intellect becomes, bringing the soul nearer to the divine.[23] After all, the ultimate benefit of the divine science of metaphysics is 'the attainment of the human soul's perfection in act, preparing it for happiness in the hereafter'.[24]

So, in the works of al-Kindi, Abu Ma'shar and Avicenna, an ontological and noetic kinship is firmly established between the celestial and

human worlds without which astrological doctrine cannot be sustained. This idea proved very influential and contentious in the thirteenth century when the works of Aristotle were introduced directly into Europe and commentaries on them were produced. In twelfth-century cosmology, before the reception of Aristotle's natural corpus and Avicenna's *Metaphysics*, the animation of the universe centred on the notion of the Universal Soul derived from the few Middle Platonic texts available, Calcidius's partial translation of the *Timaeus*, and *Asclepius*. In addition, the daemons emerge who act as living agents of super-terrestrial influences.

Twelfth-century daemons

The *Dragmaticon* of William of Conches is a discourse on created substances, visible and invisible.[25] Discussing the latter can potentially jeopardize his monotheism, so he begins with a confession of faith:

> We believe that there is one creating substance, immense beyond measured length or width or thickness, wise and just with application or disposition, compassionate and pious without suffering, moving everywhere without being moved, existing in every place essentially, neither expanded nor contracted, always present without past and future, omnipotent, omniscient.[26]

Plato is declared to be in agreement with Christian doctrine. The duke, the addressee of the dialogue, responds: 'if the opinion of a pagan is to be cited, I prefer you to quote Plato than other, for he accords better with our faith'.[27] William then describes the Timaean five regions of the universe: the heavens are the region of the fixed stars; ether – which he considers as pure fire,[28] a notion rejected by Aristotle[29] – is the region stretching from the fixed stars to the lunar circle; air is the upper half of the atmosphere, the moist region is the lower half; the last is earth.[30] Each region or sphere is occupied by 'rational living beings'. What follows is a paraphrase of the sections concerned with these beings or daemons in Calcidius's *Commentary on the Timaeus* (Chapters 127–36), written during the second half of the fourth century and which accompanied his partial translation of *Timaeus* 17a–53c.[31] In the heavens there are the stars that are visible, rational, immortal and impassible; and on earth live human beings, visible, rational, mortal and passible. Between these outermost regions the daemons reside.[32] They are intermediate

creatures, invisible, rational, immortal and passible, who occupy the ether, air and the moist regions.[33] The daemon of ether is superior in dignity and knowledge and rules over the daemon of the air who 'runs between God and men as a mediator and reveals the will of God to men through a voice, a dream, imagination, or visible signs. He reports the prayers of man to God.'[34]

These two higher classes have a natural goodness and sympathy for human beings. The lower daemon of the moist regions is wicked and sex-crazed, delighted by the distress of human beings.[35] He is the devil in the Christian sense; 'he fell through his pride from the very place to which man ascends through humility'.[36] The duke then contests that it is a contradiction to refer to good classes as 'daemons' which he understands traditionally as devils. William answers:

> You think, as I infer from your words, that a demon is the same as a devil, which is not the case. For a demon is said to be any invisible being using reason, as if knowing. Of these the two high orders are called calodemons, that is, 'good knowing ones', the lower order is called cacodemon, that is, 'evil knowing one', for calos means 'good', cacos 'bad'.[37]

William shows that the Platonic tradition considers calodaemons as angels according to the place they occupy in the cosmic hierarchy, whereas – in reference to pseudo-Dionysius's *Celestial Hierarchy* – Scripture divides them into nine classes according to rank.[38] Calcidius explains that the holy angels are the ethereal class of beings 'extending obedience towards divine things, with the highest wisdom, aiding human affairs prudently, also serving as investigators and executors, [they are] called demons, I think, as they are "daemones" (= experts); the Greek call men knowing all things "daemones" '.[39]

As for the stars, William of Conches rejects the Aristotelian fifth element and argues that the celestial bodies are composed of the four elements, for how can the Sun be the source of all heat if it is not itself hot?[40] They are moved by their fiery nature and thus their causation is purely natural.[41] William is reticent regarding the doctrine of celestial souls, unlike Calcidius who cannot conceive a universe in which human beings in the lowest region of the universe have souls and the stars far superior and perfect do not.[42] In his translation and study of Calcidius's discussion of daemons, Boeft posits that Calcidius is here equating the celestial souls with the daemons of the highest region, rendering them as angels, as a way of establishing a metaphysical credibility to an issue

with a theological dimension.[43] However, there is nothing in the *Commentary* to support this other than a statement explaining that the intermediate race of daemons does have both heavenly and terrestrial natures. In *Asclepius*, the downward move in the process of generation from archetype to form cannot be achieved without the mediation of daemons, nor can the implanting of souls in bodies. They are the agents of the generating celestial bodies which are considered in *Asclepius* as perceptible gods ultimately governed by the supreme God.[44] Calcidius and Conches, however, remain vague about the relationship between the celestial bodies and the daemons. A clearer twelfth-century exposition is found in Bernard Silvestris's *Cosmographia* and Hermann of Carinthia's *De essentiis*.

We find in Bernard's *Cosmographia* that the animating principles are the main personae of the dialogue. From Noys – the Mind and seed bed of life – issues forth Endelechia, the Universal Soul. She emanates and sustains celestial life.[45] She is the queen of the Usiarchs – a derivation from *Asclepius*'s 'Ousiarches of heaven' who are described as heads of the classes of daemons. They are also generators of the inferior world.[46] The Usiarchs are described as the 'genii of the heavens, whom eternal wisdom has appointed to adorn and govern the universe'.[47] First is the Usiarch of Saturn: 'an old man everywhere condemned, savagely inclined to harsh and blooding acts of unfeeling and detestable malice [...] the old man must be respected', then there is the Usiarch of Jupiter 'so propitious and well disposed that he is called in Latin Jove from his power to aid', and so on describing the attribute of every planet.[48] So Bernard personifies the celestial souls and the qualities of their actions.[49] Noys preordains their nature and behaviour, but the Universal Soul links Noys with Natura – intelligence with body – and emanates its plenitude in the bodies of the stars and planets.[50] Moreover, generation could not happen without bestowing celestial life. Bernard asserts: 'fiery substance of the celestial sphere, due to that liveliness by which it was impelled, moved in a circular course around all this manifold progeny of creatures'.[51] Consequently, the entire cosmos is full of 'spirits'. They are God's creation 'whom He has so ordered that by a system of unbroken continuity the highest are linked with the intermediate and they in turn with the lowest'.[52] The spirits residing in the sphere of celestial fires and living by the bounty of the Universal Soul are rational, immortal and not altered by emotions. Man occupies the lowest region of earth, but 'a third race occupies the middle realm of the universe, combining the attributes and participating in the condition of the extreme orders'. They share with the stars immortality but like

man 'they are impelled by the effects of passion'.[53] The highest of these intermediaries are the 'cosmic spirits' closest to the supercelestial world. These are the celestial ones who, according to Calcidius and Conches, live in the sphere of pure fire. They can be considered 'angels' who are

> Blest with understanding and recollection, and their powers of vision are so subtle and penetrating that, plumbing the dark depths of the spirit, they perceive the hidden thoughts of the mind. They are wholly bound to charity and the common good, for they report the needs of man to God, and return the gifts of God's kindness to men, and so seek to show at once obedience to heaven and diligence in the cause of man. Thus the name 'angel' denotes their office, not their nature.[54]

As noted above, William of Conches too refers to the highest daemons of fire and air as angels; however, these celestial spirit-daemon-angels must not be confused with the angels of Scripture who are supercelestial and attend God wholly living 'beyond the limits of heavens'.[55] These are the angelic orders of pseudo-Dionysius associated with Minds: Cherubim, Seraphim and Thrones; Dominations, Virtues and Powers; Principalities, Archangels and Angels.[56] According to Bernard Silvestris, the supercelestial angels are like God's 'limbs' as they hear His deliberation concerning things to come and they put it into action; this includes presiding over the cosmic spirits.[57] Each sphere hosts a class of these spirits and they are agents of celestial influence. Spirits of air are 'more refined, and somewhat warmer, being effected by the contingency of the fiery condition of the ether [...they] dwell in the atmosphere, but in serenity, maintain calm of mind'.[58] They particularize the celestial influences further according to the region of their administration. Beneath them are the agents of Lucifer who are wandering cruel devils perverting order; the antithesis of the emanating and generating calo-spirits.[59]

Completing his account of the daemons, Bernard introduces the personal daemon inspired by Apuleius's *On the God of Socrates* (*De deo Socratis*). When the creation of a human soul takes place, a daemon is assigned to guard and watch over it. This daemon is a genius who communicates through signs, inspiration and dreams, in order to guide, by inclining or warning the human being.[60] Like the active intellect of Avicenna, the personal daemon is man's link to the celestial spheres. The difference, however, is that the active intellect is a non-corporeal substance that is apprehended through the rational faculties of the soul,

whereas the daemon is a being of aerial body and rational soul acting directly on its assigned human. The active intellect gazes upwards and the human soul moves towards it as a final cause; the personal daemon is directed downwards to the channelling of astral influences and the administration and guidance of individuals.

In *De essentiis*, Hermann of Carinthia mentions special 'spirits'. He writes: 'it is read that very many people have had some kind of spirits known to them through some awareness, or so familiar that they remain with them and speak to them'. He describes their nature as astral, sentient and animate.[61] To this class belongs Socrates's famous daemon. Betraying his interest in magic, Hermann points out that it is these spirits that are enticed by talisman-makers (*telesmatici*) such as Iorma Babilonius and Tuz Ionicus. The latter is Toz the Greek to whom several hermetic texts were attributed and often associated with Thoth who was believed to be Hermes himself. Iorma too was frequently referred to as a powerful mage.[62]

The sources of Hermann's personal and celestial daemons are different from those of Bernard and Conches. His seem to be Arabic. He mentions three texts in which the spirits are mentioned: Hermes's *The Golden Rod*, Apollonius's *De secretis nature* (*The Secrets of Nature*) – which is a Latin translation by Hugo of Santalla of the Arabic *Sirr al-khaliqa* – and the curious *Data Neiringet* in which an account is given of the spirit of Venus who came to a man and requested a sacrifice to ensure he has 'ministers' who do his bidding.[63] As Burnett shows, Hermann's quotation from the *Data Neiringet* corresponds to the account of invoking the spirit of Venus in three Arabic Hermetic works: *Kitab 'ilal ruhyaniyyat*, *Kitab al-Istamatis*, and the *Liber antimaquis*.[64] It is also found in the *Picatrix* quoting *Kitab al-Istamatis*. The word used in these Arabic texts to denote spirit is *ruhaniyya*. In the *Picatrix*, which Hermann could have read in Arabic, the author explains that the knowledge of the correspondences of things and their astral origins is essential in order to invite the *ruhaniyyat* to bestow their powers into a talisman or ritual.[65] But he adds that we must prepare our spirits by theurgic rituals in order to communicate our will to the stars and their *ruhaniyyat*.[66] It is notable that in magic these *ruhaniyyat* tend to be endowed with more personality and a level of tangibility, in contrast with the *ruhaniyyat* we encounter in the context of natural philosophy and astrology. In the *Picatrix* we read:

> The *ruhaniyya* may appear in the spiritual world [of the magus] as a person that converses and teaches him what he desires, it may endear him to kings and sultans, tie and unravel any matter he wills [...] and answer the caller with what he wants [...] talismans are the most

> powerful choice for attracting a *ruhaniyya* [...] and that is because the natural properties, through the *ruhaniyya*, can perform wondrous acts singlehandedly.[67]

Elsewhere, the author claims that the wise man receives his power from the *ruhaniyya* that 'strengthens, inspires him and opens the gates of wisdom being connected to him by his high star [...] Wise men and kings entered into covenants with this *ruhaniyya* by prayer and names.' He follows this with a series of invocations using the names of such spirits or *ruhaniyyat*, for example, Jupiter's *ruhaniyyat* are called *Dimahos*, *Daris*, *Dirmas*, *Matis*, *Maghis*, *Tamis*, *Farus* and *Dahidas*.[68] The powers of the celestial *ruhaniyyat* are infused in terrestrial things; consequently, incenses and other magical concoctions contain within them spiritual or *ruhaniyya* powers.[69] Despite all this, the author of the *Picatrix* largely remains faithful to the Neoplatonic ontology of these *ruhaniyyat* and insists that they are astral volitional forces that work by means of astral emanations. They constitute the first level of cosmic individuation of the Universal Soul.[70] The *Secret of Secrets* provides a list of the names of the celestial *ruhaniyyat* attached to each planet, a section excluded from Bacon's own edition.[71]

Hermann's spirits correspond with the Arabic *ruhaniyyat*. Furthermore, to demonstrate the operation of daemons in astral magic he makes a reference to Hermes's god-making statues found in the *Asclepius*, *Picatrix* and *The Theology of Aristotle*, also discussed by Aquinas and Ficino:[72]

> For Trismegistus again credits his ancestors with the discovery of an art by which they made gods. 'They added a power to this art', he says, 'from the nature of the universe, and, in making its mixture, since they were not able to make a soul, they called down the souls of d[a]emons and angels, and put them into the sacred images and divine mysteries, through which the idols could have the power of doing good and evil'. Nor is it surprising that elemental powers yield to human skill, if this is able to lead the elements themselves into various sympathies.[73]

So, the cosmos of the twelfth century received its vitality from the souls of the spheres and their daemonic agents. The Arabic sources accepted the animated universe of the Peripatetics and Platonists; in addition, their astrological theories, rooted in natural philosophy, characterized their function in terms that allowed their agency to be integrated in astral causation. As their nature and power are 'from the nature of the

universe', the spirits/daemons should be granted a natural/astral status, however precariously. As we shall see, not all natural philosophers were convinced that the power of the Hermetic statues is daemonic rather than demonic.

A thirteenth-century dilemma

The re-assimilation of Aristotle's works and the translation of Avicenna's *Metaphysics* in the thirteenth century reinvigorated the matter of the animated universe. Albertus Magnus was aware of the Arabic sources that advocated the animation of the heavens. He writes in *In Secundum sententiarum* that Aristotle, Avicenna, Averroes, Algazel, Alpharabi, Albumasar and Maimonides say that there are three movers: God is the First Cause; then there is the intelligence which desires God and acts as the immobile mover of its own orbit; the third is the Universal Soul which directs the motion of the intellectual orb to move the rest of the heavens and also to deploy the ideas in the Intellect as forms in the process of generation.[74] Albertus himself seems to accept this view in his commentary on the *Liber de causis*. He distinguishes between the celestial intellects and souls and ascribes an intellect and soul to each of the celestial spheres.[75] The celestial bodies require the existence of moving principles from which they receive their regularity and uniformity. This must be the intellect which is their immovable mover, and the soul, their proximate mover.[76] The celestial soul, unlike the celestial intellect, is conjoined to the celestial body and is the principle of its life and motion; it also distributes the forms she receives from the intellect in composite bodies.[77] Albertus in this instance incorporates the soul and the intellect in astral causality and generation which he found in the works of Abu Ma'shar where the motion of the planets and stars is considered responsible for the union of form and matter although without explaining exactly by what means it achieves this. Furthermore, Albertus posits that the celestial soul performs this causal mediation by means of an intellectual light, bringing to mind the rays of al-Kindi that act as the threads which make up the tapestry of the cosmos and actualize all of its existents.[78]

In his commentary on the *Metaphysics* of Aristotle, Albertus is careful in maintaining orthodoxy by qualifying the meaning of 'animation' itself and the soul as a celestial animating principle. Echoing the passage from Aristotle's *Metaphysics* concerning myths as inspired relics, Albertus writes that divine intellects were considered gods due to the universality of their causation and regularity; however, they are everlasting in

God but not gods themselves.[79] Albertus stresses that the heavens are not alive in the same way a terrestrial animal is. In the animal, the soul is the perfection and actualization of its body, but in the case of a planet or star it is a separate substance – an intellect – that effects things essentially and receives its power ultimately from God, the first cause and first mover.[80] Thus, he contradicts Avicenna to whom the celestial soul is a non-separate substance. Albertus has this distinction in mind when he declares in *De quatuor coaequaevis* that the soul of the heavens must be understood metaphorically,[81] the life-principle merely likened to the souls of terrestrial creatures. Another restriction he places on animation is a rejection of Avicenna's attribution of an imaginative faculty to the celestials, 'that is, an imaged representation of particulars and a willing of particular [things]'.[82] This is declared monstrous by Albertus in his *On Minerals*; 'for what he [Avicenna] calls imagination is not at all fitting for the heavenly intelligences unless they have thoughts other than those displayed in the motion of the heavens and the qualities of the elements'.[83] In the *Speculum astronomiae*, it seems that the heavens are stripped of animation altogether. God is living but the heavens themselves are not; God only operates through created things and uses the stars as instruments mute and deaf. However, we must understand Albertus's denial of 'life' to the celestial bodies in the context of the aforementioned restrictions on the type of animation they receive. In the *Speculum* he concedes that God ordered it so that the intellect, which is supercelestial, guides the soul, in moving inferior things. The celestial soul here, rational only without corporeal and sensible faculties, is not denied but it is not seen as an actualization of or resident in the celestial body though having an affinity with it.[84] So, intellects receive divinity from their supercelestial position, eternally apprehending God only, and the celestial bodies are animated only by a rational psychic force, functioning in obedience to God free from sense and imagination which are faculties belonging to the souls of the terrestrial creatures. In the context of the *Speculum* itself, stripping the celestial bodies of an inherent psychic agency is necessary in order to firmly legitimize astronomical talismans which 'obtain virtue solely from the celestial figure' without demonic interference, and to remain distant from the addressative 'abominable' and 'detestable' kinds of magical practices.[85]

The illicit magics of Albertus can be classified under the 'nefarious art' that Aquinas mentions in *Summa theologica*. It is defined as 'constructed images which produce certain effects by the power of demons'. This includes the god-making statues of Hermes which were objects of worship. He also condemns the theurgic practices of Platonists directed

towards the intelligences (which they call gods but Aquinas calls angels), the celestial souls and the demons that they placed underneath the celestial souls and 'which they stated to be certain animal denizens of the air' followed by the human souls. Here Aquinas is referring to the daemons as Christian demons. Any theurgic and magical practice that is addressed to intelligences, souls, or demons/daemons is idolatrous.[86] In *De Operationibus occultis naturae*, Aquinas emphasizes that images and statues cannot receive a natural power from the celestial souls because their forms are artificial and thus do not have any natural links with the stars. Any power exhibited in them is the work of demonic superior agents.[87] Natural magic, on the other hand, works by means of specific forms which are impressed in natural generated things through the power and movement of the heavenly bodies. He further accedes that ultimately the specific forms can be traced back to separate intellectual substances.[88]

In *Summa contra gentiles*, intellectual substances are described as spiritual beings not composed of form and matter.[89] Aquinas identifies them with the angels themselves citing the authority of pseudo-Dionysius.[90] As a result, he rejects that their numbers correspond to that of the spheres because that contradicts Scripture which describes thousands of angels ministering to God.[91] However, Aquinas speaks of celestial intellects that move celestial bodies. The bodies are the instruments of these substances that act as first agents of generation.[92] Elsewhere, Aquinas maintains that even these intellectual celestial movers are angels. Moving the celestial spheres and bodies, in addition to propelling the process of generation, falls under the dominion of Virtues which is why they are called 'the powers of the heavens' and why it is said in Scripture that 'the powers of the heavens shall be moved' (Luke 21:26).[93]

Though he tackles the subject of intellects, Aquinas remains very vague about the doctrine of celestial souls. In the *Summa contra gentiles*, he states that it does not make any difference to hypothesize a soul conjoined to the celestial body to explain celestial actions if one grants that celestial motion is caused by the intellectual/angelic substances.[94] Perhaps it is Aquinas whom Albertus intends in *De quatuor coaequaevis*, when he mentions the philosophers who abhor using the word 'soul' in relation to the celestial movers but concede that they are the angelic separate intelligences.[95] Angels, after all, are subservient to God and so associating them with the intellectual substances protects orthodoxy since postulating a motion caused by a force independent from God limits His dominion.

The Condemnations of 1277 issued by Bishop Tempier demonstrate the unease that Peripatetic doctrines on celestial motions caused. The following serve as examples of related condemned doctrines:

> 92) celestial bodies are moved by an internal principle, which is soul; and that they are moved by a soul and by an appetitive power [that is by force of desire] just as an animal.
>
> 94) there are two eternal principles, namely the body, the sky, and its soul.
>
> 95) there are three principles in celestial bodies: (1) a subject of eternal motion, (2) a soul of a celestial body, and (3) the prime mover as that which is desired – the error concerns only the first two.
>
> 102) the soul of the sky is an intelligence and the celestial orbs are not instruments of the intelligences, but organs.
>
> 110) the celestial motions occur because of an intellective soul; but an intellective soul or intellect cannot be produced except by means of a body.

Condemned also was Abu Ma'shar's astral efficient causes of generation and the doctrine that spiritual and physical gifts are issued from the celestial bodies.[96] However, condemnations of Aristotelian natural philosophy were set in place before 1277, in 1210, 1215, and 1231, but were rarely effective or enforced as claimed by some.[97] It was a dilemma to be navigated by the natural philosopher to keep orthodoxy intact. Albertus Magnus, Roger Bacon and Thomas Aquinas all tackled this issue, maintaining a notion of causality that is volitional whether by accepting the celestial souls, intellects or both.

Early modern daemons

In the thirteenth century, the Middle Platonic texts were obscured by the Aristotelian corpus and Peripatetic commentaries which led to a revision of some aspects of natural philosophy as we saw in the case of the animation of the heavens. It is perhaps this shift of emphasis that led to the fading of the 'daemon' in the scheme of cosmic vitality and the focus on celestial souls and intelligences. In the fifteenth century the daemon rose in the Platonic and Neoplatonic revival inaugurated by the translations of Marsilio Ficino. The works of Plato, Plotinus, Porphyry, Iamblichus and Proclus contained elaborate explications on the nature

and activity of daemons. We also find them in Ficino's works particularly his *Commentary on Plato's Symposium on Love* and the *Three Books on Life*. These texts provide the ontological status of the daemons and their cosmic functions.[98] They also corroborate to an extent the *ruhaniyyat* of the Arabic sources that Ficino knew, especially the ones in the *Picatrix*.

References are made to the daemons in the works of Plato but they are disparate. In *Cratylus*, the daemons are described as a 'golden race' that guards men.[99] In the *Timaeus* they are 'the children of the gods'.[100] In *Epinomis* – a work eventually attributed to Philip of Opus and a source of Calcidius's daemons[101] – they are distinguished from the visible celestial gods (planets, stars and all celestial phenomena). Daemons are made of air and occupy a middle position and are responsible for the mediation between humans and the invisible and visible gods. They should be revered and honoured.[102] Their role is elaborated more in the *Symposium*:

> They interpret and carry messages from humans to gods and from gods to humans. They convey prayers and sacrifices from humans, and commands and gifts in return for sacrifices from gods. Being intermediate between the other two, they fill the gap between them, and enable the universe to form an interconnected whole. They serve as the medium for all divination, for priestly expertise in sacrifice, ritual and spells, and for all prophecy and sorcery.[103]

Early modern natural philosophers had direct access to the complete Platonic works translated and completed by Ficino by 1468–9,[104] unlike their twelfth-century counterparts whose descriptions of the daemons were received from commentaries and, in the case of the *Timaeus*, an incomplete translation. However, it is in the Neoplatonic sources that we find coherent and systematic accounts. In the *Enneads* (translated by Ficino in 1480) each individual soul is aided by a personal daemon who implants the desire for the sublime and divine. The personal daemon is not ontologically independent from the human soul: 'it is not entirely outside of ourselves; is not bound up with our nature; is not the agent of our action; it belongs to us as belonging to our soul'.[105] This ontological status is affirmed in *Timaeus* 90 A–C and *Phaedrus*'s discussion of the personal daemon of Socrates, but rejected by Iamblichus and Proclus.[106] The personal daemons, however, are the multiplication of what can be called the Celestial Daemon which is connected to the lower generative part of the Universal Soul (the higher part is occupied only with contemplating the Intellect in an act of goodness).[107]

In addition to the Celestial Daemon and personal daemons, Plotinus adds hypothetical Essential-Celestials which are spirits existing in the Intellectual Realm 'if spirits exist there'.[108] He also mentions daemons that have an administrative function, similar to that of the planets: 'Other Spirit-Beings, equally born from the Soul of the All, but by other faculties of that Soul, have other functions: they are for the direct service of the All, and administer particular things to the purpose of the universe entire'.[109]

In Porphyry's *De abstinentia ab esu animalium* (*On Abstinence from Killing Animals*), translated by Ficino and published in 1497, we encounter the established view of the daemons as intermediaries between mankind and gods, guiding them and delivering their prayers. He also distinguishes between good daemons – who issue from the Universal Soul and care for the lives they watch over – and the bad lower daemons who are deceptive. The good daemons are appealed to in theurgy and they aid humans by revelations through dreams and oracles and communicate with 'tokens' or signs in nature. Bad daemons on the other hand aid in sorcery.[110]

Another Neoplatonic exposition on the daemons is found in Iamblichus's *De mysteriis aegyptiorum, chaldaeorum, assyriorum* (*On the Mysteries of the Egyptians, Chaldeans, and Assyrians*), a paraphrase of which was completed by Ficino in 1497. The Neoplatonic chain of divine beings consists of God, daemons, heroes and souls. Daemons are 'the common bond that connects gods with souls, and causes their linkage to be indissoluble. They bind together a single continuity from top to bottom.' The gods comprise the invisible ones and the visible celestial ones. The latter are the heavenly bodies enveloped by the highest gods.[111] The bond between the daemons and the gods is generative too as the former 'receive from the gods on high the causal principles of all these things' and subjecting themselves to the goodness of the gods, they cause 'the formless to shine forth in forms'.[112] They are 'the generative and creative powers of the gods [...] finishing and completing encosmic natures'. Moreover, they unite souls with bodies.[113] Acting as proximate causes of generation and uniting souls with bodies are attributes given to the planets and stars by Abu Ma'shar as we have seen but in the Iamblichan context, the celestial bodies are themselves gods and the daemons are their attendants.

Iamblichus also mentions personal daemons assigned to human souls by the gods. 'It is not from one part only of the heavenly regions nor from any one element of the visible realm that this entity is imparted to us, but from the whole cosmos and from the whole variety of life within

it and from every sort of body, through all of which the soul descends into generation, there is apportioned to us an individual authorising principle.' A soul selects a guiding personal daemon as it descends into a body. And it is this daemon that binds the soul to the body and 'supervises the composite living being arising from it'. It also directs human lives.[114]

The notable difference between the Neoplatonic accounts and the twelfth-century ones is the disappearance of the three daemonic middle regions found in the earlier period. Instead of a distinction according to place and function among the daemons, we have one according to function only. All the Neoplatonic daemons are bound to the celestial gods but the personal daemons are a specialized subgroup. Hermann of Carinthia is an exception to the twelfth-century cosmologists we encountered earlier as he considers all daemons celestial including the personal one,[115] leading one to suspect that this is due to the Arabic sources with which he was acquainted and the Neoplatonic elements contained therein, particularly the *Theology of Aristotle* and the *Picatrix* in which *ruhaniyyat* are described as higher celestial beings.[116]

The Neoplatonic *daemones* and the Arabic *ruhaniyyat* are amalgamated in Ficino's works. In his *Commentary on Plato's Symposium*, the daemons are 'midway between heavenly things and earthly things' and mediate between God and humans.[117] To Ficino, they function as spirits that carry the forces of the Universal Soul and the celestial souls that emerge from it. The universe is no mere machine but it is ruled by a single soul. The souls of all living things including the 'heavenly creatures' and the twelve souls of the spheres are constituents of the whole Universal Soul. Ficino declares that the souls of the twelve spheres are called gods by the Platonists 'because they are very close to the Angelic Mind and the Supreme God'.[118] They are endowed with such great power by Him that they control and move the spheres of the universe in abidance to His will.[119] Ficino's angel is a fluid concept in the *Commentary*. He calls the celestial souls angels instead of gods. Indeed, as Allen argues, the soul here assumes the function of a pseudo-Dionysian angel.[120] Elsewhere, Ficino states that according to pseudo-Dionysius 'good daemons' are angels who rule the lower world. He adds that 'this differs very little from the opinion of Plato' seeing the difference between Plato and Dionysius as 'only a matter of words rather than of opinion'.[121] It was Calcidius who noted that the Platonic calodaemons are angels according to place, whereas pseudo-Dionysius divides them into nine classes according to rank.[122] Aquinas considers them to be separate intelligences. But Ficino appears to equate angels with a special class of

supercelestial daemons whose dominion is universal, perhaps having in mind Plotinus's hypothetical Essential-Daemons. Those daemons who dwell in the ethereal zone nearest the stars are the celestial daemons who actualize their functions.[123] It is to this category that the daemons of Socrates and Plotinus belong, unlike ordinary human beings. The superior ontological position of Socrates's and Plotinus's daemons distinguishes and dignifies the souls of these divine men by inspiring them, and in turn inspiring Ficino who admired them.[124] Finally, the regions of air and humidity contain different daemons.

In his *Commentary on Phaedrus* Ficino confesses: 'I too have been accustomed in my commentaries similarly to interpreting and distinguishing the spirits, using one way here, another there, as the context requires. Between literal, moral, allegorical, and anagogical.'[125] His discourse, then, can be described as polysemous. In this *Commentary* there are twelve orders of daemons that correspond to the twelve spheres. These daemons emanate from the Universal Soul (referred to as Jupiter in demonstration of his polysemy).[126] The function of the daemons in relation to the celestial souls is explained in the *Commentary on Plato's Symposium*. The gods, meaning the celestial souls, serve the Ideas contained in the Mind; the daemons transfer these Ideas in particularized fashion as forms, thus acting as intermediates between the highest and the lowest:

> The power of these gifts God first contains in Himself. Then He distributes the powers of these gifts to the seven gods who move the seven planets (and are called angels by us) [...] the gods then pass on the gifts to the seven classes of daemons which are subject to them, one gift to each class in particular. The daemons transfer them to men.[127]

These gifts contain planetary qualities and also become planetary attributes that human beings receive. And so Saturnal daemons instil in us the quality of contemplation, Jovial daemons instil the duty of governance, Mars strength of soul, etc.[128] The soul receives a specific pattern imprinted on it by the celestial soul. The soul by means of the daemon 'imprints this on an earthly seed similarly disposed'.[129] Therefore, it is through the agency of the daemons that the seminal seeds are distributed according to the volition of the celestial souls and channelled through to the regions of daemonic influence. They occupy the role of the rays in *De radiis*, but Ficino combines both principles: the rays are a kind of instrument for the daemons.

For Ficino, the most intriguing role played by daemons is the magical one. He asserts that according to Zoroaster, Socrates, Apollonius of Tyana and Porphyry:

> Signs, voices, and portents from daemons are said to have come to them when they are awake, or oracles and visions when they are asleep. They seem to become magicians through friendship of the daemons, just as the daemons are magicians through understanding the friendship of things themselves. And all nature, because of mutual love, is called a magician.[130]

Mutual love is the reciprocity between earthly effects and their celestial causes, between the seminal seeds and their celestial disposition, all of which produce a network of correspondences in nature that is used by magicians to tap into the vital principles of the cosmos: celestial souls and daemons. 'Love', Ficino writes, '[is] a daemon'.[131] If 'the whole power of magic consists in love',[132] and 'all nature, because of mutual love, is called a magician', then magic is both daemonic and natural. To understand how this natural, astral and daemonic magic works we must turn to the *Three Books on Life* where Ficino explains:

> And if in the proper manner you bring to bear on species, or on some individual in it, many things which are dispersed but which conform to the same Idea, into this material thus suitably adapted you will soon draw a particular gift from the Idea, through the seminal reason of the Soul [...] let no one think that any divinities wholly separate from matter are being attracted by any given mundane materials, but that daemons rather are being attracted and gifts from the ensouled world and from the living stars.[133]

The correspondences between celestial and terrestrial species act as 'divine lures' according to Zoroaster and 'magical baits' according to Synesius's *De insomniis*. With this type of magic one receives efficacy from the Universal Soul herself through the rays of the stars and the daemons because they both 'flourish' in her.[134] However, knowing the 'tokens' of nature, as Iamblichus describes them, is not enough. The spirit of the operator must be prepared. It is the intermediary between body and soul. Once charged with astral things through diet and other habits it becomes the means to connect with the macro-spirit in which the power of the Universal Soul flows and 'the stars and daemons exist by means of it'.[135] Daemons, for Ficino, thus, are not demons but astral forces that act like the *spiritus* which mediates between body and soul.

They act as multiplications of the cosmic spirit mediating between the celestial souls (multiplication of the Universal Soul) and the terrestrial world. So the natural/astral and medical magic of Ficino is 'practised by those who seasonably subject natural materials to natural causes to be formed in a wondrous way' and not 'practised by those who unite themselves to daemons by a specific religious rite, and, relying on their help, often'. This is rejected 'when the Prince of this World was cast out'. It is only in the context of being worshipped and appeased that the term 'daemons' refers to the Christian demons and devils addressed by ceremony.[136] Otherwise in natural magic, Ficino advises: 'you will bend your efforts to insinuate into yourself this spirit of the world above all, for by this as an intermediary you will gain certain *natural* benefits not only from the world's body but from its soul, and even from the stars and the daemons'.[137] These benefits are given a planetary description referring to the source, so Ficino speaks of 'Mercurial things', 'Jovial things', etc. that a mage can lay claim to in order to make his talismans efficacious. They correspond to Mercurial daemons, Jovial daemons, etc. mentioned in the *Commentary on the Symposium* and the *Three Books on Life*.[138] Daemons descend from the celestial souls,[139] and 'the goods of the celestial souls partly leap forth into this our spirit through the rays, and from there overflow into our souls and partly come straight from their souls or from angels into human souls which have been exposed to them'. By angels, Ficino is referring to the higher daemons. This exposure is achieved by prayer, by study, by manner of life, and by conduct that imitates the beneficence, action and order of the celestials.[140]

Ficino attributes his knowledge of the magical operations of the daemons to the Neoplatonists; namely, Porphyry, Iamblichus and Proclus.[141] Indeed Proclus in *On the Priestly Arts* – translated by Ficino – defines magic as the 'blending of signs' drawing down higher virtues by means of 'd[a]emonic powers'.[142] Porphyry confirms this in his Letter to Anebo and in *On Abstinence* he describes these signs as 'tokens'.[143] But Iamblichus probably would not approve of the kind of magic advocated by Ficino. Iamblichus distinguishes between two types of magic: theurgic and vulgar. The first 'truly connects with the gods, uncontaminated in all respects, pure, unwavering, true, and is indeed inaccessible to and unobstructed by spirits of an opposite nature'.[144] It is a form of worship whereby sick bodies are healed and which 're-arranges many things that were discordant and disorderly among human beings, and also it transmits the discoveries of human skills, legal regulations, and the establishment of customs'. Therefore, it is constructive and reasserts order as intended by the gods without the interference of spirits or daemons.[145] Vulgar magic, on the other hand, is inferior; it 'enjoys

the presence of no god, but produces a certain motion of the soul, contrary to the gods, and draws from them an indistinct and phantom-like appearance sometimes, because of the feebleness of its power' and suffers from daemonic interference.[146] This power is weak because it stems from the natural world not the divine:

> This force thus implanted in nature and distributed throughout it, art, which is itself divided in many forms throughout nature, draws it in various ways and channels it; it brings to disorder that which was ordered of itself, fills the beauty and the symmetry of the forms with asymmetry and ugliness, and transfers the noble end associated with unity to another unseemly sort of fulfilment, a vulgar one.[147]

Ficino cites Iamblichus's approval of natural magic that is based on knowledge of correspondences and astrology, and which actually avails itself to daemonic forces. But Iamblichus's tone contradicts this. Concerning image magic, he warns: 'do not, furthermore, compare the clearest visions of the gods to the images produced artificially from magic, for these have neither the energy, nor the essence of things seen, nor truth, but present mere images, reaching only as far as appearances'.[148] This is followed by an admonition:

> It would astonish me if any of the divine theurgists who contemplate the true forms of the gods, would approve it. For why would anyone exchange images for true reality, and descend from things superior to things inferior? Or do we not know that everything comes across dimly in such shadow-painting, and in this case we are faced with genuine phantoms of the truth, and things that seem to be good, but never are? [...] For god fashions all things, not by celestial physical motions, nor by some portion of matter, nor by powers divided in this way: instead, it is by his conceptions, his volitions, and his immaterial forms, and by means of eternal soul, whether mundane or supermundane, that he fashions the universe.[149]

Therefore, despite the importance of the eternal Universal Soul in the astral magic of Ficino, it would still be deemed vulgar by Iamblichus.

In addition to the Neoplatonic sources, Ficino found theoretical support from the Arabic notion of the *ruhaniyyat*, especially as it is found in the *Picatrix*. Concerning talismans and statues, Ficino writes that the Arabs and Egyptians 'believe the spirits of the stars are enclosed in them. Now some regard the spirits of the stars as wonderful celestial forces,

while others regard them as daemons attendant upon this or that star.' Ficino is in fact careful to distance the magical practices of the *Three Books on Life* from theurgy as he distinguishes between the emanative daemonic powers and those gifts that are given in return for worship by daemons that can only be bad.[150] For Iamblichus only bad daemons participate in vulgar magic; in Ficino's astral magic daemons are morally neutral;[151] however, whenever he makes reference to worshipped daemons he means demons in the Christian sense. If it entails worship, then it is illicit and necessarily demonic. Ficino, in this, accepts the view of Aquinas in *Summa theologica*, as noted earlier, regarding the Hermetic statues:

> But I think, in the first place, in accordance with the opinion of the blessed Thomas [Aquinas] that if they made speaking statues at all, it was not the mere influence of the stars itself that formed the words within, but daemons. Secondly, if by chance it happened that these daemons did enter into statues of this kind, I think they were not bound there by celestial influence but rather deliberately indulged their worshippers, intending to deceive them in the end.[152]

Accordingly, Ficino denounces in his *Apology* ceremonial devotional magic that operates by means of rituals and ceremonies to attract deceptive daemons. These daemons correspond with the wicked daemons who reside in the humid sphere considered as devils by Calcidius, William of Conches and Bernard Silvestris.

In contrast, Ficino condones natural/astral magic which is 'practised by those who seasonably subject natural materials to natural causes to be formed in a wondrous way'. The daemons operating here are higher ones who are closer to the celestial bodies and therefore their operations are emanative, orderly, untainted and astral.[153]

The works of Ficino represent the celestial daemons as the active agents of stars and planets similar to the Arabic *ruhaniyyat*: their duties conform to and carry out the functions of the heavenly bodies. Since the planets have a twofold function, semiological and aetiological, the daemons act by inspiring intellect to perceive the signs, and also by performing their role as agents of generation.

So the spiritual fabric of Ficino's universe is intricate; it is inhabited by celestial souls and daemons, stars and spirits. The divine and the astral are enmeshed in the natural. Pico della Mirandola, who accepts the existence of celestial souls and intellects,[154] may have been inspired by Ficino when he wrote in the *Conclusions* that 'the names of the gods

that Orpheus sings are not the names of deceiving demons, from whom evil and not good comes, but of natural and divine powers distributed in the world by the true God for the great utility of man – if he knows how to use them'.[155] We know that John Dee read with care the passages in the *argumentum* of Ficino's translations of Plato concerning the daemons, celestial intelligence, their introduction into statues, and the inspirational nature of human's contact with them. These are aspects that would have encouraged Dee to pursue his angelic/spiritual pursuits in the 1580s.[156]

So, on another level, the syncretic occult philosophy elucidated here even challenges the natural vs. demonic dichotomy. Spiritual agency is often ascribed to demons and angels. As a result, celestial souls and daemons as vital agents – expressed in terms of astral causation and the Neoplatonic and Platonic animated universe – are often overlooked. The daemons specifically are the vital and active agents of the celestial souls, bringing heaven to earth and earth to heaven. Generally, ignoring the reconciliation between physicality and psychology, encapsulated in the concept of the daemon, has led some historians of magic to structure their arguments according to two divisions: physical therefore rational and natural magic – set against or comparable to 'science' – and demonic magic and superstitions – generally set against or comparable to religion.[157] This occurs even in histories suspicious of the term 'rationality' and/or those which adopt relativistic views.[158] Even though, as we have seen, natural philosophers and occultists perceived astrology and astral/natural magic to be branches of natural philosophy, they were aware of the need to exonerate them from supernatural/demonic associations. Therefore, their discussions concerning astrology and astral magic sometimes had a defensive tone; however, this never really amounts to a participation in an explicit 'rival culture',[159] and the apologetic statements did not occupy a large enough space to imply a deep defensive anxiety. The notions of cosmic vitality and animation were defined according to both Neoplatonic and Aristotelian dictates pertaining to emanation and motion. Therefore, occult philosophy reconciled physicality and psychology. Post-Enlightenment paradigms of 'rationality' and science exclude the essential notion of an animated universe and vital macrocosm, and push discussions on spirit to religion and superstition, creating sharply opposing fields of enquiry; this is something that that 'the daemon' challenges.

Conclusion

Early modern occult philosophy approaches a phenomenon, natural, astrological or magical, as a co-presence of different yet interrelated realities. The senses present the external level of the occurrence, its physical contours and possibilities. On its own it is inadequate as it does not identify the various and simultaneous modes of appearance that give it unity and particularity. Reason and imagination connect the different sides of reality together by way of reference beginning from the physical manifestation. This pulling together of sides includes ontological, aetiological and teleological aspects not immediately available to the senses. However, inspiration and intuition engage the intellectual soul in reflection and only then is the significance of the event realized. The experience is no longer restricted to the moment of appearance but it is referred to a larger network of meanings, particular, universal, cosmic, psychic and divine. As Agrippa declares in his *Three Books of Occult Philosophy*:

> Neither think it sufficient that you stay about particulars, but bend your mind confidently to universals; for by so much the more learned anyone is thought, by how much fewer things he is ignorant of. Moreover, your wit is fully apt to all things, and to be rationally employed, not in a few, or low things, but many, and sublime.[1]

Consequently, early modern occult epistemology comprises the knowledge of causes, signs and spirits.

This present study highlighted the contextual developments that directly determined the ways in which the Arabic theories concerned with astral causation and generation were appropriated and reconditioned on the Continent and in England from the twelfth century to the sixteenth.

The medieval Arabic theories of astral influences, formulated by Abu Ma'shar, al-Kindi and Avicenna and found in the *Ghayat al-hakim*, *Sirr al-asrar* and the *Theology of Aristotle*, explicated four doctrines: First, the connection between the celestial world and the terrestrial is not only semiological expressed by the dictum *'as* above so below', it is also causal, that is, '*because* of above, so below'. In the process of generation, the motion of the celestial bodies leads to the union of form and matter in species, and the qualities associated with the planets such as courage and beauty determine the specific traits of individuals. They do so by means of heat (Abu Ma'shar), rays (al-Kindi) and *ruhaniyyat* (*Picatrix*). Second, in this process, natural things obtain occult properties which correspond with the qualities of the celestial bodies that participated in their generation. The relations between the planets, stars and signs discoverable by astrology are thus reflected in the sympathies and antipathies that exist between natural things and utilized by the mage. Third, natural magic is inherently astral because its efficacy stems from astral powers that pour into the world below; therefore, when a talisman is constructed from materials selected according to rules of sympathy and executed under specific astrological conditions, it attracts certain influences that work towards the purpose behind the action. The body of the talisman is given astral actuality and thus in a way it becomes 'ensouled'. Finally, the mage, as a microcosm, is granted an ontological and epistemological privilege that facilitates the recognition of signs, the comprehension of causes, and the connection with cosmic vital principles. This privilege bestows power that can be exercised over nature and used to access celestial forces. Therefore, the Arabic theories reconciled Aristotelian causality with the Platonic and Neoplatonic animated universe. In addition, they were explicated alongside the astrological system of signs. They argued that this system is not arbitrary but aetiologically verifiable without denying at all the validity of semiological and imaginal interpretations and even inspiration.

For twelfth-century cosmologists, the theories complemented the harmonious and soulful universe of the *Timaeus*, Macrobius's *Commentary on the Dream of Scipio* and Martianus Capella's *The Marriage of Philology and Mercury*. Adelard of Bath, Bernard Silvestris and Hermann of Carinthia were deeply acquainted with the seminal Arabic works on astrological practice and theory (and in the case of Adelard and Hermann, Arabic works on magic too). The intelligibility of the universe was the assumption that buttressed the Arabic theories of astral influences. In the twelfth century, when Arabic works on medicine, astrology and magic were received and translated, this assumption motivated

the emergence of cosmogonical writings such as Bernard Silvestris's *Cosmographia*, William of Conches's *Dragmaticon* and Hermann of Carinthia's *De essentiis*. The structure of the universe was based on the Neoplatonic hypostases as established by texts such as the *Timaeus*, Macrobius's *Commentary on the Dream of Scipio* and Capella's *The Marriage of Philology and Mercury*. Celestial mediation in generation and the genesis of nature were explicated according to Arabic doctrines of astral causation, leading to the appearance of the science of *physica*. The works of twelfth-century cosmologists demonstrate the ways whereby the notion of celestial mediation and causation, advocated by the Arabs, made the universe coherent and comprehensible. Thus, they anticipated the re-integration of astrology into natural philosophy that was witnessed in the thirteenth century and the Renaissance.

In the thirteenth century, the Arabic theories of astral influences expanded the newly-revived Aristotelian knowledge to include the heavens themselves. Avicenna's ideas on celestial mediation particularly secured the place of astral investigations in natural philosophy by confirming that celestial influences were part of a network of reciprocating causes which included terrestrial conditions, stressing their contingence and subordination to divine volition. In the works of Albertus Magnus, Roger Bacon and Thomas Aquinas, the Arabic theories of astral influences were modified by shifting the emphasis to particular phenomena. Even though ultimately these were prefigured in the celestial world, they were made variable and contingent by specific terrestrial factors such as location, elementary behaviour and other circumstances. This move established medieval natural philosophy which now encompassed the study of the heavens. Furthermore, causality was seen, particularly by Bacon, as quantifiable by the application of mathematics, optics and geometry. Under this philosophical and cosmological setup, natural magic was understood by Magnus and Bacon as the operative aspect of natural philosophy: 'art using nature', the achievement of which was based on recognizing the astral and terrestrial causes that collaborate to produce a specific effect.

In the fifteenth century, Marsilio Ficino sought to establish an occult philosophy that combined three elements: first, astral magic based on knowledge of correspondences and astral causes as delineated in the Arabic works; second, astrology that clarified the tendencies of body and soul and therefore enabled psychological reflections and physical – specifically medical – management; third, the exaltation of the soul by means of contemplating the divine as prescribed by Plato and the Neoplatonists. Astral magic could not be achieved without a preparation

of the spirit which required identifying astral, human and natural causes and conditions to redress problems and to identify the optimal timing for the medical spirits to receive and absorb beneficial astral influences by means of the rays of the cosmic spirit. To divinize the soul, the spirit too must be prepared in order to align spirit with Spirit, soul with Soul, body with Body, thus becoming an active microcosm in which all the powers of the universe resonate. Ficino thus reconciled causal knowledge, whose principles he received from Abu Ma'shar and Avicenna, with interpretive and revelatory practices.

Pico della Mirandola, however, adopted hierarchical categories in which revelation by exercise of imagination was deemed a higher pursuit. He advocated two astrologies: true and speculative. The first involved reading signs according to Kabbalistic hermeneutics as a means to facilitate exaltation. The second investigated astral causes whereby nature and the heavens were understood, relying heavily on the Arabic theories of astral influences particularly the notion of celestial bodies as efficient causes; yet Pico limited their effects to the natural world and excluded the mind and the soul. In Pico's works, natural magic is a vague concept; however, he perceived it as a science that actuates the occult potentialities through arranging materials that correspond to the celestial bodies and are sympathetically linked to one another, which suggests a conception of natural and astral magic that we find in the Arabic works and those of Ficino, Albertus Magnus and Roger Bacon.

In the sixteenth century, the works of John Dee reflected his personal development. He began with mastering the exercise of reason through the investigation of astral causes in his *Propaedeumata Aphoristica* and the *Mathematical Preface*. He was influenced particularly by al-Kindi's doctrine of rays which act as physical transmitters of astral influences. For Dee this allowed quantification, continuing and elaborating on the particularization of astral influences seen in the works of Roger Bacon and Albertus Magnus. Astral magic became a mathematical art dependent on the quantification of terrestrial and astral forces. After this, Dee became an adept in Kabbalistic hermeneutics which contemplated the codes and signs of divine powers with the objective of becoming akin to them, as hinted at in the *Mathematical Preface* and given full expression in the *Monas Hieroglyphica*. Perhaps, it was after having fulfilled the objectives of reason and intellect that Dee saw himself deserving access to the angelic realms through direct inspiration.

The medieval and early modern cosmos vibrated with life and volition within the causal networks that gave it unity and coherence. Daemons and celestial souls were ontologically bound to natural and celestial

order; unlike the cast-out devils, dismembered from the heavens, who acted chaotically and unnaturally; whereas angels were supercelestial and acted supernaturally. We get the sense that in all the works discussed in this book the realm of the angels was reserved for theology unlike the daemons and celestial souls that were elucidated within the discipline of natural philosophy. God's will was deemed the ultimate cause of all creation, generation, transformation and corruption. Behind every physical cause was a volitional psychological one. Celestial souls or daemons were God's agents and administrators of His will without which nothing could cause and nothing was caused. As multiplications of the Universal Soul, the celestial souls and daemons became immanent principles – beings which animated and moved the world. Mediation and immanence were key concepts for understanding the incorporation of vital and psychic forces into the causal structure of the cosmos.

The planets and stars were efficient causes, themselves mediating between the supercelestial and terrestrial worlds, between ideas and seminal reasons, between divine will and terrestrial events. This was a causality motivated by celestial motions propelled by souls and intellects, and it encompassed the work of spirits or daemons that transmitted astral influences to the lower regions of the universe and dispersed in it various signs. The wise person took note of these signs and tokens either by discursive reasoning – correspondences – to learn about nature and manipulate it in magic transitively, or by inspiration and intellectual activity, decoding letters, voices, symbols, numbers and music, which was considered transformative and subjective.

From the perspective of the twenty-first century, being 'co-present' should inspire us because it allows us to re-invigorate and re-enchant our world. It shifts the emphasis from empirical probability to personal potentiality that subsumes all modes of experiences – physical, intellectual, imaginal and occult – without undermining one mode to emphasize another. The causality described by the astrologers and philosophers in this study is essentially the activity of animating and animated beings: God, Universal Soul, celestial souls, and daemons. As Patrick Curry writes:

> Enchantment accompanies the meeting of living perspectives which are both bodied and minded, ensouled and enworlded. Nor by any means must those perspectives be solely human. In enchantment, all kinds of beings, including 'things', can turn out to be existentially alive, subjects with their own qualities and agenda; hence its animism.[2]

Supported by the Arabic theories, early modern occult philosophy stressed that 'things' – from magnets to talismans – obtain their forms *and* souls from the celestial living world by means of both emanation *and* motion. This world-view is the result of the syncretic nature of early modern occult thought, reconciling the various philosophical perspectives; Aristotelian/Arabic astral causation, the universal occupation with the hermeneutics of signs exemplified by astrology, and finally Neoplatonic and Platonic eschatology are all reconciled. If we examine occult philosophy according to our modern notions of 'rationality', we risk overlooking the non-calculable experiences of the mind and soul and fail to see the edifying significance of the epistemological reconciliation unique to early modern occult philosophy.

> But this is true, this is sublime, but occult philosophy: to understand the mysterious influences of the intellectual world upon the celestial, and of both upon the terrestrial; to know how to dispose, and fit ourselves so, as to be capable of receiving those superior operations, whereby we may be enabled to operate wonderful things, which indeed seem impossible, or at least unlawful, when as indeed they may be effected by a natural power, and without either offence to God, or violation of religion.[3]

Notes

Introduction

1. William Lilly, *Christian Astrology* (London: Printed by John Macock, 1659), b.
2. Lilly, 'The Epistle Dedicatory', in *Christian Astrology*.
3. Heinrich Cornelius Agrippa, *Three Books of Occult Philosophy*, trans. Donald Tyson (St. Paul: Llewellyn Publication, 2004), p. 5.
4. S. A. Farmer, *Syncretism in the West: Pico's 900 Theses (1486)* (Tempe, AZ: Medieval & Renaissance Texts and Studies, 1998), 9>5–9>3, pp. 494–6, 2>75, p. 395.
5. Agrippa, *Three Books of Occult Philosophy*, p. 5.
6. Giambattista della Porta, *Natural Magick*, ed. Derek J. Price (New York: Basic Books, 1958; reprint of London: Printed for Thomas Young and Samuel Speed, 1658), p. 8.
7. A. I. Sabra, 'Situating Arabic Science', *Isis*, 87 (December, 1996), pp. 654–70 (655).
8. It was attributed erroneously to the astronomer and mathematician Maslama al-Majriti (d. *c*.398/1008), an attribution made in the *Muqaddima* of Ibn Khaldun. It has become widely accepted that it was penned by Maslama al-Qurtubi as identified by Maribel Fierro and confirmed by Godefroid de Callataÿ. See David Pingree, 'Some Sources of the *Ghayat al-hakim*', *Journal of the Warburg and Courtauld Institutes*, 43 (1980), pp. 1–15 (1). ʿAbd al-Rahman b. Muhammad Ibn Khaldun, *Muqaddima*, ed. Darwish Juwaydi (Beirut: al-maktaba al-ʿasriyya, 2000), pp. 483, 507. Mushegh Asatrian, 'Ibn Khaldun on Magic and the Occult', *Iran and the Caucasus*, 7/1 (2003), pp. 73–123 (97–9). Maribel Fierro, 'Batinism in al-Andalus. Maslama b. Qasim al-Qurtubi Author of the *Rutbat al-hakim* and the *Ghayat al-hakim*', *Studia Islamica*, 84 (1996), pp. 87–112 (106). Godefroid de Callataÿ, 'Magia en al-Andalus: Rasa'il Ikhwan al-Safa', Rutbat al-Ḥakim y Ghayat al-Hakim (Picatrix)', *Al-Qantara*, 34/2 (2013), pp. 297–344.
9. Michel Foucault, *The Order of Things: An Archeology of Human Sciences* (London: Routledge, 1970), p. 33.
10. Foucault, *The Order of Things*, p. 37.
11. Foucault, *The Order of Things*, p. 36.
12. Foucault, *The Order of Things*, p. 33.
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14. The use of the term 'occult' has been rightly problematized because of the anachronism associated with its twentieth-century pejorative use in which occult interests are distinguished from pragmatic, rational and scientific pursuits; see Gunther Oestmann, H. Darrel Rutkin and Kocku von Stuckard, *Horoscopes and Public Spheres: Essays on the History of Astrology* (Berlin: Walter de Gruyter, 2005), p. 4. However, it is used here in the meaning intended by the writers discussed: as forces or elements hidden from immediate

sensation. The magnet's attraction of iron was often included among occult forces. In *De Operationibus occultis naturae*, Thomas Aquinas speaks of certain 'occult workings' in inferior bodies (*quaedam autem actiones occultae sunt corporum inferiorum*); see Thomas Aquinas, 'De Operationibus occultis naturae', in *Sancti Thomae de Aquino opera omnia: tomus 43* (Rome: St. Thomas Aquinas Foundation, 1976), p. 184. The natural philosopher Marsilio Ficino describes some astral and natural forces as occult (*virtutes a stellis occultas; occultae proprietas*); see Marsilio Ficino, *Three Books on Life: A Critical Edition and Translation with Introduction and Notes*, trans. Carol V. Kaske and John R. Clark (New York: Medieval and Renaissance Texts and Studies in conjunction with the Renaissance Society of America, 1989), pp. 298, 302. Whereas Pico refers to them in his *Disputationes adversus astrologiam divinatricem* as '*occultiores afflatus*'; see Pico della Mirandola, *Disputationes adversus astrologiam divinatricem Libri I–V*, 2 vols., ed. Eugenio Garin (Florence: Vallecchi Editore, 1946), I, p. 178. This is the sense intended by Dee in his *Propaedeumata Aphoristica* when he speaks of 'secret influences' (*secretiores fuit influentiae*); see John Dee, *John Dee on Astronomy: Propaedeumata Aphoristica* (1558 and 1568), ed. and trans. Wayne Shumaker, and introductory essay by J. L. Heilbron (Berkeley: University of California Press, 1978), XXV, pp. 132–3.

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24. Yates, *Giordano Bruno*, p. 18.
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99. Abu Ma'shar, *Al-Madkhal*, II, pp. 15–16.
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142. Kauntze, *Authority and Imitation*, pp. 73–5; Stock, *Myth and Science*, pp. 257–8; Beaujouan, 'Transformation of the Quadrivium', p. 481.
143. William of Conches, *Dragmaticon*, p. 47; Silvestris, *The Cosmographia*, p. 96.
144. Lemay, *Abu Ma'shar*, p. 173.
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157. Abu Ma'shar, *Al-Madkhal*, II, pp. 19–20; John of Seville's translation: V, pp. 21–3.
158. Silvestris, *The Cosmographia*, p. 87.
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162. Silvestris, *The Cosmographia*, p. 94.
163. Silvestris, *The Cosmographia*, p. 97.
164. Macrobius, *Commentary on the Dream of Scipio*, p. 147; Adelard of Bath, *Conversation*, p. 69.
165. Silvestris, *The Cosmographia*, p. 96.
166. *Hermetica*, p. 69.
167. Lemay, *Abu Ma'shar*, pp. 268–9.
168. Kauntze, *Authority and Imitation*, p. 69 note 82; Silverstein, 'The Fabulous Cosmogony', p. 94.
169. Silvestris, *The Cosmographia*, p. 96.
170. Abu Ma'shar, *Al-Madkhal*, II, p. 24; John of Seville's translation: V, p. 27.
171. Silvestris, *The Cosmographia*, p. 97.
172. Silvestris, *The Cosmographia*, p. 98.
173. Silvestris, *The Cosmographia*, p. 98 note 17. This idea is also found in Plato's *Phaedrus*: 'This is recollection of the things which our souls once saw during their journey as companions to a god, when they saw beyond the things we now say "exist" and poked their heads up into true reality. That is why only the mind of a philosopher deserves to grow wings, because it uses memory to remain always as close as possible to those things proximity to which gives a god his divine qualities.' Plato, *Phaedrus*, trans. Robin Waterfield (Oxford: Oxford University Press, 2002), pp. 32, 249b–c.
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6 The True Magic and Astrology of Giovanni Pico della Mirandola

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7. Kristeller, 'Giovanno Pico della Mirandola and His Sources', p. 75.
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10. Pearl Kibre, *The Library of Pico Della Mirandola* (New York: Columbia University Press, 1936), inv. 44, 1110 (p. 87); inv. 982 (p. 93); inv. 422 (pp. 94–5); inv. 422 (p. 94).
11. Pico, *Oration on the Dignity of Man*, pp. 16, 109 (note 2).
12. Rutkin, 'Astrology, Natural Philosophy and the History of Science', pp. 1, 34–5.
13. Farmer, *Syncretism in the West*, pp. 1, 16.
14. Pico, *Oration on the Dignity of Man*, pp. 75–6.
15. There are different speculations about the identity of Abdullah, see Pico, *Oration on the Dignity of Man*, p. 109, note 3. Pico was studying Arabic under the guidance of Flavius Mithridates and it is possible that he intended the generic literal meaning of Abdullah, 'worshipper of God', perhaps in reference to the Prophet Muhammad himself who is cited later in the *Oration*: Pico, *Oration on the Dignity of Man*, p. 131, note 36.
16. Pico, *Oration on the Dignity of Man*, p. 109; *Hermetica: The Greek Corpus Hermeticum and the Latin Asclepius in a New English Translation, with Notes and Introduction*, trans. Brian Copenhaver (Cambridge: Cambridge University Press, 1992), p. 70.
17. Pico, *Oration on the Dignity of Man*, p. 115.
18. Pico, *Oration on the Dignity of Man*, p. 117.
19. Crofton Black, *Pico's Heptaplus and Biblical Hermeneutics* (Leiden: Brill, 2006), pp. 44–5.
20. Pico, *Oration on the Dignity of Man*, p. 111.
21. Pico, *Oration on the Dignity of Man*, p. 117.
22. The metamorphic potential in Man is emphasized in the *Enneads*: Plotinus, *The Enneads*, trans. Stephen Mackenna (London: Penguin Books, 1991), III.4.2, pp. 167–8. Here a reference is made to the Prophet Muhammad as an advocate of the divine transformation of the soul; Pico, *Oration on the Dignity of Man*, p. 131. Several verses of the Qur'an discuss the potentiality of man's soul to become animal-like or reach a higher state. The editors of the translation cited here include sura 2:65, 5:60, and 7:166 in which God compares the sinners to specific animals. We can add to this list 95:4–6: 'We created man in fairest proportions, then reduced him to the lowest low, Save them who believe and do righteous deeds', in *The Qur'an*, trans. Tarif Khalidi (London: Penguin Books, 2008), p. 514. Pico borrowed a Latin translation of the Qur'an from Marsilio Ficino (Pico, *Oration on the Dignity of Man*, p. 131, note 36). Sura 95:4–6 corroborates Abdullah's and Asclepius's statements about the wonderful stature of man: fair in proportion with the potential to morph into any state, low or high.
23. Pico, *Oration on the Dignity of Man*, p. 121.
24. Pico, *Oration on the Dignity of Man*, p. 133.
25. Pico, *Oration on the Dignity of Man*, p. 127.
26. Pico, *Oration on the Dignity of Man*, p. 151.
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28. Farmer, *Syncretism in the West*, 3 > 40, p. 411.
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32. Pico is referring to a loose Hebrew adaptation of Adelard of Bath's *Natural Questions*: Farmer, *Syncretism in the West*, p. 303.
33. Farmer, *Syncretism in the West*, 21.1, p. 303.
34. Farmer, *Syncretism in the West*, 7.1, p. 251; 19.1, p. 295.
35. Pico, *Heptaplus*, pp. 120–1.
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44. Pico, *Oration on the Dignity of Man*, p. 77; Crofton, *Pico's Heptaplus*, p. 95; Kristeller, 'Giovanno Pico della Mirandola and His Sources', p. 74.
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46. Farmer, *Syncretism in the West*, 11 > 48–9, p. 541.
47. Pico, *Commentary*, p. 77.
48. Pico, *Oration in the Dignity of Man*, pp. 227–9, 237, 243.
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7 The Magic and Astrology of John Dee

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8 Celestial Souls and Cosmic Daemons

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