

***The Provenance of Astrological
Techniques used in Medieval Astrology***

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INTRODUCTION

My first paper examined how astrological concepts from the Hellenistic world were transmitted to medieval Europe with particular reference to a prolific group of translators active in the twelfth century¹. Astrological ideas were part of the vernacular of the later Middle Ages; for instance, in Chaucer's *Canterbury Tales*, the Wife of Bath blames her astrological configuration for her lusty behaviour: 'Myn ascendent was Taur, and Mars thereinne. Allas! allas! that ever love was sinne!'², suggesting that Chaucer could assume that his readers would understand a number of fairly sophisticated astrological concepts implied by the Wife of Bath having the planet Mars in the Venus-ruled sign of Taurus in the first astrological house of her chart. Astrology was part of the quadrivium taught in universities, and in the thirteenth century the Holy Roman Emperor Frederick II had astrologers in his court, including Guido Bonatti, whom Campion describes as 'the best known astrologer of his time – indeed, one of the most famous astrologers in European history.'³

Bonatti's major work is a textbook on astrology entitled *Liber Astronomaie*, recently translated into English by Ben Dykes as *Book of Astrology*.⁴ In treatise two of this book, 'Signs and Houses', Bonatti acknowledges his sources, whom he refers to as 'our venerable predecessors', and mentions various Hellenistic and Arabic writers by name, such as Ptolemy and al-Qabisi.⁵ In my first paper, I briefly looked at how Arabic writers had translated earlier texts of Hellenistic origin, and observed Pierre Duhem's remark that 'there is no Arabian science. The wise men of Mohammedanism were always the more or less faithful disciples of

¹ Chris Mitchell, 'The Transmission of Astrological and Astronomical Ideas from the Islamic World into Europe'

² G. Chaucer, *The Canterbury Tales*, ed. W.W. Skeat, 2nd ed. (Oxford, 1900), D 613

³ N. Campion, *A History of Western Astrology Volume II - the Medieval and Modern Worlds* (London, 2009), p.56

⁴ G. Bonatti, *Book of Astronomy*, trans. B.N. Dykes (Golden Valley, Minnesota, 2007)

⁵ Bonatti, *Book of Astronomy*, p.27.

the Greeks, but were themselves destitute of all originality'.⁶ One of the questions that has arisen during my research is to ask whether there were any innovations to astrology made by writers and translators from the Islamic world, or whether they were simply preserving earlier ideas with Hellenistic, Persian and Indian roots.

My aim in this paper is to examine the astrological techniques described by various Arabic and Jewish writers working in the Islamic world from the seventh to the eleventh centuries and to analyse the provenance of each of them to see which were Hellenistic, Persian and Indian in origin, and to see if there were additional ones that appeared to be genuine Arabic innovations.

This is necessarily a rather technical task, and rather than listing hundreds of techniques in the main body of the paper, I have focused on describing broader categories of techniques and their provenance, with the finer detail in an Appendix.

⁶ P. Duhem, *History of Physics before Einstein* (New York, 1913), Kindle edition loc 130-1

SCOPE

Duhem, as quoted above, claimed ‘there is no Arabian science’. I am currently attempting to address a rather narrower, but similar, question: is there such a thing as Arabic astrology? This paper represents an initial foray into this question, by examining the astrological techniques described in texts by Arabic authors, and identifying which of them, if any, are genuine innovations rather than simply the transmission of ideas from earlier sources. For this reason, although I have studied an abbreviated version of Bonatti’s *Liber Astronomaie* in detail and noted in the introduction above that Bonatti, having written this less than a century after many of the Arabic works were translated into Latin and found their way into Christian Europe and having acknowledged his Arabic sources, I will not describe any techniques from these later European sources but will restrict my discussion to texts written by Arabic authors, whom I have listed in the next section on sources, and their predecessors. These predecessors include various Hellenistic and Roman authors, whose works I have also listed in the next section. The Arabic authors also acknowledge their predecessors, who include not only Hellenistic authors but Persian and Indian sources. Identifying Persian techniques is not trivial, as there is a lack of primary source material, and we are reliant on Arabic authors working within a Persian milieu such as Abu Ma’shar who have added their own Islamic slant to the material.

It is also relevant to note that I am using the terms ‘Arabic authors’ and ‘Arabic astrology’ to describe astrologers working in the Islamic world from the seventh century onwards, and which included Jewish authors and Persian Muslims as well as Arabs, together with the techniques that they used.

One area that I have omitted completely in this paper is the Indian contribution to Arabic techniques, which many of the Arabic authors readily acknowledge. This omission is something that I will rectify during the course of my PhD, but the whole area of Indian astrology is a vast topic that will require careful study to be able to separate the scholarly consensus that much of Indian astrology was derived from Hellenistic sources but with its own unique adaptations from the view popular among some Indian astrologers who ‘claim that it evolved several thousand years B.C.’⁷ and that the lack of written sources was because this ancient knowledge was transmitted orally. Fortunately, one Arabic author, al-Biruni, whose *Book of Instruction in the Elements of the Art of Astrology*⁸ written in 1029 provides a useful summary of Arabic techniques, clearly identifies those techniques which derive ‘from the Hindus’.

⁷ N. Campion, *An Introduction to the History of Astrology* (London, 1982), p.28

⁸ al-Biruni, *The Book of Instruction in the Elements of the Art of Astrology*, R.R. Wright (ed.) (London, 1934)

SOURCES

The sources for the techniques described by Arabic authors will not be exhaustive; many of the works containing astrological material that were translated into Latin primarily in the twelfth century were covered briefly in my first paper, and I have not referred to all of them here since many of these covered broad topics of science, astronomy and astrology, and my focus in this paper is specifically on techniques that today would be referred to as astrological, rather than astronomical. I have particularly focused on Arabic authors credited by later European authors such as Bonatti, and the Hellenistic authors whose works are still known, albeit in Arabic translations in many cases. I am also currently relying on those Arabic and Hebrew astrological works that have been translated into English. A few of these have been translated directly into English by modern translators with a knowledge of Arabic and Hebrew, but for many of the astrological works we are reliant on modern translators working from Latin translations of the original Arabic (which itself had sometimes been translated from an earlier Persian form), generally produced in the twelfth century. There are extant astrological texts in Arabic that were not translated into Latin at all, and are still awaiting translation into English, and some of these texts should be available in English in the next few years and may shed new light on hitherto unknown Arabic innovations.⁹

Hellenistic

Ptolemy

The Hellenistic author most frequently cited by Arabic authors is Claudius Ptolemy, a Greek author who lived in Alexandria in the second century CE and wrote works on geography,

⁹ Personal conversation with Benjamin Dykes, a major translator of Latin astrological texts, September 2012

astronomy and astrology. His main astrological work, *Tetrabiblos*,¹⁰ is a summary of Hellenistic astrological techniques. It is important not to take references to Ptolemy at face value in Arabic texts, since Arabic authors would sometimes attribute techniques to Ptolemy that do not appear in his writings and almost certainly derive from a later date, such as Masha'allah's section entitled 'According to Ptolemy' in his essay *On Hidden Things*, which Dykes describes as 'definitely a pseudo-Ptolemy'.¹¹

Dorotheus of Sidon

Another Hellenistic source frequently used by Arabic authors is Dorotheus of Sidon, who predates Ptolemy and lived in the first half of the first century CE. His *Carmen Astrologicum* was translated by David Pingree in 1976.¹²

Manilius

Marcus Manilius was a Roman author who wrote an astrological poem, *Astronomica*¹³, around the year 14CE. Hellenistic astrology was imported into Rome with the change that planets were named after Roman gods rather than Greek ones, but with a one to one correspondence, such as Jupiter for Zeus, with the Greek writer Posidonius (whose writings are now lost) credited with taking astrology to Rome¹⁴, which is why I have included Manilius under the heading of Hellenistic authors.

Vettius Valens

Vettius Valens was another Hellenistic author, from Antioch, and a contemporary of Ptolemy. His *Anthologiae* of nine books was edited by David Pingree in 1986.¹⁵ Pingree's version is in

¹⁰ C. Ptolemy, *Tetrabiblos*, trans. F.E. Robbins (Cambridge, MA, 1940, 2001)

¹¹ B.N. Dykes, *Works of Sahl and Masha'allah* (Golden Valley, Minnesota, 2008), p.433

¹² Dorotheus of Sidon, *Carmen Astrologicum*, trans. D. Pingree (London, 1993)

¹³ M. Manilius, *Astronomica*, G.P. Goold (ed.) (London, 1977)

¹⁴ N. Campion, *The Dawn of Astrology Volume I - the Ancient and Classical Worlds* (London, 2008), p.178

¹⁵ Vettius Valens, *Anthologiae*, trans. D. Pingree (Leipzig, 1986)

Greek with a Latin introduction, and scholarly work on a translation into English was painstakingly slow, with a translation by Robert Schmidt having stalled in 2001. However, in December 2010, an English translation was published on line by the retired classics scholar Mark Riley.¹⁶ I have made use of Riley's translation when examining techniques used by Valens, while referring to Pingree's Greek version to check astrological terminology.

'Hermes Trismegistus'

The *Liber Hermetis* is a set of texts attributed to the legendary Hermes Trismegistus. The actual author or authors of these philosophical writings is unknown, but they were probably written in their current form by a Hellenistic Egyptian in the fourth century, although their actual provenance may be older, according to the introduction in Robert Zoller's translation of the text.¹⁷ The reason these writings are relevant is that they are in the hermetic gnostic tradition with Egyptian and Babylonian influences, and thus reflect astrological traditions other than the mainly Hellenistic ones outlined in Ptolemy's *Tetrabiblos*, and are widely quoted in later Arabic texts.

Arabic/Jewish

Al-Kindi

Ya'qub ibn Ishaq, known in Latin as Alkindus (801-873), was a Muslim Arab and author of *On the Stellar Rays* and *The Forty Chapters*. I have used Ben Dykes' translation of *The Forty Chapters of al-Kindi*¹⁸ in looking at al-Kindi's techniques.

¹⁶ Vettius Valens, *Anthologies*, trans. M. Riley, 2010 online at <http://www.csus.edu/indiv/r/rileymt/Vettius%20Valens%20entire.pdf> [accessed 22 December 2012]

¹⁷ Hermes Trismegistus, *Liber Hermetis*, R. Hand (ed.), trans. R. Zoller (Salisbury, Queensland, 1998), p.vii

¹⁸ B.N. Dykes, *The Forty Chapters of Al-Kindi* (Minneapolis, 2011)

Abu Ma'shar

Abu Ma'shar Ja'far ibn Muhammad ibn Umar al-Balkhi, known in Latin as Albumassar (787-886), was a Persian student of al-Kindi, and author of various astrological texts including *On Historical Astrology: The Book of Religions and Dynasties*, which focuses on patterns of conjunctions of the planets Saturn and Jupiter to describe long periods of times representing changes of dynasty and long-term predictions. I have used two books in looking at Abu Ma'shar's techniques – *Introductions to Traditional Astrology: Abu 'Mashar and al-Qabisi*¹⁹ by Ben Dykes, and Yamamoto and Burnett's translation of *On Historical Astrology: The Book of Religions and Dynasties (on the Great Conjunctions)*.²⁰

Al-Qabisi

Abu al-Saqr Abd al-Aziz bin Uthman bin Ali al-Qabisi (d.967), known in Latin as Alcabitius, was the author of *Introduction*, translated by John of Seville in the twelfth century. I am using Dykes' translation *Introductions to Traditional Astrology* when looking at al-Qabisi's methods.

Masha'allah

Masha'allah bin Athari (740-815) was a Persian Jew born in Basra, who was part of a group of astrologers who cast an astrological chart to determine the most auspicious time for the foundation of Baghdad in 762. Masha'allah uses Hellenistic sources from Ptolemy and Dorotheus, but also incorporates Persian and Indian techniques. He was the author of numerous works, and I have used Dykes' *Works of Sahl and Masha'allah* as my sources for Masha'allah's work.

¹⁹ B.N. Dykes, *Introductions to Traditional Astrology: Abu Ma'Shar and Al-Qabisi* (Minneapolis, 2010)

²⁰ Abu Ma'shar, *The Book of Religions and Dynasties (on the Great Conjunctions)*, trans. K. Yamamoto and C. Burnett (Leiden, 2000)

Sahl

Sahl bin Bishr, known in Latin as Zahel, was also a Persian Jew and a contemporary of Masha'allah. Dykes says that he knew of Masha'allah's work, but it is not known if they ever met. Sahl's writings are what Dykes describes as a 'reader-friendly repackaging' of the techniques used at the time, and therefore more accessible and popular.²¹

Al-Biruni

Abu al-Rayhan Muhammad ibn Ahmad al-Biruni (973-1048) travelled to India and interpreted Indian methods in astrology to the Islamic world. His *Book of Instruction in the Elements of the Art of Astrology*, written in 1029 for a woman called Rayhanah, the daughter of al-Hasan to whom his book is dedicated. This book is a summary of various techniques, Arabic, Hellenistic and Indian, an English translation of which was made in 1934 by R. Ramsay Wright.²²

Ibn Ezra

Avraham ibn Ezra (1089-1164) was a Jewish scholar whose works cover a wide range of topics including astrology. He was born in Islamic Spain but travelled widely through Jewish communities in France, Italy and England, and wrote two major astrological texts, *The Book of Nativities and Revolutions* and *The Beginning of Wisdom*, between 1140 and 1160. There are no critical editions of these texts; I am using Meira Epstein's translation of *The Book of Nativities and Revolutions*²³, which she translated directly from four Hebrew manuscripts, and which was cross-checked against a Latin translation by Peter of Abano by the modern Latin translator Robert Hand. For *The Beginning of Wisdom*, I am relying on an uncredited

²¹ Dykes, *Sahl and Masha'allah*, p.viii

²² al-Biruni, *Book of Instruction*

²³ A. ibn Ezra, *The Book of Nativities and Revolutions*, trans. M.B. Epstein (Reston, VA, 2008)

translation published by Ascella Publications in London in 2001;²⁴ this is not ideal, and I will obtain a copy of Epstein's translation of this to double-check the techniques in due course.

²⁴ A. ibn Ezra, *The Beginning of Wisdom* (London, 1939, 2001)

METHODOLOGY

The sources listed above are far from exhaustive, and some of the editions are not particularly good critical editions. Thus, the work I have undertaken so far in collating astrological techniques is very much a work in progress, on which I intend to build. However, I believe that I have identified enough techniques used by astrologers in the Islamic world and the Hellenistic world to be able to identify those techniques that seem to be genuine innovations. Some of these may well turn out to have Indian or Persian provenance, or even Hellenistic – there are a number of translators working in the field of Hellenistic astrology, including a €10 million project to translate Ptolemy's astrological and astronomical works over the next 25 years²⁵ – as new texts come to light.

The method I have used is to go through the major Hellenistic sources listed above and to catalogue the techniques that I have identified in them. I then examined the techniques in the Arabic and Jewish sources listed above, and for each technique identified whether it appeared in the Hellenistic sources, and if so whether it had been modified.

I identified 160 major themes (by which I mean either a technique, or a broad class of techniques having features in common) from Hellenistic sources – 55 from Ptolemy, 32 from the *Liber Hermetis*, 11 broad categories from Dorotheus and 56 from Vettius Valens. I also found six from Manilius' poem *Astronomica* that I was not able to find in other sources – most of the poem simply draws on other already quoted sources. In the Arabic and Jewish sources, there were several hundred techniques, but with a lot of repetition – since later sources frequently credited earlier ones, and merely paraphrased, such as al-Qabisi

²⁵ <http://warburg.sas.ac.uk/research/projects/ptolemy/> [accessed 22 January 2013]

paraphrasing Abu Ma'shar and ibn Ezra using techniques described by Masha'allah. By removing these essentially duplicate techniques, I narrowed this down to 98 themes from Arabic and Jewish sources.

The majority of these themes in the Arabic and Jewish sources could either be found in the Hellenistic sources too, or were credited in the text as being of 'Hindu' origin (which I am not addressing at this stage) so rather than list them all I have listed those which are either new or differ significantly from the Hellenistic sources in the Techniques section, which gives a summary of the major innovations in each area, and placed the detailed descriptions of these techniques together with detailed references of the differences in the Appendix.

As the subject matter is fairly technical, I have also presented a very brief overview of the astrological techniques and terminology used in the following Background section.

BACKGROUND

Since this paper deals with various astrological techniques and compares later Arabic additions and modifications to the Hellenistic, Indian and Persian concepts, this section gives a brief explanation of those concepts and assumes no prior knowledge of astrology. Since both Hellenistic and Arabic astrology share much in common, but are very different to many of the techniques used from the nineteenth century onwards, I shall use the term ‘traditional astrology’ to cover the techniques used in Hellenistic, Indian, Persian and Arabic astrology.

By Bonatti’s time, astrology was well documented and was using techniques inherited from Hellenistic, Hindu, Persian and Arabic astrology, and could be broken down into a number of categories. One clear-cut and useful breakdown of these categories can be found in a fourteenth-century attack on astrology by Nicole Oresme, in which he defines six ‘principal parts’ of astrology as follows:²⁶

1. Movements and measurements of heavenly bodies – this is what we would now call astronomy.
2. Qualities, influences and physical powers of the stars – this relates to the philosophical underpinning of astrology rather than how astrology is actually used.
3. Mundane astrology – using astrology to predict world events, both political and natural, and weather forecasting.
4. Natal astrology – the astrology of an individual based on the time of his birth, and what will happen to that person over the course of his life.

²⁶ E. Grant, *A Source Book in Medieval Science* (Cambridge, Mass., 2008, 1974), *An Attack upon Astrology*, p.488

5. Interrogations – also known as horary astrology and based on the time a question about something is asked.
6. Elections – determining the best time to undertake a task.

Movements and measurements

The ability to use astrology to make any kind of prediction depends on being able to make an accurate measurement of where various heavenly bodies are in the sky at a particular moment. Although the root of the word ‘astrology’ is from the Greek *ἄστρον*, meaning ‘star’,²⁷ the word ‘star’ in this context refers to its original meaning given by the *Oxford English Dictionary* as ‘any one of the many celestial bodies appearing as luminous points in the night sky’²⁸ which includes both ‘fixed stars’ and planets. Although some of the fixed stars were seen as having an influence, traditional astrology primarily focuses on the positions of planets in the night sky and their relationships. The term ‘planet’ is used to mean not only the five visible planets Mercury, Venus, Mars, Jupiter and Saturn, but also the Sun and the Moon.

In order to identify where any particular star is in the sky, one needs to give two co-ordinates: longitude and latitude, loosely corresponding to what direction one needs to face to see a star and how high up it is, since stars are spread out all over the sky. Planets, however, are not. When the solar system formed, the planets accreted in a disc around the Sun, which means all planets lie in roughly the same plane, give or take a few degrees. Since the Earth is tilted by about 23 degrees, planets, the Moon and the Sun all seem to rise and sink in the sky, but they do so in a consistent manner. The path traced through the sky by the Sun as it rises in the east,

²⁷ Oxford English Dictionary Online (Oxford, 2012)
<http://www.oed.com.ezproxy3.lib.le.ac.uk/view/Entry/12240> [accessed 26 January 2013]

²⁸ OED entry for ‘star’

heads towards the south (for those living in the northern hemisphere) where it reaches its highest point and then sets in the west, is called the 'ecliptic'. The Moon and all the planets also lie roughly on the ecliptic – so a planet can be identified by describing at what point it can be found on the ecliptic: its longitude. There is no need to provide a latitude as well, since the planet will never stray far in latitude from the ecliptic. This means that for an astrologer, one band of the sky has particular significance, as it is where the planets are to be found. Ptolemy identified 48 separate constellations (groups of stars)²⁹, twelve of which lay on the ecliptic. These twelve constellations constitute the 'zodiac', their names familiar to anyone who has seen a horoscope column in a magazine.

Although there are twelve zodiac constellations lying on the ecliptic, they do not neatly divide the ecliptic into twelve – some constellations, such as Pisces, occupy about 40 degrees of the ecliptic, while others, like Aquarius, occupy only about 20 degrees. The Babylonian sky watchers of 3,000 years ago would describe the location of a planet by reference to the constellation it appeared to be in, without being concerned with the fact that the constellations were different sizes, but by the time Hellenistic astrology became developed, these twelve loose constellations had developed into twelve 'signs' of exactly thirty degrees each. While boundaries between one constellation and another are necessarily vague, the boundary between one sign and another was very clear-cut in Hellenistic astrology: the sign of Aries was the thirty degrees of the ecliptic that began at the point occupied by the Sun on the spring equinox, the sign of Taurus was the next thirty degrees, and so on for the remaining zodiac signs. The Greeks were also aware of a phenomenon known as 'precession', whereby the zodiac signs slip relative to the constellations after which they are named by about one degree every 72 years; when Ptolemy was writing, the sign of Leo was that part of the sky that

²⁹ Ptolemy, *Tetrabiblos*, I.9

happened to contain the constellation of Leo, but by the time of the Arabic astrologers, this had slipped by about 15 degrees. Indian astrologers to this day still use a ‘sidereal zodiac’ based on the position of the constellations, while astrologers in the West, from the time of Ptolemy right up to the current day, use a ‘tropical zodiac’ based on the Earth’s seasons – thus the zodiac signs now bear no relationship to the constellations after which they were originally named (the signs have all slipped by about thirty degrees since Ptolemy’s time).

The use of a tropical zodiac using precise thirty-degree signs makes it very easy to pinpoint a particular planet using just one co-ordinate: a longitude, expressed either as a number of degrees from the start of the sign of Aries or, more usually, as a number of degrees within a sign. So one can say that Jupiter is at six degrees of Gemini; this single value tells the astrologer that at this moment, the planet Jupiter can be found on (or near) the ecliptic at six degrees through the sign of Gemini. In Ptolemy’s time, an astronomer or astrologer could locate the planet easily in the sky by looking for the constellation of Gemini, although by the time of the Arabic astrologers, an adjustment for precession had to be made. Since only one co-ordinate is needed to identify a planet, it means that the astrologer can draw a map of where all the planets are in the sky using a simple circle (or, more commonly in Arabic times, a square diagram) rather than a three-dimensional globe – this map being the astrological ‘chart’.

This is a key concept in astrology. The astrological chart has little to do with stars, and everything to do with planets. It is a map of where the planets are at any given time, and it is the planets that are seen as being active, with properties that they can impart to the Earth and its inhabitants. It is true that an astrologer might note some of the fixed stars too, but this was

generally in connection with a star being close (in the chart, once the star's position had been projected onto the ecliptic) to a planet, and the fixed stars thought to be relevant were described in planetary terms, such as 'the stars in Capricorn, those in the horns act in the same way as Venus and, in some degree, as Mars'.³⁰ The chart, then, is the primary tool of the astrologer, who must be able to calculate where each planet is on the ecliptic at any given moment, and which part of the ecliptic is rising above the horizon at any moment. This point is called the 'Ascendant', and known in Greek as the 'horoscope'.

The astrological chart has four key features to it. The planets, who are seen as active forces in the chart; the signs, who give planets 'dignity' in certain places; the aspects, which are the relationships between planets; and the houses. Houses will be discussed in more detail in the Techniques section, but are another twelve-fold division of the chart. By Arabic times, they were a division of the chart into twelve unequal segments, starting from the Ascendant, and with each house representing a certain area of interest – the third house related to siblings, the seventh to marriage and so on. In Hellenistic astrology, the distinction between houses and signs is far less clear – Hellenistic texts refer to either places or signs from the Ascendant and generally equate a house to an entire sign, so if the Ascendant were at 20 degrees of Gemini, the whole of Gemini would be the first house, and the 'fourth place from the Ascendant' would be the entire sign of Virgo.

Qualities and powers

Book One of Ptolemy's *Tetrabiblos* focuses on what can be seen as a philosophical underpinning to astrology, and the ideas are developed further in Arabic astrology. Planets

³⁰ Ptolemy, *Tetrabiblos*, I.9

have qualities of hot and dry, moist and cold, relating them to the four elements of fire, earth air and water. Planets are ‘benefic’ or ‘malefic’, either bringing good fortune or are destructive, some are active during the day and others at night; signs are seen as masculine or feminine and planets have affinities with certain signs or certain degrees of signs. Planets make ‘aspects’ to other planets according to what angle they make to each other in the chart – these aspects may be helpful or unhelpful, and certain planets may be intrinsically inimical to each other, or may support each other, and when one planet finds itself in a place controlled by another planet, unlikely alliances can be formed where the effects of malefic planets can be tempered.

Mundane astrology

Mundane astrology predicts world events, and includes both natural events (such as weather forecasting) and man-made events (such as wars or changes of dynasty). In Hellenistic astrology, this was done by casting a chart for the moment that the Sun entered a seasonal sign (Aries, Cancer, Libra or Capricorn), or the New Moon or Full Moon immediately preceding it. Solar and lunar eclipses (which can only happen at a New Moon and Full Moon respectively) were considered particularly important, and generally seen negatively. Arabic astrology, apparently based on Persian developments, took mundane astrology a lot further and used conjunctions of Saturn and Jupiter to make long-term political predictions, and used various calculated points in a chart, called ‘lots’, to make shorter term predictions about specific events including the growing of crops.

Natal astrology

Astrology for an individual could be done by casting a chart for the moment of a person's birth; the person for whom the chart is cast is usually referred to as the 'native'. Traditional authors recognised that conception was an important moment too, but that its timing was usually difficult to identify; however, since traditional astrology was based on the concept that planets imprinted something on the native, it was assumed that there would be a planetary sympathy between the moment of birth and the moment of conception, so Ptolemy gives a method for calculating the time of conception from the birth time.³¹ The position of planets in the chart, and their aspects and relative strengths, would be used to make assessments about the native's character, and the movement of planets during his lifetime as they made other aspects to the native's birth planets would be used to predict events in the native's life, and even his expected lifespan.

Interrogations and Elections

Interrogations and elections are closely related in the sense that they both work on the basis of a particular moment being auspicious. Elections involve working out when planetary alignments will be optimal for undertaking a task; the Persian Jewish astrologer Masha'allah was part of a group of astrologers at the court of the caliph al-Mansur who elected the most auspicious time to found the city of Baghdad, for instance.³² Interrogations, also known as horary astrology, were based on casting a chart for the moment a particular question was asked, the idea being that when somebody had a burning question in their mind, the point at which it crystallised and they felt motivated enough to visit an astrologer was significant.

Dorotheus appears to mix the two entirely in Book Five of *Carmen Astrologicum*. His

³¹ Ptolemy, *Tetrabiblos*, III.1

³² Dykes, *Sahl and Masha'allah*, p.vii

example of the best time to buy an animal is clearly electional: ‘if the animal is tamed and used, then buy it at the hour in which the ascendant is Aries’.³³ On the other hand, his example of a query about illness is clearly horary: ‘If a querant asks about a sick [person] at a time when the Moon is flowing from the benefics, then it indicates [his] recovery from this illness.’³⁴ The translation we have of Dorotheus, however, is from an Arabic translation from a Persian translation of the original Greek, and it is likely that adaptations were made to this text.³⁵ Indeed, although electional astrology was used in the Hellenistic period (where it was known as ‘katarche’) there is considerable debate about whether horary astrology was used, with Brennan arguing this was a later Persian or Indian development, since no mention is made of horary astrology in any Hellenistic source other than Dorotheus.³⁶ At any rate, the technique was developed by the time of the Arabic astrologers, who credited earlier sources³⁷ and so these techniques do not feature widely in this paper since there were very few modifications to the concept in Arabic astrology, with the exception of inventing new lots specifically for horary questions.

³³ Dorotheus, *Carmen*, Book V, p.133

³⁴ Dorotheus, *Carmen*, Book V, p.154

³⁵ Dorotheus, *Carmen*, p.12

³⁶ Chris Brennan, ‘The Katarche of Horary,’ *Geocosmic Journal*, Summer 2007, pp.23-34.

³⁷ For example, Masha’allah ‘On Hidden Things’ in Dykes, *Sahl and Masha’allah*, p.433 says ‘Ptolemy said...’ referring to this technique; Dykes points out this was ‘definitely a pseudo-Ptolemy’

TECHNIQUES

This section will give an overview of the broad categories of techniques that identify differences between Arabic astrology and earlier sources. The technical details of these techniques, references and quotes from the original sources, together with a number of minor techniques, are shown in tables in the Appendix.

The building blocks – signs, elements, houses and aspects

Arabic astrology had a fully-developed concept of the twelve astrological houses, which were distinct from the twelve astrological signs of the zodiac. The twelve signs were grouped into elements, and each sign had correspondences to numerous categories – cities, generic types of place, morals, bodily features, trees and crops and medical conditions, for instance, as well as having certain properties because of its elemental nature. The twelve houses started from the Ascendant of a chart, and house boundaries did not correspond with sign boundaries, and were not necessarily thirty degrees each. Each of the twelve houses also had a specific meaning, so a planet in a particular part of the chart would have two meanings – one related to the sign it was in, and the other related to the house. Planets in a chart would relate to each other if they aspected each other, that is to say if the number of degrees separating the two planets corresponded to one of the Ptolemaic aspects of 60, 90, 120 or 180 degrees, within a certain tolerance known as an ‘orb’. For example, the third house relates to siblings, and ibn Ezra gives an example involving brothers: ‘If you find the ruler of the third house in a trine or sextile aspect with the rising degree or with the ruler of the rising sign, there will be complete harmony between the native and his siblings’ and then goes on to say that if the ruler of the third house (together with two other relevant planets) are in barren signs, then the native will

have no siblings.³⁸ In this example, the house is relevant since houses relate to areas of a person's life (the third house represents brothers), and the sign is relevant to tell us something about the quality of that area (barren signs imply a lack of fertility). The signs were also grouped into elements in Arabic astrology very specifically – al Biruni starts his astrology text with this sentence: 'And first we shall deal with the relation of the signs to the characteristics of the four elements'.³⁹ He illustrates this by grouping the signs in a table of two rows and six columns with Aries (the first zodiac sign) at the left in the top row, with Taurus, the next sign, underneath it, then Gemini, the third sign in the second column in the top row with Cancer, the fourth sign underneath that. This pattern is repeated for all twelve signs, and he labels the top row 'Hot' and the bottom row 'Cold', and labels the columns 'Dry' and 'Moist' alternately. This means that each sign can be categorised as either hot or cold, and either dry or moist, which corresponds to the elements of Aristotle – fire is hot and dry, earth is cold and dry, air is hot and moist and water is cold and moist. Thus all twelve signs can be grouped into four elements.

By contrast, Hellenistic astrology generally has less to say about houses; it has a concept of 'place' and translations of Hellenistic texts use the terms 'place', 'sign' and 'house' interchangeably, and uses a system where a house is always identified with an entire sign – if the Ascendant of a chart were 27 degrees of Leo, for example, the entire sign of Leo would be the first house, the entire sign of Virgo the second house and so on. There was a concept of house strength – a planet in the first, fourth, seventh and tenth houses were considered strong, those in the second, fifth, eighth and eleventh houses average, and those in the third, sixth,

³⁸ Ibn Ezra, *Book of Nativities*, pp.36-7

³⁹ al-Biruni, *Book of Instruction*, p.23

ninth and twelfth houses weak in action, but although Vettius Valens gives a list of ‘places’,⁴⁰ that correspond quite closely to al-Qabisi’s,⁴¹ other Hellenistic texts overlook them. Ptolemy, for instance, doesn’t refer to houses when talking about brothers but suggests looking to the place of the children of the mother, which he says is ‘that which contains by day Venus and by night the Moon; for in this sign and that which succeeds it is the place of the children of the mother’,⁴² making no reference to the third house or sign at all. The Hellenistic texts do not focus on relating signs to elements, either; Vettius Valens is the only author to state this explicitly in his brief section entitled ‘Triangles’⁴³ but seems to make no further use of it, while the elements are not mentioned by Ptolemy at all.

The development of fully-fledged methods for dividing the zodiac circle into twelve unequal houses is an additional modification. A body in the sky, the Sun for example, has four significant places; it rises above the horizon at a certain point in the sky, which can be mapped to a sign and a degree; it reaches its highest point, where it said to ‘culminate’ (in the case of the Sun, this is noon), which again can be mapped to a sign and degree – this culmination point is referred to as the mid-heaven; it sets; and at midnight (in the case of the Sun) it is at its lowest point below the earth. Analogously, for any astrological chart, which represents a particular moment in time, some part of the zodiac belt will be rising; this is called the Ascendant. Some other part of the zodiac belt will be culminating; this is the mid-heaven, often called the ‘MC’ by astrologers (*medium coeli*). The point opposite the Ascendant is the part of the zodiac belt setting, and is called the Descendant, and the point opposite the MC is the *Imum Coeli*, or IC. The mid-heaven was considered important in

⁴⁰ Valens, *Anthologiae*, IV.12, p.170 uses the Greek term τόπων genitive of τόπος, ‘place’ or ‘region’

⁴¹ Dykes, *Introductions*, p.71

⁴² Ptolemy, *Tetrabiblos*, III.5, pp.251-3

⁴³ Valens, *Anthologiae*, II.1, p.54

Hellenistic astrology – in his examination of forecasting the fate of a country, Ptolemy says it is necessary to ‘ascertain which of the cities, either from their horoscope [Ascendant] at the time of their founding and the position of the luminaries at the time, or from the mid-heaven of the nativity of their then rulers’.⁴⁴

The importance of these four key points, or ‘angles’, gives rise to the doctrine that the first, fourth, seventh and tenth houses are in some sense stronger than other houses. However, this presents a problem – for the mid-heaven does not necessarily coincide with the tenth house, especially at higher latitudes. In the later house systems of Arabic astrology, the cusp of the tenth house is always the mid-heaven, and the cusp of the first house is always the Ascendant. Such house systems are known as ‘quadrant’ house systems as they divide the chart into four quadrants, delimited by the four key points of the Ascendant, IC, Descendant and MC. Each quadrant is then divided into three houses, and the method of this further subdivision varies according to house system; the simplest is to divide the number of degrees in each quadrant into three, and this method was indeed known to Hellenistic astrologers as Vettius Valens describes it in detail, concluding mysteriously that ‘Orion expounded all this in his book.’⁴⁵ This method, now known as the ‘Porphyry’ method of house division named after the third century philosopher Porphyry of Tyre, despite that fact that Valens describes the method a century before, is the simplest method of house division; more sophisticated methods divide each quadrant into three based on various ways of calculating how long the Ascendant takes to rise, one of which is attributed to al-Qabisi and generally known in the West as the ‘Alcabitius’ system, and was widely used in Arabic astrology.

⁴⁴ Ptolemy, *Tetrabiblos*, II.5, pp163-5.

⁴⁵ Valens, *Anthologiae*, III.2, p.128

The use of house systems where the degrees of the house cusp became important also led to a different approach to aspects. Ptolemy describes the relationships that zodiac signs make to each other by considering signs opposite each other and calls this aspect an ‘opposition’; signs 120 degrees apart, which he calls a ‘trine’; 90 degrees, a ‘quartile’ or ‘square’; and 60 degrees, a ‘sextile’.⁴⁶ In practice, however, aspects tend to be used in connection with planets, not signs – for instance, the if planet that rules the sign in which the Ascendant lies is trine to another planet, that is considered a beneficial aspect and the planets are potentially helping each other. The problem arises that planets do not occupy an entire thirty degree segment of the zodiac, which is what a sign is – they occupy a point. Generally speaking, in Hellenistic astrology, a planet in, say, Scorpio was considered to be trine to any planet in Pisces or Cancer regardless of degree position. However, Vettius Valens recognised that this could cause a problem; he gives an example of this in describing when someone is going to die, based on the rule that the native will die when Saturn forms a square aspect to the planet that represents the native. In his example, ‘Mars was in Taurus 27°. The native will die when Saturn is in Virgo, because it was square, as calculated by degrees.’⁴⁷ In this example, the sign of Virgo trines, not squares, the sign of Taurus – but 27 degrees of Taurus is only 93 degrees away from the start of Virgo, so when Saturn enters Virgo it will be closer to a square than a trine. By the time of Arabic astrology, aspects were between planets, not signs, and each planet had an ‘orb’ associated with it, which represented the amount of tolerance allowed in calculating whether two planets were in aspect, as Abu Ma’shar describes: ‘the Sun has 15° of his power in front of himself and the same amount behind himself... Venus and Mercury: 7° in front and the same amount behind’.⁴⁸ Thus if Mercury were at 16 degrees of Pisces, any planet between 9 degrees and 23 degrees of Cancer would be trine Mercury, but a planet at 2 degrees or 26 degrees of Cancer would not.

⁴⁶ Ptolemy, *Tetrabiblos*, I.13, p.73

⁴⁷ Valens, *Anthologiae*, III.6, p.135 quote from English translation Valens, trans. Riley, *Anthologiae* p.63

⁴⁸ Dykes, *Introductions*, p.90

Planetary strength and relationships

In both Hellenistic and Arabic astrology, the planets were seen as active forces in the chart. Planets had characteristics of their own – Mars was destructive, Jupiter active and generous – and Hellenistic and Arabic astrology used various techniques to determine which planets were the most powerful in a particular astrological chart, and ‘to determine the quality of the prediction, we must consider the natures of the ruling planets themselves’.⁴⁹ As well as having essential natures of its own, a planet would be weak or strong in a chart according to where it was placed. Jupiter will be stronger in Pisces, a sign that it rules, than in Capricorn, where it is in its ‘fall’; Jupiter is always seen as wanting to bestow generosity, but is more easily able to do so in a strong position.

The two key concepts in both Hellenistic and Arabic astrology are planetary strength, and how the planets relate to each other in a chart.⁵⁰ The concepts behind planetary strength are similar in both Hellenistic and Arabic astrology, but the Arabic methods of determining planetary strength were more formulaic. Planetary strength is determined by the place the planet is in in the astrological chart, and there are five key measures: rulership, exaltation, triplicity, term and face. The Sun and Moon rule Leo and Cancer respectively and the remaining five planets rule two signs each, for instance Jupiter rules Sagittarius and Pisces. Each planet is exalted in a particular sign – for instance, Jupiter is exalted in Cancer. Each element has planetary rulers, and these are known as triplicity rulers. The Hellenistic sources vary in what these are – Ptolemy has a single ruler for each element, according to whether the chart is a diurnal or nocturnal chart (for instance, Jupiter rules all fire signs at night⁵¹), while

⁴⁹ Ptolemy, *Tetrabiblos*, III.3, p.239

⁵⁰ The term ‘planet’ includes the Sun and Moon, which are not planets in the modern sense of the word

⁵¹ Ptolemy, *Tetrabiblos*, I.18, p.83

Dorotheus has a system whereby each element has three rulers in descending order of importance (fire signs in a nocturnal chart have Jupiter, then the Sun, then Saturn as rulers, while in a day chart the rulers are the Sun, then Jupiter, then Saturn).⁵² The Arabic authors adopted the three-planet system of Dorotheus, although al-Biruni says that ‘Hashwiyite astrologers associate all three planets at the same time with each triplicity’⁵³ implying no order of precedence. Terms (also called bounds) are based on a division of each sign into five unequal sections with each section assigned to one of the five planets excluding the Sun and Moon, and this technique is attributed to the Egyptians, although Ptolemy considers their system to be illogical and so devised his own variant.⁵⁴ Arabic authors are aware of both – al-Biruni lists both systems⁵⁵ but the Egyptian terms seem to be the more popular, with both al-Qabisi and Abu’Mashar using them.⁵⁶ Faces, also called decans, are a ten-degree segment of a sign, each assigned to a particular planet. Ptolemy does not mention them at all, although Vettius Valens does refer to decans, briefly, at various points in his text.

Arabic authors measured the strength of planets in the chart using a points system, which had variations, to calculate an *almuten* or *mubtazz*, the strongest planet. Scoring systems varied, but typically a planet scored five points for being in the sign it ruled, four for being exalted, three for being its own triplicity ruler, two for being a term ruler and one for being face ruler.⁵⁷ To give an example, assume that Jupiter is at 29 degrees of Pisces and Saturn is at 5 degrees of Libra in a daytime chart. Pisces is ruled by Jupiter, exalted by Venus, is a water sign so is ruled by Venus and the Moon by triplicity in a diurnal chart; the last two degrees of Pisces are in the terms of Saturn, and the final ten degrees have Mars as face ruler. Thus

⁵² Dorotheus, *Carmen*, Book I, p.15

⁵³ al-Biruni, *Book of Instruction*, 445

⁵⁴ Ptolemy, *Tetrabiblos*, I.20

⁵⁵ al-Biruni, *Book of Instruction*, 453

⁵⁶ Dykes, *Introductions*, p.333

⁵⁷ al-Biruni, *Book of Instruction*, pp.493-4 for example.

Jupiter gets five points for being in a sign it rules. Libra is ruled by Venus and exalted by Saturn. It is an air sign so is ruled by Saturn and Jupiter by triplicity in a diurnal chart; the first six degrees of Libra are in the terms of Saturn, and the first ten degrees have the Moon as face ruler. In the same way, Saturn gets four points for being in a sign in which it is exalted, three for being a triplicity ruler, and two for being in its own terms – so Saturn scores nine points, making it stronger than Jupiter in the chart. Scoring systems could be much more complicated than this – al-Kindi, for example, would calculate different *almutens* depending on the type of question being asked of a chart; when asking a question about travel he would take the position of the Sun, the Moon, the planet ruling the Ascendant, and the planet ruling the Lot of Fortune (a calculated point in the chart), perform the calculation for each of these places and add up all the points for each planet to determine which planet was the key one in a question of travel.⁵⁸ Planets were also considered essentially diurnal (the Sun, Jupiter and Saturn), nocturnal (the Moon, Venus and Mars) or either (Mercury), and if a diurnal planet were above the horizon in a daytime chart it was said to be in its own ‘sect’ in a condition described but not specifically named by Vettius Valens⁵⁹ but which the Arabic authors called *halb*. Signs and planets were also seen as male and female, and if a male planet were in a male sign, and was also *halb*, it was considered to be in a strong state known as *hayyiz*.⁶⁰

The other key concept in Arabic astrology, which is not identical to Hellenistic astrology but does derive from it, is the concept of ‘reception’. Hellenistic astrology has the concept of aspects, and Dorotheus delineates the meaning of one planet being in another planet’s domain.⁶¹ However, this concept of planets relating to each other by aspect becomes more

⁵⁸ Dykes, *Forty Chapters*, 8.1, p.142

⁵⁹ Valens, *Anthologiae*, III.5, p.133

⁶⁰ al-Biruni, *Book of Instruction*, 496

⁶¹ Dorotheus, *Carmen*, Book 2 p.89

sophisticated by the Arabic period, where a planet arriving in another's domain is 'received' by the other planet, in the manner of a host receiving a guest. The hospitality thus shown by the receiving planet enhances the planet being received, even when the planets are inherently 'malefic' as in the case of Mars and Saturn – Abu Ma'shar is explicit about this, writing 'the benefic planets with benefics increase the good. And the malefics with malefics come to be good... and the benefics with malefics make an agreement, and their evil recedes'.⁶² Dykes, writing in the introduction to *Works of Sahl and Masha'allah*, suggests that this change of notion may have had a religious root, whereby the old Hellenistic model of planets 'testifying' to each other now provide information about God's handiwork to the astrologer: 'The planets should not be witnessing and testifying to each other, but if anything, they should be testifying to us about God.'⁶³

Mundane astrology

Mundane astrology deals with the astrology of countries and events and is the main topic of Book Two of Ptolemy's *Tetrabiblos*. The basic techniques are the same in Arabic astrology as in Ptolemy – to make a prediction for a particular year, take the lunation (a Full Moon or New Moon) immediately preceding the spring equinox (when the Sun moves into Aries), and cast a chart for that moment. Different planets and signs represent different countries, and if the lunation also happened to be an eclipse, the area affected by the eclipse is also taken into account. The differences in Arabic astrology are that a rather different set of correspondences between countries and signs and planets are used, there is a bigger emphasis on war, and the system of compass directions differs, as explained in the table in the Appendix.

⁶² Dykes, *Sahl and Masha'allah*, p.442 relating to Ch. 1 of Masha'allah's *On Reception*

⁶³ Dykes, *Sahl and Masha'allah*, p.xxvi

Two other key areas are on the use of conjunctions of Saturn and Jupiter to mark out epochs, and the use of lots. Jupiter and Saturn conjoin approximately every twenty years, and each subsequent conjunction is normally in the same element as the previous one. However, every 240 years, the element changes, and every 960 years it makes a complete circuit having conjoined in all four elements. These periods of 240 and 960 years were thought to coincide with changes of dynasty and religion, and are described in detail in Abu Ma'shar's *The Book of Religions and Dynasties (On the Great Conjunctions)*⁶⁴. Although Abu Ma'shar wrote in Arabic and worked in Baghdad, he was a Persian and this technique is credited to the Persians and is not considered a specifically Arabic technique.

Lots are a technique where the distance between two planets in a chart is projected onto the Ascendant. The resulting location is treated as a sensitive point in the chart. These lots are often called 'Arabic Parts', but the technique itself is Hellenistic – Ptolemy uses the Lot of Fortune⁶⁵, and Vettius Valens uses several lots, including the Lot of Debt and Lot of Theft.⁶⁶ By the time of al-Qabisi and Abu'Mashar, more lots were in use (some which al-Qabisi credits 'to the Persians'⁶⁷) and al-Biruni bemoans the 'excessive number of methods' and claims that 'it is impossible to enumerate the lots which have been invented for the solution of horary questions... they increase in number every day'.⁶⁸ An example of this includes the lot of watermelons, derived from a calculation involving Jupiter and Mercury. This would be used to determine the outcome of the year's crop by casting a chart for the date when the Sun moves into Aries, or the New Moon immediately preceding that date, calculating the lot of

⁶⁴ Abu Ma'shar, *Book of Religions*

⁶⁵ Ptolemy, *Tetrabiblos*, III.10

⁶⁶ Valens, *Anthologiae*, II.24, p.86

⁶⁷ See for example Dykes, *Introductions*, p.301

⁶⁸ al-Biruni, *Book of Instruction*, 476

watermelons (or whatever crop was being considered) and seeing what sign and degree it was in and which planets were strong at that part of the zodiac.

CONCLUSION

The techniques of the Arabic astrologers clearly drew on earlier sources, since the Arabic authors themselves credited these sources and referred to them either generically, such as al-Biruni's frequent references to techniques 'according to the Hindus', or by name. The question I wanted to address in this paper is what innovations the Arab authors made themselves to the field of astrology.

In terms of actual techniques, on which I have focused, there do appear to be a few broad categories, although it can be difficult to unpick techniques that appear to be Arabic innovations but may have had Persian analogues, since astrologers such as Sahl and Masha'allah were Persian Jews working at a time when Persian ideas were still filtering through into the newly established centres of Arabic learning in Baghdad.⁶⁹ Other ideas attributed to the Arabs may have had Indian equivalents, since although Abu Ma'shar was working in Baghdad, he spent his early years in Balkh, which had close contacts with India.⁷⁰ In addition, not all Hellenistic texts have been translated yet, and some techniques that are considered Arabic may turn out to have Hellenistic provenance – a tentative example of this is given regarding the technique of 'cazimi', described in the Appendix.

Despite this, several broad categories where Arabic authors have developed new concepts or at least built on existing techniques do seem to stand out, and this telling comment by al-Biruni, where he describes a technique relating to dividing signs into twelve segments, clearly defined in Hellenistic astrology and Indian astrology and which had not changed under the

⁶⁹ Dykes, *Sahl and Masha'allah*, p.vii

⁷⁰ Abu Ma'shar, *Book of Religions*, p.xiii

Arabs, suggests that Arabic authors were indeed happy to innovate rather than just copy (the italics are mine):

This is the division as to which the Greeks and the Hindus are in agreement, *but I have always been surprised that my friends have not altered it* according to the succession of signs or some other scheme. For if you proceed according to such a method, you do not commit other absurdities to mention which this is not the place.⁷¹

The broad techniques that appear to have been used in Arabic astrology and where innovations are most obvious are the development of the Persian idea of conjunctions of Saturn and Jupiter to delineate major world developments; the use of numerous ‘lots’ to define sensitive points on the charts to use for predictions ranging from questions about lost or stolen property⁷² to annual predictions about good years for growing chick peas and watermelons,⁷³ which demonstrate practical uses for astrologers implying these techniques were used on a day to day basis and were not merely theoretical philosophical exercises.

The other focus is the requirement for monotheism in Islam and Judaism (many of the astrologers working in the Islamic world were Jewish; this paper includes three of them, ibn Ezra, Masha’allah and Sahl). Ibn Ezra makes this explicit in the introduction to *The Beginning of Wisdom* when he says ‘The beginning of wisdom is the fear of the Lord... the fear of the Lord protects him from the decrees of the heavenly bodies and from their sway as long as he lives.’⁷⁴ In the section on Techniques, I have shown how Dykes maintains another major shift – that to using reception as an enhancement of Hellenistic aspects and testimonies – may have come about as a requirement that planets should only be testifying to God, and not to each

⁷¹ al-Biruni, *Book of Instruction*, 456

⁷² See for instance chapter 6 ‘On Theft’, Dykes, *Forty Chapters*, pp.107-129

⁷³ al-Biruni, *Book of Instruction*, 476

⁷⁴ ibn Ezra, *Beginning of Wisdom*, p.7

other. This religious nervousness of straying into the polytheistic roots from which astrology derived is shown in Abu Ma'shar's signing-off of many of the chapters of his *Book of Religions and Dynasties* 'with the help of God'⁷⁵ and is also echoed by al-Biruni where, after describing four types of astrology, warns:

Beyond these there is a fifth division where such origins are entirely unknown. Here astrology reaches a point which threatens to transgress its proper limits, where problems are submitted which it is impossible to solve for the most part, and where the matter leaves the solid basis of universals for one of particulars. When this boundary is passed, where the astrologer is on one side and the sorcerer on the other, you enter a field of omens and divinations which has nothing to do with astrology although the stars may be referred to in connection with them.⁷⁶

⁷⁵ For instance, the end of Chapter 1, Abu Ma'shar, *Book of Religions*, p.29

⁷⁶ al-Biruni, *Book of Instruction*, 515

APPENDIX

This Appendix expands on the categories of Arabic innovations outlined in the Techniques section, with comments, references, and minor techniques not covered there. Abbreviations used in these tables:

- Abbr.* *The Abbreviation of the Introduction to Astrology* (Abu Ma'shar), page number refers to the Dykes *Introductions*⁷⁷
- Anth.* *Anthologiae*. References are as in Pingree's Greek edition⁷⁸
- Ast.* *Astronomica*⁷⁹
- BW* *The Beginning of Wisdom*⁸⁰
- CA* *Carmen Astrologicum*⁸¹
- El.* *The Book of Instruction in the Elements of the Art of Astrology*⁸², numbers are paragraph numbers within that book.
- FC* *The Forty Chapters of al-Kindi*⁸³
- GI* *Great Introduction to the Science of the Stars* (Abu Ma'shar), page number refers to the Dykes *Introductions*
- Int.* *Introduction to the Science of Astrology* (al-Qabisi), page number refers to the Dykes *Introductions*
- LH* *Liber Hermetis*⁸⁴
- Nat.* *The Book of Nativities and Revolutions*⁸⁵
- Rec.* *On Reception* (Masha'allah), page number refers to the Dykes *Works of Sahl and Masha'allah*⁸⁶
- Rev.* *Revolutions of the years of the world* (Masha'allah), page number refers to the Dykes *Works of Sahl and Masha'allah*⁸⁷
- Tet.* *Tetrabiblos*⁸⁸

⁷⁷ Dykes, *Introductions*

⁷⁸ Valens, *Anthologiae*

⁷⁹ Manilius, *Astronomica*

⁸⁰ ibn Ezra, *Beginning of Wisdom*

⁸¹ Dorotheus, *Carmen*

⁸² al-Biruni, *Book of Instruction*

⁸³ Dykes, *Forty Chapters*

⁸⁴ Hermes, *Liber Hermetis*

⁸⁵ ibn Ezra, *Book of Nativities*

⁸⁶ Dykes, *Sahl and Masha'allah*

⁸⁷ Dykes, *Sahl and Masha'allah*

The building blocks – signs, elements, houses and aspects

Topic	Arabic author	Reference	Notes and comparison with Hellenistic sources
Dark and Anxious signs	al-Biruni	<i>El.356</i>	Single sentence not found in Hellenistic sources: ‘Leo, Scorpius and Capricorn are dark and anxious, and there is a suspicion of trouble in Virgo and Libra’.
Elements and compass points	Masha’allah al-Biruni	<i>Rev.2, p.326</i> <i>El.357-8</i>	Each triplicity (element) is related to a compass point and winds by Masha’allah: fire is east, earth south, air west and water north. Al-Biruni modifies this by still making fire, for example, east but giving Aries due east, Leo just north of east and Sagittarius just south of east. Ptolemy also links triplicities to winds in <i>Tet. I.18</i> but based on the natures of planets relating to the triplicities, so the Aries/Leo/Sag triplicity is mainly northern with a smaller mixture of south-west: totally different from the Arabic sources.
Correspondences of signs	al-Biruni	<i>El.362-369</i>	Numerous correspondences relating signs to colours, occupations, types of place, trees, crops, jewels and furniture. Some are obvious, for instance Taurus relating to cow sheds, but it also relates to mountainous places and orchards. No equivalent Hellenistic list.
Sickness and disease	al-Biruni	<i>El.370</i>	Relates signs to illnesses. The method is not Galenic (Aries is given as phlegmatic, for instance, whereas Galen linked fire to choleric). Valens gives a list with some items in common in <i>Anth. II.36, p.103</i> .
Conjunction as an aspect	al-Biruni	<i>El.373</i>	The same as Ptolemy’s aspects in <i>Tet.I.13</i> except that conjunction is mentioned specifically as an aspect (it is not mentioned in Ptolemy).
Description of triplicities	al-Biruni	<i>El.379</i>	Descriptions of each element and sign, for instance earth signs are generous with their wealth, with Taurus relating to unsown pastureland, Virgo for plants with no berries or seeds and large trees, and Capricorn for sown crops and big trees. No equivalent Hellenistic source

⁸⁸ Ptolemy, *Tetrabiblos*

			found.
Correspondences of planets	al-Biruni	<i>El.</i> 409-423	Numerous correspondences with no Hellenistic equivalent.
Male and female degrees	al-Biruni	<i>El.</i> 457	al-Biruni mentions that ‘many controversies exist as to the sex of the various degrees of the signs’, and gives various examples – some based on a logical order, and others based on a seemingly random mapping. There is a similar concept in Hellenistic astrology, described in <i>LH</i> 2 where the first two degrees of male signs are male, the next two female and so on, and <i>vice versa</i> for female signs. The fact that the more complex method is an Arabic innovation is suggested by the editor’s comment that ‘this is a much simpler system than the ones found in later works of the Arabs’.
Luminous and dark signs	al-Biruni Abu Ma’shar al-Qabisi	<i>El.</i> 458 <i>GI</i> V.20.1104-07, p.340 <i>Int.</i> I.50, p.340	Various degrees of each sign are seen as brilliant, luminous, dusky and shadowy, but the table given by al-Biruni and those given by al-Qabisi and Abu Ma’shar all differ. Al-Biruni says ‘But no two books are to be found which agree on this matter, nor are they likely to be found’. Something very similar is found in <i>LH</i> 25, p.31, and <i>Ast.</i> 4.408 with the reminder to look at individual degrees, ‘sed proprias partes ipsas spectare memento vel glacie rigidas vel quas exusserit ignis’.
Aspects and Orbs	Abu Ma’shar	<i>Abbr.</i> II.11-12, p.90	See argument above about aspects and orbs, with most Hellenistic authors tending to use sign aspects rather than by degree. Valens gives an example, quoted above in full. There are hints of it in <i>Ast.</i> 2.297-318 too, when giving an example of an aspect that breaks down when counting by degree rather than sign: ‘hanc autem numeri non reddit linea summam, si signum signo, non pars a parte notetur’.
Diurnal and nocturnal signs	al-Biruni	<i>El.</i> 349	Al-Biruni claims that male signs are diurnal and female nocturnal, but that according to some ‘Aries, Cancer, Leo and Sagittarius are day sign, their nadirs are night ones, while the remainder partake both of day and night. The Hindus believe that Aries, Taurus, Gemini, Cancer, Sagittarius and

			Capricorn are powerful at night, the six others by day'. The apparent Hindu convention, though, is used by Manilius too in <i>Ast.</i> 2.200: 'The signs of the Archer and the fierce Lion, he who looks round on the golden fleece of his back [Aries], then the Fishes and Crab and the Scorpion of stinging lash, signs either adjacent or spaced at equal intervals, are all under like estate termed diurnal'.
Houses	al-Biruni	<i>El.</i> 461-474	See discussion above about house systems. As mentioned, we do see quadrant systems in <i>Anth.</i> III.2, p.128 but the main Hellenistic system was whole-sign houses.

Planetary strength and relationships

Topic	Arabic author	Reference	Notes and comparison with Hellenistic sources
Planetary strength	al-Biruni	<i>El.</i> 494-5	Gives the standard method of calculating strength, and some alternatives that he attributes to astrologers of Babylon and Persia.
Hayyiz and Halb	al-Biruni	<i>El.</i> 496	See discussion above – Hellenistic sources refer to sect, as in <i>Anth.</i> III.5, p.133 but this extends the idea.
Reception	Masha'allah	<i>Rec.</i>	See discussion above – the idea of reception is a rich and complex one in Arabic astrology, which goes beyond the simple idea of one planet in another's realm as in <i>CA</i> II p.89.
Friendship and enmity	al-Biruni	<i>El.</i> 447	Gives various examples of planets that are friendly and hostile to each other, and contrasts the system of 'the astrologers of our day' with those of 'the Hindus'.
Triplicity rulers	al-Biruni	<i>El.</i> 445	Same as Dorotheus' explanation in <i>CA</i> Bk 1, p.16, but with a note that Hashwiyite astrologers treat all three rules as equal. He also states in <i>El.</i> 494 that whereas the astrologers of Babylon and Persia gave great importance to face and favoured terms of triplicities, 'among the astrologers of the present day, the triplicity is regarded as having precedence over term and face, and indeed the latter is often considered of no account'.
Cazimi	al-Biruni al-Qabisi	<i>El.</i> 481 <i>Int.</i> III.7, p.95	Generally, when a planet is close to the Sun it is 'combust' or 'under the beams' and is weakened (for instance <i>CA</i> Bk 1, p.19). Visually this makes sense, since the planet would be invisible. However, if the planet is within 16 minutes in both latitude and longitude of the Sun, a condition that al-Biruni calls cazimi, and al-Qabisi calls 'united' or 'in the heart of the Sun', it becomes 'like one sitting with the king in the same seat'. This may seem a strange figure, but the disc of the Sun occupies about 16' in the sky and when Mercury or Venus are within this 16' limit and passing across the disc of the Sun, they are briefly visible (such as the transit of Venus that occurred in 2004

			and 2012). I had not seen any non-Arabic references to this condition, but I did find a post on a forum suggesting this may have Hellenistic routes, with a quote from Serapion claiming that ‘Mercury especially rejoices when synodical, and becomes active’ ⁸⁹
House of gloom	ibn Ezra	Nat. p.69	Planets are said to rejoice in various houses (see Ast. 2.788-967), for instance Mars has its joy in the sixth house, but ibn Ezra uses an example of Mars in the twelfth house as being in its ‘house of gloom’ as it is opposite its house of joy.
Colours	ibn Ezra	Nat. p.85	This short passage describes how to work out the best colour for a garment to be worn by the ‘native’ (person for whom the chart is cast), by calculating an almuten based on the ‘five places of life’ (Sun, Moon, Ascendant, MC and Lot of Fortune). This is a standard Arabic method of using the almuten, but has the following addition: ‘and if it is in conjunction or an aspect with a planet superior to it, that superior planet which receives the power will be the ruler of the nativity’. In other words, you find the strongest planet in the usual manner, and use that planet to determine what colour garment to wear – but if that planet aspects a superior planet (one further out from the Sun), then take that planet into account too.

⁸⁹ Post by a Romanian researcher, ‘sacha_i’ at <http://www.skyscript.co.uk/forums/viewtopic.php?p=38790&highlight=&sid=cdd0d82a10d748b365a4eee757020441> [accessed 20 January 2013] referencing Serapion Astrol., Fragmenta (Boudreaux). Vol. 8.4, p.230 line 22, ‘μάλιστα δὲ ὁ Ἑρμῆς χαίρει συνοδικὸς ὢν καὶ ἐνεργῆς γίνεται’

Mundane Astrology

Topic	Arabic author	Reference	Notes and comparison with Hellenistic sources
Cities and countries	al-Biruni	<i>El.</i> 365	Relates signs to cities and countries. Some similarities to <i>Anth.</i> I.2, p5 but very few similarities to the list in <i>Tet.</i> II.3
Years of Planets	al-Biruni	<i>El.</i> 394	Ptolemy lists the same years of planets, used to calculate length of life, in <i>Tet.</i> III.10, with each planet having least, mean and greater years. Al-Biruni gives an extra category, greatest years, 'used for marking time cycles, although some people say that in ancient days the planets granted each long years of life'.
Religions	al-Biruni	<i>El.</i> 433-4	Assigns each planet to a religion, such as Saturn for Judaism, Venus to Islam. No Hellenistic equivalent.
Lots	al-Qabisi Abu Ma'shar al-Biruni	<i>Int.</i> V <i>GI</i> VIII 476-478	See discussion above; lot of fortune used by Ptolemy in <i>Tet.</i> III.10 and Vettius Valens in <i>Anth.</i> II.24, p.86

BIBLIOGRAPHY

- Abu Ma'shar, Yamamoto, K., and Burnett, C., *Abu Ma'shar on Historical Astrology: The Book of Religions and Dynasties (on the Great Conjunctions)*. trans. Yamamoto, K. and Burnett, C. (Leiden, 2000)
- Al-Biruni, *The Book of Instruction in the Elements of the Art of Astrology*, Wright, R.R. (ed.) (London, 1934).
- Bonatti, G., *Book of Astronomy*. trans. Dykes, B.N. (Golden Valley, Minnesota, 2007)
- Brennan, C. 'The Katarche of Horary', *Geocosmic Journal*, Summer 2007, pp.23-34
- Campion, N., *The Dawn of Astrology Volume I - the Ancient and Classical Worlds* (London, 2008)
- Campion, N., *A History of Western Astrology Volume II - the Medieval and Modern Worlds* (London, 2009)
- Campion, N., *An Introduction to the History of Astrology* (London, 1982)
- Chaucer, G., 'The Canterbury Tales' in *The Complete Works of Geoffrey Chaucer*, Skeat, W.W. (ed.) (Oxford, 2nd ed., 1900)
- Dorotheus of Sidon, *Carmen Astrologicum*, trans. Pingree, D. (London, 1993)
- Duhem, P., *History of Physics before Einstein* (New York, 1913)
- Dykes, B.N., *The Forty Chapters of Al-Kindi* (Minneapolis, 2011)
- Dykes, B.N., *Introductions to Traditional Astrology: Abu Ma'shar and Al-Qabisi* (Minneapolis, 2010)
- Dykes, B.N., *Works of Sahl and Masha'allah* (Golden Valley, Minnesota, 2008)
- Grant, E., *A Source Book in Medieval Science* (Cambridge, Mass., 1974, 2008)
- Hermes Trismegistus, *Liber Hermetis*, Hand, R. (ed.). trans. Zoller, R. (Salisbury, Queensland, 1998)
- ibn Ezra, A., *The Beginning of Wisdom* (London, 1939, 2001)
- ibn Ezra, A., *The Book of Nativities and Revolutions*. trans. Epstein, M.B. (Reston, VA, 2008)
- Manilius, M., *Astronomica*, Goold, G.P. (ed.) (Cambridge, Mass., London, 1977)
- Mitchell, Chris, 'The Transmission of Astrological and Astronomical Ideas from the Islamic World into Europe', March 2012

Oxford English Dictionary Online (Oxford, 2012)

Ptolemy, C., *Tetrabiblos*, Robbins, F.E. (ed.). trans. Robbins, F.E. (Cambridge, MA, 1940, 2001)

Vettius Valens, *Anthologies*, trans. Riley, M. (2010)

Vettius Valens, *Anthologiae* trans. Pingree, D. (Leipzig, 1986)